



# A GLOBAL FORCE FOR GOOD

SEA SERVICES HUMANITARIAN OPERATIONS  
IN THE TWENTY-FIRST CENTURY

JOHN DARRELL SHERWOOD



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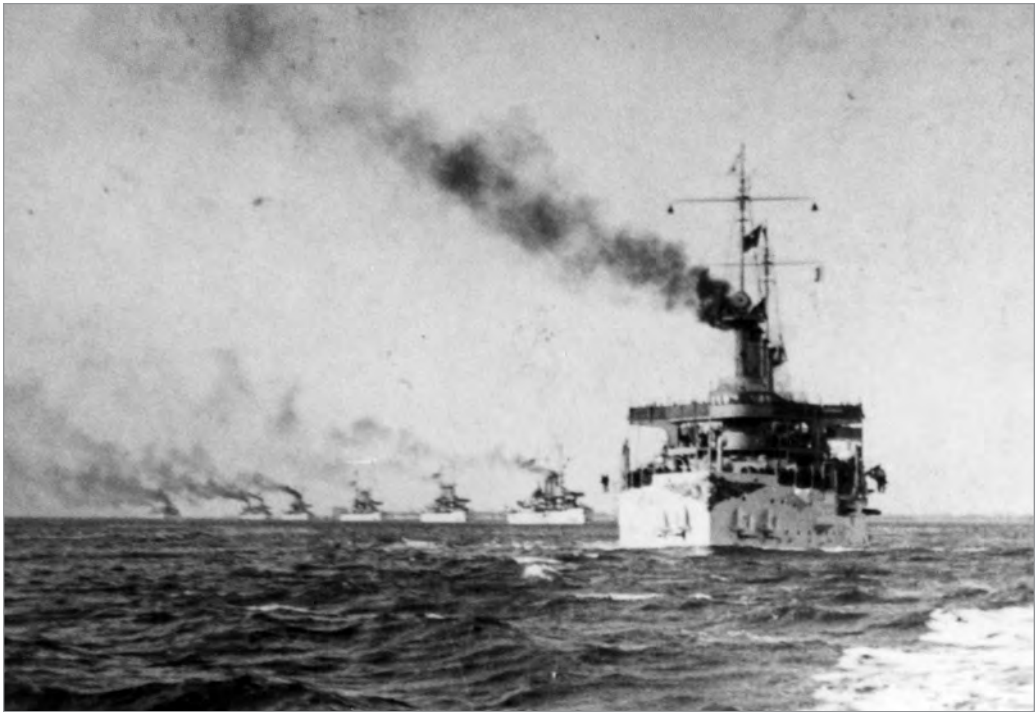
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## INTRODUCTION

On 28 December 1908, a magnitude 7.1 earthquake struck the Strait of Messina. The earthquake leveled the Sicilian city of Messina, destroying over 90 percent of its buildings and killing over 75,000 people. Ten minutes later, a 12-meter tsunami struck the coasts on both sides of the strait, killing an additional 2,000 people. It was the most destructive earthquake in terms of casualties to strike Europe in modern history.<sup>1</sup> That same day, a fleet of 16 U.S. battleships and accompanying escorts, known as the Great White Fleet, was coaling in Port Said, Egypt, after transiting the Suez Canal. It was preparing to make various European ports of call before completing its historic cruise around the world. After hearing of the tragedy, Rear Admiral Charles S. Sperry, the fleet's commander, dispatched his Second Division to Italy to render assistance. The battleships *Connecticut* (BB-18) and *Illinois* (BB-7) and three support ships arrived in Italy on 10 January 1909. They soon began delivering supplies to towns on both coasts and sending parties of sailors ashore to rebuild structures, clear rubble, and render other assistance as needed. A group of over 200 sailors from *Illinois* excavated the bodies of the U.S. consul and his wife from the remains of the U.S. Consulate in Messina. Cumulatively, the efforts of the U.S. Navy during the 10-day operation saved thousands of Italian lives and created a well-spring of goodwill between the Navy and the Italian people that extends to the present day. King Victor Emmanuel met with Sperry in Rome to thank him for the American assistance, and the Marquis del Carretto, who was also the mayor of Naples, commended Sperry for the efforts of his fleet in relieving Italian suffering.<sup>2</sup>

The Great White Fleet's response to the 1908 Messina earthquake and tsunami was the first major U.S. Navy foreign disaster response operation. Since 1908, the Navy has participated in dozens of similar operations across the globe and at home. Natural disasters often occur with no warning and can cause large-scale destruction and death. Since 1900, 33 natural disasters have killed over 100,000 people each, with 12 of those events killing over one million people each. The most lethal natural disasters in recent history





The battleship *Connecticut* leading the Great White Fleet, c. December 1907. *Connecticut* and four other ships from this fleet assisted victims of the 1908 Messina earthquake. (Naval History and Heritage Command [NHHC], NH-92067)

were the 1931 Yangtze-Huai River floods in China, which killed over 3.7 million people, and the 1928 drought in China, which caused 3 million deaths. In the twenty-first century, two disasters alone have together claimed close to 400,000 lives: the 2004 earthquake and tsunami in Southeast Asia (165,000 deaths), and the 2010 earthquake in Haiti (220,000). All told, over 32 million people have perished in natural disasters since 1900.<sup>3</sup>

In terms of material losses, 33 natural disasters since 1900 have caused more than \$20 billion (in inflation adjusted 2020 dollars) in damages each, and five caused more than \$100 billion in damages. The three most expensive disasters in recorded history are Hurricane Katrina (\$165 billion), the 1995 Kobe earthquake in Japan (\$170 billion), and the Great East Japan Earthquake of 2011 (\$241 billion). With a few exceptions, disasters appear to be getting more expensive, especially in developed countries.<sup>4</sup>

No matter where a large-scale natural disaster occurs, it is inevitable that foreign governments and international organizations will request help from the U.S. armed forces. No matter how developed a country might be, there will always be a gap between the disaster response needs of an affected region and the local resources available to meet those needs after a major disaster event. Neither local communities nor international organizations and non-governmental organizations (NGOs) have the logistical means to rapidly deliver water, food, and emergency medicine to areas affected by a large-scale

natural disaster. The U.S. military (and in particular its air and sea services) is often the only entity capable of responding in a timely and meaningful way to these disasters. It is the only large-scale military force with significant disaster response capabilities forward deployed in most of the world's most disaster-prone regions and the only one with logistical means to deliver extensive amounts of aid nearly anywhere on the globe and operate for long periods of time in areas completely devoid of infrastructure. This is a central premise of the book.

The U.S. military's disaster response capabilities include but are not limited to the following:

- Airlift and air mobility (both fixed-wing aircraft and helicopters)
- Sealift
- Expeditionary capability (i.e., the ability to operate and sustain itself in austere environments with its own, self-contained logistics capability)
- Medical
- Construction and engineering
- Power and water generation
- Survey and salvage
- Large numbers of people with the skill sets required for humanitarian operations

Some of these capabilities can directly alleviate human suffering while others are enabling, meaning they can enable other entities to deliver relief. Examples of direct relief capability include helicopters delivering supplies and emergency medical aid to isolated regions. An enabling capability would be a naval construction team rebuilding a bridge or a Navy survey team inspecting a vital shipping channel for obstacles. Some naval capabilities can achieve both goals: Navy landing craft operating from amphibious warfare ships can directly deliver supplies to those in need or offload those same supplies pierside for local entities to deliver.

In 1992, delegates from 45 nations and 25 organizations met in Oslo under the auspices of the United Nations (UN) to develop a framework for international military and civil defense support for disaster relief. The resulting "Oslo Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief," published in 1992 and updated in 2005, affirmed that military assets represent a "unique capability" that can help fill the "humanitarian gap between disaster needs that the relief community is being asked to satisfy and the resources available to meet them."<sup>5</sup> The U.S. armed forces have more unique capabilities than any other military force. They are the only military with forward deployed forces in most major regions of the globe, and possess air and sea power with global reach. It is inevitable that the UN and other countries will continually request

its assistance in humanitarian responses. The U.S. military's significant size, global presence, and unique capabilities (especially in logistics) have made it a global 911 force by default. In an era of increased natural disasters due to the negative effects of climate change, the odds of the U.S. armed forces having to respond to a major natural disaster abroad or domestically in the near future are 100 percent.

Of all the services, the U.S. naval service (which includes the U.S. Navy, the U.S. Marine Corps, and the U.S. Coast Guard) is best equipped and situated to respond to natural disasters. Many of its ships are forward deployed in potential disaster regions such as the Ring of Fire in the Pacific, the earthquake-vulnerable regions of the Mediterranean, and littoral areas of the world subject to annual cyclones and hurricanes. Moreover, the Navy has bases in some of the most disaster-prone areas of the world, making it not only a convenient first responder but a potential victim as well. The following list includes some of these at-risk bases:

- Southeast U.S. bases stretching from Norfolk to Corpus Christi (including Guantanamo Bay, Cuba): high hurricane risk
- Guam: highly vulnerable to severe tropical storms and typhoons
- Washington State bases: risk of powerful earthquakes and to a lesser degree, volcanic eruptions
- Hawaii bases: tsunamis and volcanos
- Japan bases: high earthquake and tsunami risk. Elevated risk of volcanic action.
- Souda Bay, Greece: earthquakes
- Southern Italy bases: earthquakes, volcanos, and tsunamis

Most importantly, the Navy possesses a plethora of unique capabilities appropriate for disaster response. These include aircraft carriers, amphibious assault ships, large numbers of helicopters, sea bases, seaborne logistics ships, survey and salvage ships, and a robust naval construction force (including U.S. Marine combat engineers). Its ships carry sailors and marines with more occupational specialties than one can find in most medium cities across the United States—men and women able to fix or build anything, generate water or power, and offer the most advanced medical care in the world. The naval service also has a long tradition of operating overseas and engaging with foreign partners, either at sea during exercises or ashore during ports of call. Domestically, the sea services command great respect from the U.S. people and local governments. The Navy (as well as the Marine Corps) also have vast experience working with domestic disaster responders, including the Coast Guard, the National Guard, Customs and Border Protection, the U.S. Fish and Wildlife Service, and numerous other agencies.

In this book, three of the largest and most significant Navy humanitarian and disaster relief operations in recent history will be analyzed: Operation Unified Assistance (OUA),

the response to the 2004 Indonesian earthquake and tsunami; Hurricane Katrina (2005); and Operation Tomodachi (the response to the 2011 earthquake, tsunami, and nuclear disaster in Japan). In each case, what happened will be explained as well as how the Navy and the other sea services responded. It will examine both the Navy's successes and short-falls in each operation, and explain the broader impact of the mission—not only in terms of lives saved, infrastructure restored, follow-on crises mitigated, and other immediate effects, but also the larger political and geostrategic ramifications of these operations.

These humanitarian operations represent some of the Navy's biggest wins in recent history. They have had a greater strategic impact in the world than many of the Navy's recent combat operations. The Navy's actions in these three humanitarian operations:

- saved numerous lives and/or enabled other first responders to save lives;
- restored vital infrastructure so communities could begin the process of rebuilding;
- helped contain the consequences of the disasters and thereby prevented them from snowballing out of control and killing additional people (through disease, starvation, thirst, exposure, etc.);
- solidified old alliances and built new ones;
- showcased the Navy's strengths and unique capabilities and provided positive proof of the inherent value of the Navy to policymakers, citizens, and foreign governments alike;
- were the ultimate morale booster for sailors living at sea for long periods of time and performing very difficult jobs.

After OUA, the Navy capitalized on the impact of this and other humanitarian missions in a series of commercials that end with actor Keith David proclaiming in a rich, baritone voice-over: "America's Navy: A Global Force for Good." This book will explain and analyze the Navy's "goodness" and, in so doing, demonstrate that humanitarian operations should remain a significant mission for the service. They are inevitable, especially given the increasing impact of climate change, and can be accomplished without the need to acquire specialized equipment or train personnel in new occupational skills. Strategically, a well-executed, short-duration humanitarian operation can have a greater overall effect than a similar-sized major combat operation with little risk to ships or personnel. During the first decade of the 2000s, these operations were part of a U.S. policy of employing disaster relief as a soft-power tool to build and solidify relationships with allies and partners. These operations stand in distinct contrast to the military's hard power operations in Afghanistan, Iraq, and Libya during approximately the same period. Compared to those operations, the humanitarian missions yielded greater long-term strategic benefits at a fraction of the cost.

## **What is a Humanitarian Operation?**

The *DOD Dictionary of Military and Associated Terms* defines “foreign humanitarian assistance” as “assistance that can be used immediately to alleviate the suffering of foreign disaster victims that normally includes services and commodities, as well as the rescue and evacuation of victims; the provision and transportation of food, water, clothing, medicines, beds, bedding, and temporary shelter; the furnishing of medical equipment and medical and technical personnel; and making repairs to essential services.”<sup>6</sup>

The UN’s Oslo Guidelines provide a similar definition: “Humanitarian assistance [HA] is aid to an affected population that seeks, as its primary purpose, to save lives and alleviate suffering of a crisis-affected population.” The guidelines then break down HA into three categories:

- Direct Assistance is face-to-face distribution of goods and services.
- Indirect Assistance is at least one step removed from the population and involves such activities as transporting relief goods or relief personnel.
- Infrastructure Support involves providing general services, such as road repair, airspace management, and power generation that facilitate relief, but are not necessarily visible to or solely for the benefit of the affected population.<sup>7</sup>

It should be noted that the U.S. armed forces can provide all three categories of HA—often at the same time and in great capacity. This is again why foreign governments and international organization such as the UN will continue to request its help in the future in responding to major disasters.

Adam Siegel, a former analyst at the Center for Naval Analyses (CNA) who wrote numerous studies on U.S. Navy and Marine Corps humanitarian operations in the 1990s, also grouped these types of operations into categories. His categories reflected the types of humanitarian missions that the U.S. Marine Corps and Navy performed in the late twentieth century: disaster response, rescues at sea, refugee assistance, emergency medical assistance, and nation-building activities (construction assistance, food donations, and medical assistance to developing regions—e.g., civic action programs).<sup>8</sup> This study will focus only on the largest-scale humanitarian missions in Siegel’s rubric—the disaster response category. On occasion, I will refer to these missions as humanitarian assistance and disaster relief operations (HADR). My focus will be both on domestic and foreign HADR. However, I will refrain from labeling them as “military operations other than war” (MOOTW), “crisis response activities” (CRAs), “peacetime contingency operations,” (PCOs), or “stability, security, transition, and reconstruction” (SSTR) operations.

Coined in the 1990s, MOOTW refers to operations falling short of conventional warfare between states and might include deterrence operations; conflict resolution and peacekeeping missions; naval diplomacy; and supporting government authorities during humanitarian crises and civil disturbances.<sup>9</sup>

CRA is a short-duration event performed by the armed forces. CRAs can range from naval diplomacy (the threat of force for political purposes) to limited combat actions. Some types of humanitarian operations (such as non-combat evacuation operations) fall within the rubric of crisis response activities; others, such as HADR type missions, often do not.<sup>10</sup>

PCO is a phrase often seen in Army publications. *Army Field Manual 100-20/AFP 3-20* (1990) defines them as shows of force, non-combat evacuation operations, rescue and recovery operations (of the United States or friendly foreign nationals), strikes and raids for purposes other than gaining or holding territory, peacemaking, unconventional warfare (such as guerrilla warfare) in enemy territory, disaster relief, security assistance, and support for U.S. civil authority (such as drug or immigration interdiction).<sup>11</sup>

SSTR is a newer concept that developed in the wake of 9/11 and the Global War on Terror. U.S. Department of Defense Directive 3000.05 (November 2005) defined SSTR as “military and civilian activities conducted across the spectrum from peace to conflict to establish or maintain order in states and regions.” Humanitarian operations represent one type of SSTR mission, but there are many others, ranging from peacekeeping to certain types of information and intelligence operations. Unlike most HADR operations, SSTR operations often require the use of force (albeit highly controlled and restricted).<sup>12</sup>

More recently, DoD has used additional labels to describe humanitarian and relief operations. Foreign Disaster Relief is assistance to alleviate suffering of foreign disaster victims. Normally, it includes the provision of basic services and commodities such as food, water, shelter, and medical care, as well as support for critical logistical infrastructure (power, transportation, etc.). Dislocated civilian support missions (DCSM) are related to moving and protecting internally displaced persons (IDPs), evacuees, migrants, refugees and other victims of a humanitarian disaster. Similar terms to DCSM are non-combatant evacuation operations (NEOs) and military assisted departure (MAD).<sup>13</sup>

Since this book's focus is on foreign and domestic humanitarian assistance and disaster response, it will mainly use the acronym HADR to describe the missions profiled since many of these other terms (MOOTW, CRA, PCO, and SSTR for example) refer to a range of military activities that may (or may not) include humanitarian operations or (in the case of NEOs and DCSMs) may be a subset of a humanitarian response. While HADR often achieve the same desired ends as these other mission sets, the primary goal of a humanitarian operation is to “save lives” and “alleviate human suffering.” To refer to them by these other terms diminishes their value and understates their unique nature. The idea of the fleet dealing with contingencies, crises, and operations short of war does not have the same impact as saving lives and relieving human suffering—the essence of the humanitarian mission.<sup>14</sup>



## **Legal and Administrative Authority for Humanitarian Operations**

The first recorded instance of Congress passing a bill to provide humanitarian assistance occurred in 1812 after an earthquake devastated Caracas, Venezuela. The bill appropriated \$50,000 to aid survivors and authorized President James Madison to purchase and ship food to Venezuela. Congressionally approved funding for disaster assistance was sporadic during much of the remaining nineteenth century, although as historian Julia Irwin notes, it did authorize U.S. Navy ships to transport privately donated supplies overseas in several instances. The U.S. Congress did not begin making more regular authorizations for foreign disasters until the turn of the twentieth century. Between 1900 and 1945, U.S. diplomatic and military personnel provided humanitarian assistance to disaster victims in Chile, China, France, Italy, Japan, Mexico, Nicaragua, and Serbia.<sup>15</sup>

A watershed in the history of U.S. humanitarian assistance was the 1947 Economic Recovery Program, known as the Marshall Plan, and the Economic Cooperation Act of 1948. Together, these bills authorized the United States to spend \$13 billion on a variety of humanitarian projects designed to help Europe recover from World War II. Among other initiatives, the Marshall Plan provided grants for European nations to purchase food and fuel as well as rebuild infrastructure.<sup>16</sup>

Looking back at the success of the Marshall Plan, President John F. Kennedy hoped to create similar aid programs in the developing world and stimulate a “decade of development” in the 1960s. The Foreign Assistance Act of 1961 was the realization of this vision. It provides the contemporary legal authority for the U.S. government to provide foreign disaster assistance and authorizes various departments and agencies to expend funds and resources for disaster assistance abroad. Under this act, the President and the National Security Council have flexibility to provide a range of responses to foreign disasters and to define the objectives and tasks of humanitarian operations. The act also created DoD’s key partner in modern humanitarian response: the United States Agency for International Development (USAID). USAID’s Office of Foreign Disaster Assistance (OFDA) generally provides the disaster relief supplies that DoD entities deliver to a disaster-affected region abroad. OFDA and the Department of State (DoS) are the designated U.S. government leads for the coordination of a foreign disaster response. USAID maintains more than 60 country and regional missions and has disaster assistance response teams (DARTs) designed to deploy to a disaster area to help coordinate the U.S. response.<sup>17</sup>

DoD Directive 5100.46, issued in 1974, established the policy guidance for contemporary DoD foreign disaster response operations. Under this directive, DoD components can participate in a foreign disaster relief operation after a determination is made by the DoS that relief will be provided. The DoS, as the lead federal agency for foreign affairs, determines countries and organizations to be assisted, type of relief provided, and the amount of money to be reimbursed to the DoD for the operation. This directive also states that local military commanders have the authority to undertake “prompt relief operations . . . when advisable” without authorization from the DoS as long the DoD



reports such actions to the DoS.<sup>18</sup> Directive revisions made in 2012 and 2017 clarified this authority. The revised directive states that the combatant commander (such as the commander of the Pacific Command) “shall follow up as soon as possible, but no later than 72 hours after the start of relief operations” not explicitly approved by the DoS, USAID, or other federal agencies. The 2012 version also stipulated that when this authority is invoked, local commanders should obtain permission from a host nation and the U.S. chief of mission (generally the U.S. ambassador) prior to providing relief.<sup>19</sup> In other words, as Major General Gary Volesky, U.S. Army, who led the U.S. Ebola response in West Africa in 2014, aptly put it: “We aren’t the lead sled dog.”<sup>20</sup>

## **Strategic Context**

For much of the Navy’s history up through the Cold War, Navy strategic thinkers focused almost exclusively on what Admiral Stansfield Turner listed in 1974 as the four missions of the U.S. Navy: sea control, projection of power ashore, naval presence, and strategic deterrence. Humanitarian missions, even if regularly conducted, rarely received much attention in Navy strategic writings. As Naval War College professor Bruce Elleman explained, “During the nineteenth and most of the twentieth centuries, the very thought that sea powers might regularly use naval platforms to deliver humanitarian aid, as opposed to cutting off and starving an enemy’s supply lines, would have seemed alien.”<sup>21</sup>

During the Vietnam War, the Navy did participate in a variety of humanitarian operations designed to win the “hearts of minds” of the local populace. They included major joint services operations such as the Medical Civic Action Program (MEDCAP), which provided basic medical care to over 40 million civilians; and Project Handclasp, which delivered many tons of humanitarian supplies to South Vietnam.<sup>22</sup> However, humanitarian operations never became a part of the service’s grand strategy or even its strategic lexicon. The postwar Navy strategy developed by Chief of Naval Operations (CNO) Admiral Elmo Zumwalt, a big proponent of humanitarian operations when he had commanded naval forces in South Vietnam, focused on optimizing the fleet for a confrontation with the Soviet Union. His Project Sixty strategy emphasized sea control, power projection ashore, overseas presence, and assured second strike with nuclear weapons. Nowhere does that document mention humanitarian operations. Zumwalt, like most other senior Navy leaders from that period, believed that the Vietnam War was an anomaly and that the Navy’s main strategic focus should be on the struggle with the Soviet Union. For these officers, humanitarian operations were at most an ancillary mission and certainly not a strategic priority.<sup>23</sup>

It was the fall of the Berlin Wall in 1989 and the subsequent dissolution of the Soviet Union that changed the Navy’s strategic outlook by freeing up forces from many of their traditional Cold War commitments and eliminating the Navy’s only peer competitor. In the halcyon days of the 1990s, U.S. Navy leaders, as Admiral Jonathan Greenert (CNO from 2011 to 2015) later explained, focused on policing the “global maritime commons”

with its maritime partners and “integrating seapower within broader applications of national power.” With no peer competitor to engage, Navy leadership struggled to balance the need for “high-end warfighting” with “lower end” stability and security roles, including HADR.<sup>24</sup>

Captain Peter Haynes (U.S. Navy, retired), a former Navy strategist, examined this shift, and the controversies surrounding it, in his groundbreaking book *Towards a New Maritime Strategy*.<sup>25</sup> During the immediate aftermath of the Cold War, there were discussions about whether the Navy should remain focused on meeting high-end threats or whether lower-end, non-combat missions deserved higher priority. Early on, the clash pitted “Navy operators and Marine warriors” against “Washington political-military wonks.”<sup>26</sup> Later in the decade, the split was not between the military and the civilian policy analysts but rather the Navy and the Marine Corps—the Navy’s “Anytime, Anywhere” strategy emphasized traditional, high-end naval warfighting while the U.S. Marines’ “three-block” concept envisioned a future in which high-end, peacekeeping, and humanitarian operations were inextricably mixed, requiring a force configured to handle all three simultaneously. Marine Corps General Charles Krulak believed that the marine platoon in the future might have to confront conventional military action, peacekeeping type missions, and humanitarian operations all within the tight confines of three city blocks.<sup>27</sup> This is not to imply that the Navy did not devote some attention to the prospect of conducting humanitarian missions during this period. The 1994 edition of *Naval Doctrine Publication 1: Naval Warfare*, stated, “We further strengthen positive relations with our world neighbors day-to-day by providing humanitarian assistance and supporting operations other than war.”<sup>28</sup> However, the main focus of the document was on traditional warfighting missions. “The basic roles of our naval forces,” it contends, “are to promote and defend our national interests by maintaining maritime superiority, contributing to regional stability, conducting operations on and from the sea, seizing or defending advanced naval bases, and conducting such land operations as may be essential to the prosecution of naval campaigns.”<sup>29</sup>

The 9/11 attacks and ensuing Global War on Terror revealed a much more complex world security environment than the one envisioned by naval leaders in the 1990s. These attacks demonstrated that unstable and impoverished areas, such as Afghanistan, posed tangible threats to American security and that nation building and humanitarian activities would need to be combined with traditional firepower in order to achieve peace and stability in an increasingly unstable world. Responding to these new realities, Vice Admiral John Morgan, the deputy chief of naval operations for information, plans, and strategy (N3 and N5) in 2005, developed the “3/1 Strategy,” which asserted that non-combat tasks (including humanitarian missions) deserved dedicated assets.<sup>30</sup> Such views were consistent with the Pentagon’s 2005 *National Defense Strategy*, which identified unstable, ungoverned areas (such as those struck by severe humanitarian crises) as a direct threat to national security.<sup>31</sup> With that said, some prominent figures, most notably Commander,



Deputy Chief of Naval Operations for Information, Plans, and Strategy Vice Admiral John G. Morgan Jr. (*center*) with Chief of Naval Operations Admiral Michael G. Mullen (*left*) and Admiral Vladimir Masorin (*right*), the commander in chief of the Russian navy, at a ceremony for Masorin at Washington Navy Yard's Leutze Park on 24 August 2007. (Defense Visual Information Distribution Service [DVIDS], 55929)

Fleet Forces Command, Admiral John Nathman, objected to the idea of reshaping the force structure around low-intensity missions. In his view, existing high-end assets (such as carriers and amphibious assault ships) had proved repeatedly that they could perform low-intensity missions when necessary.<sup>32</sup> This tug-of-war between those who advocate acquiring vessels with humanitarian missions in mind and those who argue that the Navy should perform HADR-type missions with existing (or future) high-end assets is a theme of this study. For the U.S. Navy, the latter view has generally prevailed, but some European navies have taken a different tack, acquiring vessels with dual purposes (warfighting and HADR).<sup>33</sup>

Amidst such debates, the Navy, Coast Guard, and Marine Corps published the landmark strategy paper, *A Cooperative Strategy for 21st Century Seapower* (CS21 2007). This capstone document, in the words of naval analyst Peter Swartz, “elevated humanitarian assistance and disaster response (HA/DR) to one of six ‘core capabilities.’”<sup>34</sup> The other capabilities, or “strategic imperatives,” as CS21 2007 calls them, were all traditional warfighting missions: forward presence, deterrence, sea control, power projection, and maritime security. With regard to HADR, CS21 2007 justified its inclusion by asserting:

Building on relationships forged in times of calm, we will continue to mitigate human suffering as the vanguard of interagency and multinational efforts, both in a deliberate, proactive fashion and in response to crises. Human suffering moves us to act, and the expeditionary character of maritime forces uniquely positions them to provide assistance. Our ability to conduct rapid and sustained non-combatant evacuation operations is critical to relieving the plight of our citizens and others when their safety is in jeopardy.<sup>35</sup>

It further noted that recent phenomena such as climate change and involuntary mass migration (due to climate change as well as conflict) have exacerbated human suffering across the globe, thereby raising potential demand for U.S. Navy HADR operations.<sup>36</sup>

CS21 was influenced by Admiral John Morgan, the N3 and N5 during the 2006–2008 period, and his principal deputy, Vice Admiral Douglas Crowder, who had real world operational experience with HADRs. In 2005, Crowder commanded the *Abraham Lincoln* Carrier Strike Group during the most successful HADR in Navy history to that date, OUA. He had seen first-hand in Indonesia the strategic impact a well-orchestrated HADR could have on a potential partner and strongly supported the notion of HADR being a central tenet in the new CS21 strategy.

Documents produced during the Obama administration largely continued the narrative of CS21 2007, albeit with less emphasis on HADR over time. The 2010 Quadrennial Defense Review (QDR) discussed HADR in relationship to counterinsurgency, stability, and counterterrorism missions: “In some cases, it may be in the U.S. interest to help strengthen weak states, including those facing homegrown insurgencies and transnational terrorist and criminal networks or those that have been weakened by humanitarian disasters. . . . Accordingly, the U.S. armed forces will continue to require capabilities to create a secure environment in fragile states in support of local authorities and, if necessary, to support civil authorities in providing essential government services, restoring emergency infrastructure, and supplying humanitarian relief.”<sup>37</sup> It goes on to stress that HADR operations can strengthen relationships with partners, and acknowledged that climate change will increase the demand for such operations.<sup>38</sup> The 2014 QDR listed HADR operations as one of the 12 primary missions of the armed forces, but listed it last in priority (number 12 out of 12). Nevertheless, in its discussion of power projection and winning decisively, it reminds readers that “U.S. power projection capabilities are not only about defeating threats. From responding to crises to executing non-combatant evacuations and partnering with civilian agencies to conduct humanitarian disaster relief missions, the U.S. armed forces project power to provide stability when countries or regions need it most.” In short, HADR operations still had a role to play in DoD strategy—just not as significant a one as envisioned by the authors of 2007 edition CS21.<sup>39</sup>

Recognizing that the security environment had grown considerably more complex than it had been in 2007, Admiral Jonathan Greenert ordered a refresh of CS21 at the

start of his tenure as CNO in 2011. To him, the Navy's forward presence and ability to fight and win wars "were exceptional and essential contributions to the nation's defense." In his view, CS21 needed to be rewritten to put more emphasis on these unique capabilities.<sup>40</sup>

The revised CS21, published in 2015, prioritized the Navy's missions as follows: (1) defend the homeland, (2) deter conflict, (3) respond to crises, (4) defeat aggression, (5) protect the maritime commons, (6) strengthen partnerships, and (7) provide humanitarian assistance and disaster response. HADR dropped from being the sixth priority of the Navy to the seventh.<sup>41</sup> It clearly had been downgraded. CS21 2015 also did not list HADR as a "core capability."<sup>42</sup> Lieutenant Commander Thane Clare, a key member of the team that drafted CS21 2015, explained that the decision to downgrade HADR had been based on the conclusion that it was "implausible as a resourcing driver given increasing military threats and declining funding levels. . . . HA/DR is an inherent capability of maritime warfighting forces, rather than a mission for which we'd fund purpose-built forces."<sup>43</sup>

In recent years, the emphasis on Great Power competition, and with it, building and equipping the world's most powerful naval warfighting force, has further diminished the interest of the naval service in humanitarian operations. Given the challenges of keeping pace with China's unprecedented naval buildup, many current leaders see humanitarian operations as a strain on already greatly stretched resources. *Advantage at Sea*, the strategy of the three U.S. sea services published in December 2020, emphasized the threat of China's burgeoning military power in the Pacific and highlights themes such as forward presence and leveraging technological capabilities to counter the increasing numbers of Chinese forces arrayed against it. Its focus is squarely on warfighting and deterrence: "The naval service—forward deployed and capable of both rapid response and sustained operations globally—remains America's most persistent and versatile instrument of military influence." There is no mention of humanitarian or SSTR type operations in the document.<sup>44</sup> To be fair to the Navy and DoD leadership, Congress has compelled the service to make difficult financial choices and to press for only its most capable combat ships, aircraft, and weapons systems with little if any money left over for HADR type operations and resources.

A recent capstone document that does discuss HADR is the Marine Corps' new modernization plan called *Force Design 2030*. It explicitly states that "while we stand by to perform such other duties as the President may direct, foreign humanitarian assistance, disaster relief, and noncombatant evacuations do not define us—they are not our identity. Rather, they are the day-to-day consequence of being the force-in-readiness. We are not designing an across-the-ROMO [range of military operations] force; but rather, a force intended to prevent major conflict and deter the escalation of conflict within the ROMO."<sup>45</sup> In other words, the Marine Corps (and by extension the Navy, which is closely aligned to marines today in its current strategic outlook) will conduct these operations as ordered but not develop, train, or otherwise tailor its forces to non-warfighting missions such as



HADR or SSTR. This doctrinal point of view is similar in some respects to the position the sea services held during the Cold War with its emphasis on deterrence and warfighting as opposed to lower-end, non-combat type operations.

In March 2021, the White House published an Interim National Security Strategic Guidance calling on a renewed emphasis on diplomacy and alliances to counter various threats in the world, which not only include China and other rival powers but the adverse effects of climate change, economic inequality, nuclear proliferation, the pandemic, violent extremism and terrorism, cyberattacks, and a host of other security challenges. While acknowledging that a “powerful military matched to the security environment is a decisive American advantage,” it calls for a disciplined approach to defense spending. It also contends that the U.S. national security apparatus (DoD, DoS, and the intelligence community) must be prepared to address “humanitarian crises.” It states: “We will help partners around the world mitigate and adapt to the effects of climate change, and we will stand prepared to provide humanitarian and development assistance to nations and communities affected by natural disasters.”<sup>46</sup>

This book offers cogent recent examples of how the sea services can achieve such goals without undermining its efforts to develop enhanced warfighting capabilities and lethality. It is clear that the U.S. naval service does not need to develop special platforms or military occupational expertise for HADRs. It has all the ingredients to achieve success in these operations within its existing force structure and human resources. The case studies in this book also showcase the sea services as a significant arm of American diplomacy and as an extraordinary tool for engaging allies and partners abroad—two primary goals of the new White House’s strategic guidance. “The strategic worth of the Navy, especially its core of aircraft carriers and their escorts, increases as conflict intensity diminishes,” noted the strategic theorist Edward Luttwak. “At one extreme, the carriers would be almost entirely useless in an all-out nuclear war. At the other extreme, they are the best of all military instruments for noncombat ‘showing the flag’ visitations.”<sup>47</sup> Showing the flag when a foreign partner is experiencing a natural disaster is the ultimate expression of solidarity. Nothing underscores American commitment to helping a foreign partner more forcefully than a super carrier, a big deck amphibious warship, or a hospital ship—our most valuable strategic assets and symbols of American global power—showing up on the horizon to lend a helping hand during that partner’s darkest hours and days.

## **Operational Context**

The Navy has engaged in rescues at sea and other humanitarian acts since the age of sail, but not until the early twentieth century did it begin to engage in large-scale humanitarian efforts abroad. In addition to the Messina earthquake response in 1908, the Navy engaged in a significant humanitarian operation following the 1923 Kanto earthquake in Japan. This tragedy leveled most of the greater Tokyo metropolitan area and killed over 140,000 people. Despite strained relations between the two countries at the time, several



Chief Petty Officer Williams stands amid wrecked buildings at Yokohama, Japan, in the aftermath of the Great Kanto earthquake, September 1923. The Asiatic Squadron responded to the disaster, delivering over \$14 million of supplies donated by the American Red Cross and the Navy. Navy personnel also assisted in search and rescue efforts. (NHHC, NH 91399)



The aircraft carrier *Langley* (CVL-27) rolling sharply as it rides out a Pacific storm. The original photograph is dated 13 January 1945, but Samuel Eliot Morison in *History of U.S. Naval Operations in World War II*, volume 13, captions this photograph as having been taken during the Great Typhoon of 18 December 1944. (National Archives and Records Administration [NARA], 80-G-305484)





Airman Apprentice Robert H. Davidson is shown checking the lashings on the load of flour in his R5D (C-54) during the Berlin Airlift, 1948–9. (NARA, 80-G-706691)

U.S. Navy destroyers and supply ships from the Asiatic Squadron responded to the disaster, delivering over \$14 million of supplies donated by the American Red Cross and the Navy. Ensign Thomas J. Ryan, a 1921 Naval Academy graduate, received the Medal of Honor for rescuing a woman trapped in a hotel in Yokohama.<sup>48</sup>

During World War II, the most notable natural disaster was Typhoon Cobra, a 1944 storm that struck east of the Philippines. Cobra sunk three Navy destroyers and damaged 27 other ships. Over 791 sailors were lost in the storm, making it the worst natural disaster in U.S. Navy history. During the storm, Navy ships were both victims and first responders—a central theme of this study. The destroyer escort *Tabberer* (DE-418), for example, battled high swells and 60 degree rolls to rescue 55 survivors from sister ships sunk in the storm.<sup>49</sup>

At the conclusion of World War II in the Pacific, rescuing allied POWs and repatriating former combatants and displaced people became a top priority for the Navy. Navy hospital ships and other ships helped evacuate and care for over 31,000 Allied prisoners held in 140 camps in Japan and its former territories.<sup>50</sup> More than 191 Navy and U.S. merchant vessels, along with 188 Japanese ships, repatriated over five million Japanese from former Japanese Pacific territories to Japan as well as close to 1.5 million people from other Asian countries back to their homelands. The naval component of the Supreme Commander for the Allied Powers in Japan organized and supervised these various operations.<sup>51</sup> Cumulatively, they represented the largest mass movement of people by sea in U.S. Navy history and featured many elements seen in modern refugee operations: large numbers of sick and injured passengers, disease outbreaks (cholera and typhoid) along with quarantines, and human trafficking (between Korea and Japan).

During the Cold War, many Navy humanitarian operations were connected with the conflicts between the free world and the communist states. An early example of these types of missions was the participation of two Navy C-54 squadrons in the 1948–1949 Berlin Airlift. These naval aircraft delivered 7.3 percent of the total tonnage flown into Berlin during the operation. The prodigious amounts of fuel consumed by both the Air

Force and Navy aircraft during the operation were offloaded in Bremerhaven by Navy tankers—a prime example of how most humanitarian operations depend heavily on the Navy’s impressive logistics tail.<sup>52</sup>

Following the end of the First Indochina War in 1954 and the partition of Vietnam along the 17th parallel, U.S. Navy ships transported over 300,000 Vietnamese wishing to escape from North Vietnam to South Vietnam.<sup>53</sup> This massive movement of people, dubbed Operation Passage to Freedom, involved over 100 ships provided by the Navy and the Military Sea Transportation Service (MSTS).<sup>54</sup> Twenty-one years later, Operation Frequent Wind marked the end of American involvement in Vietnam by evacuating U.S. citizens and South Vietnamese as communist forces closed in on Saigon. The operation consisted of an aerial element and a sea-based element. The former rapidly extracted over 1,000 Americans and more than 5,000 Vietnamese from Saigon via helicopters, while the latter saw throngs of refugees in assorted civilian vessels and South Vietnamese Navy ships join the American fleet and head to the Philippines. In total, Frequent Wind naval units rescued a few thousand Americans and over 130,000 Vietnamese.<sup>55</sup>

Sixty percent of world’s natural disasters occur in the Asia-Pacific region.<sup>56</sup> During the Cold War period, the Navy found itself responding frequently to disasters near its bases at Subic Bay in the Philippines and Guam in the Central Pacific.<sup>57</sup> During the 1970s, the Navy and Marine Corps participated in five disaster-response operations in the Philippines alone. Following Typhoon Joan in 1970, helicopters from three amphibious assault ships flew 70 relief sorties and delivered over 65 tons of supplies to victims. Navy and Marine medical personnel treated over 1,000 patients during the operation. After Cyclone Rita in 1972, Marine aviators from Marine Medium Helicopter Squadron 165 (HMM-165) on *Tripoli* (LPH-10) evacuated over 2,000 Filipinos threatened by flooding and delivered over 300 tons of supplies. Marine and Navy aviators were at it again two years later during more severe flooding in the Philippines, flying over 244 supply sorties



At Haiphong, Indochina, in August 1954, a ladder is lowered to a French landing ship medium (LSM) alongside the attack transport *Montague* (AKA-98) to take aboard refugees for the journey from Haiphong to Saigon during Operation Passage to Freedom, August 1954–May 1955. (NARA, 80-G-644449)

in just six days. In May 1976, Typhoon Pamela struck Guam and another typhoon, Olga, hit the Philippines, precipitating a massive distributed response from the Air Force and Navy. A total of six Navy and Military Sealift Command (MSC) ships participated in these operations, including the carrier *Ranger* (CV-61). Navy and Air Force helicopters evacuated 1,900 civilians and delivered close to 400,000 pounds of supplies during these operations.<sup>58</sup>

Less than a year before the U.S. bases agreement in the Philippines ended in 1992, Mount Pinatubo erupted on 15 June 1991. This massive volcanic event, the second biggest in the twentieth century after the 1912 eruption of Novarupta in Alaska, compelled the DoD to evacuate 20,000 military personnel and dependents from Clark Air Force Base and Subic Bay Naval Base. During the subsequent operation, called Fiery Vigil, 21 Navy ships, including two aircraft carriers, shuttled 4,300 military dependents from Subic Bay to Cebu City. *Abraham Lincoln* (CVN-72), which would later play a key role in OUA, was on its first cruise when it was diverted to the Philippines to assist. The teenage daughter of one officer described the process of boarding the ship at Subic Bay along with 2,000 other dependents as follows: “It was a monster of a ship, but the number of people trying to get on was staggering. . . . The Navy boys were pretty cute and were so helpful.” Sailors



U.S. military dependents board the aircraft carrier *Abraham Lincoln* on 21 June 1991 from Naval Station Subic Bay, Philippines, after the eruption of Mount Pinatubo. (NARA, DN-ST-92-01030)

loaned their racks to exhausted families, tended to dogs and cats held in the hangar deck, babysat anxious children, and cleaned up vomit in the berthing spaces from motion sick passengers. During the operation, six children were born on various Navy ships, including one on *Abraham Lincoln* appropriately named Abraham. It was very much a pick-up ballgame conducted on the fly—characteristic of many Navy HADR missions.<sup>59</sup>

This massive DoD evacuation operation in the Philippines was even more impressive because it occurred just one day after the largest DoD disaster response in history up until that year, Operation Sea Angel in Bangladesh, concluded. In April 1991, Cyclone Marian struck the world's eighth most populous country, killing over 140,000 and leaving an estimated 2.7 million homeless. With much of its infrastructure destroyed and many freshwater sources contaminated by seawater, Bangladesh confronted the distinct possibility of losing many more of its citizens to thirst, exposure, and disease. Of all the military forces and other disaster response organizations in the world, only the U.S. Navy and Marine Corps had the capability and capacity to meet Bangladesh's need at this dire moment. The naval service was able to divert Amphibious Group 3 and the 5th Marine Expeditionary Brigade from a planned transit home from the Middle East to assist in sustained relief efforts from 14 May to 14 June 1991. Spearheaded by the amphibious assault ship *Tarawa* (LHA-1), the force ultimately included seven amphibious ships, 4,000 marines, and U.S.



A CH-53E Super Stallion helicopter delivers a reverse osmosis water purification system to Kutubdia Island, Bangladesh, as part of Operation Sea Angel. (Staff Sgt. Val Gempis, USA; NARA, DF-ST-92-06113)



Army aviation and engineering units.<sup>60</sup> The results were astounding. The Army, Navy, and Marine Corps helicopters delivered over 1,500 tons of supplies to isolated groups of people trapped by floods. Navy surface craft (mainly utility landing crafts [LCUs]) navigated the Bay of Bengal's notoriously treacherous waters to deliver an additional 1,500 tons of supplies to survivors. The Navy's reverse osmosis water purification systems generated over 255,000 gallons of freshwater, and six joint services medical teams treated over 15,000 patients. The Joint Meritorious Unit Award for Sea Angel, signed by General Colin Powell, stated that the "supplies and medicines delivered by the Joint Task Force reached over a million people and saved over 100,000 lives."<sup>61</sup>

Sea Angel informed many subsequent disaster relief efforts with its massive scale; emphasis on sea basing to minimize shore footprint; heavy reliance on aviation to reach isolated communities; the flexibility it demanded from the forces involved; its quickly-formed partnerships with NGOs already operating on the ground; and the sustained nature of the response. Whereas many earlier aerial evacuation operations were limited in duration, Sea Angel demonstrated the feasibility of lengthy, weeks-long helicopter operations. Its tactics and techniques have been followed during many subsequent operations with great success. Sea Angel, in many respects, is a model for modern disaster relief operations. I considered using Sea Angel as a case study for this book, but I held off for several reasons. First, Marine Corps historian Charles R. Smith has already written an excellent monograph on the operation entitled *Angels from the Sea: Relief Operations in Bangladesh, 1991*. Second, I wanted the focus of this book to be on operations that occurred during the apogee of naval service humanitarianism: the period from 2005 through 2011. These years included formulation and publication of CS21 (which made HADR a core Navy mission), the heady "Global Force for Good" advertising campaign, and three of the largest humanitarian operations in naval history (and also my case studies): OUA (2005), the DoD response to Katrina (2005), and Tomodachi (2011).

There were three significant operations during and shortly after the 2005–2011 period that I also considered including but ultimately left out of the book: Operation Unified Response (the DoD response to the 2010 Haiti earthquake), the European Union and NATO naval response to the 2015 migration crisis in the Mediterranean, and the DoD response to Hurricane Maria in 2017.

Of these three, Unified Response is the one I most regret not including. It was a massive response to a 7.0 magnitude earthquake that struck the island nation of nine million on 12 January 2010. The event collapsed over 100,000 edifices, killed more than 316,000 people, injured another 300,000, and left close to one million homeless. The Navy's subsequent contribution to Joint Task Force Haiti included 23 ships and over 15,000 sailors and marines. On 14 January, the first Navy ship, *Higgins* (DDG-76), arrived on station off Haiti. The Navy's presence in the country did not end until 24 March when *Bataan* (LHD-5) departed the operational theater. Two of the Navy's biggest ships participated in the operation: the aircraft carrier *Carl Vinson* (CVN-70) with a special load of



An MH-60S Seahawk helicopter assigned to Helicopter Sea Combat Squadron 28 takes off from the amphibious dock landing ship *Ashland* (LSD-48) on 5 February 2010 to bring medical personnel to Haiti during Operation Unified Response. (Petty Officer Second Class Jason Zalasky, USN; DVIDS, 250280)

19 helicopters, and the hospital ship USNS *Comfort* (T-AH-20). Together with support from the other services, the Navy and the Marine Corps evacuated 16,412 U.S. citizens, delivered over 2.6 million liters of water and 17 million pounds of food, performed 1,000 surgeries and treated more than 9,000 patients, and reopened the international airport and port facilities. The Haiti operation saved thousands of lives, but it was not without controversies. These included dealing with local government corruption, a difficult security situation, friction between the U.S. Army and sea services components of the operation over sea basing, debates involving the hospital ship deployment, and concerns expressed throughout the chain of command that the operation was overtaxing a military already heavily burdened with other global commitments, including two major wars abroad.<sup>62</sup>

The 2010 Haiti operation deserves serious historical treatment, but I will not be covering it in this volume for several reasons. First, I wish to keep the length of the book suitable for busy naval personnel and policymakers. Second, after the Pacific pivot in 2015 and given current concerns about long-term competition with China, I decided to focus much of the work on Asia-Pacific operations. The Asia-Pacific has been the epicenter of Navy HADR operations since 1945—the DoD responded to 40 natural disasters in this region between 1993 and 2013 alone.<sup>63</sup> Lastly, Unified Response was not as well

documented by the NHHC’s combat documentation reserve unit (Detachment 206) as the other case studies included in this volume. In particular, the reserve unit did not conduct many after-action oral histories—a key source for the included case studies.

U.S. Navy humanitarian operations related to unauthorized migration by sea have a long tradition. In 1975—and continuing into the early 1990s—U.S. Navy ships rescued and provided direct aid to thousands of Vietnamese boat people in the South China Sea. In May 1980, *Saipan* (LHA-2) and *Boulder* (LST-1190) supported the Coast Guard during the Mariel boatlift, providing food, medical care, and water to refugees fleeing the regime of Fidel Castro in Cuba. Later in 1994, President William Clinton authorized an even larger Navy and Coast Guard operation to help protect the nation’s maritime border from mass undocumented migration and render humanitarian assistance to migrants fleeing from Cuba and Haiti. In all, the ships of Joint Task Force 160 interdicted over 35,000 undocumented migrants and transported them to a massive tent city constructed at Naval Station Guantanamo Bay. There, sailors and marines cared for the migrants until they could either legally migrate to the United States, be resettled elsewhere, or be returned to their home countries.<sup>64</sup>



Irish naval personnel from the patrol vessel *LÉ Eithne* (P31) rescuing migrants as part of Operation Triton, a European Union border control and search and rescue operation in the Central Mediterranean. During the height of Europe’s migration crisis in 2015, European navy, coast guard, police, and NGO vessels rescued over 154,000 migrants in the Mediterranean Sea. (Irish Defence Forces, 160303-D-BD182-033)



A far larger and more complex collection of migrant interdiction operations have taken place in the Mediterranean from 2011 to the present. These naval and coast guard operations, led by the European Union (EU) with limited participation by NATO, intercepted and rescued 154,000 refugees in 2015—the peak year of the operation.<sup>65</sup> With assistance from neighboring states such as Turkey and Libya, the operations reduced illegal migration in the Mediterranean from over one million in 2015 to less than 100,000 by 2019.<sup>66</sup> Given its magnitude and tactical relevance for future U.S. Navy and Coast Guard migrant operations, I considered including this operation as a case study. In 2019, I spent four months in Europe on a Fulbright-Schuman fellowship, interviewing 47 EU naval and coast guard personnel involved in these missions. I later published some of my findings in Julian Pawlak and Johannes Peters, eds., *From the North Atlantic to the South China Sea: Allied Maritime Strategy in the 21st Century*.<sup>67</sup> In the end, I chose not to include this case study in this book because I wanted it to focus exclusively on operations with significant U.S. involvement. Having said that, this book contains extensive material on allied and partner nation participation in all of the reviewed operations. One of my arguments is that HADR represents one of the best means for the sea services to engage with allies, improve interoperability with other navies, and develop strategic relationships with foreign militaries and governments.

Hurricane Maria occurred at the beginning of my research for this book in September 2017. The Category 5 storm killed 2,975 people in Puerto Rico and caused over \$73 billion in damages.<sup>68</sup> It left much of the island without power and other utilities for several months. Navy and Marine participation in the DoD response to the disaster consisted of 3,095 sailors and 488 marines from Expeditionary Strike Group 2 (ESG-2), the warships *Kearsarge* (LHD-3) and *Oak Hill* (LHD-51) plus several auxiliaries from MSC, including *Supply* (T-AOE-6) and *William McLean* (T-AKE-12). These units provided search and rescue support, delivered supplies, and offered medical assistance to the island's citizenry from 21 September to 4 November. Only 488 Navy and U.S. Marine personnel slept ashore. The rest lived on their sea bases (i.e., the amphibious vessels). On 29 September, the hospital ship *Comfort* arrived. For over a month, its medical treatment facility, staffed with 800 Navy personnel, treated over 1,400 patients, and performed 147 surgeries. The Navy and U.S. Marine Corps' contributions to Joint Task Force (JTF)-Puerto Rico was part of a much larger DoD and the Federal Emergency Management Agency (FEMA) response that among other resources, included 13 Coast Guard cutters and over 10,000 Army and National Guard troops. It was a massive effort, even by modern measures of humanitarian relief, but the press nevertheless criticized it for being too small and too slow in its response. The main complaint centered on the DoD's inability to restore power and other utilities to the island before it pulled most of its forces out. This critique ignores structural problems with the island's utilities caused by years of neglect and lack of financial resources. Like Katrina and Haiti before it, Maria struck an area plagued by endemic poverty, and a weak economy.<sup>69</sup> Boots on the ground could not solve all of Puerto Rico's





Sailors clear the flight deck of the fast combat support ship USNS *Supply* after attaching a pallet of supplies for transfer to the amphibious assault ship *Kearsarge* during Hurricane Maria relief operations on 28 September 2017. (Mass Communications Specialist Third Class Ryre Arciaga, USN; DVIDS, 3828546)

problems overnight. DoD units can stabilize an area struck by natural disaster—resuscitate the patient to use a medical analogy—but it is the responsibility of other government institutions and NGOs to manage longer-term, chronic problems—yet another theme of this book. As Admiral Crowder once told me, the Navy and Marine Corps are best at providing food, water, medicine, and to some extent, basic security when no other assets can reach a disaster scene. Once basic transportation infrastructure (roads, airports, and harbors) has been restored, it is time to leave and let others step in and do the job.<sup>70</sup> Ultimately, I chose not to include a full analysis of the Maria operation in this book because it was too fresh for a historical study; undocumented by NHHC’s reserve unit; and a much smaller domestic operation than Katrina.

The case studies ultimately selected—Unified Assistance, Katrina, and Tomodachi—all occurred in the modern, post 9/11 era and were well-documented in the Navy’s operational archives. They represent some of the largest humanitarian operations ever conducted by the U.S. Navy, saved the most human lives, and decreased the suffering of huge swaths of populations. A natural disaster triggered each of these operations—the most likely type of HADR the Navy and Marine Corps will need to provide in the future. All three interventions by the U.S. naval service helped spare the disaster-affected region

from worse spillover consequences or at least mitigated those consequences, which included exposure, famine, disease, industrial accidents, domestic strife, and lawlessness. In two of the three cases, the Navy was both a victim and a responder. These operations all had a tremendous political and strategic impact that resonated beyond the affected regions. Finally, they occurred at the apogee of the service's interest in HADRs—a period when HADR developed into one of the core Navy missions.

While my research leads me to believe that HADR operations offer the U.S. naval service significant returns at a very low price relative to the cost of war, I am not arguing that the Navy and Marine Corps are humanitarian institutions. Fundamentally, they are warfighting institutions. Ideally, as the UN's Oslo Guidelines state, "humanitarian work should be performed by humanitarian organizations," not the military.<sup>71</sup> However, when the U.S. military's unique capabilities are required during an acute disaster situation, and a foreign or domestic government specifically requests those assets, then the U.S. military will need to be ready to respond if called upon to do so by the U.S. government.

When this order comes down from on high, the services have an opportunity to embrace these missions and to exploit them for all of their strategic value. Use them as a real world test of their capabilities. See them as an opportunity to work and engage with allies, NGOs, and international government organizations. Beware of mission creep and always enter these operations with a clear exit strategy in mind. To again cite the Oslo Guidelines, "any use of the military or civil defense authorities should be, at its onset, clearly limited in time and scale and present an exit strategy element that defines clearly how the function it undertakes could, in the future be undertaken by [or transitioned to] civilian personnel."<sup>72</sup> Be flexible and leverage the infinite talents of our great sailors, marines, and coastguardsmen along with soldiers and airmen in our partner services. Make sure these operations have a significant impact rather than just seeing them as a loss leader and a drain on limited budgets, training time, and in-port periods. In other words, do the job to the best of your abilities and capabilities, but never overstay your welcome. To quote Marine Lieutenant General Robert R. "Rusty" Blackman, the JTF commander for OUA: "Do good things!"<sup>73</sup>

## Methodology and Sources

When I set out to write naval history, my primary goal is to explain what happened in an operation and why. Given the size and complexity of the operations discussed in this book, that goal alone was a formidable task. It involved documenting the activities of all major units in the operation and, in some cases, smaller units as well—i.e., ones that illustrate certain key themes. It also required me to explain the rules of engagement for each operation, its command structure, and occasionally the technology employed. For OUA and Tomodachi, I included contextual material on the U.S. foreign and military relations with those countries prior to the operations. Finally, and most importantly, I tried to capture some of the stories behind the history—the humanity of these operations.

Material from oral history interviews creates a narrative structure for the book and transforms it from being a reporting of facts into history. Participant stories layer facts with emotion and drama and help both the historian and reader alike to determine the *most* significant themes of a given operation.

The sources I utilized in my research and writing included operational documents, command operations reports (CORs), think tank studies, oral histories, and a small number of secondary sources. Of these sources, the most valuable were the documents and oral histories collected by Navy Reserve Combat Documentation Detachment 206. Part of NHHC, this unit deployed immediately after each operation to gather documents from units and conduct oral histories with key participants. Detachment 206 consisted mainly of officers at the end of their naval careers—typically commanders and captains—with vast experience in the Navy. Their senior rank and experience gave them street credibility with their interview subjects and helped them formulate insightful questions and follow-up inquiries. In many instances, I felt like a fly on the wall eavesdropping on a casual wardroom conversation when listening to these remarkable recordings—a feeling reinforced by the occasional 1MC [ship’s intercom] announcements and other random ship noises. The fact that the Detachment 206 reservists wore the same uniforms, had served on Navy ships, and often attended the same schools (the U.S. Naval Academy in particular) as the subjects generally created a relaxed atmosphere, and useful insights and anecdotes flowed accordingly.

For OUA and Tomodachi, I conducted additional interviews myself to fill in gaps in the research. Some of OUA’s oral history files were corrupted, compelling me to go back and re-interview certain key figures in that operation. During Tomodachi, only one reserve officer conducted oral histories (primarily with MSC personnel). Consequently, I ended up interviewing close to 40 officers from that operation, including nearly all the major Navy commanders. Because of the COVID pandemic, most of my interviews were conducted by video calls. These oral histories were a bit less personal than in-person interviews, but they captured much of the same information.

One weakness of the oral histories is that they only tell the stories of those who participated in the interviews. It is impossible for a small detachment of reservists and a single author to locate and interview every key participant in an operation. We generally rely on unit commanders and executive officers to tell us whom to interview. Suggestions for additional interviews often come from the participants or news articles published mainly by Navy Public Affairs. In most cases, neither the Detachment 206 nor myself had time to interview everyone of interest. Certain key participants also may be reluctant to talk to us for a variety of reasons. Some may not have time in their schedules. Others worry that the interviews might hurt their careers or end up being quoted in a critical media story or an Inspector General report. Others may not trust the motives of the interviewer or wish to tell their stories to a civilian (even if he is employed by the Navy). Enlisted participants may not wish to be interviewed by officers, and so forth. Interview

refusals are rare, but they underscore the enormous trust that uniformed personnel place in me to tell their stories truthfully. I hope this book will not let them down. I am forever humbled by their sacrifices and bravery.

Given the difficulty of in-person archival visits during the pandemic, I was fortunate that the vast majority of documents I needed for this volume were available on NHHC's internal archival database, known as Content Manager. Over the past decade, the command has invested considerable resources in uploading digital materials to this system, and it is finally beginning to bear fruit. I was pleasantly surprised to find not only troves of documents on it but also oral history audio files and photographs.

This book also benefited from many fine studies on HADR-type operations produced by CNA—the Navy's sole federally funded research and development center (FFRDC). In the last 20 years, CNA has devoted extensive resources to collecting data on humanitarian operations and publishing that data in a variety of Navy-funded studies. Like the Detachment 206 reservists, CNA analysts deploy with the fleet and are in a unique position to capture operational data and develop highly detailed reconstructions of those operations. While CNA analysts often interview key participants in operations, they do not conduct oral histories. Their purpose is to gather data and not to profile the personalities behind an operation. This book's emphasis on people and their stories in addition to the operations makes it different from the impressive studies conducted by CNA as well as complementary. It is both a work of analyses and a testimony from those who served during some of the most unique and important operations in recent naval history.



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## OPERATION UNIFIED ASSISTANCE

On 26 December 2004, a 9.0 magnitude earthquake struck in the waters between Simeulue Island, Indonesia, and Sumatra, Indonesia. In terms of magnitude, this was the third largest earthquake since instrumentational recordings began in 1900. The quake triggered one of the most destructive tsunamis in recorded history. Traveling at over 500 miles an hour, the wave first hit Sumatra's northern province of Aceh. Two hours later, tsunami waves hit Sri Lanka, Thailand, and the east coast of India. The initial wave reached as far as South Africa and produced smaller waves as far as the west coasts of North and South America. The earthquake and resulting tsunami killed an estimated 300,000 people in 14 different countries—a death toll not seen in a natural disaster since the 1970 Bangladesh cyclone. The west coast of Aceh province, where the tsunami height ranged from 16 to 30 meters, suffered the worst death and destruction. Over 167,540 earthquake and tsunami deaths—over half of those killed—occurred in Indonesia. Displaced persons in that country exceeded 500,000.<sup>1</sup>

The Pacific region is the most disaster-prone area in the world with cyclones, volcanic eruptions, droughts, earthquakes, and floods occurring on a regular basis. Indonesia, the epicenter of the 2004 earthquake and tsunami, has experienced a major natural disaster every month since that tragedy occurred.<sup>2</sup> During many disasters in this vast archipelago, significant U.S. Navy assets cannot reach a stricken area for weeks due to the steaming distances and ship readiness and availability. The 2004 tsunami was unique because a carrier strike group (CSG) was within three days' sail of the epicenter of the disaster, and an expeditionary strike group (ESG) was five days away. Other U.S. Navy ships reached Indonesian waters just two days after the event.<sup>3</sup> What is more, the Navy had a logistics and support base at Singapore and an even larger forward base five days' steaming distance in Guam as well as bases in Japan and Hawaii. In short, the Navy's forward presence in the Western Pacific was a key enabler for the U.S. Navy's response during the critical initial days of the crisis when such basic needs as food, water, and emergency medical support were in critical demand.

Because of the proximity of certain key units to the disaster area, the Navy was able to muster a significant number of ships to the epicenter of the tragedy quickly. It also had





An H-60 helicopter hovers over the deck of the aircraft carrier *Abraham Lincoln*. In this photo, the carrier is engaged in helicopter operations off the Atlantic coast of the United States. (Mass Communication Specialist Third Class Zachary Sleeper; DVIDS, 5229964)

the right type of assets on hand, including large numbers of helicopters, amphibious ships capable of moving supplies to beachheads with landing craft, and logistics and combat stores ships. The *Abraham Lincoln* carrier strike group (CSG-9), in particular, had many more helicopters than usual due to a new experimental program called Bravo to Sea (B2C), which sought to improve helicopter integration into big deck carrier operations. CSG-9 along with Expeditionary Strike Group 5 (ESG-5) and other Navy units ultimately employed 58 helicopters during OUA—the assets Indonesia needed the most to get supplies to areas cut off by the tsunami.<sup>4</sup>

Ships also provided the 6,500 sailors and 1,300 Marine personnel involved in the operation with ready-made bases in a region that was lacking basic infrastructure even before the earthquake and tsunami.<sup>5</sup> In addition to providing an air base for rotary aircraft, a logistics hub for supplies, and safe, climate-controlled place to house forces, these sea bases also served a larger geopolitical goal of keeping the U.S. footprint in Aceh as small as possible. Before the tsunami, relations between the U.S. and Indonesia had been fraught with tensions stemming from a series of sanctions imposed by the U.S. in the 1990s related to Indonesia's actions in East Timor. As a consequence, the Indonesian armed forces (Tentara Nasional Indonesia [TNI]) severely limited the activities of the U.S. armed forces ashore, making sea basing the only viable way the U.S. military could effectively provide disaster relief in a relatively short operation. Sea basing also eased tensions and reduced force protection concerns in a predominately Muslim region of Indonesia with an active insurgency.



The effectiveness of the relief provided by the Navy and its partners in the other services would set the two countries on a path toward reconciliation and improved diplomatic and military ties that extends to the present. The strategic impact of OUA on Indonesia and its people cannot be overstated. “As a result of Operation Unified Assistance,” noted Major General David Deptula, USAF, the Joint Forces Air Component Commander, “we established an unquestionable bond of friendship with the world’s largest Muslim nation. That is an outcome that had value beyond what was on people’s minds when we first went in there and it underscores why we engage in humanitarian assistance.”<sup>6</sup>

A final win for the Navy–Marine Corps team involved the relations forged during the operations with various partners, from the United States, other countries, international organizations, and NGOs. These ranged from the U.S. Air Force (USAF), which executed the biggest supply airlift in history since the Berlin Airlift, to USAID, which provided much of the food, hygiene kits, and medical supplies for the initial phase of the operation.<sup>7</sup> The spokesperson for the UN’s World Food Programme (WFP), Trevor Rowe, praised the U.S. armed forces, saying, “The important thing is that the U.S. military was right there at the beginning and made a huge difference. They had the logistical prowess . . . and without that we would not have been able to distribute to the remote areas.”<sup>8</sup> Probably the most important partnership that developed during the operation was with TNI. Rear Admiral (upper half) Douglas Crowder, who commanded CSG-9, noted that before OUA, “No American military person could even talk to someone from Indonesia. Two years later, I’m now the Seventh Fleet Commander and I’m speaking at their War College. I’m visiting with their Chief of Staff. I’m in Indonesia for a three-day visit. That is how quickly it turned around.”<sup>9</sup>

This is not to imply that OUA was flawless. The ESG arrived several days later than hoped. The hospital ship *Mercy* (T-AH-19) did not reach Aceh province until 3 February, well after the most seriously injured had died.<sup>10</sup> Intelligence and damage assessments during the first week of the crisis were lacking, which greatly complicated the planning process. Sultan airfield in Banda Aceh, the main staging point for Navy helicopters operating in Indonesia and the capital of Aceh province, ran in a state of near chaos during the first week of the operation with limited air traffic control, and supplies piling up in the airport’s limited storage places. The refusal of Naval Force (NAVFOR) helicopters to integrate into the joint force air coalition commander’s (JFACC) air tasking order (ATO) fomented some tensions between Crowder and his Air Force counterpart (Major General Deptula), but in the end was quickly adjudicated by the joint-force commander, Lieutenant General Robert R. Blackman, USMC.

Despite these issues and frictions, the operation stands out as the most successful U.S. HADR in recent history. “A key intervention that helped these devastated populations escape a secondary disaster was the timely deployment of military assets,” stated the World Health Organization (WHO) end of mission report. “These assets were made available to the Indonesian government and international aid agencies early on in the

crisis. They airlifted water, rice and other food stocks to isolated populations, provided medical care and casualty evacuation, initiated aerial reconnaissance of roads and facilitated operational agencies in getting to remote sites. These assets were vital in conveying to the international aid community information on prevailing conditions, and in bringing supplies to those who needed them most desperately.”<sup>11</sup> This high praise from this UN agency appropriately summarizes the immediate impact and effects of the operation. The long-term strategic effects were even more profound.

### **Indonesia, Its Military, and the United States prior to OUA**

The U.S. relationship with Indonesia has been complex and highly variable. It has been driven both by the actions of the Indonesian government and larger U.S. geopolitical concerns over time. During the Indonesian revolution following World War II, the United States initially supported Dutch and British moves to reestablish Dutch colonial control over the archipelago, but soon realized that such support went against U.S. democratic principles and threatened to mire it on the wrong side of history. The fact that the new Indonesian republican government crushed a communist uprising in Madiun and several other Java towns in 1948 solidified its democratic legitimacy for U.S. policymakers.<sup>12</sup>



Initial negotiations between the Netherlands and the Republic of Indonesia for a new Indonesian state took place aboard the U.S. Navy attack transport *Renville* (APA-227), shown here in an undated photograph. (NARA, 1044187)

Initial negotiations for a new Indonesian state took place aboard a U.S. Navy attack transport, *Renville*, anchored in Jakarta Bay. The subsequent Renville Agreement, ratified on 17 January 1948, did not fully resolve the disputes between the Dutch and the Indonesian nationalists but it did lead to a temporary cease-fire and paved the way for further talks in The Hague. There, under pressure from the United States, the Dutch finally agreed to relinquish most of its former Indonesian colony (except Netherlands New Guinea) to the Indonesians in exchange for an agreement by the new Indonesian government, led by Sukarno, to assume all Dutch debt associated with the former colony.<sup>13</sup>

The state that emerged from The Hague roundtable was neither communist nor democratic in nature. Sukarno defined it as “guided democracy,” which translated into a loose coalition of elements (Islamists, communists, nationalists, and the Indonesian military) under the control of Sukarno. As the shadow puppet master wielding power over these often adversarial groups, Sukarno often played one group off against another. His decision to allow the Indonesian communist party, the Partai Komunis Indonesia (PKI), to develop into a countervailing force against the Islamists and the Indonesian military alarmed U.S. policymakers worried about the spread of communism in Asia. His advocacy of socialism in the form of state-controlled enterprise and land reform also raised eyebrows in the U.S. embassy. Hence, when the Indonesian military under the command of General Suharto put down a coup by junior officers (some with PKI affiliations) in 1965, the U.S. did not get involved.<sup>14</sup> Suharto not only used this countercoup as an opportunity to seize power from Sukarno but also to eliminate the PKI. The resulting purge led to an orgy of violence, not only against the communists but other groups as well (ethnic Chinese in particular). An estimated 500,000 people lost their lives in the mass killings between 1965 and 1966.<sup>15</sup>

Although many of these killings were committed by vigilante groups, the Indonesian armed forces also participated via an organization of military members known as the 30 September Movement.<sup>16</sup> Then called Angkatan Bersenjata Republic Indonesia (ABRI), the Indonesian military under Suharto emerged from the conflict as the preeminent political power in Indonesia and the cornerstone of Suharto’s new political party, Golkar. ABRI had a guaranteed number of seats in parliament (75 out of 480), and the party owned and operated some of the state’s most important businesses, including hotels, printing houses, service stations, sugar mills, and transportation services. As a state within a state, ABRI was more concerned about exerting internal control than defending the country from outside threats. ABRI’s command structure was territorial, and in some areas army officers served in administrative roles up to and including governor in Indonesia’s various military regions, known as *Kodams*. In 1980, 50 percent of cabinet positions and 75 percent of provincial governors’ offices were held by active duty military officers.<sup>17</sup>

With its focus on the Cold War struggle against communism, the United States overlooked the anti-democratic proclivities, violence, and corruption of ABRI for much of the



President Gerald R. Ford greeting President Suharto of Indonesia upon his arrival at Camp David, Maryland, in July 1975. Behind the two presidents are Secretary of State Henry Kissinger and an unidentified Indonesian official. (NARA, GRF-WHPO-A5386-15)

Suharto period. U.S. military advisors worked closely with ABRI to train and equip it with the latest U.S. manufactured weaponry, including C-130, OV-10F, F-5E, and A-4E aircraft. Many of the ABRI's top leaders attended professional military education programs in the U.S., including the Indonesian president from 2004–2014, Susilo Bambang Yudhoyono, who graduated from the U.S. Army Command and General Staff College in 1991. ABRI also regularly participated in Cooperation Afloat Readiness and Training (CARAT) with the U.S. Navy and other allied exercises in the Pacific.<sup>18</sup>

The issue that would eventually drive a wedge between the two nations was East Timor island. A Portuguese colony up until 1975, this area erupted into war following Portugal's decision to decolonize its half of the island. Five East Timorese political parties made a formal request in November 1975, known as the Balibo Declaration, to integrate with Indonesia, but the main political party, Fretilin, sought an independent state. Nine days after the declaration was signed, ABRI invaded East Timor. What followed was a decades-long war waged between Fretilin guerrillas and Indonesian security forces backed by pro-government militias. During the next 20 years, between 100,000 and 250,000 East Timorese lost their lives due to combat, disease, or deprivation. Even though both the UN Security Council and the General Assembly called for Indonesia to respect the territorial integrity of East Timor, the U.S. for most of the war took a middle ground

position. It accepted East Timor's integration into Indonesia but did not recognize the Balibo Declaration.<sup>19</sup>

The situation changed in 1991 after Indonesian soldiers massacred between 50 and 250 pro-independence protestors at the Santa Cruz cemetery in Dili, the capital of East Timor. Footage of the massacre captured by a Western journalist sparked international outrage, and led to a dramatic decline in military-to-military relations between the two countries. The U.S. ended its International Military Education and Training (IMET) program with Indonesia in 1992. In 1994, it banned some weapons sales to Indonesia following continued reports of human rights abuses in East Timor. One of the few major military-to-military engagements that continued during this period were CARAT exercises at sea.<sup>20</sup>

After the resignation of Suharto in 1998, the new Indonesian president, B. J. Habibie, allowed the East Timorese to vote for either internal autonomy within Indonesia or complete separation. Over 78 percent of East Timorese chose independence, which shocked the Indonesian government and spurred more violence by pro-Indonesia militias. Under pressure from the UN, and many other nations, Habibie accepted an international force of peacekeepers led by Australia. The force, which included U.S. Navy ships,<sup>21</sup> restored order in October 1999, allowing a UN force to take over peacekeeping duties until East Timorese independence in May 2002. In 1999, the Indonesian armed forces also changed its name from the Republic of Indonesia armed forces (Angkatan Bersenjata Republik Indonesia, i.e., ABRI) to the Indonesian National Armed Forces (Tentara Nasional Indonesia, i.e., TNI).<sup>22</sup>

The atrocities exposed by the UN and human rights groups in East Timor in the wake of the intervention led to more U.S. sanctions. Senator Daniel P. Leahy (D-Vermont) added an amendment to the 2000 foreign operations appropriations banning all military training and weapons transfers until Indonesia made significant progress in human rights.<sup>23</sup> For the most part, these restrictions remained in place until the 2004 tsunami, making it very difficult for the Indonesian armed forces to maintain its American-made military equipment. At the time of the tsunami, most of Indonesia's fleet of C-130 transport aircraft were non-operational due to lack of spare parts for repairs. "Everything was shut down and there was kind of an animosity from TNI towards Americans," explained Major Nelson Chang, a U.S. Army officer working in the U.S. Embassy in 2004.<sup>24</sup>

The 9/11 attacks and the subsequent global war on terrorism offered a glimmer of hope for improved relations given the two countries' mutual interest in stamping out terrorism in region, especially following the Bali bombings in 2002 that killed 202 people. President George W. Bush approved \$400,000 in IMET funds for Indonesia with the promise of more if the country improved its human rights record.<sup>25</sup> Indonesia, in turn, allowed overflights of U.S. military aircraft supporting operations in Iraq and Afghanistan and participated in a 2003 CARAT exercise focused on HADR operations.<sup>26</sup> But continued concerns about East Timor and TNI's efforts to block an investigation by American



officials into the killing of two American schoolteachers in Papua province prevented these initiatives from blossoming into a fully restored military relationship between the two countries.<sup>27</sup>

In the meantime, the TNI became increasingly embroiled in an insurgency in Aceh—the epicenter for 2005 relief operations. The Acehese independence movement traces its origins back to 1873, when the Sultanate of Aceh began a 31-year armed struggle against the Dutch for control of the northern province of Sumatra. The struggle resumed in 1953 after Indonesia abolished the provincial status of the region and continued until 1959 when Sukarno granted the region autonomy in religious affairs, law, and education. In 1976, Aceh rebelled again under the charismatic leadership of Hasan di Tiro, the grandson of an Acehese guerrilla fighter killed fighting the Dutch. Tiro's Free Aceh movement (Geurakan Acèh Meurdëka [GAM]) subsequently fought a guerilla war with Indonesia for decades. By 2000, it had made significant gains in the countryside. In May 2003, after several failed cease-fires, the Indonesian government launched a major counteroffensive in Aceh. Approximately 40,000 Indonesian soldiers and police officers battled 3,000–5,000 rebels, killing thousands of civilians and rebels in the process. It represented the largest military operation in TNI's history since the 1975 invasion of East Timor. According to Human Rights Watch, Indonesian forces summarily executed captured GAM insurgents, employed indiscriminate and disproportionate force in the campaign, and directly attacked civilians and civilian property. By December 2004, TNI had driven GAM into remote regions of the province. "Nonetheless," as authors William H. Frederick and Robert L. Worden attest, GAM "remained a potent adversary and political force." Into this highly strained politico-military environment, a U.S. Navy-led relief force with almost no knowledge of Indonesia (and only a few people who even spoke the language) would launch one of the largest HADR operations in modern history.<sup>28</sup>

## **The Earthquake and Tsunami Strike**

When the magnitude 9.0 earthquake struck off the northern coast of Sumatra, Indonesia on 26 December 2004, it was what geologists call a mega-thrust event when two tectonic plates release pressure accumulated over centuries. The main fault line of the quake was 100 miles in width at its widest points and between 720 and 780 miles in length—the longest such rupture in recorded history. It was also the longest duration of faulting on record, lasting over ten minutes. The earthquake was felt throughout Sumatra and in Bangladesh, India, Malaysia, Maldives, Myanmar, Singapore, Sri Lanka, and Thailand. A seismic station as far away as Oklahoma picked up the initial shock wave. It produced an oscillation of the Earth's surface of eight to twelve inches. The hardest-hit area by the initial quake was the city of Banda Aceh in northern Sumatra.<sup>29</sup>

The quake generated a massive tsunami that struck Sumatra within 15 minutes and the east coast of India in 90–120 minutes. No early warning system existed to alert people to the impending waves. Thailand was hit two hours later and South Africa, 16 hours after

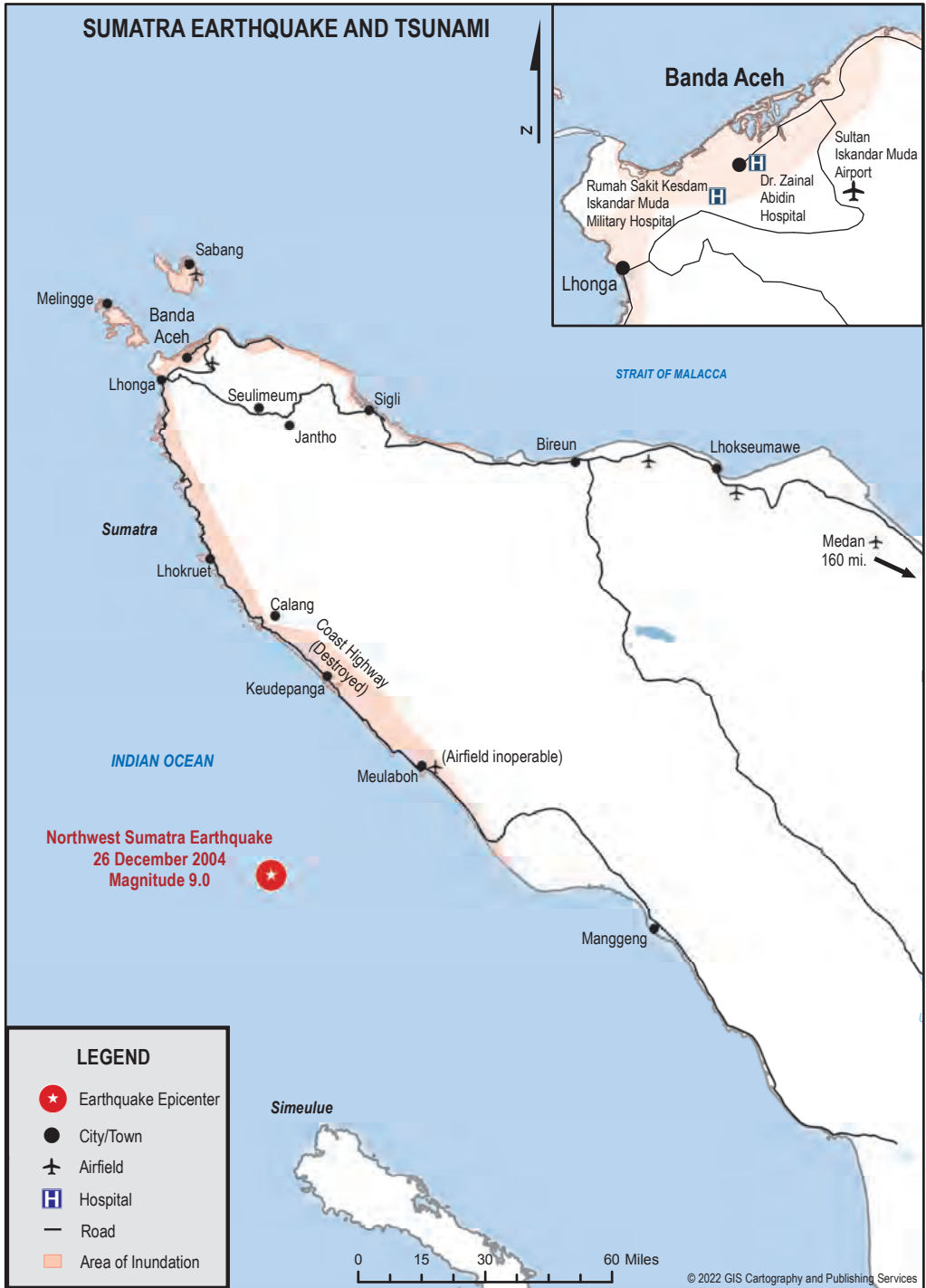




Aerial photo of tsunami damage at Meulaboh, Indonesia, in 2005. (Technical Sgt. John M. Foster, USAF; NARA, DF-SD-07-43683)

the earthquake. Some of the tsunami's energy moved across the Pacific Ocean, hitting the coasts of North and South America with smaller but measurable waves. The height of the individual tsunamis depended on the direction the shoreline faced and the depths of the surrounding waters. Sumatra's northwestern coastline saw waves cresting over 98 feet high, whereas the tsunami averaged 12–15 feet in Sri Lanka and Thailand. In Thailand, the tsunami hit many tourist beaches, including Phuket, and killed over 5,400 people. Sri Lanka, where over 35,000 people were killed, suffered the highest death toll outside of Indonesia.<sup>30</sup>

Sumatra's northwestern coastline, especially the area of western coastline stretching 100 miles from Banda Aceh to Meulaboh, was the hardest-hit by the tsunami. Over 167,000 people died. In the city of Banda Aceh, three waves struck 20 minutes after the earthquake. The first wave rose to the foundation of the buildings, followed by a large withdrawal of the sea and then a second and third wave. A field survey by the University of Southern California noted that areas close to the sea were "wiped clean of nearly every structure." Even as far as three kilometers from the shoreline, most structures, except those made of steel-reinforced concrete, succumbed to the mighty force of the waves.<sup>31</sup> Women and children represented the largest share of the victims because these groups often ended up trapped indoors when the waves struck whereas men tended to be working outside.<sup>32</sup>



Areas of Northern Sumatra Affected by the 2004 Earthquake and Tsunami.

Media reports of the event began appearing in the United States on 26 December, Eastern Standard Time—one day after earthquake occurred (because of the international dateline). Despite later criticism of the media for not getting the story out more quickly and underreporting casualties, an examination of initial media reports reveals that the media did its best to accurately report the event at the time given the information provided to them by local governments. *New York Times* reported that “the most powerful earthquake in 40 years struck south Asia this morning, triggering tsunamis that smashed into villages. . . . killing thousands and leaving hundreds missing. Sri Lanka, India, and Indonesia were hit hardest.” The article went on to state that based on preliminary data from the Sri Lankan, Indian, Thai, Malaysian, and Indonesian governments, the death toll exceeded 10,000. The article accurately reported that over a million people in Sri Lanka (5 percent of the population) were affected and that the death toll there was 4,000 and expected to rise (the true number of deaths exceeded 35,000). It also stated that worst hit area of Indonesia was Aceh province, “closed to foreign agencies due to a long-running separatist conflict,” and that the death toll in that area exceeded 3,000. The news blackout imposed by the Indonesian government in the province combined with the province’s shattered infrastructure and communications systems unquestionably contributed to lowball initial death estimates.<sup>33</sup>

A day later, both CNN and the *New York Times* raised estimates of dead above 13,000 and began providing more details of the event and its destruction. Both news outlets noted that the earthquake measured 9.0 on the Richter scale and erupted underwater off Sumatra—information that helped planners direct most resources to Indonesia as opposed to less affected regions such as Thailand and Sri Lanka.<sup>34</sup>

Planning for a HADR operation began at the U.S. Pacific Command (PACOM) headquarters in Hawaii the day the tsunamis struck.<sup>35</sup> Admiral Thomas Fargo, the PACOM commander, immediately stood up an operational planning team at Camp Smith in Hawaii, and Admiral Walter F. Doran, commander of the Pacific Fleet, began alerting the Seventh Fleet and other subordinate commands about a possible operation.<sup>36</sup> At the time of the quake, the *Abraham Lincoln* Carrier Strike Group was in Hong Kong and the *Bonhomme Richard* (LHD-6) Expeditionary Strike Group was in Guam. These units were instructed by PACOM to proceed to the disaster-affected area on the 27th following the announcement by Secretary of State Colin Powell that the United States would provide disaster assistance to the region.<sup>37</sup> White House and DoD approval for military participation in the relief operation soon followed. Both Secretary of Defense Donald Rumsfeld and his deputy, Paul Wolfowitz, were strong proponents of the mission. As Bruce Elleman explains, both men “argued that renewing full U.S. military ties with the world’s largest Muslim nation was an essential part of winning the war on terror.”<sup>38</sup>

That same day, PACOM ordered the deployment of five Air Force C-130 medium transport aircraft and two Navy P-3C maritime patrol aircraft to U-Tapao Royal Thai Navy Airfield, Thailand. Built by the United States during the Vietnam War, the base had

an 11,500-foot runway capable of handling the largest aircraft in the U.S. inventory. Many of the U.S. pilots flying into the base during the relief effort had landed there previously, either as a stopover for transpacific flights to the Middle East or during regular U.S.-Thai Cobra Gold military exercises.<sup>39</sup> U-Tapao served as the air hub for disaster relief bound for the region and housed a new joint task force (JTF-536). This new task force was established on 27 December under the command of Lieutenant General Robert R. Blackman, the commander of the III Marine Expeditionary Force (MEF), to manage a HADR operation to be called Operation Unified Assistance (OUA).<sup>40</sup> Under his control would be a Naval Force (NAVFOR) commander, Rear Admiral (upper half) Douglas Crowder, the *Abraham Lincoln* Carrier Strike Group commander; and an air component commander, Major General David Deptula, USAF, the J-3 for the Pacific Air Forces (PACAF). JTF-536's mission would be to provide disaster support to the governments of Sri Lanka, Thailand and Indonesia "to minimize loss of life and mitigate human suffering."<sup>41</sup> On 4 January 2005, JTF-536 was redesignated Combined Support Force 536 (CSF-536) to reflect the humanitarian, noncombat focus of the operation. Allied military officers as well as representatives from the UN and NGOs would eventually serve on the staff. Under CSF-536 were combined support groups (CSGs) assigned to specific disaster-affected regions: Indonesia (CSG-I), Sri Lanka (CSG-SL), and Thailand (CSG-T). Damage relief assessment teams (DRATs) were assigned to each CSG. Each CSG reported directly to CSF-536 as did NAVFOR and the air component commander. The command relationship between the CSGs and the component commanders (naval and air) was ambiguous during the operation, but both component commanders, two-star officers, outranked the CSGs, which were commanded by one stars.<sup>42</sup>

Lack of information on the extent of the disaster initially hindered planning by the PACOM operational planning team (OPT) and by extension, CSF-536. "Trying to stay ahead of the slowly developing picture, mainly through non-traditional sources via the internet," wrote Naval War College professor Eric Shaw, "the PACOM planners sought to clarify both the degrees of destruction and the areas most devastated."<sup>43</sup> Until the aerial surveillance assets (such as P-3Cs maritime patrol aircraft and SH-60 helicopters) reached the scene and could provide detailed photographic and video imagery of key ports, towns, and lines of communication, the OPT had to rely on overhead satellite imagery analyzed by its own J-2 staff. Fortunately, just months earlier the Joint Intelligence Center Pacific (JICPAC) had created the Contingencies Operational Intelligence Cell, a "fully manned, all-source operational intelligence capability specifically structured to respond quickly to emerging crises within the theater." Embedded in this cell was a team of imagery analysts from the National Geospatial-Intelligence Agency (NGA) who proved vital in coordinating and analyzing geospatial images from national and commercial sources. These NGA analysts assessed damage, updated maps daily, helped NGOs and foreign partners interpret the imagery, and identified helicopter landing zones and places where camps could

be built for displaced persons. They provided PACOM and CSF-536 with an intelligence stopgap until better sources could be developed locally—both technical and human.<sup>44</sup>

As the operation ramped up, it became apparent to planners at PACOM and later U-Tapao that the most significant partner for the operation would be the TNI. At the time of the tsunami, Major General Bambang Darmono ran the Aceh *Kodam*. Although GAM only controlled remote mountainous areas in the province at the time of the tsunami, it had many sympathizers in coastal towns, and the insurgency was very much alive and well. General Bambang wielded government control over the region with a force of approximately 30,000 soldiers and thousands of police. TNI cadres could be found at every level of Aceh society down to the smallest hamlets. In Aceh province, the TNI represented the only government presence in most villages. Developing a working relationship with Bambang and the TNI was one of the most important initial challenges of the U.S. Joint Task Force—a tall order given the strained military relationship at the time. A key individual who helped broker the initial contact was Army Major Nelson Chang, a civil affairs officer fluent in Indonesian attached to the U.S. embassy.<sup>45</sup>

Major Chang was the first U.S. military officer to arrive in Banda Aceh in January 2005. The son of Chinese immigrants from Shanghai, Chang grew up in a bilingual household in New York City and attended Brooklyn Technical High School, an elite magnet school specializing in science and engineering. An Army ROTC scholarship helped pay for his college degree, and after graduating from the University of New Hampshire with a dual history and sociology major, he became an Army intelligence officer. A deployment in 1995 to Wake Island to help care for and repatriate 147 Chinese refugees intercepted at sea provided him with a brief introduction to HADR operations and also the work of the civil affairs branch, which stationed a small number of officers on the island.<sup>46</sup> He quickly became interested in civil affairs work, which involves providing governmental services to areas afflicted by war or natural disasters, and allows its officers to develop a regional focus. Chang eventually transferred to civil affairs in 2003 and attended training at the U.S. Army John F. Kennedy Special Warfare Center and School at Fort Bragg, North Carolina. A student of Asia since childhood, he specialized in Indonesian language and culture. Upon graduation in the fall of 2004, the Army assigned him to a special forces team at the U.S. Embassy in Jakarta. His unit, part of Special Operations Command Pacific (SOCPAC), mainly liaised with the Indonesian special forces (*Kopassus*) on counterterrorism issues. Despite a common interest in fighting Jemaah Islamiyah (the group behind the 2002 Bali bombings) and other terrorist groups in Asia, Chang found it difficult to work with TNI because of what he defined as the “disconnected formal relations” between the two countries.<sup>47</sup>

On 26 December, Chang approached the Office of Defense Cooperation head, an army colonel, and said, “Hey sir, did you hear about the earthquake?” And he said, “Yeah, let’s take a walk.” The two men headed over to the emergency action committee (EAC)—an embassy crisis action group—to try to get a handle on what was happening, but the



lack of media in the area and heavily damaged communications systems meant news was scarce. Seizing the initiative, Chang immediately volunteered to go to Banda Aceh and link up with the local TNI commander, General Bambang, to assess the damage there and determine what type of aid was needed. “I had just graduated from civil affairs school which had a heavy emphasis on HADR operations and thought I had the perfect skill set to help out.” Little did Chang know at the time but he would be on the bow wave of one of the biggest Navy HADR operations in U.S. history.<sup>48</sup>

Chang took just a backpack with a change of clothes with him to Sumatra. He wore civilian clothes and neither brought a uniform nor a weapon with him. “I believed that my best force protection strategy in GAM territory was to blend in as a civilian rather than stick out as a lone American soldier.” He flew first to Medan, the capital of North Sumatra province, hoping to transfer there to a flight to Banda Aceh. After arriving, he immediately headed to the American consulate. “I distinctly remember walking in, and it was chaos,” Chang said. “But it was good chaos.” A Foreign Service National (FSN; an Indonesian employed by the U.S. government) had a phone on both ears and was texting with a cell phone. The FSN managed to pull strings with every useful contact in her rolodex to get him on a Garuda Indonesia airlines flight to Banda Aceh. In his t-shirt and jeans, he looked like an NGO worker and soon made fast friends with several CARE



Major Nelson Chang, USA, with Michael Bäk of the U.S. Agency for International Development (USAID), in Banda Aceh, 2005. (Photo courtesy of Michael Bäk)



(Cooperative for Assistance and Relief Everywhere) personnel on the flight to Banda Aceh. When he mentioned he had no place to stay, they invited him to crash at their safe house near the airport. “We slept in a rundown house with people sprawled out all over the floor, head to toe. I didn’t know who these people were. There was one shower, no electricity, and everyone ate family style. And we got up each morning and went into our vans and saw each other the next night.” Chang stayed there for the first few days of his mission.<sup>49</sup>

The next morning, he met with Michael Bäk, a personal services contractor (PSC) with USAID. A recent graduate of the Johns Hopkins School of Advanced International Studies, an Indonesia expert fluent in the language, and a protégé of Professor Paul Wolfowitz (a former U.S. ambassador to Indonesia who was the deputy secretary of defense in 2004), Bäk emerged as a key figure during the operation. He managed USAID relief supplies being flown into Banda Aceh and also, like Chang, served as an important liaison between the U.S. Navy, the TNI, and NGOs. Bäk, who had met Chang previously in Jakarta, said, “Hey, I was told the *Abraham Lincoln* is coming. You had better inform the TNI.” Still in his jeans and a t-shirt, Chang walked over to the TNI command post at the airfield, which consisted of just a tent with a table and some plastic chairs. General Bambang and a group of officers sat in the chairs, smoking *kretek* (clove) cigarettes, and trying to figure how to get food and supplies to people in areas inaccessible by road with just a couple of helicopters. Chang tried to get the attention of a TNI colonel, but he looked at him incredulously, thinking, “Who is this crazy Asian-looking guy in a Hawaiian shirt? Is he CIA?” As Chang was trying to explain his position, he looked up and saw a couple of Navy SH-60 Seahawks roaring towards the airfield. “Those are American helicopters!” he screamed over the rotary noise. And the TNI immediately got it: the U.S. Navy was coming to the rescue. This was 1 January 2005.<sup>50</sup>



Navy Seahawk helicopters from Helicopter Anti-Submarine Squadron 2 (HS-2) land at the soccer field near Banda Aceh airfield in 2005. (Photographer’s Mate Third Class Katrina V Walter, USN; NARA, DN-SD-06-11992)

### **First Responder: The *Abraham Lincoln* Strike Group**

As a HADR platform, super carriers are not ideal. Expensive to operate and designed more for fixed-wing strike aircraft than helicopters, they are usually not the first choice for HADR operations. During Hurricane Katrina later in 2005, the Navy utilized *Harry S. Truman* (CVN-75) for just 10 days before withdrawing it—mainly because shallower draft amphibious vessels (LHDs, LPDs, and LSDs in particular) could perform the same helicopter support role more effectively from positions closer to the disaster-affected areas. The situation the Navy found itself in 2004 was different. The *Abraham Lincoln* strike group, at three days steaming distance, was the closest major U.S. military asset to Indonesia. Moreover, it carried many more helicopters than usual because of B2C. This pilot program sought to improve the integration of helicopters into carrier flight operations and determine if rotary-wing aircraft could in the future serve as a substitute for fixed-wing anti-submarine warfare (ASW) assets. Rather than the usual S-3 Viking anti-submarine warfare squadron, *Abraham Lincoln* had eight SH-60 and four HH-60H helicopters at the time of the quake. Its escorts carried another six helicopters (four SH-60s and 2 HH-60Hs). The MSC ships and amphibious vessels from ESG-5 would ultimately increase the number of rotary-wing aircraft deployed to 58. As Admiral Crowder later explained, the Navy brought the critical element the TNI needed to get supplies to areas cut off by the tsunami—helicopters.<sup>51</sup>

At the time of the quake, *Abraham Lincoln* was on a Christmas liberty break in Hong Kong. A city known for its restaurants and nightlife, it was a welcome break for the ship after its long passage across the Pacific, but it was a relatively expensive port of call, so festivities tended to be subdued. The religious aspect of the holiday and the fact that many sailors were experiencing Christmas away from home for the first time also served to make this liberty a more restrained affair than normal. Commander Ted “Bench” Williams, the executive officer of Electronic Attack Squadron 131 (VAQ-131), an EA-6B Prowler unit, was in a hotel room on the 26th talking to his wife and children when the earthquake hit. “This was the one and only Christmas I ever spent away from home and I was very sad,” Ted said. “It tore me up hearing my children playing and having fun thousands of miles away.” After Ted hung up, he started watching TV and hearing about the earthquake. “I spent an hour watching footage and trying to figure out what happened” and then headed back to the ship to see what the strike group planned to do. Once aboard, he told his squadron commander, Commander Michael Coury, that he would do anything to assist with any impending relief. Some hours later, Coury told him that he would be going in with the first wave of helicopters, “We’re gonna leave you there [at Banda Aceh airfield], Ted, then we want you to establish a logistics beachhead and start putting things together.”<sup>52</sup>

Another fixed-wing pilot who would eventually work with Williams at Banda Aceh as part of a very small beach detachment was Lieutenant Michael Hsu. Hsu was at a bar with a bunch of other junior officers when he first heard about the disaster. A 1993 Naval

Academy graduate, Hsu had a keen interest in the region due in part to his Malaysian heritage (through his mother). He also had a humanitarian impulse that would eventually lead this F/A-18 pilot to become an emergency room doctor. Convinced that his ship would soon be responding to the disaster, he raced back the ship and began listening in on some of the planning meetings being held in squadron ready rooms. At midrats (midnight rations—a late evening meal) one night, he noticed the deputy carrier air group commander, Captain Matthew Klunder, taking a pill.

“What’s that for?” he asked.

“Oh, this is doxycycline and it’s a malaria prophylaxis. Because I’ll be going ashore to help out.”

“Well, sir, you definitely want me to take one of those too?”

“Why?”

“Because you want me on the ground helping you out as a well.”

“Yes, that’s fine.”

And he sent Hsu down to sickbay right away to pick up his own prescription.<sup>53</sup>

Lieutenant Commander Kevin Kennedy, the operations officer for Helicopter Anti-Submarine Squadron 2 (HS-2), was hanging out with the squadron commanding officer, Commander Michael Horan. He was trying not to think of his pregnant wife alone at home when the word came in from the senior shore patrol leader, Commander Richard Thompson, the HS-2 executive officer, to return immediately to the ship. “I didn’t know exactly where we were going at that point, but I knew implicitly that HS-2 would be a significant player if we launched a HADR operation.”<sup>54</sup>

Back on the ship, Rear Admiral Douglas Crowder, the CSG-9 commander, was already planning for a HADR operation. “I got one of the best orders I ever got, non-nautical orders, from the Seventh Fleet commander,” Admiral Jonathan Greenert. “He called me and said, ‘just mosey on down that way [towards Indonesia]. Mosey is not a Naval term, but that’s what he said.’”<sup>55</sup> Greenert knew that if the strike group was not needed, it could easily come about and be



Rear Admiral Douglas Crowder (*center*) speaks with members of the Australian military in Banda Aceh, Sumatra, Indonesia, during humanitarian relief operations in 2005. (Photographer’s Mate Second Class Seth C. Peterson, USN; NARA, DN-SD-06-07425)

in Korea in time for previously scheduled exercises. Not long after speaking to Greenert, Admiral Crowder received a call from Lieutenant General Blackman. “Hey, I’m the JTF, Joint Task Force Commander,” he said from headquarters in Okinawa. “I’m going to take my staff and go to the base in U-Tapao, Thailand, and run it out of there. So why don’t you go to Indonesia? I don’t know how long it’s going to take them to get there and establish comms, so here’s the commander’s guidance: GO DO GOOD.” That was the best commander’s guidance Crowder ever received.<sup>56</sup> Crowder, in turn, passed this guidance along to his subordinates. He told Williams, who he knew would be critical for the mission, “Hey Ted, if you have any confusion or questions, do good things. Just do good things.” For Williams, Crowder gave him something that he had never experienced before in his naval career: full autonomy to act as he saw fit. “Admiral Crowder is my favorite leader of all time.”<sup>57</sup>

For his NAVFOR, Lieutenant General Blackman chose a commander uniquely suited for this role. The son of a master chief quartermaster who served on the destroyer *Evans* (DD-552) in the Pacific during World War II, Douglas William Crowder grew up around the Navy. He decided to attend the U.S. Naval Academy after attending a Navy-Duke football game with his father in 1964. Originally a math major, he switched to political science to get a broader education and graduated in 1974. During his career, he served 11 tours with the fleet (nine at sea) and ten tours in the Pentagon. For his future role in OUA, two of those assignments had particular relevance.<sup>58</sup>

In 1975, fresh out of the Naval Academy, Crowder was on the guided-missile escort *Ramsey* (DEG-2) steaming off the coast of Cambodia, looking to intercept naval vessels escaping from that country after its fall to the Khmer Rouge. After spotting a patrol group and two other craft laden with 713 refugees on 7 May 1975, Crowder and the ship’s executive officer headed out in the ship’s motor whaleboat to investigate. “At the time, we didn’t know which side the forces were on. We were told to go out, investigate, figure out what was going on,” recalled Crowder. “We decided there wasn’t any use having a sidearm with us, because if they meant ill will to us, we probably weren’t going to win the day.” What Crowder discovered were a group of naval officers and their families fleeing certain death in Cambodia. The two American officers took command of the flotilla and sailed them to Subic Bay. Coming face to face with human suffering at a young age made an impression on Crowder and broadened his understanding of the purpose of navies. It taught him that a navy could serve a humanitarian purpose in addition to a traditional warfighting role.<sup>59</sup>

A second experience that was pivotal for him was the two years he spent studying European economic and political affairs at the University of Lausanne in Switzerland as an Olmsted Scholar. This experience gave him the practical diplomatic skills he would need to make OUA a success. The George and Carol Olmsted Foundation selected promising officers early in their career, gave them just enough language training to survive, and parachuted them into a foreign university. It is up to the officer to figure out the logistics

of living abroad and how to manage in classes taught in a foreign language. “The Olmsted Scholar program,” explained Crowder, who chaired the foundation 30 years later, “does not just allow these young officers to think outside of the box, but what we do is place them outside of the box and tell them to think.” From this program, he learned the importance of listening to people from other cultures and trying to see things from their point of view. He also learned that in a foreign country, every day he walked out of his apartment, he represented the U.S. Navy and the U.S. government. “My professors would always ask me to give the American perspective on things,” and Crowder had to be very careful what he said given that many of his class would become future political and business leaders of Europe. As a testament to his engagement with his classmates and others in Europe, the president of the French parliament awarded him the 1982 Jean Monnet medal for leadership among young people in Europe in a special ceremony held at the Luxembourg Palace in Paris.<sup>60</sup>

The diplomatic skills learned during his Olmsted experience proved vital even before *Abraham Lincoln* arrived in Indonesia. During the transit, the U.S. ambassador to Indonesia, B. Lynn Pascoe, called him and said:

“I’m going to give you a test. It’s two questions, and if you flunk, you are in trouble. Who’s the senior U.S. official when you get here in the country of Indonesia?”

“You are, sir.”

“Good, right answer. Second question. Whose country is this?”

“It’s Indonesia’s.”

“We are going to get along just fine.”

And they did. Except for one short visit with Secretary of State Colin Powell, Pascoe stayed in Jakarta and allowed Crowder to manage the relationship with Indonesian officials in Banda Aceh on his own. Pascoe also allowed Crowder to send one of his officers (Commander Ted Williams) to the embassy as a liaison so that he “would not have to deal with the embassy bureaucracy.” Crowder had Williams to attend all meetings and told him, “If the ambassador’s interested in something, I want you to tell him Admiral Crowder is also fascinated by it.” Williams arrived at the embassy on approximately 5 January and immediately impressed Pascoe. He called Crowder and said, “I’m so glad you sent Williams so you don’t have to deal through all the staffs that are here.” Pascoe also said, “Admiral, don’t call anyone in the embassy except me—just call me directly if you ever have an issue.” For Crowder, having this kind of access to and support from the senior U.S. government official in Indonesia was priceless: “It really cut through the bureaucracy that was the embassy staff.” Pascoe, Blackman, and others in his chain of command inherently trusted Crowder. A lot of that trust resulted from the empathy, emotional intelligence, and good judgement he developed as an Olmsted Scholar.<sup>61</sup>



### ***Abraham Lincoln* Arrives at Banda Aceh**

On 1 January 2005, *Abraham Lincoln*; the guided missile cruiser *Shiloh* (CG-67); the guided missile destroyers *Shoup* (DDG-86) and *Benfold* (DDG-65); and the fast combat support ship *Rainier* (T-AOE-7) arrived off the coast of Banda Aceh, within helicopter range of the airfield there.<sup>62</sup> Crowder instructed Captain Kendall Card, the carrier's commanding officer, to get the ship as close to the shore as possible so the local population "could have a visual of us arriving." He then asked Captain Lawrence D. Burt, the Carrier Air Wing 2 commander (CAG),<sup>63</sup> to fly ashore and figure out who was in charge. "We've had no contact, no discussion, no guidance, no nothing," Crowder later explained.<sup>64</sup>

Ted Williams, who accompanied Burt, recalls the somber mood as the ship arrived five miles off the coast of Banda Aceh. "There were houses floating in the ocean, and dead animals and bodies." On the helicopter, he could not believe what he saw: the entire coastal plain up to the mountains around Banda Aceh was completely brown and decimated. "Everything was gone; there was nothing; and there were ships that were a mile inland, big ships, 200-foot ships."<sup>65</sup> By contrast, the mountains in the background looked very lush and green, "as if nothing had ever happened." Williams noticed that the runway at Banda Aceh had some cracks in it but still appeared functional. He also noticed "thousands" of displaced people milling around the airport.<sup>66</sup>



Major Nelson Chang (*center*) confers with Commander Ted Williams (*right*), executive officer for Electronic Attack Squadron (VAQ) 131, and Captain Lawrence D. Burt, the Carrier Air Wing 2 commander, at Banda Aceh airfield during Operation Unified Assistance in an undated photograph. (Photo courtesy of Ted Williams)



When he saw the SH-60 land, Chang (still in civilian clothes) along with Michael Bäk started running towards the helicopter. The first guy to emerge was Williams. “And that’s where I met Bench [Williams] and the CAG [Burt]. And I’m an Army guy, so I am learning a lot on the fly. I didn’t even know what a CAG was. All I knew was, okay that’s an O-6, and then there’s Bench.”<sup>67</sup> Chang escorted the two officers to meet General Bambang and his staff. The general was a “little miffed” for not being informed of the American mission prior to the arrival of the helicopter on his airfield, but agreed to talk to the naval officers anyway. “It was a very professional meeting,” recalled Williams, “They were thankful that we were there, and they were quickly open and willing to working together.” To bridge the language gap, he and Burt were very fortunate to have Major Chang, who “spoke perfect Indonesian” and interpreted.<sup>68</sup> After the meeting, Burt got on his satellite phone and called Crowder, “You need to get in here, they have a two-star.”<sup>69</sup>

Commander Dan Boyles, the executive officer (XO) for Helicopter Anti-Submarine Squadron Light 47 (HSL-47), flew the admiral to the airfield and recalled the first meeting between the two officers. “Our admiral sat down and had tea with him and talked to him a little bit and warmed things up. Then things just started flowing. That’s when the whole thing really started.” With Michael Bäk translating, Admiral Crowder explained the capabilities and tools of his unit to General Bambang. “Quite frankly, he had no idea the extent of the damage because it hit just south of Banda Aceh down the coast. So, I told him, ‘Let us go scout it out for you and we’ll come back.’” Crowder then travelled 90 miles down the coast by helicopter surveying the damage. “You can see how far the tsunami went inland because absolutely everything had been flattened, everything. Villages were flattened except a couple of palm trees and mosques.” After the flight, Crowder took a call from the head of the Seabees, who informed him that he could send in a battalion immediately to rebuild roads. “Hey listen, it’s not that the roads need rebuilding. There’s no land where the roads were, okay?”<sup>70</sup>

After returning to Banda Aceh airfield, Crowder met again with General Bambang and agreed to have one of his staff attend daily TNI planning sessions with Chang or Bäk translating. TNI would tell them where to deliver supplies every day, and if there was any time after those assigned missions were completed, Navy units would freelance a bit, dropping supplies off wherever people were waving.<sup>71</sup> Bambang agreed to the plan but warned the admiral not to provide any supplies to GAM insurgents.<sup>72</sup> Chang later explained to Williams that most villages would have a TNI non-commissioned officer stationed there, and helicopters should try to the extent possible to follow their directions when unloading supplies. If the village was in a mountainous region away from the coast and no TNI were present, it was probably a GAM-controlled area.<sup>73</sup>

In that meeting, Crowder and General Bambang agreed that beach detachments of 60–80 sailors would be flown in each day to help load helicopters but return the ship at night.<sup>74</sup> As Crowder recalled, “We left one person ashore at night and we brought everyone else back. It was inefficient but safe. Everyone came back, and my ops officer said, ‘We



An aerial view of the devastation in Banda Aceh following the December 2004 earthquake and tsunami. (Photographer's Mate Third Class Jeremie M. Yoder, USN; NARA, DN-SD-06-12137)



Rear Admiral William Douglas Crowder (*left*) listens to Indonesian Army Major General Bambang, the commander of Indonesian military forces in Aceh province, Indonesia, in January 2005. (Photographer's Mate Second Class Seth C. Peterson, USN; NARA, DN-SD-06-07422)

don't do boots on the ground, we do heads on beds.” Because of political sensitivities with Indonesia, the Navy could not send armed personnel to the beach, so sleeping ashore was not advisable given the insurgency. “We went ashore with zero force protection,” but Crowder believed the situation was tenable as long as the U.S. Navy didn't overstay its welcome. With respect to GAM, Crowder applied what he called Maslow's “Hierarchy of Force Protection,” based on the premise that “as long as they need food and water more than they want to take on Americans, we are okay.”<sup>75</sup>

In addition to enhancing force protection, keeping the beach detachment on the ships at night kept the American footprint in Aceh small. Very few tents or other visible signs of U.S. presence were erected. Banda Aceh, to the extent possible, appeared to be run mainly by TNI forces. Sea basing also limited the interaction of the sailors with locals—an advantage in a culturally sensitive Muslim area. Chang witnessed a Marine in Banda Aceh, part of a forward logistics unit, regularly mocking the morning and evening call to prayer. He also noted with concern the presence of alcohol on the beach, especially with NGO workers. Relatively easy access to alcohol could have led to trouble and cultural conflict had sailors remained ashore at night. Prostitution was yet another potential problem avoided by sending the beach detachment back to the ships every night.<sup>76</sup>

### **The Initial Helicopter Missions**

CSG-9 helicopters began flying their first relief missions the morning of 2 January. Each day, helicopters from *Abraham Lincoln* and associated ships would first transport a beach party to Banda Aceh, and then begin moving supplies to affected areas. The aircraft worked in two shifts: one in the morning and another in the afternoon. The beach party transported supplies from a USAID and other stockpiles at Banda Aceh airport to designated landing zones and loaded them into helicopters stripped of all weapons, certain sensors, and other equipment. While a battle rhythm was achieved quickly, pilots and crews faced numerous challenges during the early days of the operation. These included flying in unfamiliar, and generally uncontrolled, airspace; tropical weather; landing zones crowded with people and debris; a chaotic airfield at Banda Aceh; and an ad hoc air tasking system. Because of their training and ability to improvise when necessary, the aircrews and ground crews managed to deliver hundreds of thousands of pounds of supplies to areas in desperate need during those initial days. They also evacuated numerous people requiring medical aid; transported NGO workers to affected regions; and provided the press with images needed to convince the world to send additional help to the region.

During early meetings with the TNI, the CSG-9 team on the beach learned that drinking water was in critically short supply in many places along the coast. The evaporators on *Abraham Lincoln* could produce 500,000 gallons of potable water a day, but the ship had no means of transferring that water quickly to jugs. Engineers on the ship solved the problem overnight by building a manifold capable of filling 20 five-gallon jugs simultaneously at a rate of 700–800 jugs per hour. Several copies of the manifold were produced



for other ships. Crowder then called the commander of Logistics Group Western Pacific (CTF-73) in Sembawang, Singapore, and said, “Go buy as many five-gallon plastic jugs as you can find and put them on ships and get them here.” Rear Admiral Kevin Quinn, the CTF-73 commander, executed this order and other HADR requests flawlessly: “My goal was to rapidly establish a logistics capability that allows us to process much larger volumes of cargo than we normally do.” During the first two weeks of the operation, approximately two million pounds of cargo were processed in Singapore alone, but the water jug order was perhaps the most important. According to Crowder, “I think that’s what really saved the day early on was getting water to folks.”<sup>77</sup>

With the initial priority being water, helicopters would not be able to drop these supplies from a hover but would have to land. Concerns immediately arose about aircraft being swarmed by Indonesian civilians and people getting injured by moving rotor blades. Most SH-60s carried two crew members in the back attached by gunner’s belts. One would exit the aircraft after landing and try as best as possible to control crowds with hand signals and makeshift warning signs written in Indonesian, and the other would hand supplies to the Indonesians. The spotter crew member was plugged into the intercom system at all times and could request immediate lift off if things got chaotic. There



A U.S. Navy H-60 helicopter arrives with food, water, and humanitarian supplies for tsunami survivors on Sumatra, Indonesia, on 7 January 2005. Crowded and disorganized landing zones like this one posed a challenge for helicopter crews attempting to deliver relief supplies. (Department of Defense [DoD], 100813-J-FTE24-782)

were occasional reports of aggressive behavior by civilians at some landing zones (LZs). According to an 8 January CSG-9 HADR Summary, “One aircrew said the crowd was extremely aggressive and was rocking the helicopter.”<sup>78</sup> A HADR Summary dated 11 January reported, a “chaotic crowd” of 100 displaced persons and five TNI at Keude Teunom. “With approximately 20 persons hanging on the aircraft” at one point, the helicopter had to “relocate twice in order to deliver all goods due to the crowd.”<sup>79</sup> Keude Teunom, an isolated coastal village 37 miles north of Meulaboh, remained tense throughout the month of January. On 31 January, a Navy aircrew reported an “unruly crowd” at the town “where IDPs [internally displaced persons] were fighting over clothes and medical supplies.”<sup>80</sup>

These reports notwithstanding, many of the HADR Summaries praised the behavior of the civilian population at LZs. The 8 January summary noted that although no TNI were present at Meunasah Baro, a village 7.7 miles inland from Meulaboh, “the villagers did not rush or swarm the helicopter, rather they formed a line to the helicopters and helped unload the food and water. They then distributed it equitably amongst themselves.”<sup>81</sup> The 9 January Summary stated that, “most LZs . . . are organized and secure.”<sup>82</sup> Every pilot and aircrew I spoke with praised the behavior of the civilian populace, especially



A Navy MH-60S Seahawk helicopter from Helicopter Combat Support Squadron 11 (HC-11) delivers supplies to the inhabitants of Meulaboh, Sumatra, in January 2005. Indonesian civilians often assisted enlisted aircrew in unloading relief material from Navy helicopters. (Photographer's Mate Airman Felix Garza Jr., USN; NARA, DN-SD-06-12091)



compared to what they later witnessed working similar HADR missions in Louisiana and Haiti. If present, TNI would perform crowd control, but in many cases, villagers organized themselves. “They would form bucket brigades and take stuff out of the aircraft,” explained Kevin Kennedy. “We’d give them what they were designated and move on to the next LZ.” Many of the aircrew were shocked at the politeness and gratitude of the Indonesian people. “There was one time where we landed at an LZ and the people brought us a coconut,” recalled Kennedy. “Here are people who have nothing, and they were so thankful for us for being there that they’re giving us one of the few things they do have, which is this coconut.”<sup>83</sup> Ted Williams, who occasionally went on missions, remembered “seeing children jumping up and down with such incredible joy and excitement at the sight of the U.S. helicopters coming, bringing them supplies. It was phenomenal, it was just amazing how appreciated we were.”<sup>84</sup>

After emptying a helicopter of supplies, the pilots would fly to the soccer field, a makeshift landing zone at Banda Aceh airfield capable of accommodating six SH-60s at a time. The beach detachment would spring into action and load the helicopters, usually in 20–30 minutes or less. USAID trucks generally hauled supplies from its stockpile to the soccer field and sailors would form “conga lines” to move the material the last yards to the aircraft. It was a physically demanding job, especially in Sumatra where the average high



Sailors assigned to Carrier Air Wing 2 (CVW-2) and *Abraham Lincoln* carry rice sacks to a waiting MH-60S Seahawk helicopter at Meulaboh, Indonesia, in support of Operation Unified Assistance. (Photographer's Mate Airman Jordon R. Beesley, USN; NARA, DN-SD-06-11679)

temperature in January was 89 degrees. “I’m not a buff person by any means,” said Airman Emily Aleiwe, who volunteered for the detachment, “but when I thought of who was getting the food and supplies, I couldn’t find time to slow down.”

On 15 January, Deputy Secretary of Defense (DEPSECDEF) Paul Wolfowitz visited Banda Aceh and stopped by the “conga line” to shake hands with sailors there. When he got to a truck loaded with rice, he reached out to shake the hand of the female senior chief furiously lifting 40-pound bags of rice onto the shoulders of sailors, one after another. Not knowing who Wolfowitz was, she slammed a bag of rice on his shoulder and said, “Mister, if you come to this field, you haul rice.” Wolfowitz dutifully obeyed her orders with a huge grin on his face. To this day, he keeps a photo of himself hauling that bag across the muddy field.<sup>85</sup>

The beach team commander would hand the pilot a list of places to deliver supplies while the co-pilot carefully tracked the amount of weight being loaded so as not to overload the aircraft.<sup>86</sup> Pilots generally kept their engines running throughout the evolution due to the limited maintenance facilities at Banda Aceh. In an interview, Kennedy said, “We’re a pretty pessimistic group of people, helicopter pilots. We’re always waiting for something to go wrong with our helicopter, so we don’t like to shut down in strange places.”<sup>87</sup>



An Indonesian military representative meets with U.S. Deputy Secretary of Defense Paul Wolfowitz (*center*) during Operation Unified Assistance at Sultan Iskandar Muda Air Force Base, Banda Aceh, Indonesia, on 15 January 2005. Wolfowitz, a former U.S. ambassador to Indonesia, was instrumental in convincing the political leadership in Washington of the humanitarian need for the mission. (Staff Sgt. Sarayuth Pinthong, USAF; NARA, DF-SD-07-44259)



The guided missile destroyer *Benfold* underway in the Andaman Sea. The ship served as a helicopter refueling station for tsunami relief flights into Sumatra, Indonesia, in support of Operation Unified Assistance. (Journalist First Class James Pinsky, USN; NARA, DN-SD-06-13032)

Kennedy and other pilots had the luxury of not worrying about fuel consumption while idling on the ground because Crowder stationed surface and support ships with helicopter flight decks at intervals along the coast to serve as mobile gas stations. These ships offered fueling points convenient to many of the LZs and spared the Navy from having to create a large fuel depot at Banda Aceh airfield for rotary-wing aircraft—yet one more advantage of the sea basing concept. Some of these surface warfare and replenishment ships handled as many as 90 landings per day.<sup>88</sup> These so-called lily pads, not only refueled aircraft but provided aircrews a sanitary place to use the head or grab a bite to eat. According to Lieutenant Chris Crisler, a pilot with HSL-57, “we figured out which ships had the best boxed lunches. So, those were the ones you wanted to get the fuel hit on. They were all up and down the coast. You just looked to see which ship was closest and called them up for refueling. Sometimes they had supplies too. They’d be like ‘hey, we have supplies to give you,’ and we’d be like ‘cool’ and we’d just go deliver them.”<sup>89</sup>

In addition to food and water, medical care along the northwest coast of Sumatra was in critically short supply. The tsunami damaged 147 of Aceh’s 240 medical clinics (61%) and destroyed 30. Hence, once helicopters delivered all their supplies, they occasionally medevacked the most severely injured patients back to Banda Aceh airfield for treatment in field hospitals set up there by various donor nations and NGOs.<sup>90</sup> HS-2 performed 230 medical evacuations of injured and HSL-47 performed 30.<sup>91</sup> For aircrews, these were



some of the most rewarding missions. In one instance, Aviation Anti-Submarine Warfare Operator Second Class (AW2) Scott Wickland of HS-2 had to collect a patient at a local clinic who was drifting in and out of consciousness. Wickland hooked her up to an IV, and then he and his combat crew member carried her out in a stretcher to a waiting helicopter. “People in the village started clapping. It was just amazing how happy they were that we were there.”<sup>92</sup> Ted Williams once transported a seven-year-old girl from the soccer field to the medical tent and could not believe her condition. “She was my daughter’s age and I get choked up just thinking about it. She was limp in my arms, completely dehydrated, and clearly in trouble, but by the next morning she was literally turning cartwheels. It’s incredibly rewarding to see something like that happen.”<sup>93</sup>

In many cases, local medical personal, either Indonesian or working for an NGO, triaged patients and determined who needed transport to more advanced care, but sometimes, aircrews had to make these life or death decisions. Wickland, who had received basic EMT training prior to the deployment, would try and examine people to the best of his ability before taking them on board. “People would come up and say, ‘oh, my leg hurts.’” He had to figure out exactly what was going on: was it a simple bruise or something worse? Wickland saw everything from cuts and scrapes to gangrene during the mission.<sup>94</sup> For the more serious patients, he employed his basic EMT skills to stabilize the patient for transportation to higher-level care at Banda Aceh airport—often in a medical tent run by doctors and nurses from the People’s Republic of China.<sup>95</sup>

Kevin Kennedy mentioned that during some periods, he was told in briefings to limit medevacs to only the most seriously injured because too many civilians were converging on Banda Aceh and sanitation facilities were being overwhelmed. At one LZ, a crew member, a senior chief petty officer, insisted on taking an eight-year-old child back to base for medical treatment. Kennedy denied the request. The senior chief then walked up the window next to Kennedy and showed him his patient. “He pulled his shorts back, and one of the kid’s testicles was like the size of a grapefruit, and I said, ‘Okay, put him in the back. I don’t know what’s going on, but that’s not normal. Put him in the back. Let’s go.’ I figured I’d probably get yelled at,” but no one said anything. Kennedy’s decision that day may have saved the boy’s life.<sup>96</sup>

## **Chaos at Banda Aceh Airport**

The ad hoc nature of some of the missions and the lack of airspace control led to dangerous flying conditions during the early days of the relief effort. When the CSG-9 arrived in Banda Aceh, the control tower was a tent. Singapore Army engineers quickly built a tower, which became operational on 9 January, but TNI refused to allow U.S. controllers to assist the Indonesians with air traffic control.<sup>97</sup> Lack of American military controllers in the tower, according to one Air Force study, “caused frequent delays in receiving clearance into and out of both airfields [Banda Aceh and Medan].”<sup>98</sup> Eventually, a compromise was reached that allowed a team of Australians to assist with air traffic control and American

controllers to be in the tower as observers. Lieutenant Michael Hsu negotiated the latter deal directly with Alwi Shihab, the Indonesian coordinating minister for people's welfare and personal emissary of the Indonesian president. Hsu framed the request as a favor to allow the American controllers to learn from the experience of the Indonesian controllers. "Our traffic controllers started helping out and eventually took over the air traffic control, which really increased the throughput because it was one of the busiest airports you can imagine."<sup>99</sup>

For Navy helicopter pilots, flying during the first week of operations proved to be some of the most challenging in their careers. Commander Dan Boyles, the executive officer for HSL-47 described the situation: "We couldn't communicate with the controllers [because] we had a language barrier . . . We didn't really have to worry about airspace, didn't really have to worry about blocking so many people on the radio. It was just your own aircraft, so you had to set your own aircraft deconfliction. Other than that, it was just an absolute blast. It was a license to fly wherever you want as long as you know the safety limits of the airplane."<sup>100</sup>



A U.S. Navy SH-60B Seahawk helicopter drops off relief supplies at a makeshift landing spot near a mosque in Sumatra, Indonesia. Flying into and out of landing zones like this one and the lack of air traffic control near Banda Aceh Airport created challenging flying conditions for Navy aircrews during Operation Unified Assistance. (Photographer's Mate Third Class Jacob J. Kirk, USN; NARA, DN-SD-06-11987)

According to Kennedy, "It was completely ad hoc." On his second day of flying, he experienced "I won't call them near misses, because that makes it too dramatic, but we came closer to other helicopters flying in the opposite direction than we would have liked." With everyone sharing the same radio frequency, he could not communicate with the other helicopters. After that mission, his co-pilot established a set of visual reference points to bring some order to the skies. Like channel marker buoys, the reference points told pilots where to fly on various azimuths (for example, mosque on right when returning). CSG-9 also established altitude separation for north- and southbound flights, low visibility procedures, and code words for various landing zones.<sup>101</sup>

Even after these safety measures and airspace deconfliction procedures were implemented after a few days of operation, flying into and out of the airport taxed the nerves of even the



most experienced pilots. On 5 January, the day a U.S. delegation led by Secretary of State Colin Powell was visiting Banda Aceh, Kennedy flew to the airfield from the carrier but found his usual landing spot occupied. He saw an open spot between two helicopters but from his perspective did not see a recently erected Australian medical tent. “It was not staked down and it flipped over from my rotor wash.” Although no one was hurt, Kennedy still felt terrible because helicopter pilots must always be responsible for their rotor wash. “You’ve got CNN and everybody else out there waiting for Colin Powell to show up, and here I am minutes before he arrived knocking over a hospital tent with my rotor wash.” Kennedy’s group immediately set to work righting the tent. He also personally apologized to the medical staff there.<sup>102</sup>

Although his squadron mates chewed him out, Kennedy did not receive a reprimand from higher ups because the situation at Banda Aceh was so chaotic during those initial weeks with airplanes and helicopters flying in, tents being erected, and supplies placed in whatever free space was available. Thousands of displaced persons also crowded the field, which did not have effective fencing to keep out people and animals.<sup>103</sup>

On the night of 4 January, a Tri-M.G. Intra Asia Airlines Boeing 737-200 hit a water buffalo and fouled the Banda Aceh runway. Lieutenant Hsu immediately ran to the site to assist in the rescue. The crash sheared off one of the landing gears under one wing and crunched an engine, otherwise the aircraft appeared ok and none of the crew were injured. “The pilots were actually pretty stunned by this, so they went into town, probably to have a stiff drink.” With the help of another 737 crew at the airport at the time, Hsu disconnected the plane’s electrical system so fuel could be safely offloaded from the aircraft. He then called some Boeing tech representatives he knew from his days working as a Super Hornet test pilot, and soon a plan was hatched to get the 737 off the runway, using an aircraft tractor, heavy-duty balloons, a UN-provided forklift, and a specialized 10-ton dolly. Hsu, assisted by a group of aircraft handlers from *Abraham Lincoln* and airport staff, used balloons to balance the wing on the dolly, so the plane could be rolled away. “After the balloons exploded, we used the forklift to hold the wing up while a tow tractor at the nose wheel got the aircraft off the runway. That was a pretty tense moment that had a good and quick resolution.” By 1730 on the 5th, Aceh’s main runway was operational again. Captain Klunder later told CNN, “Fortunately we had enough aid and supply gear that we were not set back, [but] tomorrow would have been a horrendous problem.”<sup>104</sup>

It was one thing for a third-party aircraft to crash, but the loss of a single U.S. aircraft might jeopardize the entire operation. Given the hours being flown by helicopters and their pilots, a crash or other mishap became increasingly likely as the operation progressed. Helicopter pilots averaged 20 more hours per month than normal, “effectively similar to wartime.” Two MH-60S helicopters from Helicopter Combat Support Squadron 11 (HC-11) on *Rainier* together logged 363 hours during one month of the operation.<sup>105</sup> According to Ron Martin, HSL-47 had to carefully schedule its aircraft to avoid having to send too many aircraft into phase maintenance (extensive preventative maintenance that

occurs after approximately 150 hours of flight time for an H-60F/H).<sup>106</sup> “Our maintenance team had to basically work with the operations team in order to balance out the aircraft to ensure that we were able to maintain a steady flow to fly and then fix aircraft as necessary.”<sup>107</sup> Kennedy stated that HS-2 strove to get as many aircraft in the air as possible, “all day, every day.” He personally flew 112 hours in January—over three times what he normally flew during an entire deployment. He and the maintenance officer, because of their experience, typically flew the aircraft in the poorest condition. “I remember one time, one of the helicopters we were flying didn’t have about half the gauges on one side of the instrument panel, but all the gauges worked on the other side. Under normal circumstances, they never would have let us fly that aircraft, but these were the extreme measures we were taking to keep as many assets in the air for as long as we could.”<sup>108</sup>

On 10 January, the stresses and strains of the long hours of flying in the chaotic environment of Banda Aceh finally claimed its first and only Navy victim: an HS-2 HH-60H. The aircraft made a controlled crash on a rice paddy after a mechanical failure in the tail rotor. The aircraft’s co-pilot was adjusting the flight controls in preparation for landing when he noticed a problem with his left pedal (applying pedal changes the direction of the tail rotor blade pitch thus controlling the direction of the aircraft’s nose). The aircraft pilot, one of the most experienced in the unit, waived off the landing and began flying the helicopter but soon lost control of the tail rotor and the aircraft began to spin. The pilot then made an emergency landing on a rice paddy near the Banda Aceh airfield. Apparently, a small oil tank cap came off in flight, fell down into the tail cowling, and lodged itself between the two cables that control the direction of the tail rotor.<sup>109</sup> Just before the crash, a quick-thinking aircrew member in the back of the aircraft had the foresight to close the doors. Had those doors been open, some of the 10 passengers might have been thrown through the door spaces and killed. Fortunately, everyone walked away from the crash with minimal injuries.<sup>110</sup> Commander Kennedy was resting in his stateroom when the incident occurred. The duty officer called and told him, “We’ve got an aircraft down in Indonesia.”

“Oh, okay, what do you mean?” he asked, thinking that it was a maintenance issue.

“What’s wrong with it?”

“No, sir, it’s down,” she said.

“What do you mean it’s down?”

“It’s crashed.”

“Oh God, I’ll be right there.”

So he ran to the ready room and began getting briefed on the situation by the squadron duty officer. An airman interrupted, and said “Sir,” and pointed to a television monitor. CNN had just interrupted its normal programming with live footage of the crash site. The aircraft was on its side in a rice paddy just short of the soccer field, and people were climbing out of a cabin window. Seeing survivors was a good sign, but potentially negative press coverage of the episode could have spelled trouble for the mission. Fortunately,



The remains of the HH-60H from HS-2 that crashed near Banda Aceh Airport on 10 January 2005. (Photo courtesy of Nelson Chang)

once officers on the ground confirmed that the crash was caused by a maintenance issue and not hostile fire from GAM, the media lost interest. A CH-53 from the expeditionary strike group eventually transported the aircraft in a sling back to the carrier. It never flew again.<sup>111</sup>

### **Bringing Order to Banda Aceh Airport Operations**

By the end of the first week of January, airlifted supplies had begun to flow to Banda Aceh from eight C-130s operating out of U-Tapao, four out of Jakarta, and five out of Langkawi, Malaysia. The U.S. Air Force also had four C-5s, and six C-17s committed to inter-theater airlift, but the situation at Banda Aceh airfield was too chaotic for heavy lift aircraft to land there until after an Air Force tanker airlift control element (TALCE) and mission support team (MST) arrived and instilled some order, beginning on 10 January.<sup>112</sup> That same day, another TALCE/MST team arrived at Saleh airfield on the island of Sabang just north of Sumatra to attempt to open a second airfield for heavy lift operations. In just four days, those teams helped double the amount of air traffic flying into those airfields and exponentially increased the tonnage of supplies being flown in.<sup>113</sup>

A TALCE team is an Air Force unit with expertise in offloading and loading equipment at austere airfields in combat areas and airlift scheduling.<sup>114</sup> The team that landed in Banda Aceh brought three forklifts, tents, supplies for a 30-day stay, and sophisticated



An aerial view of Banda Aceh Airport on the island of Sumatra, Indonesia. Note that there was very little dry land near the taxiways to store relief supplies and erect tents for military personnel and aid workers. (Photographer's Mate Airman Patrick M. Bonafede, USN; NARA, DN-SD-06-12028)

communications equipment.<sup>115</sup> Technical Sergeant David Satchell, USAF, the team's leader, had been a member of a TALCE unit that helped open Kirkuk, Tallil, and Mosul air bases in Iraq in 2003, but he had never seen anything like Banda Aceh. The place was awash in mud and garbage. People were urinating and defecating everywhere, and water buffaloes grazed near the runways and parking aprons.<sup>116</sup>

As his team was unloading the C-17 that brought them to Indonesia, Satchell looked up and saw what he thought was an HH-60 "hot dogging." This was the same HS-2 helicopter with the mechanical problem discussed previously. After the aircraft crashed, he and his team ran to the site to assist with the rescue. He was almost to the wreck, nearly up to his neck in muddy water, when he realized he needed to return to the C-17, set up communications, and inform U-Tapao of the crash. He let other members of his team assist at the crash site, including a Phoenix Raven security team. Part of the MST sent on the same aircraft as the TALCE, this specially trained security unit deploys in high-threat areas to provide close-in security for aircraft. It, along with marines and TNI, protected the crash site from looters until the aircraft could be craned away by a CH-53 from the ESG.<sup>117</sup>

As soon as Satchell got his communications system up and running, Major General Deptula, who accompanied the TALCE and MST teams to Banda Aceh, immediately canceled night transport flights because of the limited space on the ground for offloading



supplies and the uncontrolled environment at the airfield—both on the ground and in the air.<sup>118</sup> Satchell's team created dedicated depots for supplies and with the help of their TNI partners set up a screening system for displaced persons, the media, and others requesting transportation out of Banda Aceh.<sup>119</sup> Members of the MST constructed a wooden gazebo complete with benches, a table, and lighting for passengers waiting for military flights out of the area.<sup>120</sup>

By 15 January, Deptula believed that the situation had improved enough for limited night missions to resume.<sup>121</sup> During their 17-day deployment to Banda Aceh, Satchell's team handled 240 flights and offloaded over 1.3 million tons of cargo. "That's quite a bit for six folks to maintain." The TALCE unit not only offloaded USAF transports but those from other nations as well. Satchell claims that Australia usually offloaded its own cargo, but most other nations, including Russia, frequently required assistance. The Russian Antonov An-225 Mriya transports, which weren't on the JFACC-generated ATO, would show up unannounced and download supplies willy-nilly on taxiways and parking aprons, disrupting operations.<sup>122</sup> "We would go and take our forklifts and go grab some of that stuff off of the aprons and bring it into the depots that we had created." There were other cultural issues as well. Officers from other countries often refused to heed advice from non-commissioned officers. "The French were bringing in one C-130 after another filled with wool blankets, which were completely unnecessary in the heat and humidity of Indonesia, but none of their officers would speak to me directly because I was enlisted. I had to call headquarters [the mobility cell at CSF-536] to get them to stop."<sup>123</sup>

Satchell also had to handle a delicate situation involving a Pakistani security team guarding the airport. Soon after arrival, the TALCE team noticed that pallets of meals ready-to-eat (MREs) were going missing, especially entrée HM-302, "Halal Lentil Stew with Lamb." Team members began taking shifts watching the pallets at night until they caught some soldiers from the Pakistani unit taking the supplies. "Once we called them on it, they stopped."<sup>124</sup>

Despite only eating MREs, drinking bottled water, and using latrines built by the MST, after two weeks of rough living in Indonesia, nearly every member of the TALCE and MST teams was suffering from severe diarrhea. A Navy hospital corpsman visited the team and tested the mud around their tents. He found extremely high concentrations of fecal matter and soon arranged for the units to visit the carrier for medical attention. The TALCE team spent a couple nights on the ship, seeing medical personnel, taking hot showers, and eating hot meals. The Navy also issued the men clean battle dress uniforms (BDUs) and underwear. The care and the food that the team received on *Abraham Lincoln* allowed the unit to quickly resume their duties at Banda Aceh and spared the Air Force from having to send in a replacement team, which again validated the sea base concept.<sup>125</sup>

Satchell's team departed Banda Aceh on the 27th of January and other TALCE units located at Jakarta and Saleh, Indonesia, departed on 28 January and 1 February, respectively. Major General Deptula later reported that in 47 days of airlift operations in





U.S. Air Force Technical Sergeant David Satchell, the team leader of the TALCE unit deployed to Banda Aceh Airport, uses a radio to coordinate cargo handling during Operation Unified Assistance on 11 January 2005. (Technical Sgt. John M. Foster, USAF; NARA, DF-SD-07-43681)

Thailand, Sri Lanka, Malaysia, the Maldives, and Indonesia, over 100 fixed- and rotary-wing aircraft from the Air Force, Marine Corps, Navy, Special Operations, and Coast Guard airlifted over 12,500 tons of supplies. This number exceeded that of any other humanitarian assistance or disaster relief airlift operation since the Berlin Airlift—a remarkable achievement in joint airpower history.<sup>126</sup>

### **The Air Tasking Order Process**

As impressive as these statistics were, Major General Deptula was not entirely pleased with how the operation unfolded. In particular, he was disappointed that the CSF-536 never allowed him to integrate the NAVFOR helicopter sorties into the overall JFACC ATO: “All I wanted to do was ensure through my tasking authority the timing of when helicopters show up at Banda Aceh relative to when airlift shows up at Banda Aceh so that we could deconflict the scheduling.” Once the helicopters were outside of the immediate Banda Aceh airfield’s airspace, he did not need to control them—they could go wherever TNI or NAVFOR desired. His main concern was with coordinating flights into an out of the airfield to ensure that the base (and its airspace) did not get too crowded and that relief supply movements were orderly: “Banda Aceh is a small airfield, so without this coordination a C-130 will come in and offload, and you can’t bring in another one

because there is no room to bring in any additional equipment.” The Navy resisted his moves, fearing it might set a precedent for centralized control of rotary-wing aircraft in the future.<sup>127</sup>

This difference of opinion between the JFACC (Deptula) and NAVFOR (Crowder) had the potential to open up old wounds dating back to the First Gulf War. During that war, the JFACC insisted that the Navy participate in a joint ATO—an order that lists all air sorties within a certain amount of time (typically 24 hours) and includes information such as call signs, aircraft types, missions to be performed, time over target, and weapons to be carried by each aircraft in a given operation. The purpose of an ATO is to deconflict airspace and allow for a joint or combined air component commander to efficiently and effectively plan, organize, and direct air operations through centralized planning.<sup>128</sup> If one were to compare an air operation to a symphony, the ATO would be the musical score that instrumentalists use to ensure that everyone plays the right part and the composer’s desired effect is achieved. Accustomed to acting independently in vast open ocean spaces, the Navy was unprepared to participate in an ATO in 1990. It lacked a computerized command and control system capable of receiving an ATO electronically. Instead, a 300-page paper copy had to be flown out to participating carriers each day. The resulting delays caused by this process, along with many weapons not suited for littoral warfare, limited naval participation in that war. The Navy contributed close to a third of the aircraft for the campaign but on some days generated less than 20 percent of sorties.<sup>129</sup>

After the Gulf War, the Navy shifted its emphasis from air superiority and battle group defense to operations against targets on land, but discomfort with the heavily Air Force dominated ATO persisted right up to Operation Enduring Freedom (OEF). Naval aviators, as RAND analyst Benjamin Lambeth wrote, chafed “at the alleged rigidity of that document and at its perceived insensitivity to certain unique features of sea-based air power.” Nevertheless, the Navy strove to acquire weapons and systems better geared for joint operations in a littoral environment. These investments paid off handsomely during the wars in Afghanistan and Iraq where Navy strike aircraft integrated seamlessly into ATO process and real synergies were achieved between the services. Naval officers also had key roles in the Combined Air Operations Center (CAOC). As Lambeth wrote, the deputy CAOC commander in Operation Iraqi Freedom, Rear Admiral David C. Nichols Jr., was not just the “senior naval representative in the CAOC but the alter ego for the Air Force combined forces air component commander (CFACC), Lieutenant General T. Michael Moseley.”<sup>130</sup>

Given the great strides made during OEF and Operation Iraqi Freedom (OIF), it dismayed Major General Deptula that these old institutional scars were again being potentially reopened over the issue of rotary aviation. The Navy perceived its H-60 force, which was mainly used for anti-submarine warfare, as fundamentally outside the strike warfare centric ATO. Naval commanders needed absolute control of these assets to defend the fleet’s close-in battle space against submarines. Deptula, who had been involved in air

planning for nearly his entire career, was the Air Force's lead subject matter expert in the area in 2005, having served as the principal air planner in the First Gulf War, the commander of no-fly operations over Iraq in the late 1990s, and the CAOC director during OEF. His academic credentials included a bachelor's in astronomy and a master's in systems engineering from the University of Virginia. Now the dean of the Mitchell Institute for Aerospace Studies at the National Defense University, Deptula is a formidable intellect. His argument for centralized control of all sorties going into and out of Banda Aceh had nothing to do with parochial underservice rivalry and everything to do with achieving operational efficiencies. He recalled, "I needed to have authority such that I could have my staff coordinate with Crowder's staff to ensure that we had a smooth flow of fixed-wing airlift arriving at Banda Aceh, and only after that fixed-wing flow arrives, have the helicopters show up to then distribute it. It couldn't just be random."<sup>131</sup>

Admiral Crowder not only knew General Deptula by his reputation but through time spent with him personally in the Pentagon. The two men had shared a tiny office in 1997 when both worked as senior staff on the first national defense panel and had been tasked to review the quadrennial defense review.<sup>132</sup> "I knew Dave well," said Crowder. "I learned early on the Navy leadership distrusted Dave Deptula, and I learned early on to collaborate with him." When Deptula first flew into Banda Aceh, Crowder immediately placed him on a helicopter delivering relief supplies so he could get a first-hand view of the situation:

We traveled over Banda Aceh, and they showed me the city and then down the coast where I could see firsthand the devastation that the tsunami delivered. It was incredible. . . . You could see the little outlines of foundations where these towns were simply wiped off the face of the earth. We set down in an open area way down on the coast, probably one of those instances where someone was waving their hand a couple of days prior. Hundreds of people came out to greet us and help us unload the supplies that we had. The reception, especially from the kids, was just incredible. They were so happy to receive the supplies; it was like we were Santa Claus on Christmas morning.<sup>133</sup>

Admiral Crowder then invited his old friend out to the carrier. "I put him in the Lincoln Bedroom, the Captain's in-port cabin, which is better than a suite at the Ritz. Then at night, I took him up to my little catwalk on the flag bridge and we had cigars. Then, he gave me his pitch on why all my helicopters should be on the ATO, run out of Hickam [Air Force Base] that was 6,500 miles away. I smiled at him and said, well I can't repeat it in proper company, but I said, 'No, Dave. We're just not going to do that.'" Crowder believed that in the dynamic, close quarters environment of Banda Aceh, any efficiencies achieved by an ATO would have been overshadowed by a cumbersome, bureaucratic process run from afar. Crowder recalled, "When we were flying helicopters



Major General David Deptula (*center*) walks with Colonel Mark O. Schissler (*left*), 374th Air Expeditionary Wing commander, at U-Tapao Royal Thai Navy Airfield, Thailand, on 22 January 2005. During Operation Unified Assistance, U-Tapao served as the hub for intratheater airlift operations. (Technical Sgt. John M. Foster, USAF; NARA, DF-SD-07-45586)

there, the carrier was about three miles off [shore]. I could see them leave and land. I am not going to go to Hickam and say, ‘Mother may I have a helicopter go downrange?’ Come on Dave. It isn’t going to happen. It’s one of those intermural tussles you have to deal with.”<sup>134</sup>

“I understood Doug’s position,” Deptula later told me. “I understood the institutional Navy’s position—what am I going to do? Jump up and down and have a temper tantrum? I did my best to convince them but the joint task force commander had the final say and said he wasn’t giving me TACON [tactical control]. Okay, fine. So, we moved on and made the situation work as well as we could. So, my point is not that it prevented us from accomplishing the mission. It clearly didn’t. But it could have been a heck of a lot more effective and efficient in resolving some of the challenges that were presented to us in this operation. If we learned that lesson, and adjust, the next time this happens we’ll be better off.” Deptula’s respect for Admiral Crowder and Lieutenant General Blackman (who ultimately sided with Crowder in the dispute) prevented him from raising the issue higher up in the chain of command (with PACOM or even higher) and as Crowder later put it, “making it a *cause célèbre* like it was during the Gulf War.”<sup>135</sup> Neither Deptula nor Crowder harbor any hard feelings or misgivings about the meeting. Deptula was grateful for seeing



*Abraham Lincoln*, which he believed was “the key element of our OUA air operations,” and Crowder was happy to see his friend and share a cigar with him outside the bridge under the stars. So much had transpired in these men’s lives since their time in the Pentagon together in 1997, but fate brought them together on a January evening many years later.<sup>136</sup>

## **Managing and Enabling the Media**

Before the tsunami hit, Aceh province was largely closed to the media due to the GAM insurgency and TNI’s desire to keep the prying eyes of journalists away from its operations. Communications in the area were also notoriously unreliable. As a consequence, after the disaster struck, few people outside of the region understood its full scope. Damage reports and death tolls were greatly underreported, and as Bruce Elleman wrote, “foreign aid did not begin to flow to the region as quickly as it might have otherwise.”<sup>137</sup> Admiral Crowder understood this issue and made it an initial priority to spread the word about the true nature of the situation to the world as quickly as possible. He went out of his way to assist the media in any way he could.<sup>138</sup>

He initially sent Navy photographers on helicopters to take photographs and videos of the devastation. Some of the first images and videos shown on major networks were shot by sailors. Many American newspapers, including the *Washington Post*, published photos taken by sailors on their front pages. Crowder’s next priority was to send key journalists out on missions so they could see firsthand the damage from the tsunami and relief work provided by the Navy. “We had most of the TV anchors come out, Diane Sawyer and Dan Rather, Brian Williams and others. . . . They had no way to get down to that damaged area.” Crowder allowed them to ride on Navy helicopters if they signed a liability release form and allowed a Navy public affairs escort to accompany them at all times. Dan Rather sent images of himself helping unload supplies from a helicopter, and Diane Sawyer also got some great pictures. As Crowder later put it, “Here is America, who’s been bombing Muslim countries at the time for about four years, going to the most populous Muslim country in the world with an open hand, asking nothing other than to help them if they needed it.”<sup>139</sup>

After allowing the *60 Minutes* crew to go out on a mission, Crowder’s public affairs officer, Lieutenant Commander John Daniels, allowed the press to regularly ride helicopters on a first come, first serve basis. He also assigned Lieutenant Commander John Bernard, the public affairs officer for CTF-70, to manage the press ashore. “He was a tremendous help,” explained Daniels. “He allowed the pilots to concentrate on missions while he dealt with the media. It was an overwhelming job.”<sup>140</sup> Daniels also helped transmit video and imagery taken by Navy photographers and the media to the United States using the carrier’s information systems. With the ship’s unclassified system bogged down by the heavy demands of this unclassified mission, he obtained special permission to push video files over SIPRNET (Secret Internet Protocol Router Network), which had much





CBS journalist Diane Sawyer walks with Rear Admiral Doug Crowder on the flight deck of *Abraham Lincoln*, in an undated photograph taken during Operation Unified Assistance in 2005. (Photographer's Mate Third Class Tyler J. Clements, USN; NARA, DN-SD-06-11666)

more available bandwidth.<sup>141</sup> Finally, the ship's crew provided sleeping accommodations, food, and laundry services for the press and the many NGO personnel staying on the ship. Navy cooks on *Bonhomme Richard* (LHD-6) baked Wolf Blitzer of CNN a cake for his birthday.<sup>142</sup> Crowder even allowed Diane Sawyer to stay in the Lincoln Bedroom. "About three weeks later, I got a handwritten note from Diane Sawyer thanking me for supporting her efforts to report on our relief operations."<sup>143</sup>

All this work paid off handsomely in getting the word out to the world that Aceh desperately needed help. Initially, the U.S. government allocated just \$15 million to the operation. By February, another \$35 million was pledged, and by the end of the operation, USAID and DoD would spend over \$400 million on OUA.<sup>144</sup> The Consultative Group on Indonesia, a collection of 30 international donors established by the World Bank and the Indonesian government in 1992 to coordinate foreign aid to the country, pledged some \$1.7 billion in grants and soft loans for tsunami aid in addition to the \$3.4 billion it pledged in 2005 for reducing the country's national deficit.<sup>145</sup>

More than money, the operation and the favorable media attention it generated completely transformed public opinion in Indonesia towards the United States and the U.S.

military. Results from a poll conducted shortly after the operation concluded in May 2005 by the *Lembaga Survei Indonesia* showed that 65 percent of Indonesians viewed the U.S. favorably and backing for Osama bin Laden had declined sharply from 58 percent in 2003 to 23 percent. Indonesians opposing U.S. anti-terror efforts also declined by half, from 72 percent in 2003 to 36 percent in 2005. Indonesian media commentators described these results as the “first substantial shift of public opinion in the Muslim world” since 11 September 2001. A year after the operation in 2006, a similar poll conducted by the Indonesian Survey Institute found that 65 percent of respondents showed a positive perception of the United States, compared to the 15 percent found by Pew Research Center in 2003 following the U.S. military’s invasion of Iraq. Anecdotally, one local imam in Banda Aceh praised the efforts of the U.S. Navy and Marine Corps in his area, saying, “For every gift America gives us, we have to repay America a thousand times over with kindness.” Suropto, the foreign affairs spokesman for the conservative Muslim Prosperous Justice Party of Indonesia said: “American involvement in the relief and humanitarian efforts is a great and praiseworthy step.”<sup>146</sup> John Rendon, who ran one of the largest public relations and strategic communications firms in Washington, DC, at the time, wrote a letter to Crowder after seeing all the media attention generated by OUA: “what your strike group did trumps everything else the United States has done in the Muslim world for the last five years.”<sup>147</sup>

The operation also became part of the inspiration for the Navy’s recruitment slogan in 2009 (and also the title of this book), “A Global Force for Good.” But for Crowder, his proudest moment with regard to press coverage of OUA came a few days into the mission after he received a copy of the 4 January 2005 *Washington Post* in the mail from Admiral Fargo. On the front page above the fold was a picture of two helicopter crew members carrying an injured Indonesian civilian taken by Photographer’s Mate Third Class Gabriel Piper. He immediately summoned Piper to his sea cabin.

“Are you Petty Officer Piper?”

“Yes, Sir,” he replied with shaking knees, thinking he was in deep trouble.

“I’ve called you in for one reason. I’m giving you a heads up that there are about ten thousand professional photographers in this country that are pissed off at you.”

He then showed him the photo. “Good on you.”<sup>148</sup>

## **Non-Governmental Organizations**

Another group the NAVFOR had to work closely with during OUA were NGOs. A total of 109 NGOs from 30 different countries were involved in relief efforts in Indonesia in 2005.<sup>149</sup> A small number of those NGOs were USAID implementing partners—NGOs that had a preexisting memorandum of understanding with that agency to provide aid in the event of a crisis. “Those are generally NGOs that they hire,” explained Chang, “USAID basically writes checks to those NGOs when a disaster occurs.”<sup>150</sup> The rest were independent of the U.S. government or any government. This much larger latter group tried to



Two U.S. Navy aircrew members assigned to HS-2 carry a seriously injured woman to a waiting helicopter for transportation to a medical facility. (Photographer's Mate Third Class Gabriel Piper, USN; NARA, DN-SD-06-07443)

maintain an appearance of neutrality by keeping NAVFOR, TNI, and GAM alike at arm's length. These NGOs believed that any perception of support from a military organization could limit their access to distressed civilian populations or even make themselves a target. Relying on U.S. Navy helicopters to deliver their supplies to TNI cadre in local villages was particularly problematic for them. At a very minimum, they wanted to deploy their own people to affected villages to assess the situation and then distribute supplies as needed. NGO personnel on the ground would ensure that aid reached only people in need and did not end up being intercepted by black marketeers. The stumbling block for these neutral NGOs was that they did not have enough airlift to move personnel and supplies to the stricken villages.<sup>151</sup>

Without adequate numbers of helicopters of their own (at least initially), NGO managers were compelled to request help from Admiral Crowder. On 31 December 2004, DEPSECDEF Wolfowitz signed a memorandum authorizing DoD to provide non-reimbursable airlift for NGOs participating in HADR in Indonesia and their supplies and equipment.<sup>152</sup> With this authorization in hand, Admiral Crowder invited NGO representatives to a meeting on the carrier to determine how to proceed. They all wanted to act independently, but Crowder told them, "I am not transporting 12 assessment teams to

each village. I will move one team and that's it." This dictate compelled the NGOs to develop a common plan with his staff regarding who, what, and when went "downrange in his helicopters." He knew he had "all the aces," i.e., the helicopters, and he used those cards to get the NGOs to cooperate with each other and work more efficiently and effectively.<sup>153</sup>

Each day following the meeting on *Abraham Lincoln*, representatives from NGOs, the UN, TNI, and NAVFOR met in a tent at Banda Aceh airport to discuss the next day's operations and helicopter requirements. Lieutenant Hsu co-chaired many of these civil-military meetings with representatives from TNI and the UN. "Early on," he said, "NGOs would approach us and say, 'We need this, we need that.' And of course, everyone wanted helicopter transport for their people and material." After the meetings commenced, he noticed that the NGOs began working together more to "rack and stack priorities." These NGOs began learning about each other's capabilities, pooling resources, and helping each other to the extent possible.<sup>154</sup>

An unexpected but certainly welcome byproduct of the relationship that NAVFOR forged with the NGO community was actionable intelligence about the humanitarian situation in villages and IDP camps in the affected region. The intelligence came from assessment teams, aid workers, and medical personnel that NGOs sent out to these places. Some of the most significant assessments were conducted by interagency assessment teams (IATs) led by the WFP. These teams were composed of representatives from various nations, the UN, and NGOs. CSG-9 housed the assessment teams aboard *Abraham Lincoln* and transported them daily between 13 and 20 January to various sites along the northwestern Sumatra coast to evaluate the humanitarian situation.<sup>155</sup> IATs were particularly effective in gathering information on IDP camps and soon became the Navy's "chosen assessment tool" to determine the health and well-being of people rendered homeless by the tsunami.<sup>156</sup>

According to CSF-536, non-traditional HUMINT (human intelligence) from the IATs, NGOs, the UN, and mission reports from NAVFOR helicopters were the "most useful" intelligence due to "presence on the ground."<sup>157</sup> This ground-focused intelligence picture of the region augmented classified surveillance imagery, which was always in short supply. According to Rear Admiral David "Jack" Dorsett, the PACOM director for intelligence in 2005, "open source, unclassified reporting from host nations, NGOs, and non-defense U.S. agencies provided a wealth of knowledge."<sup>158</sup> Together, these groups offered information on the needs of over 60 displaced person camps. They also helped determine the physical condition of over 200 bridges, 35 airfields, and 15 port facilities—which the NAVFOR intelligence staff utilized to create detailed line of communication studies.<sup>159</sup>

It is important to stress that NGOs did not wish to be perceived as intelligence collectors. As Eric Shaw noted, NGOs were "leery of providing information to the U.S. military for fear of being seen as accomplices if not outright agents of the United States."<sup>160</sup> Consequently, it was important for Michael Hsu and others involved in the civil-military



meetings to portray the NGO efforts as a humanitarian information exchange designed to facilitate the transfer of aid to victims. To make the situation more reciprocal and further improve information flow between the military and civilian organizations, NAVFOR stood up a “Spark” team consisting of electronics and communications specialists led by an intelligence officer on 20 January. The Spark team flew to Banda Aceh daily to collect information from NGOs, UN, and USAID. In return, the team distributed unclassified information from NAVFOR sources, including digital imagery collected by P-3s and SH-60 aircrews. According to a CNA analyst Sunoy N. Banerjee, who was stationed on *Abraham Lincoln* during OUA, “The feedback on the efforts of the Spark team was very positive. Many NGOs stated that they wished the Spark team had been formed earlier in the crisis so that the information it provided could have had greater impact on their response.”<sup>161</sup>

### Information Sharing and Intelligence

The requirement to share information with NGOs and other non-DoD partners created unique demands for unclassified intelligence. Over 95 percent of the data used by the intelligence professionals during the operation was unclassified. Much of it came from the following sources:

- NGOs and IATs
- CSF-536 Disaster Relief Assessment Teams (DRATs)
- USAID Disaster Assistance Response Teams (DARTs)
- Photographers on Navy and Marine helicopters
- Navy P-3 surveillance planes

In December 2004, CSF-536 in U-Tapao stood up DRATs in Thailand, Sri Lanka, and Indonesia. DRAT-Indonesia (I) arrived at Polonia International Airport, Medan, on the 30 December and began conducting ISR (intelligence, surveillance, and reconnaissance) that same day on Singaporean helicopters.<sup>162</sup> On 1 January, DRAT-I met with TNI officers and together developed the initial order of priority of the operation: water, clothing, shoes, food, shelter material, and medical capabilities.<sup>163</sup> The preliminary assessments conducted by DRAT-I along with the DRATs in Sri Lanka and Thailand also convinced CSF-536 to focus its main military effort on Indonesia as opposed to Sri Lanka as originally planned.<sup>164</sup>

USAID Office of Foreign Disaster Assistance DART teams deployed simultaneously with the DRATs. DARTs ended up being more effective because they were allowed to deploy more personnel and had access to areas denied to the DRAT due to sensitivities over U.S. military presence in Indonesia. While DRAT-I provided the first assessment in Indonesia, the DARTs were later able to provide “a more complete picture” across the expanse of disaster zone.<sup>165</sup>



Navy P-3 maritime surveillance aircraft assigned to the JFACC at U-Tapao had the capability to transmit real-time, high-quality video to CSF-536 headquarters and the intelligence (N-2) shops on *Abraham Lincoln*, *Bonhomme Richard*, and other Navy surface vessels. P-3s provided the most expedient method of collecting imagery, but the information was not easy to share with partners.<sup>166</sup> Much of it had to be collected and distributed on SIPRNET and could not be easily declassified and released. Similar classification and releasability issues existed for DoD satellite imagery.<sup>167</sup>

As a stopgap, NAVFOR increasingly relied on the imagery collected by intelligence officers, journalists, and photographers riding in Navy and Marine helicopters. This so-called sensor enhanced vehicle aerial reconnaissance (SEVAR) provided the most reliable, unclassified source of high-quality imagery for the operation. Personnel with cameras, however, had to be careful not to appear as intelligence collectors in the eyes of the TNI or GAM. Admiral Crowder explicitly told his sailors not to collect intelligence on the insurgency. A Navy intelligence officer once showed him a slide with a big red arrow pointing to a guy in a batik shirt and baggy pants with the annotation, "Possible GAM." Crowder ordered the officer to destroy the photo immediately. "We are not here to do intel," he told him. "If we get caught doing intel, we are going to get kicked out of here. You are putting our people at risk by doing something like this. We are here without any force protection. We are here for the sole reason of helping this country."<sup>168</sup> In another instance, General Bambang pulled Chang aside and showed him a video taken from a Navy helicopter. "He pointed out one of the folks picking up the aid, and he said, 'see that,' and the guy had a weapon underneath his clothing or something, and he said, 'That's GAM. You're giving stuff to GAM!'"<sup>169</sup>

The NGA team at PACOM headquarters augmented SEVAR imagery with unclassified commercial imagery purchased from Digital Globe and posted it on a regularly updated unclassified tsunami web page.<sup>170</sup> This commercial imagery not only proved useful to NGOs and the UN but also to NAVFOR, which had limited overhead assets in the region. Many of these unclassified products compared the amount of vegetation and structures before and after the tsunami. DoD intelligence did not generally contain this type of information.<sup>171</sup>

Air Force U-2s, Predators, and C-130H Scathe Views could have potentially provided more ISR capability for CSF-536 but these assets were denied for a variety of classified reasons.<sup>172</sup> P-3 imagery and photos taken from helicopters; NGO, IAT, and USAID's DART reports; and commercial imagery emerged as the major sources of intelligence throughout the operation. Fortunately for CSF-536 headquarters and NAVFOR, this jury-rigged intelligence system, for the most part, met the intelligence requirements of the mission, which were to determine (1) the whereabouts and immediate needs of the internally displaced persons and other victims of the tsunami; and (2) the physical condition of the Aceh logistical infrastructure—airfields, roads, bridges, and ports. For force protection, a final intelligence concern, Admiral Crowder relied mainly on TNI, maintaining the smallest possible

footprint ashore, and leaving Indonesia as soon as the acute needs of the victims could be met and the mission could be turned over to civilian partners for longer-term sustainment.<sup>173</sup> As Crowder later explained, “We went ashore with zero force protection. That was a huge risk because had there been a serious force protection incident, I’m sure you’d be talking to Captain Crowder today instead of Vice Admiral Crowder.”<sup>174</sup>

Later in the operation, the CSF-536 intelligence division (C-2) established an integrated task force counterintelligence coordinating authority (TFCICA) in Okinawa to identify potential threats to force protection for the operation. TFCICA fused the collection efforts of the Air Force Office of Special Investigation, the Naval Criminal Investigative Service, the Marine Corps Human Intelligence Exploitation Team, and U.S. Embassy chiefs of station in Thailand, Sri Lanka, and Indonesia to provide the CSF with detailed, real-time threat assessments, 24-7.<sup>175</sup>

### **The *Bonhomme Richard* Expeditionary Strike Group and the Special Purpose Marine Air Ground Task Force in Aceh Province**

A key theme of this book is that the Navy’s “gator” fleet of amphibious warfare ships are its best vessels for humanitarian operations. Designed to project ground power ashore, these ships carry many of the tools necessary for humanitarian work, including landing craft, rotary-wing aircraft, ground vehicles, and construction equipment. The CSG, by contrast, was designed to project airpower and lacked many of the overland capabilities of the ESG. Nevertheless, its efforts overshadowed those of the ESG because it arrived on scene six days earlier and possessed enough rotary-wing aircraft, thanks to the B2C program, to have a huge impact during the critical early phase of the effort. Once the ESG began operations in Banda Aceh on 8 January, its unique amphibious capabilities enabled it to catch up quickly. In just 11 days of effort, the ESG delivered 1,403,769 pounds of the supplies—70 percent of what the CSG delivered in 31 days of operation (2,003,637). Large landing craft and heavy lift helicopters made all the difference as did the planning ability, organizational skills (command, control, and communications), and the basic street smarts that the marines and ESG sailors applied to the mission.<sup>176</sup>

At the time the tsunami struck, the *Bonhomme Richard* ESG consisted of seven ships: its namesake LHD-6, a *Wasp*-class amphibious assault ship; *Duluth* (LPD-6), an amphibious transport dock; *Rushmore* (LSD-47), a dock landing ship; the guided missile cruiser *Bunker Hill* (CG-52); the guided missile frigate *Thach* (FFG-43); and the Coast Guard high endurance cutter *Douglas Munro* (WMEC-724).<sup>177</sup> The LHD-LPD-LSD amphibious component, Amphibious Squadron 7 (PHIBRON-7), carried the 2,200 marines, 29 helicopters, six Harrier jump jets, 41 trucks, and 121 high mobility multipurpose wheeled vehicles (HMMWVs) of the 15th Marine Expeditionary Unit (MEU). As per the Marine air ground task force (MAGTF) doctrine, the MEU was comprised of four interoperable elements: command element (CE), ground combat element (GCE), aviation combat

element (ACE), and logistics combat element (LCE). MEUs, led by a single commanding officer, can perform a wide variety of essential military tasks. These include amphibious assaults and raids on the war side of the operational spectrum to missions such as non-combat evacuation operations (NEOs), stability operations, and humanitarian assistance (HA) on the peace side of the spectrum.<sup>178</sup>

What made the unit so effective and versatile was its expeditionary nature, agility, and integration of air, land, and sea military capabilities—characteristics that resulted from its unique marriage with Navy components. While MEUs bring a lot to the fight (including self-contained airpower, artillery, and overland maneuverability), it is the Navy that enables the MEU to operate over the horizon on sea bases and provides it with sophisticated C3I capability (command, control, communications, and intelligence), fire power from the sea, seaborne logistics, and mobility. Navy landing craft bear much responsibility for rapidly transporting personnel and material ashore and then sustaining that force for the duration of an operation. More than simply a transportation service for the Marine Corps, the ESG is a full spectrum enabler.<sup>179</sup>

Each one of the ESG's five landing craft air cushion (LCACs) can transport 120,000 pounds of supplies at 40 knots speed over water. On a typical day at Banda Aceh, the ESG's LCACs and MEU helicopters delivered over 388,000 pounds of supplies to the



Port side view of the amphibious assault ship *Bonhomme Richard* underway off the coast of the island of Sumatra, Indonesia, in an undated photograph taken during Operation Unified Assistance in 2005. (USN; NARA, DN-SD-06-11988)

affected areas. Once ashore, the marines could quickly load palletized supplies onto trucks with its own small fleet of forklifts. The marines ashore could produce 24,000 gallons of freshwater per day with reverse osmosis water purification units and the ships, thousands of additional gallons: *Bonhomme Richard's* onboard distilling plants alone yielded 200,000 gallons of water per day. The ship had a 64-bed hospital with 6 operating rooms, and could set up a 500-bed overflow casualty ward if needed.<sup>180</sup> *Bonhomme Richard* had accommodations and dining facilities for a Navy crew of 1,200 plus 2,000 marines.<sup>181</sup> “No other agency responding to the disaster had anywhere near its [the ESG’s] capabilities,” wrote Dan Baum, a reporter from the *New Yorker* magazine traveling with the ESG.<sup>182</sup>

Commanding this arsenal was a “dream team” of Navy and Marine Corps leaders. Rear Admiral Christopher Ames, the commander of the ESG, graduated from the Naval Academy in 1976 and worked his way up the ranks as a P-3 pilot and later a squadron commander before transitioning to deep draft ship command. As the operations officer to the commander of combined naval forces during Operation United Shield aboard *Belleau Wood* (LHA-3), he helped plan and execute a large-scale evacuation of a 2,500-person UN peacekeeping force in Somalia in 1995. Ames later commanded *Tarawa* during operations in the Arabian Gulf, and Amphibious Squadron 3 and the *Bonhomme*



Rear Admiral Doug Crowder (*left*) confers with Rear Admiral Christopher C. Ames (*center*), commander of Expeditionary Strike Group 5 (ESG-5), and Marine Brigadier General Christian Cowdrey (*right*) about supporting the humanitarian relief efforts in Banda Aceh, Sumatra, Indonesia. (Photographer’s Mate Second Class Elizabeth A. Edwards, USN; NARA, DN-SD-06-11959)



*Richard* Amphibious Ready Group in 2000 during OEF. Polished and executive-like in appearance, Ames had impeccable diplomatic skills from his time in the fleet and at Harvard University, where he earned a master’s degree in public administration from the John F. Kennedy School of Government.<sup>183</sup>

Colonel Thomas C. Greenwood, the MEU commander, also benefited from time spent at the Kennedy School of Government as a national security fellow. He also earned a master’s degree in government at Georgetown University. That education got him out of the “tactical” mindset of troop command into the more strategic and policy-focused world of academia—a thought process he drew upon heavily in OUA. The son of a decorated Vietnam-era marine, Greenwood grew up around the military, mostly in Northern Virginia, but was unsure about following his father’s footsteps when he graduated high school. Instead of entering the military academy or an ROTC program, he opted to attend Washington and Lee University, an elite liberal arts college in Lexington, Virginia. During his sophomore year in college, he finally “made up his mind to serve a couple of years in uniform.” For two summers, he attended the Marine Corps Platoon Leaders Class program and commissioned upon graduation from college in 1977. He quickly rose through the ranks as an infantry officer. In addition to serving in combat in Iraq, Greenwood



Colonel Tom Greenwood, Commander, 15th MEU, helps sailors and marines unload relief supplies for citizens in the city of Meulaboh, Indonesia on 11 January 2005. (Photographer’s Mate First Class Renee Martinez, USN; ID 050111-N-4383M-160)



participated in two humanitarian operations. He was the operations officer (S3) for the 2d Marines in Operation Uphold Democracy in Haiti—a peacekeeping operation following the 1991 coup. His unit conducted an administrative landing near Cap-Haïtien and “migrated right into humanitarian assistance for a couple of weeks.” In 1997, as the commanding officer of the 1st Battalion, 2d Marines, he participated in a NEO of 2,509 American citizens and third-country nationals in Sierra Leone. After those operations, “I felt pretty comfortable dealing with State Department personnel and NGOs, and PBOs [peace building organizations] in that whole world of humanitarian assistance disaster relief and evacuation.”<sup>184</sup>

The third member of the command troika was Captain Michelle Howard, the commander of PHIBRON-7. Howard is one of the most remarkable leaders ever to wear a Navy uniform. The daughter of an Air Force master sergeant and a British mother, Howard’s hero as a child was Queen Elizabeth I, and especially her leadership during the defeat of the Spanish Armada. From the age of 12 onwards, Howard set her sights on attending a service academy even though the academies did not admit women at that time. In 1978, she entered the U.S. Naval Academy with the third class to have female midshipmen. Despite suffering an exceptional amount of torment, she graduated in 1982. She



Admiral Michelle Howard thanks her family, friends, and shipmates following her historic promotion to the rank of admiral at the Women in Military Service for America Memorial on 1 July 2014. (Chief Mass Communications Specialist Peter D. Lawlor, USN; DVIDS, 1430994)

attributes her success at the academy to the support she received from other female midshipmen—especially her roommates. Although women could only serve on auxiliaries, training ships, and hospital ships when she graduated, Howard gravitated towards sea duty, eventually becoming the first African-American woman to command a warship when she assumed command of the dock landing ship *Rushmore* (LSD-47) in 1999. As the commanding officer of *Rushmore* and before that, the executive officer of *Tortuga* (LSD-46), she developed diplomatic skills she later used in OUA. “As a lieutenant commander, I was on a training cruise in West Africa and you’re visiting heads of state and delivering talking points given to you by the State Department. The Navy puts you in environments where you have to think strategically—well beyond the ship.” Howard’s meteoric rise continued in 2004, when she became the commander of PHIBRON-7, and would continue long afterwards. In 2006, she became the first admiral from the Naval Academy class of 1982 and the first female graduate promoted to flag rank. In 2009, she was just three days into a new job as the commander of a counterpiracy task force in the Arabian Sea, Combined Task Force 151, when the MV *Maersk Alabama* was hijacked by pirates. Under Howard’s leadership, the Navy executed one of the most daring hostage rescues in modern history—a story made famous by the film *Captain Phillips* (2013) starring Tom Hanks. Howard would eventually serve as Vice Chief of Naval Operations from 2014 to 2016, and become the first woman four-star admiral to command operational forces when she assumed command of both U.S. Naval Forces Europe–Naval Forces Africa and Allied Joint Forces Command Naples (NATO) from 2016 to 2017.<sup>185</sup>

On 26 December 2004, *Bonhomme Richard* was at sea, over 3,000 nautical miles from Aceh province, steaming towards Guam. Even at full speed, it would take the ESG nearly nine days to reach the affected area. As the unit arrived at Guam on 28 December, sailors and marines looking forward to some holiday liberty ashore were told to remain on the ship while it refueled and took on provisions to steam to Southeast Asia. Its original orders were to transit to Sri Lanka, 11 days steaming distance from Guam. CSF-536 did not change its destination to Indonesia until 31 December. Colonel Greenwood sent a couple of trucks to a local True Value hardware store in Guam and purchased \$50,000 dollars’ worth of lumber, chain saws, tarps, and other material appropriate for HADR operations. “We emptied their shelves,” Greenwood said. Seven hours later, the *Bonhomme Richard* ESG cast off its lines and headed east towards Southeast Asia.<sup>186</sup>

For the next nine days, the command team worked non-stop planning the operation. Representatives from 15th MEU, PHIBRON-7, *Bonhomme Richard*, and ESG-9 formed a Navy-Marine crisis action team (CAT) that continuously revised and refined various courses of action (COAs) based on the evolving intelligence picture and changing destinations of the ESG. Many of the Marine Corps participants on the CAT had trained in rapid planning at the Marine Corps University in Quantico, Virginia. They employed a crisis planning tool called the rapid response planning process (R2P2). Using a set of standardized decision-making processes, R2P2 was designed to frame a problem, develop

COAs, war game COAs, compare and contrast COAs, and develop an operational order in six hours or less. “It’s a very rigorous program,” explained Greenwood, but one that worked very well in “very chaotic conditions where there is a dearth of information or intelligence.” The problem for the CAT was that for much of the trip, they did not know whether they were heading to Sri Lanka or Indonesia. Even after they found out that Indonesia was their destination, Admiral Ames was given very little guidance from Blackman. The message he received simply said: “Proceed at maximum speed to Indonesia. Relieve suffering and save human lives.”<sup>187</sup>

Commander Jeffery “Scott” Jones, the commanding officer of *Bonhomme Richard*, was amazed at the effectiveness of the marines on the CAT. “The marines were the greatest at sitting around a table and coming up with a plan. They drive you through the planning process and you just sit there and follow them.”<sup>188</sup> For Captain Howard, having a diversity of viewpoints on the CAT made all the difference—sailors and marines from different military occupations bouncing ideas off one another. “To quote John Stewart Mill,” she said, “the livelier impression of truth comes out when it collides with error.”<sup>189</sup>

As the ESG passed Singapore, its helicopters sprang into action, bringing sling loads of supplies from the U.S. Navy Logistics Group Western Pacific in Singapore to the ships. “We didn’t stop at all going through the straits, the helicopters were just going back and forth as we transited up the whole time,” noted Commander Jones.<sup>190</sup> Howard solicited advice from several high ranking Singaporean officers during the transit. “The Singaporeans have very good relations with the Indonesians, and their advice was go slow!” Howard noted.<sup>191</sup> The ESG rounded the northern tip of Sumatra on 3 January and soon started seeing debris and bodies in the water. For Jones, the most memorable site was an Indonesian floating in the sea on what remained of his house. “We passed a guy in his hut that had floated out to sea, and he refused to leave his house. We called in to tell the Indonesians that this guy was out there, but we didn’t stop to try and pull him off. That could have gone bad for somebody. So, we decided to leave him on there and let the Indonesians deal with him.”<sup>192</sup>

The first tasking received by the ESG was to clear a backlog of supplies at Medan Airport that threatened to halt operations there. On 4–5 January, marines and sailors from *Duluth* and *Bonhomme Richard* organized and palletized “mountains” of supplies and transferred the material to ships for movement up the coast.<sup>193</sup> Although the WFP and several NGOs, including the American Red Cross, had managed to fly in supplies to Medan on contracted aircraft, they had no means of marshalling and distributing the material. Instead, their transports had dumped goods on the sides of the taxiways. In contrast to the ESG, the NGOs lacked the forklifts, trucks, helicopters and a myriad of other equipment required to operate in a true expeditionary environment with zero infrastructure. They could not even charge cell phones due to a lack of generators. “One NGO had some helicopters just south of Meulaboh,” recalled Greenwood, “but they couldn’t get fuel to them, so they had civilian helicopters sitting on some airstrip [in

Blangpidie], and we figured out what kind of fuel they needed, and we were able to haul fuel down there for them so they could fly their helicopters.”<sup>194</sup> In two days at Medan, the ESG helped the NGOs organize their material, transport personnel to affected areas, and establish an effective communications network between Medan and Meulaboh. In all, sailors and marines from the ESG organized three warehouses’ worth of supplies, transported 77 pallets of material (31,000 pounds) to ships by helicopter for onward movement, and loaded another 33,000 pounds on C-130s for transit to Banda Aceh airfield.<sup>195</sup>

Discussions about the final destination for the ESG stretched all the way to 3 January, when CSF-536 finally decided that *Bonhomme Richard* would proceed to Meulaboh, and *Duluth*, with three CH-46 helicopters and 400 marines, would sail to Sri Lanka. Located 109 miles south of Banda Aceh on Sumatra’s west coast, Meulaboh lost over 40,000 of its 120,000 people in the tsunami and had been completely cut off with no viable road access. On 31 December 2004, over 400 Indonesian soldiers parachuted into the area with food, medicine, and communications equipment. The commander of the TNI in Meulaboh was Brigadier General Geerhan Lantara, a 1978 graduate of the Indonesian Military Academy in Java who had spent his entire career fighting various insurgencies in Indonesia. As a young officer, he suffered stab wounds while operating in plain clothes during the 1991 Santa Cruz cemetery incident in East Timor. More recently, he had run his sub-district in Meulaboh, Korem 012, with a heavy hand and had a reputation for being a hardliner—not someone who would easily warm to the idea of U.S. Marines operating in his sector.<sup>196</sup> Greenwood, Howard, and Lieutenant Colonel Jay Hatton, the 15th MEU Service Support Group commander, flew into Meulaboh on 7 January knowing they would be facing an uphill battle negotiating the presence of the Marine Corps ashore. “I wanted to convey to the TNI that the marines understood that this was their country and that they were in charge,” said Greenwood. “I already knew that he didn’t want a large footprint ashore.” It still surprised him that Brigadier General Geerhan initially denied his request to use LCACs to bring supplies in, opting instead to only accept helicopters at a limited number of LZs, many of which were far from the villages most in need.<sup>197</sup>

It took a huge amount of salesmanship just to convince him to allow Colonel Hatton and a communicator to remain on the beach each night to plan the next day’s missions with the TNI and NGO representatives, and even that small request might well have been denied had it not been for a young Indonesian Army lieutenant who approached Greenwood after the initial meetup and in perfect English introduced himself. “Colonel Greenwood, you’re not gonna have any problems here,” he said. “Why is that?” Greenwood responded. “Well, I am a graduate of the Virginia Military Institute in Lexington, Virginia. I went through Marine officer basic training in Quantico, Virginia, and I know FMFM-1 [Fleet Marine Force Field Manual 1, Maneuver Warfare] from inside out. So you just tell me what you need, and I’ll tell the brigadier. We won’t have any communication difficulties.” The lieutenant then explained the main concerns of the TNI. With the insurgency still active in the area, TNI did not want to appear “excessively reliant on U.S. assistance”

and therefore “weak in the eyes of the local populace.” He also explained that TNI remained leery of the U.S. after many years of sanctions. The Indonesian War College, he explained, held a war game each year where the United States uses a HADR operation as a pretext to invade the country. “Once I got over my disbelief, I really understood the nature of why they were naturally wary,” said Greenwood. He returned to *Bonhomme Richard* that day cautiously optimistic, knowing that he could rely on the TNI lieutenant for cultural guidance, not to mention perfect translation. “He was the hero of the operation.” More importantly, he is living proof of the usefulness of military-to-military exchange programs. The investment that the Virginia Military Institute and the Marine Basic School made in educating this young man and indoctrinating him in the ways of the U.S. military paid impressive dividends for both countries downstream.<sup>198</sup>

Initially, the TNI hosted a meeting of stakeholders, including all the NGOs, the WFP, and ESG-MEU representatives, every night at 1800 to go over the missions and priorities for the next day. At 2000, Hatton radioed the information back to the ship. The CAT team then sprang into action planning the next day’s missions and activities, often working well past midnight. Factors that needed be considered included deck cycle time (the amount of time the flight deck was available), deck spots, aircraft availability, mission radius, refueling time, and STTO (start, taxi, and takeoff) time. The six deck spots on *Bonhomme Richard* could sustain up to eight airborne aircraft—more if the flight decks of other Navy ships were used as refueling “lily pads” to extend operational reach.<sup>199</sup> “We were on this pretty demanding planning cycle and execution cycle,” explained Greenwood, “but again, we felt comfortable with it because of the R2P2 training we had done at the Marine Corps University.”<sup>200</sup>

The concept of operations (CONOPS) developed by the ESG involved delivering supplies to isolated coastal areas as well as the city of Meulaboh itself. Like Crowder, Greenwood allowed his helicopters to drop supplies at places of obvious need after all of the TNI designated supply runs had been completed.<sup>201</sup> Marine helicopters also moved NGO supplies and personnel and transferred a Spanish ROWPU (reverse osmosis water purification unit) and French field hospital from Banda Aceh to Meulaboh.<sup>202</sup> In all, the six CH-46s and two CH-53s from HMM-165 flew 417.6 hours and 316 sorties, and moved 1,280 passengers and 692,448 pounds of supplies in support of Operation Unified Assistance.<sup>203</sup>

ESG and the CSG-9 helicopters delivered 75 percent of the emergency relief supplies for OUA. That percentage would have been far smaller had LCACs been employed sooner. One LCAC alone can deliver a 60-ton payload in a single run to the beach—the same amount of supplies as 13 medium helicopters operating for a full day. When the ESG’s five LCACs and one landing craft utility (LCU) were employed on 10 January, they were delivering 52 percent of the ESG’s daily HADR supply load in just two deliveries per day.<sup>204</sup>

Sensitivities with TNI, however, prevented these behemoths from hitting the beaches of Meulaboh until seven days after the arrival of the ESG. Understandably, Geerhan was





A LCAC vehicle, assigned to *Bonhomme Richard* and Expeditionary Strike Group 5 (ESG-5), delivers materials and supplies to the citizens in the city of Meulaboh in Sumatra, Indonesia, on 10 January 2005. (USN, 050110-N-7586B-120)

sensitive about the message that televised images of these 26.4-meter LCACs disgorging truckloads of marines and sailors on his beaches would convey to the Indonesian people. It took days of sensitive negotiations by Greenwood, Hatton, and Howard to change the rules of engagement to allow for limited LCAC operations. “There are four words we used every day with Brigadier General Geerhan,” Greenwood explained, “How can we help?” I didn’t say, ‘Why don’t you use my trucks or my LCACs?’ If I did that, I’d be putting him on the defensive. The Indonesians definitely want to control the size of the footprint. . . . They don’t want to feel like a charity case.”<sup>205</sup> After several days of meetings, Hatton and Greenwood built enough trust with Geerhan to broach the idea of using the LCU, which was basically a modified World War II landing craft. “Once we made a few LCU landings,” Geerhan agreed to let the ESG employ LCACs, “and we eventually were able to use LCACs pretty aggressively and expand the number of landing zones.”<sup>206</sup>

One sticking point for Greenwood was weapons. After it was discovered that one of the marine sentries guarding the inner perimeter of the marine barracks in Lebanon in 1983 did not have a magazine for his weapon when the suicide bomber struck, marines have been very reluctant to deploy anywhere without weapons, even for a HADR mission.<sup>207</sup> As Greenwood put it, “A marine without his weapon is like a burglar without his



An LCU assigned to *Essex*. Photograph taken in at Sasebo, Japan, in 2005. (Journalist Second Class Brian P. Biller, USN; NARA, DN-SD-06-09507)

tools. It's kind of our tradecraft there." In particular, he worried about the vulnerability of large beach parties loading and unloading LCACs. Geerhan and Greenwood struck a compromise that allowed marines to carry side arms. "I also had them bring some crew-served weapons ashore and hide them under tarps. It would have been irresponsible as the commander, given the separatist action and the violence that they had prior to the tsunami, to send marines unarmed ashore."<sup>208</sup>

Much of the supplies delivered in OUA by LCACs were bulk loaded in pallets and forklifted onto TNI trucks for delivery. Greenwood reflected upon this process, saying that "The Indonesian Army wanted to be seen as the distributor of supplies at the local level to the maximum extent possible." That system was much slower than preloading 7-ton trucks on the ship and then having marines drive them directly to areas of need, but it allowed the TNI to be perceived by the Indonesian people as the humanitarian providers. After Greenwood received reports that some supplies were being stockpiled at TNI bases, however, he "cheated a little bit" by having Marine Corps trucks make some direct supply runs to the local hospital and other points in Meulaboh. He also deployed a medical and dental team at that facility and had his engineers repair the hospital water system. "We met the requirement of the Indonesian Army in terms of what they wanted to do, but

we did a lot of direct distribution.”<sup>209</sup> In seven days of operation, the LCACs and the LCU delivered over 700,000 pounds of goods.<sup>210</sup>

The ESG as a whole moved 1.4 million pounds of supplies via 21 landing craft missions and 418 helicopter sorties during the 11 days it participated in OUA in Indonesia.<sup>211</sup> Much of these supplies came from MSC’s combat logistics force (CLF) ships carrying material procured by the Navy regional contracting center (NRCC) in Singapore. The CLF ships included USNS *Niagara Falls* (AFS-3), USNS *Concord* (T-AFS-5), USNS *San Jose* (AFS-7), USNS *Tippecanoe* (T-AO-199), MV *1st Lt Jack Lummus* (T-AK-3011), and MV *PFC James Anderson* (T-AK-3002). Only a small amount of supplies transported by *Bonhomme Richard* and other ESG units came from USAID and NGOs.<sup>212</sup>

It was a tremendous achievement, especially given the political challenges of working with TNI. Seeing the victims floating on the water as the group transited to Indonesia and the devastation on land after the mission commenced served as a motivator for the group. “It was young kids working for the global force for good,” Commander Stephen Greene, the executive officer of *Bonhomme Richard* told me. “We’re trained to fight but we’re also capable of saving lives in humanitarian missions. I think that really pumped people up.”<sup>213</sup> Greenwood will never forget meeting a father and son who escaped the wrath of the



The combat stores ship *Concord* transfers pallets via underway replenishment (UNREP) to another combat stores ship, *Rainier*. These ships were operating in the Indian Ocean off the waters of Indonesia and Thailand in support of Operation Unified Assistance. (Photographer's Mate Third Class Rebecca J. Moat, USN; NARA, DN-SD-05-08692)



tsunami by climbing a tree just before the waves struck the beach only to witness his wife and daughter being swept away and ultimately killed. “I keep a picture of them in my office today. . . . The human suffering that these people went through and the resilience of these people was just amazing, and they were so appreciative of what we did.”<sup>214</sup>

The achievements of the *Bonhomme Richard* ESG were especially impressive given that 400 of its marines, three of its CH-46s, and its LPD, *Duluth*, had to depart Aceh and sail to Sri Lanka on 6 January. Originally, the entire ESG had been slated to go to Sri Lanka, but this tasking was reduced after Marine Corps Brigadier General Frank Panter, the Combined Support Group Sri Lanka (CSG-SL) commander, met with Sri Lankan government officials in Colombo on 2 January. At that meeting, the Sri Lankans informed him that they did not want foreign forces operating in areas controlled by Tamil Tigers in the northeast of the island—the region hit hardest by the tsunami and home to most of the 30,000 Sri Lankans killed. That mandate greatly limited the mission for CSG-SL. On 3 January, Panter decided that *Duluth* would detach from the ESG after delivering supplies to Indonesia and proceed at full steam to Galle to assist the Sri Lankan government in improving the infrastructure necessary to support displaced person shelters and camps.<sup>215</sup>

*Duluth* made the 1,000-mile trip from Sumatra to Sri Lanka in just three days, arriving in Galle on 9 January.<sup>216</sup> The tsunami displaced over 500,000 people in northeast Sri Lanka, and the government hoped to resettle many of them in southern areas away from the influence of the Tamil Tigers. Approximately 90 sailors and marines from *Duluth* went ashore each day to work on various projects, which included demolishing 32 buildings and clearing roads, villages, and beaches of debris.<sup>217</sup> The three helicopters from HMM-165 delivered over 160,000 pounds of food, water, and other supplies to the south and west coasts of Sri Lanka. Typical operations included the transport of supplies from the capital city of Colombo, or from locations further inland, to the affected coastal areas.<sup>218</sup> At the U.S. ambassador’s insistence, an exception was eventually made to allow a 34-person Navy medical team to work in the government controlled area of Jaffna in the northeast.<sup>219</sup> The team from *Duluth* treated 2,000 patients in the Jaffna Hospital and delivered over 7,000 pounds of medical supplies.<sup>220</sup> By the third week of January, CSG-SL believed that Sri Lanka’s capacity to move relief supplies by road had improved enough to begin winding down ESG operations around Galle and allow NGOs to assume its relief duties.<sup>221</sup> On 20 January, *Duluth* departed Sri Lanka and headed towards the Middle East. This ship’s operations in Galle provided the Navy and Marine Corps with a proof of concept that ESGs can engage in so-called “distributed” HADR operations—separate operations in separate geographical areas. It was yet another win for the ESG-MEU concept and the Navy-Marine Corps team.<sup>222</sup>

By mid-January, Lieutenant General Blackman stated “conditions for transition” had been met in both Thailand and Sri Lanka, but said conditions in Indonesia’s Aceh were still challenging. Neither the Indonesian government nor the UN or NGOs had enough

rotary-wing aircraft to meet the supply needs of villages along the northwest coast of Sumatra without NAVFOR assistance.<sup>223</sup> Even by 17 January, 80 percent of supplies from ships, beachheads, and warehouses were still being transported by military helicopters as opposed to trucks provided by TNI, NGO or UN.<sup>224</sup> As a stopgap, Blackman requested that a Special Purpose Marine Air Ground Task Force (SPMAGTF) consisting of *Essex* (LHD-2) and *Fort McHenry* (LSD-43) temporarily deploy to Indonesia to allow the *Bonhomme Richard* ESG to proceed to the Middle East for its scheduled deployment to the Arabian Gulf and for the marines of 15th MEU to proceed to Iraq.<sup>225</sup> But he insisted that this new deployment would be short and that the transition would be completed by mid-February. In an email to the CSF-536 staff, he wrote, “I would like to put a stake in the ground 30 days out—mid-February. Within the next month we need to drive the GOI [Government of Indonesia], UNJLC [United Nations Joint Logistics Centre], and IHC [International Humanitarian City] to develop a plan for distribution of relief supplies on the NW coast of Sumatra without U.S. military support, by on/about 15 February.”<sup>226</sup>



Marine Corps Sergeant Michael Cates, a CH-46 crew chief, waits for a mission on the loading ramp of a Marine Medium Helicopter 262 (HMM-262) CH-46 helicopter at Banda Aceh Airport on 16 January 2005. Another CH-46 with its distinctive tandem rotors can be seen in the immediate background (*center*), and an H-60 (*left*) is parked farther in the background. From 14 January to 9 February, HMM-262 helicopters delivered over 493,755 pounds of relief supplies to Sumatra. (Technical Sgt. Scott Reed, USAF; NARA, DF-SD-07-44803)



On 12 January, *Fort McHenry* arrived in Indonesia and began initial operations near Meulaboh. On 18 January, *Essex* arrived, bringing the U.S. military footprint in Indonesia to a peak strength of 16,010.<sup>227</sup> That same day, the *Bonhomme Richard* ESG departed Sumatra. With the arrival of *Essex*, the SPMAGTF now included four H-60, eight H-46, and four H-53 helicopters plus two LCACs.<sup>228</sup> During its 18 days in Indonesia, SPMAGTF units delivered 2,140,001 pounds of supplies, averaging 118,900 pounds per day. CSG-9, by comparison, averaged 64,000 pounds per day and the *Bonhomme Richard* ESG, 127,000.<sup>229</sup> The LCACs and the fact that the SPMAGTF faced fewer initial bureaucratic hurdles than the other Navy–Marine Corps units explains its relatively high daily productivity rates. To a great extent, negotiations by Crowder, Ames, Greenwood, and Howard and others with the TNI paved the bureaucratic path of the SPMAGTF with respect to rules of engagement. Crowder even managed to convince TNI to open up Sabang Island to military aircraft from the SPMAGTF. The airfield on that island, which is 18 miles north of Banda Aceh, was one of the few intact airfields in northern Sumatra.<sup>230</sup>

### **Transition and the Departure of *Abraham Lincoln***

After the departure of *Bonhomme Richard* on 18 January, Admiral Crowder was eager to head home. “It’s time for us to go,” he told Admiral Fargo during his ship visit. “I feel like I’m in the bottom of the 9th and I’ve got a no-hitter going. I would really like this game to be over.” Stabilization operations had now transitioned to a long-term sustainment mission, and Crowder felt he should get his forces out of Indonesia before they overstayed their welcome with both TNI and the GAM insurgents. Fargo denied the request, telling Crowder that the carrier had to stay until the arrival of *Mercy* so it would not appear as if the Navy was abandoning the Indonesians.<sup>231</sup> Fargo did allow the ship to proceed to international waters to permit its fixed-wing pilots to conduct carrier qualification take-offs and landings.<sup>232</sup> He also explained to Crowder that both Blackman and the U.S. ambassador were frustrated by how long it was taking the UN, the NGOs, and the Indonesian government to build up enough sea and airlift capacity to take over relief operations. Lynn Pascoe put it best when he stated we needed to “get off the stage while the audience is still clapping.”<sup>233</sup>

On the 18th, Crowder assumed control of all military personnel involved in relief operations in Indonesia. CSG-I, which included 200 mostly Marine Corps personnel, was disbanded to reduce the U.S. military footprint in the country. From that date forward, Crowder and his staff worked tirelessly to assist the UN, the GOI, and the NGOs in preparing to assume all relief activities by 10 February. The Spark team and liaison officers were critical in this effort. Michael Hsu worked hard to persuade the UN to put its helicopters on the TNI ATO despite some pushback that such a move might undermine the UN’s neutrality and autonomy. Hsu emphasized that having the UN aircraft on the TNI ATO would make the operation more efficient and safer. “Oh, but y’all will be here for a while?” Katherine Miner, a friendly UN official from the Midwest, asked him. “Well,

hypothetically, if we were gone closer to the end of the month, what would you do?” Hsu replied. “Oh okay, well, we need to start doing this sooner rather than later.” Because of OPSEC (operations security), Hsu could not give Miner a precise date of the carrier’s departure, but by telling her that it would be sooner than later he motivated her and her UN colleagues to move forward with transition preparation. “I felt like we were meeting our goal at that point of getting an orderly transition over to the UN and TNI,” Hsu said.<sup>234</sup>

This cooperation from the UN was especially impressive given that the UN does not function like a typical national government or military organization. It operates as a loose confederation of agencies—each with its own agenda, donors, and associated NGOs. The UN Joint Logistics Centre and the Office for the Coordination of Humanitarian Affairs (OCHA) provide some coordination, but typically representatives from all involved UN agencies need to participate in planning meetings. As the CSF-536 learned, the “UN does very little of what the military would consider deliberate planning.”<sup>235</sup>

By 23 January, the acute health, water, and food needs of the population in northwest Sumatra were being met. The JFACC ended U.S. C-130 flights into Medan on 22 January and into Jakarta on the 24th. Non-U.S. helicopter missions in Aceh over the past three weeks had risen from some 35 a day to 350 a day, and more helicopters were arriving daily from other governments, UN agencies, and NGOs. The GOI established a new coordination committee chaired by the Indonesian National Platform for Risk Reduction (Badan Koordinasi Nasional [BAKORNAS]), which included representatives from the UN and major NGOs. Problems such as access to clean drinking water and proper sanitation remained a threat, but by this point, nearly all of the acute needs of Aceh had been met.<sup>236</sup> David Kaatrud, chief of the UNJLC for the Indian Ocean Tsunami, wrote in an email to Blackman on 28 January that “U.S. military capability will not be required beyond 10 February 2005.”<sup>237</sup>

As UN-NGO relief operations scaled up, NAVFOR operations began scaling down. After 11 days of operations at Meulaboh, *Fort McHenry* spent six days at Calang before departing Indonesia on 31 January.<sup>238</sup> The *Abraham Lincoln* strike group left on 4 February and the *Essex*, on the 8th, leaving *Mercy* and HSV-2 *Swift* (which both arrived on 3 February) as the only U.S. Navy ships in Indonesia.<sup>239</sup> CSF-536 was disestablished on 10 February and JTF-536 reestablished that same day. On 12 February, the OUA mission formally ended with the disestablishment of JTF-536, but *Mercy* would stay in Indonesia until 16 March, conducting more of a standard MEDCAP mission in the country than a disaster response.<sup>240</sup>

Although Crowder grumbled a bit about extending CSG-9’s mission beyond mid-January, the work of his liaison officers and Spark team proved instrumental in getting the transition process moving. The Spark team turned over all releasable information NAVFOR had collected during its operations. This information helped the UN and NGOs maximize their relief efforts in the areas where it was most needed and also hastened the end of their reliance on U.S. Navy resources.<sup>241</sup> By 12 February, for example, the WFP

alone had provided 500,000 people in Aceh with a one-month supply of food using 10 helicopters and a chartered vessel, MV *Kimtrans*.<sup>242</sup> Kaatrud told Blackman that U.S. military support for the “complex” transition was “outstanding.”<sup>243</sup> In an e-mail to Vice Admiral Gary Roughead, the Deputy PACOM commander at the time, Blackman acknowledged just how vital Crowder and his staff were in the transition process: “I understand that *Lincoln* needs to get home sooner rather than later, but Doug Crowder and the CSG staff, not the helos, are integral to a smooth transition and completion of our mission here.”<sup>244</sup>

### USNS *Mercy* Activation

One of the reasons Crowder and his staff had to remain in Aceh until 4 February was to help negotiate *Mercy*’s role in Aceh with the TNI and NGOs already on the ground. As Crowder later explained, “The whole *Mercy* thing I was opposed to. I don’t think there was a single person left that was injured from the tsunami when *Mercy* got there.”<sup>245</sup> Admiral Crowder could not have been more prescient. During the hospital ship’s entire deployment in Aceh from 4 February until 16 March, it treated just seven tsunami-related medical cases.<sup>246</sup> The ship arrived too late to contribute to the acute phase of the tsunami. Admiral Crowder, to his credit understood that the activation of *Mercy* and its transit across the Pacific would not happen in time for the ship to be of any help in the acute states of the relief effort—a significant problem for a ship designed mainly to treat trauma victims. So why was the ship activated and deployed?

Admiral Thomas Fargo, the most significant advocate of the deployment, looked at the deployment in broader terms. Like Crowder, he knew the ship would be of little use to the immediate victims of the tsunami but he believed that it could be very valuable for Aceh’s longer-term recovery. It could provide tertiary medical services (advanced and specialized medical care beyond the capability of NGO field hospitals operating in the region) while local hospital capacity was restored. *Mercy* personnel would not only ease the burden of local providers by treating patients on ship and ashore, but directly assist in repairing and re-supplying the main local hospital, and engage in environmental and preventative medicine efforts to inhibit the spread of disease across the shattered landscape of the province. Finally, the hospital ship was yet another means of reengaging with Indonesia and further solidifying the soft power political gains made by the CSG and ESG. The fact that a ship that had not deployed since Desert Storm and Desert Shield managed to deploy in just five days once activated, transit the Pacific without incident, and perform a humanitarian mission with a mixed military and civilian medical treatment facility—a first in Navy history—is nothing short of miraculous.

The hospital ships *Comfort* and *Mercy* are often referred to as the Navy’s “Great White Ships.” Painted white and emblazoned with 27-foot-tall red crosses, these behemoths have emerged as the ultimate symbol of American soft power. Commissioned in 1986 and 1987 respectively, *Mercy* and *Comfort* were developed to provide a robust, afloat medical



Admiral Thomas Fargo (*center*), Commander, U.S. Pacific Command, and Deputy Secretary of Defense Paul Wolfowitz consume Meals Ready-to-Eat (MREs) during Operation Unified Assistance aboard a C-17 cargo aircraft on 15 January 2005. (Staff Sgt. Sarayuth Pinthong, USAF; NARA, DF-SD-07-44260)

capability for expeditionary U.S. forces operating in forward deployed areas. Both ships are full-service hospitals equipped and staffed for nearly all types of surgeries and outpatient treatments. Their main function, however, is to triage and treat mass trauma casualties in a wartime setting. Fully operational, the ships can receive 300 casualties per day for treatment. With 12 operating rooms, a medical staff of 1,232 and 1,000 beds, the ships have as much capacity as some of the largest hospitals in the United States (by comparison, the Mayo Clinic Hospital in Rochester, Minnesota, has 794 beds; and Massachusetts General Hospital in Boston, 999 beds). Support services on the ship included prosthetics, radiology, lens fabrication, a full-service pharmacy, laboratories, a blood bank, a physical therapy area, a medical equipment repair shop, and a medical supply room. The galley, the largest in the Navy, can feed 2,500 people in two hours. The flight deck can accommodate the largest helicopter in the fleet—the CH-53. At 894-foot-long, *Comfort* and *Mercy*, both converted *San Clemente*-class super oil tankers, are among the largest ships in the Navy.<sup>247</sup>

Despite their robust medical capabilities, the *Mercy*-class hospital ships were not ideal platforms for humanitarian missions far from U.S. shores. It takes a significant amount of time to activate them and transit times are slow. In 2005, these ships remained





An aerial port side view showing the hospital ship *Mercy* underway in the Indian Ocean to support OUA, shown here in an undated photograph. (Photographer's Mate Third Class Rebecca J. Moat, USN; NARA, DN-SD-06-08289)

pierside in Baltimore and San Diego in a reduced operational status (ROS) with skeleton crews of less than 50 MSC civilian mariners to maintain them and ready them to get underway in five days. Given that *Mercy* had not deployed since the First Gulf War in 1990–1991, few of its leaders believed that ship could meet this five-day goal, especially since it had just undergone a series of major engine plant repairs and had not conducted sea trials when the tsunami occurred.<sup>248</sup> Even if it did meet the ROS target and leave San Diego five days after activation (which it did), the ship's relatively slow maximum speed of just 17.5 knots meant that it would take a minimum of 20 days with no stops to sail from San Diego to Aceh over 14,541 kilometers away—the actual transit with stops in Hawaii, Guam, and Singapore took 30 days.<sup>249</sup>

Once in an operational area, *Mercy* was designed to receive patients by helicopter. Moving patients to the ship by boat or from a pier was much more difficult due to the placement of elevators, casualty receiving stations, operating rooms, and wards. Both ships possessed flight decks capable of handling just one helicopter at a time. All patients, escorts, personnel, visitors, and goods had to be coordinated through *Mercy*'s single landing pad. For safety reasons, *Mercy* conducted only daytime flight operations. Furthermore, both ships had no hangars for basing and repairing helicopters.<sup>250</sup> For Unified Assistance,



*Mercy* relied mainly on *Niagara Falls* and *San Jose* for those functions as well as their four helicopters.<sup>251</sup> Force protection was another concern. The GAM insurgency in Aceh meant that pier-side operations, even if there had been a functional pier, were not possible. The ship needed to be guarded at all times by Indonesian Coast Guard cutters and by security personnel based on the ship. Doctors and nurses operating ashore always needed to be guarded by a force protection element, which further taxed the ship's limited vertical lift capability.<sup>252</sup>

The most vexing issue for Admiral Fargo and others in the DoD and the White House who wished to deploy the ship to Indonesia was how to staff the ship's medical treatment facility (MTF). With wars raging in Iraq and Afghanistan at the time, the Navy's Bureau of Medicine and Surgery (BUMED) had very little extra capacity to spare for a HADR mission. In past exercises for potential HADR missions, the ship stood up a 250-bed MTF. If this model was followed for OUA, the Navy would have had to deploy 500 uniformed medical personnel on the ship—impossible given current strains on the system. In the end, this number was reduced to a 100-bed configuration, which required a minimum of 202 medical personnel, including 36 physicians, 65 nurses, and 101 hospital corpsmen. More staff would be needed if *Mercy* intended to send personnel ashore to provide care at local hospitals.<sup>253</sup>

An officer at the center of the MTF's staffing struggles was the director of nursing, Commander Jean Comlish. A no-nonsense Navy trauma nurse by training, Comlish had served at a variety of hospitals prior to joining *Mercy*. They included Camp Pendleton, Okinawa, and the Bethesda Naval Hospital near her hometown of Washington, DC. She had also deployed to Croatia for Operation Provide Promise in 1994 and had seagoing experience as the ship's nurse on *Carl Vinson*. She assumed command of *Mercy*'s nursing staff on 1 December and was still unpacking from her PCS (permanent change of station) move when the tsunami hit. Six days before it struck, she had driven up to Lake Tahoe with her husband, a naval aviator on the Third Fleet staff, for a family ski holiday and the topic of humanitarian operations came up in conversation. "You know honey, we gotta find something for the *Mercy* to do, maybe through Third Fleet, maybe we can integrate you guys and do something humanitarian and that would be great," he remarked. For the next two hours the two officers put together a hypothetical CONOPS for such a mission until Comlish finally said, "Honey, we're on vacation. Could we not be Navy officers for a moment here?" By 30 December she was back in San Diego searching through 107 moving boxes to find enough uniforms for a 6-month deployment.<sup>254</sup>

Packing her seabag was the least of her challenges. "We didn't have mission clarity," Comlish later explained. "We had no idea what we were going to do, or how the MTF was to be configured. The idea was just get out of the blocks, get going, and figure out the rest in transit." After consulting her staff, Comlish decided to focus on staffing a 250-bed hospital that included an ICU (intensive care unit) and a PACU (post-anesthesia care unit). She knew she wanted bedside and critical care personnel and asked her staff to recommend

nurses at the nearby Balboa Naval Hospital with those skills. She also focused her recruitment efforts on lower-ranking nurses. “The last thing I needed was a bunch of O-6 [captain] queens who have been doing JCAHO [Joint Commission on Accreditation for Healthcare Organizations] inspections for the last 50 years. The more top heavy you are, the less clinical care you can provide. I didn’t need any more of my type running around. I can handle that. I needed worker bees.” Junior nurses also tended to be more amenable to the grunt work she would require during the transit. “We all worked as a team with the pharmacy and supplies, forming a big conga line, transferring boxes, and laughing and joking.” The team also spent hours cleaning the previously dormant wards and ICU spaces. One enlisted sailor told Comlish, “Gee, I don’t think I have ever seen an O-5 [commander] sweeping the floor before, much less the DNS [director of nursing staff].”<sup>255</sup>

Another officer intimately involved in preparing the MTF for the mission was Captain David Llewelyn, the commander of the MTF. A Berkeley educated neurosurgeon with experience serving as a doctor on submarines, Llewelyn was at his father’s house in the San Francisco Bay area when the disaster struck. “Thankfully, I had a thumb drive on my keychain with all my hospital ship presentations on it. So I was able with my dad’s computer to just start cutting and pasting and zapping and building a brief and emailing it back and forth to the Third Fleet surgeon, Chris Kellen, for comment. My 74-year-old



Jean Comlish, the commanding officer of U.S. Naval Hospital Guam, giving a talk during the Guam Joint Military Women’s Leadership Symposium on 5 March 2015. Comlish was *Mercy’s* director of nursing during OUA. (Mass Communications Specialist Second Class Chelsy Alamina, USN; DVIDS, 1800082)

dad just thought this was cool.” Llewelyn also spent hours talking with Kellen and many others about what type of staff he might need: “We thought at the time we needed an OBGYN, a pediatrician, more internists, a lot of orthopedic surgeons, and a 50/50 mix between surgeons and outpatient medical doctors.” Llewelyn often had three admirals calling him in an hour. “I spent half of the drive home from San Francisco to San Diego on New Year’s Eve talking to senior leaders. The information was just flying back and forth, and we had no idea if we were going or not, who was going, and what the mission was.” The ship was activated on 1 January and departed for Indonesia on the fifth. A sea trial was held on 2 January.<sup>256</sup>

Lack of clarity about the mission and MTF configuration continued well into the transit as did high-level attention for the ship and its mission. Captain Timothy McCully, a Navy surface warfare officer who served as a liaison between the ship and MSC and later as the mission commander for the relief effort at Nias island after the earthquake there (Operation Unified Assistance II), stated that, “as a staff officer in Pearl Harbor and as a commander on board the ship, I had never seen any deployment, even a carrier battle group in time of war, that had this level of high interest, all the way from CNO’s office right down to CTF-73 in Singapore.” Eventually, Captain Conrad Divis, a well-regarded line officer, came aboard at Banda Aceh to serve as the mission commodore, CTF-73.1.



Captain David Llewellyn, the commander of *Mercy*’s medical treatment facility, shown here presenting a certificate of appreciation to Indonesian army colonel Dr. Dedy Achdiat Dasuki. (Photographer’s Mate Second Class, Jeffery Russell, USN; 050316-N-6665R-010)

He commanded the ship's two main elements: the civilian mariner MSC crew led by Captain Nathan Smith of the U.S. Maritime Service and the MTF directed by Llewelyn. Divis's chain of command consisted of Logistics Group Western Pacific (CTF-73) in Singapore (Rear Admiral Kevin Quinn), Seventh Fleet (Vice Admiral Jonathan W. Greenert), Pacific Fleet (Admiral Walter F. Doran), and finally PACOM (Fargo).<sup>257</sup> "Commodore Divis was a big help to us," explained Commander Henry Villareal, the executive officer for the MTF. His presence allowed Llewelyn and Villareal to focus on running the MTF, and Smith, the physical ship, while he handled some of the larger command issues, not only with upper levels of the command chain but also with additional elements that joined the ship mid-journey, starting with Project Hope, a medical NGO.<sup>258</sup>

## Project Hope

Since *Mercy's* first humanitarian mission in 1987 (a training mission to the Philippines), BUMED leadership understood that staffing hospital ships for humanitarian operations would prove challenging even during times of relative peace. In 1998, the idea of recruiting civilian medical personnel from NGOs for humanitarian deployments was floated during a Navy environmental health center (NEHC) workshop attended by members of Project Hope. More talks followed and it soon became evident to the BUMED leadership that Project Hope would be a good fit for the mission. Founded by Lieutenant William B. Walsh, a Navy doctor who had served on a destroyer in World War II, Project Hope had a long relationship with the Navy. In 1958, it purchased the former hospital ship *Consolation* (AH-15), renamed it the SS *Hope*, and performed medical missions around the world for the next 14 years. Throughout its history, Project Hope has recruited former military doctors and nurses for its hospital ship crew and other missions. It also sent members to professional conferences attended by Navy medical personnel, such as the annual meeting of the Special Operations Medical Association and the NEHC workshop.<sup>259</sup>

In 2001, BUMED formally approached Project Hope about HADR collaboration involving the hospital ships. Project Hope greeted this overture with enthusiasm and soon reached out to a variety of medical associations for help with recruiting volunteers for future missions. Hence, when Admiral Michael Mullen, the CNO, requested assistance with humanitarian staffing in December 2004, Project Hope had a system in place to recruit large numbers of medical staff from top hospitals in the United States with short notice. Nearly one-third came from Harvard University's flagship teaching hospital, the Massachusetts General Hospital.<sup>260</sup> Other physicians and nurses came from 22 medical centers in over 30 states. As per a memorandum of understanding signed by the Navy and Project Hope on 14 January 2005, Project Hope acted as the executive agent of recruitment and coordination. Their effort was supported by several professional organizations, including the American College of Physicians, the American Medical Association, and the American Nurses Association.<sup>261</sup>



Within weeks, Project Hope had recruited over 190 doctors and nurses willing to participate in OUA. To decrease the amount of time these civilians would need to take off from their regular jobs, it decided to send them out to *Mercy* in six shifts with each lasting between 12 and 21 days. Some volunteers would serve just a single shift, but others might stay for two or even more depending on their schedule. Project Hope sent the first shift of 93 people to *Comfort* in Baltimore for a two-day orientation course; the other five shifts were trained aboard *Mercy* during deployment—an added burden for ship’s company and MTF staff.<sup>262</sup> Retired Army Major General Harold Timboe, a former commander of Walter Reed National Military Medical Center, oversaw the Project Hope volunteers during OUA. A second retired Army officer, Brigadier General William Bester, a former head of the Army Nurse Corps, served as his deputy. Project Hope sent Rear Admiral William J. McDaniel, USN (Retired), a former PACOM Surgeon, to represent the NGO on an advance team sent to Banda Aceh. Jack Blanks, who had extensive operational experience with Project Hope as well as the Peace Corps and Save the Children, joined the ship in San Diego to help plan the deployment with Llewelyn.<sup>263</sup> Because Project Hope’s two senior leaders were former military, they integrated easily with the MTF staff. Brigadier General Bester was especially popular. “He had a photographic memory for names and quickly became friends with nearly everyone on the ship,” explained Lieutenant Commander John Parker, the ship’s pharmacist.<sup>264</sup> “He was an awesome leader who became a mentor for me and my nurses,” noted Commander Comlish.<sup>265</sup>

Llewelyn found the entire concept of augmenting the Navy staff with civilians “interesting” and also “a little scary at first.”<sup>266</sup> He worked with Blanks and later Timboe and Bester, who joined the ship in Hawaii, to determine what types of personnel were needed. “It didn’t work quite perfectly because we got a number of people from Project Hope who didn’t really match any group on the Navy slate. It was complicated,” said Llewelyn.<sup>267</sup> Commander Comlish found out about Project Hope in transit from Llewelyn. Her initial reaction was, “Okay, so what are you telling me? I’m not gonna get any more Navy nurses; instead, I am getting all these civilians who are not familiar with the platform?” She was more perplexed when she found out that a third of the nurses were academics from Harvard. “It was great to have PhDs in infectious disease and other specialties,” she said, but her immediate challenge was finding “worker bees” to staff the hospital wards, the ICU, and PACU. She also worried about having to deal with a bunch of academic prima donnas. General Bester quickly assuaged her fears by giving her detailed information about each volunteer nurse’s skills and personality. In the end, the Project Hope personnel chosen for the mission would bond well with their Navy counterparts, and a lot of cross mentorship would occur between the two groups.<sup>268</sup>

The ship picked up its first contingent of 93 Project Hope personnel on 31 January.<sup>269</sup> The Navy personnel began teaching the staff of the NGO about military medicine and shipboard operations, and the volunteers in turn gave lectures at night on their academic specialties. At first there were some adjustment issues. While training on *Comfort*, the



group had been berthed in officer staterooms, and some were dismayed that they would be living in enlisted berthing on *Mercy*. Others had trouble adapting to the military discipline imposed on the ship. “A lot of the people that I was managing had never been aboard a ship before and weren’t used to lights out and all of that,” said Commander Villareal. “Order and discipline were one of my biggest headaches. I wanted to dispel the perception that *Mercy* was some sort of ‘love boat.’”<sup>270</sup>

Training these people quickly in the rudiments of shipboard procedures proved to be the biggest challenge for the civil mariner crew and MTF. Lieutenant Commander John Owen, the ship’s chaplain, recalled some rough moments when the MTF staff tried to train the volunteers on casualty reception: “It was just a cluster. It was just chaos.” However, when the first casualty arrived on 5 February, a young child who needed an appendectomy, he was shocked: “Boom, suddenly they just went to work. And you would have thought that these folks had been working together for months.” He was also amazed at the care provided to the boy after the operation by a Project Hope pediatrician. “I remember her walking over to Waluyo [the boy] and bending over him and smiling. I just thought that her smile must have been so comforting for that little boy, regardless of the fact that she didn’t speak his language. It was just the way she was treating him and talking to him. I felt like if I got sick, I want her to take care of me. She was wonderful.”<sup>271</sup> According to Captain Llewelyn, “it was clear right away that this was quite an amazingly talented group of doctors and nurses.”<sup>272</sup> Project Hope provided several surgical specialties not offered by the U.S. Navy MTF staff, including plastic surgery, gynecology, and urology. Most of its volunteers had degrees from Harvard and Yale and other top tier medical schools. One Project Hope doctor from Mass General was recognized as the best ICU physician in the world at the time.<sup>273</sup> A CNA study found that 30 percent of the surgeries (excluding minor procedures) performed by *Mercy* medical personnel at Banda Aceh were performed by teams of physicians and nurses jointly represented by U.S. Navy and Project Hope personnel. Another 30 percent of surgeries were performed by Navy surgical teams alone, and another 40 percent by Project Hope surgical teams. Operating rooms, ICUs, and wards were completely integrated. “One could not tell in the operating theater the origin or attachment of the surgeons” or the attending nurses.<sup>274</sup>

Except for a couple of minor disciplinary issues,<sup>275</sup> the only major headache with the NGO involved the multiple rotations of staff. “From my perspective,” explained Llewelyn, “the transitions were the hardest for me particularly, and there were lots of transitions.”<sup>276</sup> Receiving the second shift right in the middle of the Banda Aceh phase of the mission, explained Commander Suzanne Clark, the *Mercy*’s training officer, meant that *Mercy*’s capacity was reduced while the new crop of volunteers was trained. “This group coming in did not have an opportunity to go to USNS *Comfort*, so their learning curve was different.” Fortunately, several Australian Army nurses at an Australian field hospital in Banda Aceh volunteered to relieve the ward shifts of several Navy nurses so that they could train the new Project Hope volunteers.<sup>277</sup> Comlish mentioned that the transit time from



Commander Karen McDonald (*center*), *Mercy's* assistant director of nursing, and a nurse from Project Hope comfort a young boy suffering from a perforated appendix. The boy's father, who is holding the IV fluid bag, is also in the helicopter. (Photographer's Mate Second Class Jeffery Russell, USN; NARA, DN-SD-06-07579)

Singapore to Banda Aceh allowed her staff to bond with the first crop of volunteers, but subsequent waves had no such lead time. "That was a challenge, definitely a challenge, having all these waves of people," she observed.<sup>278</sup>

### ***Mercy* in Banda Aceh**

On 3 February 2005, *Mercy* arrived in Banda Aceh. It was a testament to the civilian mariner crew that the ship did not suffer a single mechanical casualty during the 30-day transit despite having just received a major engine overhaul. "It's the equivalent of driving a vintage car from New York to California and back without stopping," Captain Smith proudly exclaimed. "We encountered some heavy seas and rough weather and ran at the top end in order to get over there."<sup>279</sup>

Once the ship arrived, the MTF had to quickly figure out how it could best assist the Indonesians. The acute phase of the tsunami had long since ended, but the capacity of the province's major hospital, the Zainal Abidin Hospital, was still greatly reduced. The earthquake damaged over 40 percent of the 400-bed hospital's buildings, and the tsunami inundated all ground-level facilities with mud and water. Over 60 percent of its staff were

killed or went missing.<sup>280</sup> The director of the facility, Dr. Rus Munandar, lost his wife and children. Representatives from *Mercy* met with Dr. Rus as well as several other medical entities on the ground at Banda Aceh, including representatives from nearby Australian and German field hospitals. The staff from *Mercy* explained to the group that they could provide advanced medical care on the ship, but they would be limited in what could be provided ashore. Force protection concerns and limited numbers of helicopters meant that only a small number of *Mercy* staff could work ashore and only during daylight hours. “It was embarrassing,” lamented Comlish. “It was frustrating, and we did what we could. I brought nurses out and kind of apportioned them where the chief nurse there wanted them. She asked for pediatrics, intensive care, ER, and ward staff.”<sup>281</sup>

Force protection condition “Charlie Plus,” the second to highest force protection level for the U.S. armed forces, was maintained at all times. Thirty members of Mobile Security Squadron 7 (MSS-7) embarked on *Mercy* when it stopped in Singapore. Members of that unit had to stand watch at all times at various stations on the ship, screen everyone coming aboard, and accompany staff ashore. All patients had to be escorted at all times. An Indonesian patrol boat accompanied the ship in Indonesian waters and enforced a 300- to 500-meter small-boat exclusion zone around the ship.<sup>282</sup> MSS-7 personnel traveling ashore took up valuable helicopter space and limited the numbers of doctors and nurses that could work ashore each day. Nelson Chang, who attended coordinating meetings each day ashore, was shocked to see close to half of each helicopter filled with security people, especially since he had been moving around the area for weeks, unarmed, and without body guards. “They’re just standing around with sunglasses at those meetings, not doing anything,” he recalled. Eventually, Indonesian security guards replaced some of the Navy security force at the Zainal Abidin Hospital, but Navy security personnel would accompany MTF missions elsewhere in the province.<sup>283</sup>

MTF staff attempted to liaise with German and Australian military medical personnel ashore to help figure out where it could assist. The Australians proved quite friendly and helpful, especially once they learned of the MTF’s capabilities. While touring the Australian field hospital, Commander Clark noticed a premature baby in an incubator. “They didn’t have all the things that would benefit this child, so we were able to call back to the ship and bring out our pediatrician to do an assessment and to bring out formula that would be appropriate for this baby. Even the bottles had to be the appropriate size. We were able to coordinate some of that and then we just followed her case. And two weeks later, she was doing great.” The Australians were impressed and soon allowed Clark and some of the academic nurses from Project Hope to take over an advanced nursing class they were teaching at the Zainal Abidin Hospital’s school of nursing.<sup>284</sup>

Fearing that the Americans just wanted to barge in and take over, the German military nurses and doctors were initially reticent towards the *Mercy* staff, but once they understood that its personnel were collaborative and would always consult with them at all stages of the treatment process for their patients, they began sending more and more

patients over to *Mercy* for care. “We ended up bringing many of them to the ship,” explained Comlish, and even did their laundry. “It had become a good, collegial working relationship.”<sup>285</sup> Because the German field hospital lacked an echocardiogram machine, its cardiologist worked two days a week on *Mercy*, using the ship’s ultrasound equipment to examine patients. According to Lieutenant Commander Stephen Ferrara, the ship’s radiologist, “It was really a very rewarding relationship; it was a win-win.”<sup>286</sup>

During the Banda Aceh mission, known as OUA 1, *Mercy* saw 176 patients on board the ship. Only seven (4%) had injuries from the tsunami. Most of the remaining 169 patients were treated for chronic conditions such as tumors, and other types of masses.<sup>287</sup> “We saw a lot of neck and facial tumors, and I’m not sure why,” observed Llewelyn.<sup>288</sup> *Mercy* operated two surgery theaters, 10 ICUs, and 100 ward beds during OUA 1. Its operating rooms typically performed a combined total of 4–10 surgeries a day with some procedures taking as little as 30 minutes and one facial reconstruction lasting over 10 hours.<sup>289</sup> Working both on the ship and ashore, *Mercy* and Project Hope doctors saw over



Commander Karen McDonald (*center*), *Mercy*'s assistant director of nursing, assisted by members of the German military, carries an Indonesian patient to an awaiting Navy helicopter for transport to *Mercy* during Operation Unified Assistance. Germany, Australia, and China deployed medical personnel to Banda Aceh following the 26 December 2004 earthquake and tsunami. (Photographer's Mate Second Class Jeffrey Russell, USN; NARA, DN-SD-06-07616)



9,500 patients and performed 19,512 medical procedures, including 285 surgical and operating room cases during the ship's six-week stay in Banda Aceh.<sup>290</sup>

The first patient's treatment broke the ice with the Indonesians. Admiral McDaniel noticed a sickly looking six-year-old boy with a possible case of appendicitis while touring the emergency room at Zainal Abidin Hospital on 5 February (this was the same patient described by Lieutenant Commander Owen earlier in the chapter). He asked why the boy was not being treated, and the staff told him that there were no ORs available. "Regardless of whether it was allowed or not, McDaniel got the boy on a helicopter because he had appendicitis and he needed treatment," explained Lieutenant Commander Ferrara. "And he came over on a helicopter and we did surgery on him. He did great, it saved his life and everything, and all of a sudden it was like, 'Oh, that *Mercy* is a great thing,' and then the floodgates opened."<sup>291</sup>

Other children soon followed. A 15-year-old girl named Makanuay was admitted with a tumor on her wrist. "It was so big she couldn't even lift up her arm," Chaplain Owen observed. "She had to lift it up with her other arm. She was very sullen and withdrawn and kind of shy and frightened." According to Ferrara, who did an angiogram on her beforehand, the girl's tumor had "all these big, huge, puss ulcers on it and it would just bleed constantly."<sup>292</sup> After surgeons amputated her arm just below the elbow, Owen visited her again and could not get over how she had changed. "She was this smiling, beautiful, just really cute girl who had kind of come out of her shell. It was a combination I'm sure of the way she was treated and being rid of this monstrosity on her arm." Owen made a point of visiting her nearly every day during her recovery. "She didn't speak any English, but she was learning English and through kind of sign language I figured out she wanted something to read." Owen ended up reading children's books to her, and she in turn would read them back to him. "She did not know what all the words meant, but she was articulating the language perfectly. It was really fun."<sup>293</sup> Captain Llewelyn later explained that this girl had a bone tumor and was in agonizing pain just before surgery. Amputating the arm "actually helped her pain a lot."<sup>294</sup>

The influx of child patients was rewarding but also a huge challenge for the MTF and Navy medical personnel not accustomed to caring for infants. Throughout the mission, there was a dearth of pediatricians and pediatric nurses. To ensure proper coverage, pediatricians occasionally slept in the ICU. When asked about her biggest challenge, one nurse's response was telling:

The kids. For sure. The babies, taking care of the babies, the babies dying. Just everything with the babies. Which, it was awesome to have the experience to take care of them but I definitely was not prepared. I am not a PICU [pediatric intensive care unit] nurse.<sup>295</sup>



On one occasion, Comlish assigned three *Mercy* nurses to assist in caring for babies at Zainal Abidin Hospital's neonatal intensive care unit. When she returned later that day, one of the infants had died. "It was very emotionally difficult for me because it was my introduction to the idea that we will never be able to do enough." No infants died on the ship, but two terminal cases died shortly after they were returned to shore later in the mission at Nias. "We went to heroic measures and it looked like we were gonna be able to save them and then they crashed." As per the wishes of the parents, the babies were released to die in their homes once it was clear they could not be saved. "That was the right thing to do," explained Comlish. "It was a very emotional and draining experience."<sup>296</sup>

At least one family member always accompanied patients of any age aboard ship. In Indonesia, caring for and feeding patients in hospitals is a family responsibility. There was also an irrational fear among some families that if a patient was taken to *Mercy*, he or she might never return. Some of these escorts became patients themselves. Project Hope nurse practitioners assessed the health of each family escort in the casualty receiving area of the ship. Of the 168 escorts examined, five were admitted as patients themselves, two with active tuberculosis, one with chicken pox, and two unrecorded.<sup>297</sup> Treating sick family escorts as well as caring and feeding the healthy ones added to the burden of the MTF staff. "Village Care" is what the nurses came to call it. The ward became known as the "The Village" because of all the family members milling around. If a patient was a solo parent, her children had to come because they often had nowhere else to go. The ward staff used "Village Care" as an opportunity to offer basic health education to family groups.<sup>298</sup>

Education in general was a significant part of *Mercy's* role in Indonesia. According to one CNA study of the mission, *Mercy* medical personnel provided community health, preventive medicine, and behavioral medicine population-based programs ashore that "reached approximately 24,000 internally displaced persons."<sup>299</sup> A team of 12 behavioral health specialists (seven from the U.S. Public Health Service and five from Project Hope) assisted their Indonesian counterparts in establishing a program to train personnel from over 50 NGOs to deliver psychosocial interventions for school-aged children in every school in the province.<sup>300</sup> The resulting curriculum ultimately reached 100,000 Indonesian children.<sup>301</sup> Other projects were more modest in scale such as the courses Commander Clark's team taught at the Zainal Abidin Hospital or occasional health lectures at local schools by MTF staff and Project Hope volunteers. Clark's team not only taught in the classroom but did side-by-side clinical training with Indonesian nurses in the wards with an interpreter. One day they brought a nurse and a respiratory therapist in to teach intubation, and literally the next day the Indonesian staff saved a person's life using the techniques learned the previous day.

It was very satisfying to Clark: "They wanted to learn. . . . All the nurses, not just the students, had lost so much and they had gone through so much. . . . The resilience is just incredible to watch, and they weren't down in the mouth about it. They weren't moaning



Lieutenant Commander Carma Ericksonhurt, a medical officer assigned to the hospital ship *Mercy*, instructs Indonesian military and civilian nurses on cardio pulmonary resuscitation (CPR) at Tentera Nasional Indonesia Military Hospital in Banda Aceh, Indonesia. (Photographer's Mate Third Class Rebecca J. Moat, USN; NARA, DN-SD-06-07611)

and groaning. I didn't have one person tell me the losses that they had experienced unless I asked them. They were not complaining or asking for pity. None of them. They were really incredible people. They changed me."<sup>302</sup>

In addition to education, MTF provided a variety of other services to Zainal Abidin Hospital and the Aceh province at large. The ship's radiology department completed 1,959 scans of various types, including 273 computed tomography scans (CT), 995 x-rays, and 192 angiograms and other invasive radiological procedures. The MTF's CT scanner was a godsend because the one at Abidin Hospital was destroyed in the tsunami. *Mercy's* capability to perform angiograms and other invasive radiology procedures also saved numerous lives. Lieutenant Commander Ferrara, an intervention radiologist by training, recalled several occasions where he was able to use his intervention skills to save the lives of patients suffering from internal bleeding: "The Germans brought over one patient bleeding from the upper portion of their intestines. I went in and got a catheter in all the small blood vessels and put some particles and stuff to stop the bleeding to save his life."<sup>303</sup>

The ship's laboratory conducted 4,253 blood and other types of tests. *Mercy's* dental unit examined 666 individuals ashore and pulled 1,316 teeth. The optometry department,



Lieutenant Commander Stephen L. Ferrara (*center*), head of radiology on *Mercy*, explains the capabilities of the CAT (computerized axial tomography) scan aboard *Mercy* to a group of international visitors working in the Banda Aceh area on the island of Sumatra, Indonesia. (Photographer's Mate First Class Jon Gesch, USN; NARA, DN-SD-06-07572)

staffed by Navy and Project Hope staff, was among the busiest group sent ashore. It saw over 5,300 patients and gave away almost 5,000 glasses ground in *Mercy's* eyeglasses shop. On its busiest day, 10 March, the optometry unit saw 573 patients at the Abidin and TNI military hospitals.<sup>304</sup>

Abidin Hospital's pharmacy was completely devastated by the tsunami. Both of its pharmacists and several pharmacy technicians were killed. The MTF, working with Project Hope and the Australians, hired contractors to rebuild shelving and restock the pharmacy. *Mercy's* pharmacy department had two pharmacists and eight pharmacy technicians on its staff.<sup>305</sup> Lieutenant Commander Parker, who commanded the unit, spent a day ashore with some of his technicians sorting through and shelving "pallets and pallets" of medications donated by NGOs. With permission from the NGOs and the Australian and German military hospitals, he was able to take some of these supplies back to the ship to administer to shipboard patients.<sup>306</sup>

*Mercy* deployed all its capabilities to Banda Aceh, including those of the civilian mariner crew and medical equipment repair technicians from the MTF. These sailors spent time

ashore in teams cleaning up and restoring hospital equipment, and installing new medical equipment donated by the MTF and NGOs, such as ventilators and oxygen supplies.<sup>307</sup>

The gratitude shown by the Indonesians to the *Mercy* staff for even the smallest services was profound. “They would come and stand in line for two days to see a *Mercy* care provider,” Comlish explained, and “they were so appreciative of all of the care that we gave them.”<sup>308</sup> Llewelyn told a story of a man with a leg infection. The doctors at Abidin Hospital wanted to amputate it, but “we spent a month treating it with antibiotics and saved his leg. “He was always there smiling in the ward.”<sup>309</sup> An Indonesian translator summarized how many of the patients felt about the care provided: “Here you not only healed bodies but you treated them with such gentleness, such compassion, and such great courtesy. They are perhaps happier than they have ever been in their lives because for the first time they are aware of their worth as people—that their thoughts and feelings and lives count. They leave with self-esteem. This is something very special and very rare that you have given them.”<sup>310</sup>

## **Navy Environmental and Preventative Medicine Unit 6**

The Navy Environmental and Preventative Medicine Units (NEPMUs) are one of the most unique capabilities in the U.S. military arsenal. During the World War II Solomon Islands campaign, the Navy discovered that mosquitoes were inflicting more casualties than the Japanese. To combat insect-borne diseases, the Navy created malaria and epidemic control units (MECUs), which rose to 150 in number by war’s end, and dramatically reduced the incidence of malaria and other communicable diseases. After the war, the mission of these units evolved to cover not only insect-borne diseases, but chemical and biological vectors as well.

During the Korean War, the units, now called epidemic disease control units (EDCUs),<sup>311</sup> were instrumental in controlling a variety of communicable diseases on the front lines. In Vietnam, they established public health programs and controlled malaria in the Mekong Delta and elsewhere. By 1971, these units changed their name again to NEPMUs and expanded their mandate further to include a wide range of medicine, environmental health, and entomology. NEPMUs possess specialized equipment and laboratories to detect and eliminate potential chemical, biological, nuclear, and viral health hazards to U.S. military personnel anywhere in the world. No other nation has a similar capability.<sup>312</sup>

The Navy currently has four NEPMUs stationed throughout the world and always ready to deploy quickly in an emergency. NEPMU-6, based in Hawaii, is responsible for the Western Pacific region. On 27 December 2004, Captain Gail Hathaway, the officer in charge, received a notification that she should prepare to send a NEPMU detachment to Indonesia in 96 hours. Since she was on emergency leave at the time, she ordered Commander Fred Landro, her senior preventive medicine physician, to prepare the unit for deployment. A former P-3 naval flight officer and an environmental medicine





Commander Fred Landro (*right*) with Captain Gail Hathaway (*center*) and Lieutenant Commander Eric Kasowski (*left*) at the NEPMU-6 office in Hawaii in 2005. Commander Landro led NEPMU-6 during its deployment to Southeast Asia from 12 January to 22 February 2005. Lieutenant Commander Kasowski commanded the unit’s beach detachment in Indonesia and briefly led NEPMU-6 from 22 February until 15 March 2005. (NHHC)

physician, Landro believed that the tsunami represented an ideal proof of concept for utilizing NEPMUs in humanitarian operations. He knew his unit could potentially save many lives, but convincing many higher authorities of the unit’s efficacy for the OUA operation was an uphill struggle from day one. With a few significant exceptions, most officers outside of medical circles perceived the unit as nothing more than a glorified bunch of “bug sprayers.” Two of those exceptions were admirals Fargo and Doran.<sup>313</sup>

Initially, Landro had to determine if PACOM wanted to deploy all 33 members of the unit along with 15 tons of highly specialized equipment or a smaller detachment. To Landro’s great surprise, Admiral Fargo wanted to send the entire unit—he was one of the few outside of BUMED who understood NEPMU’s capabilities. By 1 January, Landro had assembled most of NEPMU-6’s personnel and equipment in Hawaii—an incredible accomplishment given that six unit members and a considerable amount of gear were in Iraq. Because many service members were on leave at the time, NEPMU-6 had to pack all of its own equipment in 42 air mobile pallets.<sup>314</sup> The Pacific Fleet (PACFLT) Surgeon General’s office greatly assisted the team in securing equipment needed for the mission. While NEPMU-6 reported to the Naval Environmental Health Center in its



administrative chain of command, it was seconded to the PACFLT Surgeon, thus providing a formal command relationship between the two entities—a very useful link during OUA.<sup>315</sup>

Still unclear if the unit would be sent to Sri Lanka, the Maldives, Indonesia, or Thailand, PACOM flew the entire unit on 12 January to the CSF-536 OUA compound at U-Tapao air base, known as Camp Red Horse. The CSF-536 leadership was not very welcoming. The CSF leadership was broadly engaged in providing assistance to three different countries (Thailand, Indonesia, and Sri Lanka) and had its hands full with a great many logistic issues. “They had a timeline to pull their marines out of Indonesia,” explained Landro, and were concerned that if they deployed NEPMU-6, some of their marines would get bogged down in Indonesia providing security and other logistical services to the NEPMU. “They weren’t going to do that.” So for the next three weeks, the unit stood by at what Landro soon dubbed “Camp Dead Horse,” waiting for PACOM, BUMED, and other higher authorities to break the logjam. Admiral Fargo, to his credit, raised the issue daily in video conferences, but Lieutenant General Blackman continued to resist sending the unit to either *Bonhomme Richard*, or *Essex* because these ships were due to depart the theater and did not have space for the NEPMU-6 personnel and equipment.<sup>316</sup>

As an alternative, Lieutenant Commander Keith Hanley, the deputy surgeon for III MEF and a preventative medicine physician, came up with the idea of sea basing NEPMU-6 on *Mercy* and Blackman approved the idea. *Mercy*, however, was not an ideal base for a NEPMU. For the unit to operate ashore, it needed significant air and/or sealift to move equipment back and forth to the beach. According to Landro, “*Mercy* only had one helicopter deck crew, and that crew was going to be trying to support MTF, Public Health Service, Project Hope, VIP visits, force protection, and of course patient movements. It was way too complicated for one small helicopter deck to handle, especially since the deck could only handle a single aircraft at a time and had no hangar. *Mercy* required an escort ship at all times to house and maintain helicopters. Personally, I had no good feelings whatsoever about putting the deployable NEPMU team on *Mercy*.”<sup>317</sup>

Landro flew out to *Mercy* in advance of the unit on 28 January to sort out the details of the deployment with Captain Llewelyn and Commodore Divis. Llewelyn was shocked to learn that the unit had over 30 personnel and 42 pallets of equipment: “We almost sent them back.”<sup>318</sup> The unit’s deployment only avoided being scuttled because of Commander Landro’s creativity in solving a host of logistical problems and the willingness of Captain Smith and his civilian mariners to support the mission, beginning with storage. Smith arranged for the NEPMU to initially store most of its equipment on the combat stores ship *San Jose* rather than *Mercy*. “I was so impressed by the way the civilian mariners conducted business; it was a model for us all to learn from. Those people were the most candid I’d ever met in my life. I threw problems at them like you couldn’t believe, like having 42 pallets of gear on their main deck all day long while we reconfigured it all. I

basically shut the *San Jose* down for a whole day and they said to just let them know how they could help.”<sup>319</sup>

Smith, a convivial U.S. Naval Academy graduate and former surface warfare officer, set the tone for the entire MSC contingent. He made a point of having lunch with anyone he sensed was frustrated with the mission. During one such a lunch with Landro, he learned that even with the equipment storage problem solved, Landro still needed to get his people and equipment to the beach. Even if *Mercy* and *San Jose* could move all of the NEPMU people and equipment ashore, force protection mandates stipulated that those personnel and their precious equipment could not spend the night on the beach. “If we put equipment and people ashore and then had to move it back to the *Mercy* every day, we would only be able to operate for 4 hours a day in the province.” While contemplating the conundrum, Smith wondered if the NEPMU team could spend nights ashore at one of the UN compounds, which were typically guarded and would meet most of the Navy’s force protection concerns. He invited an old friend of his, an American doctor with the UN’s International Organization for Migration (IOM) named Ed O’Rourke, to discuss the issue with Landro on 10 February. The two men met for 10 minutes. “He knew all about what a NEPMU’s capability was; he knew that we were incredibly needed.”<sup>320</sup>

After the meeting, Landro sent O’Rourke an email thanking him for the meeting and informing him that he had just received a redeployment order from PACOM that would soon send him and his teammates home. On his own initiative, “Dr. O’Rourke wrote this very compelling, well-worded email, explaining the desperate need and requirement for this NEPMU group. That email went to a number of people and got forwarded quite rapidly throughout the PACOM hierarchy,” and the team’s redeployment order was soon canceled. Instead, a plan was hatched to send a much smaller team of ten NEPMU personnel to Banda Aceh where they would live at a guarded IOM safe house and wear IOM t-shirts and civilian pants so as not to attract attention from GAM insurgents. IOM would transport the team to IDP camps every day in UN vehicles, and provide translators. IOM also agreed to feed the team throughout their stay. According to Lieutenant Commander Eric Kasowski, the officer in charge of the detachment that worked ashore in Banda Aceh, “IOM handled all of the logistics, and everything worked absolutely like clockwork. Anytime we dealt with IOM, things were very smooth.”<sup>321</sup>

IOM opened their arms to the NEPMU because of the team’s unique capability. “The international aid organizations were flush with cash, volunteers, and experts who came out of the woodwork and knew much more about humanitarian assistance than we did. They came with nothing but a brain and a clipboard ready to give advice. You had to bring some capability with you and that’s what we brought in spades,” said Lieutenant Commander Kasowski. “We had very sophisticated analytical equipment that nobody in the whole country had. We could do environmental analysis, which became the mainstay of what we did there.”<sup>322</sup> The IOM, in turn, handled much of the logistics, facilitated visits to local camps, and connected the NEPMU to other NGOs, which could assist in

mitigation efforts. “If you can get in and function under the auspices of an international organization with clout like the IOM, it’s all the better,” explained Kasowski.<sup>323</sup>

On 22 February, a reduced team of 10 NEPMU personnel deployed ashore to the IOM safe house in civilian clothing with 19 pallets of gear under the command of Lieutenant Commander Kasowski, a preventative medicine doctor and a former veterinarian. The other 20 members of the team along with Commander Landro returned to Hawaii. During the next 16 days until they departed on 15 March, the ashore team visited 28 IDP camps to conduct site surveys and recommend remediation (mainly spraying for insects).<sup>324</sup> They were assisted by translators from IOM, four Project Hope volunteers, and six Uniformed Public Health Service (UPHS) personnel. The skillsets represented by the mixed team included epidemiology, environmental health and science, industrial hygiene and occupational health, microbiology, entomology, preventative medicine, veterinary medicine, and toxicology. It literally possessed the range of skills one might find at the Mayo Clinic plus the equipment to leverage that knowledge into action.<sup>325</sup>

Typically, tsunamis kill most mosquito larvae in the affected areas, but it does not take long for these insidious insects to breed again, especially in crowded IDP camps with poor sanitation and standing water puddles created by daily monsoonal rains. The NEPMU generally visited two camps a day looking for mosquitoes and other potential disease vectors. If they discovered any vectors, members of the team would return early the next day when it was cool and the mosquitoes were active to spray. They also taught NGOs and local Indonesian health officials the protocols of spraying and other mitigation techniques, such as the use of mosquito netting. “One of the NGOs had warehouses full of pesticides that they weren’t quite certain how to handle,” explained Kasowski. “They asked us if we could help them. Our folks gave them a few short classes on how to handle it. We accompanied them on a few spray missions in internally displaced person camps and basically unlocked a whole new possibility for the people of Aceh province.”<sup>326</sup>

The team also tested water in IDP camps for toxicity. Due to the sizable oil and gas industries in the region (which represented 26 percent of the provincial economy in 2005), the team often found low levels of toxic chemicals in the water. At one camp, they traced a very high level of toxicity in the water to a set of old diesel fuel drums being used for water storage. In another instance, toxicity was traced to former fuel trucks re-purposed to carry water. The team eventually tested every water tanker truck in the provincial inventory and discovered contamination from industrial chemicals normally found in fuels and solvent mixtures in 30 percent of the tanks.<sup>327</sup>

Whenever a water issue became apparent, Kasowski was impressed by how quickly IOM remediated the problem by bringing in bottled water and replacing contaminated water storage systems and tankers. “That was really a testament to their professionalism.” The IOM and other relief agencies were equally impressed that NEPMU had state-of-the-art equipment capable of running field tests in real time. On a larger scale, by being able to document low levels of contaminants throughout the province, NEPMU was able to



Hospital Corpsman Third Class Ron Berard of NEPMU-6 sprays uniforms with permethrin, a mosquito repellent. (NARA, DN-SD-06-07377)

make a case to the provincial public works establishment that they had to dig deeper wells at some of the camps as a more permanent solution to the problem of water contamination.<sup>328</sup>

The NEPMU not only tested water but air quality as well. Later in Nias, Lieutenant Commander Dan Hart, an industrial hygienist, found a lot of irritants in the air. They originated partly from dust and rubble but also because people were burning plastic water bottles donated by the NGOs. “In Indonesia they burn everything, including the plastic,” said Kasowski. “We made recommendations for how to change that practice, like burning in a burn barrel during certain times of day so the barrels would basically shoot the fumes out of the respiratory zone.” This was not an ideal long-term solution, but it gave the local populace a quick-fix solution that could be implemented right away.<sup>329</sup>

As this example shows, it was not just the NEPMU’s ability to test air and water for contaminants, but the analytical skills of the team and their uncanny ability to develop solutions for areas lacking basic infrastructure. In one case, a donor country threatened to withdraw funding for a project to provide 11,000 people with temporary housing after asbestos was found in some of the construction material. IOM requested an independent analysis from the NEPMU. Lieutenant Commander Hart did discover asbestos, but he was able to explain the intricacies of asbestos to the donor country representative and

assure him that the asbestos found in the housing material would not pose any significant risks to the occupants. “So, we helped to preserve the funding for temporary housing for 11,000 families,” Kasowski noted. “It only took us a few days to do, but it had an enormous impact.”<sup>330</sup> Interestingly enough, during the initial meetings between Landro and Llewelyn on *Mercy*, Llewelyn had recommended that Dr. Hart be sent home. “We don’t need industrial hygienists,” he told Landro, and then suggested that he either be sent home or employed in a menial task such as cooking or laundry. Llewelyn and many others, according to Landro, “didn’t see the bigger public health picture. It was a tremendous fight.”<sup>331</sup>

Throughout its mission, NEPMU-6 worked to detect and mitigate disease vectors and environmental hazards and built the capacity of the Indonesian authorities as well as NGOs to continue the mission long after NEPMU departed. “Capacity building,” explained Kasowski, “was our largest contribution.” This effort ranged from teaching Indonesian camp authorities the basics of insect spraying to helping the United Nations Children’s Fund (UNICEF) develop a protocol for doing malaria prevalence surveys in Aceh province and elsewhere. They even helped the IOM write a proposal to acquire their own preventative medicine unit. “They saw what we did, and we gave them sort of an outline of what we thought they would need.” The team produced a comprehensive report on the state of the water supply and distribution system for all IDP camps visited and presented it to the provincial public works department.<sup>332</sup>

While some of the MTF staff on *Mercy* initially greeted the arrival of NEPMU team with skepticism, by the end of the Aceh phase of the mission, nearly everyone on the medical mission was “sold” on the unit and its unique mission. “A lot of people came up to me afterwards,” explained Lieutenant Commander Kasowski, “and said that they didn’t know that we could do some of the stuff we could. . . . Just being aboard, I think we gained some mutual respect. But the leadership on the *Mercy*, I think, really understood that there was a big public health component to these kinds of missions.” For the Aceh phase, this mission included site assessments of IDP camps; vector control in the camps; water and air testing; laboratory analysis; and helping local officials and NGOs develop their own environmental and preventative medicine capability.<sup>333</sup>

### **Theater Security Cooperation Program and the Nias Earthquake**

*Mercy* left Banda Aceh on 16 March and steamed toward Alor Island for a planned theater security cooperation program (TSCP). A TSCP is a form of engagement with a regional partner that utilizes DoD resources to build partner capability and develop relationships, thereby supporting regional stability and security.<sup>334</sup> TSCP activities range from military and police training to humanitarian assistance and education. TSCPs complement State Department programs and are planned with the U.S. Embassy country teams and partner nations.<sup>335</sup>

In November 2004, a 7.5 magnitude earthquake had struck Alor Island, which sits north of Timor Island. The quake killed 23 people, injured thousands, and left over 4,000



homeless. During *Mercy* deployment planning, Ambassador Pascoe requested that the ship stop at Alor for a few days on its way home as a goodwill gesture to Indonesia. The ship was later asked to stop briefly at East Timor and Papua New Guinea as well. Project Hope agreed to participate in both missions but with much smaller numbers than in Banda Aceh: just eight personnel for Alor and East Timor and three for Papua New Guinea.<sup>336</sup>

*Mercy*, accompanied by *San Jose*, arrived in Alor on 19 March and disembarked 30 medical staff by boat to work at the island's main hospital in Kalabahi, a clinic in the mountains at Buta Putih, and several IDP camps. Working under extremely hot and humid conditions, the team saw patients for the next four days before weighing anchor and heading to Dili. Except for a few diagnostic cases, the ship did not have the resources or the time to treat patients on the ship. "We were constantly seeing patients," said Llewelyn. "We saw bizarre things—things you would never see. The longer we stayed, the more showed up. Many were malnourished. We'd ask one through the translator what was wrong and he would say, 'cough.' And we would ask, 'How long?' And he said, 'Eight years.'"<sup>337</sup> Navy Public Affairs later reported that *Mercy* staff saw 8,000 patients in just six days in Alor.<sup>338</sup>



USNS *Mercy* shown off the coast of Dili, East Timor, in late March 2005. (Photographer's Mate Third Class Rebecca J. Moat, USN; NARA, DN-SD-06-08293)

*Mercy* arrived in Dili, East Timor, just hours after an 8.7 magnitude earthquake struck Nias, a small island off the coast of North Sumatra known for its surfing and white sand beaches. The quake killed 915 people out of a total population of over 700,000. *Mercy* spent just two days in East Timor before being ordered to steam to Nias, where it arrived on 5 April. It admitted patients the next day. The Nias mission extended the deployment but did not surprise most of the staff. The attitude according to Comlish was: “Bring it on. What else have you got for us? Tornado, hurricane, molten lava, whatever.”<sup>339</sup>

Assisted by a surge rotation of 49 Project Hope volunteers, the MTF staff executed 19,000 medical procedures and performed 123 surgeries mostly ashore at Nias. Only 95 patients were taken aboard the ship for tests or procedures.<sup>340</sup> Two factors greatly enhanced the efficiency of the Nias operation: the ability to ferry staff and equipment ashore by boat and a much lower threat level on the beach. According to Captain McCully, “The neat thing in Nias was that it wasn’t Banda Aceh. There was no GAM to worry about. The TNI there had very low presence. Nias is a laid-back island 80 or 90 miles off the shore of Sumatra primarily known as one of the great surf breaks of the world.” In contrast to Banda Aceh, the MTF quickly received permission to set up a small tent compound ashore for night shift nurses, doctors, and NEPMU staff to sleep. The overnight facilities also allowed *Mercy* personnel to attend night meetings where NGOs typically delivered critical situation reports and discussed the next day’s requirements. “So having that command and control center on the ground in Nias,” McCully emphasized, “gave us a huge advantage over the operation in Banda Aceh because we were connected with people we could talk to.”<sup>341</sup>

Because the ship arrived at Nias within a week of the earthquake, the medical staff saw more acute patients there than in Banda Aceh. Since the hospital was significantly damaged, the MTF took on patients requiring advanced care and diagnostics, including several complex pediatric cases.<sup>342</sup> NEPMU-6 personnel operated for three weeks at Nias doing the same type of environmental assessments the team performed in Aceh province. In addition to personnel from Project Hope and the UPHS, the team recruited Navy civil engineers to assess the structural integrity of buildings damaged by the earthquake. The engineers shut down a school building deemed unsafe and recommended that the main hospital in Gunungsitoli be demolished and rebuilt. NEPMU-6 also arranged for insecticide to be moved from Banda Aceh to Nias on USAID-contracted helicopters and then trained International Medical Corps and SurfAid volunteers on insect control and spraying, thereby building local capacity. As in the case of Banda Aceh, NEPMU-6 employed its sophisticated test equipment and team-based problem-solving skills to uncover unusual environmental hazards. After discovering industrial solvents and coliform bacteria in water in the Gunungsitoli area, the team tested water trucks but found no contaminants. They then looked at fixed storage tanks and discovered that local people were breaking off the nozzles of these tanks to use as plumbing fixtures in their houses. A technician from Public Works would have to climb in the tanks to repair them. As



Information Systems Technician Second Class Shernda Allen (*right*) carries an intravenous fluid bag while Dr. Dana Braner from Project Hope carries an Indonesian child in respiratory distress across the flight deck of *Mercy*. The child was medically evacuated from the island Nias, Indonesia, in April 2005. (NARA, DN-SD-06-07669)

Lieutenant Commander Kasowski later explained, “He’d take his shoes off and climb in the tank and fix it with a PVC repair compound, and that was the solvent, and him standing in the tank with his bare feet was the source of the coliform bacteria contamination.”<sup>343</sup>

Throughout *Mercy*’s time in Indonesia, Major Chang served as a coordinator between the ship and the TNI. As an Army guy, he was initially perplexed by the ship’s chain of command: “You had the captain of the ship, the MTF commander, and the commodore, so coordination could be very frustrating. Plus, the ship arrived too late to Banda Aceh to provide disaster assistance. Up until Nias, it was used as a giant MEDCAP [medical civic action program] for strategic effect.” Despite these concerns, he enjoyed flying from port to port negotiating the arrival of the ship with local military authorities. “It was tiring and often frustrating, but it was why I joined the Army—to be on the ground getting stuff done.” He also marveled at the work that *Mercy* doctors and nurses performed—everything from direct medical care to medical training and capacity building. His appreciation took a more profound turn in Nias.<sup>344</sup>

“On the flight from Jakarta to Nias, I started feeling bad. It was the worst plane ride of my life.” Once in Gunungsitoli, his teammate, another Army officer, immediately

notified the embassy of the situation, which sent a WFP helicopter to pick him up. Chang, who was delirious at this point, woke up in a Russian helicopter operated by a Russian crew and wondered what was going on. The WFP crew transferred him to a Navy helicopter and he soon found himself on *Mercy* for the first time in life, not as a visitor but as a patient. “I became a patient on the ship that caused me the most frustrations. The doctors were great! They ran some blood tests and quickly diagnosed me with dengue fever.” He spent a week recovering from the illness. “I had bad headaches, bone pain, and was just really weak and barely moving.” As an officer attached to the U.S. military country team at the embassy, he tried to keep a low profile. “I remember the media showed up and this is like typical Indonesian media. They just do whatever, and they came in, and all of a sudden I could see all these cameras on me, in my face, so they probably thought I was just a local patient. Pretty funny.”<sup>345</sup> Chang was one of two Americans to contract dengue fever during the mission—the other one was a Project Hope team member. Both she and Chang recovered.<sup>346</sup>

Humanitarian missions are often perceived as “safe” because they typically occur in peacetime conditions. As the Chang story reveals, disease is an ever-present risk as are injuries ranging from strained backs (from moving equipment) to more serious accidents related to damaged infrastructure such as roads, buildings, and airfields. The danger and risks inherent in operating in this type of environment were underscored on 2 April when a Royal Australian Navy Sea King helicopter from the 817 Squadron crashed while making an approach near the village of Tuindrao in Nias. Villagers managed to pull two passengers out of the aircraft before it caught fire and exploded, killing nine Australian navy and air force personnel including six medical personnel. An Australian Defence Ministry Board of Inquiry later blamed the crash on the high operational tempo of the squadron during the 2004–2005 period and “a culture of maintenance shortcuts and workarounds.” The Australian navy, like the U.S. Navy, was pushing its aircraft and maintainers to the limit to save lives in Indonesia, and on 2 April the odds caught up to them.<sup>347</sup> High intensity helicopter operations in remote areas are inherently dangerous even in the best of circumstances. “Every helicopter flight was a potential crash from my perspective as commander,” noted Captain McCully.<sup>348</sup>

Shortly after the crash, Captain McCully was eating lunch with the Nias district chief, known as the bupati, and his daughter, a university student, on board *Mercy*. She told McCully that many students at her university in Medan said that the U.S. effort in Indonesia was nothing but a “big show.” McCully asked about her personal opinion of the operation, and she replied, “Well, I’ve been in the wards; I’ve seen the patients; I’ve seen the care with which they’re being given; I’ve seen the expense that you have put out here; and I’ve seen the Australians who lost nine people doing all of this. No, you people are here to help. You are helping.”<sup>349</sup>





An unidentified U.S. Navy air crewman (*left*) aboard an MH-60S Seahawk helicopter from Helicopter Combat Support Squadron 5 (HC-5) makes final preparations for take-off as Chief Hospital Corpsman Patrick Nardulli (*rear, seated*) monitors two survivors of the 2 April 2005 crash of a Royal Australian Navy Sea King helicopter in Nias, Indonesia. (Journalist First Class Joshua Smith, USN; NARA, DN-SD-06-07663)

## **Conclusion**

OUA stands out as one of the most successful HADR operations in U.S. history. It not only delivered tons of life-sustaining supplies to those in need but did so within days of the event: Navy ships were supporting full-scale relief operations just five days after the tsunami. In all, NAVFOR units of the CSG, ESG, and SPMAGTF delivered over 5.8 million pounds of water, food, and other urgently needed supplies to disaster victims between 1 January and 2 February 2005.<sup>350</sup> No other power in the world, then or now, possessed the capability and capacity to achieve that result in such a timely manner.

That modern logistical marvel depended on numerous factors. First and foremost, it hinged on a forward deployed CSG and ESG capable of supporting large numbers of helicopters and LCACs. No other nation has as much naval power forward deployed throughout the world as the United States. While a CSG may not have been the most ideal asset for a HADR operation due to its lack of amphibious capability, its location at Hong Kong at the time of the earthquake meant that it could arrive in Indonesia in time to save isolated Indonesian settlements from starvation and illnesses caused by drinking contaminated water. Its helicopters also evacuated people in urgent need of treatment and



deployed NGO personnel to assist in relief efforts in the countryside. The B2C experiment meant that it had many more helicopters at its disposal than usual.

The ESG was further from Indonesia on 26 December and would not begin HADR operations in Aceh province until 8 January, but it still arrived in time to provide valuable relief aid to hard-hit Meulaboh—arriving in the last 15 minutes of the “golden” hour, to use a medical analogy.<sup>351</sup> Its well deck-equipped amphibious ships and five LCACs greatly enhanced ship-to-shore movements of supplies. In just 18 days of operation, the ESG delivered 70 percent of the supplies delivered by the CSG in 31 days. To understand the uniqueness of the U.S. Navy–Marine Corps team’s amphibious capability, it should be stressed that *Bonhomme Richard* alone possessed more LCACs or similar air cushioned landing craft in 2005 than any nation save Japan, which had six at that time. The ESG’s medical department treated 105 tsunami victims and could have treated many more in the hospital on *Bonhomme Richard*. Because of Indonesia’s desire for a small U.S. military footprint ashore, many of the other capabilities of the ESG were not employed—namely its ability to project power ashore (manpower, vehicles, engineering capability, medical support, communications, etc.). The ships, personnel, and equipment carried by an ESG represent the ideal military force for nearly any HADR operation.

Airlift and sealift backed up by a forward deployed logistics infrastructure is a key enabler of forward deployed naval forces and yet another unique capability that no other nation possesses in anything close to the quantities in the U.S. arsenal. A CLF fleet of 20 MSC ships operated by 1,200 civilian and commercial mariners supported OUA.<sup>352</sup> CLF ships provided 74 percent of the supplies delivered by the ESG and were instrumental in replenishing both U.S. and foreign ships during OUA. Supplies delivered by a sea base accounted for 34 percent of all deliveries prior to the departure of *Bonhomme Richard* and 18 percent of all deliveries by NAVFOR.<sup>353</sup> These impressive statistics, it should be stressed, would not have been achievable had it not been for the Navy’s forward logistics hubs in Guam, “The Great Pacific Supermarket,” and Singapore. At both hubs, supplies not found in Navy warehouses could be easily procured through local stores and wholesale suppliers.

Supplies not only traveled to Indonesia by sea but also by air. The Air Force’s Air Mobility Command contributed 35 C-17s, 24 C-5s, and 21 C-130s from 100 Air Force units and 14 bases to the 47-day airlift. This air fleet, augmented by fixed-wing aircraft from the other services, delivered 12,500 tons of supplies.<sup>354</sup> The CSG, because it lacked amphibious capability and shipboard space for storing supplies, was particularly reliant on air mobility for its supplies, especially during the early days of the operation. For the Air Force, however, operating in the chaotic airspace over Banda Aceh and then having to land and unload supplies at an equally disorganized airfield placed incredible strains on both air and ground crews. Both the U.S. Navy and the Australian navy lost helicopters during OUA, and there was a civilian airliner accident as well. Australian military air traffic controllers eventually brought some order to the airspace, and the TALCE team

improved the taxiing and unloading process. To further organize the situation, Major General Deptula attempted to create a unified ATO for all aircraft operating out of Banda Aceh airfield. His effort failed due in part to the Navy's insistence on complete autonomy for its helicopter force and also the unique, ad hoc nature of rotary-wing operations in the area. Admiral Crowder's helicopters needed flexibility to respond to requests for supplies from settlements not always listed on the TNI ATO—settlements that may have been in GAM territory or gone unnoticed by the TNI leadership. Fortunately, the mutual respect between Deptula and Crowder prevented this disagreement from opening up old wounds between the two services related to the integration of the Navy into the ATO process. The success of modern operations often hinges on the personal relations between leaders.

As the ATO conflict illustrated, the GAM insurgency and host nation sensitivities related to it figured prominently in OUA throughout the operation. The earthquake and tsunami hit an area of Indonesia suffering from a prolonged insurgency.<sup>355</sup> This situation demanded that NAVFOR implement a variety of constraining force protection measures and policies designed to conciliate host nation concerns about both the insurgency and its image with the local populace in the region. Force protection measures meant a small U.S. footprint on the beach and no Navy personnel spending nights ashore—measures that restricted operations and severely taxed limited helicopter units, which had to ferry working parties to and from the beach daily. It also prevented all but one NAVFOR officer from participating in many key nightly meetings ashore with TNI and NGOs. Concerns about the insurgency and its image with the local populace also caused TNI to demand that it be seen as the party delivering supplies to the extent possible, and when impossible (such as in helicopter operations), it only wanted NAVFOR to deliver supplies to areas where TNI personnel could accept and distribute them at an LZ. Finally, TNI wanted the smallest number of U.S. personnel ashore daily, partly because of the insurgency but also because it feared U.S. encroachment on its sovereignty and was worried about an influx of large numbers of Caucasian Christians in a predominately Muslim area.

Sea basing became a means for NAVFOR to function under these strictures. The idea of basing armed forces on ships is not new, but in the early 2000s, Navy strategists began to assert that modern sea bases could fully support “the deployment, assembly, command projection, reconstitution, and redeployment of joint power from the sea without reliance on land bases.”<sup>356</sup> Sea bases, in other words, had become so sophisticated and self-sustaining that they now obviated the need for land bases in certain regions of the globe. OUA became the first proof of concept of this theory. “Operation Unified Assistance,” as Professor Eric J. Shaw of the Naval War College wrote, “was to serve as a trial by fire for the U.S. Navy's sea basing concept.”<sup>357</sup> The sea base concept provided NAVFOR and other operators (Air Force, the media, and NGOs) with infrastructure unavailable in Aceh. One of the reasons Crowder was not as concerned about the situation at the Banda Aceh airfield as Deptula was that he possessed his own airfield on *Abraham Lincoln* and later *Bonhomme Richard*, as well as smaller heliports on accompanying ships. He brought his

own infrastructure—one that did not require a military buildup on land. Finally, sea basing also allowed the Navy and Marine Corps to operate safely and effectively in a culturally sensitive area mired in a long-term insurgency.

One ship that did not fare as well in the sea basing experiment was *Mercy*. Its limited capacity to handle helicopters made it difficult for the ship to ferry large numbers of personnel ashore and back every day. Its lack of a well deck made small boat operations challenging as well. The helicopters and helipads from CLF ships became a stopgap means for the hospital ship to increase rotary-wing capacity but in the end were no substitute for a CVN or LHD/LHA in terms of flight deck space.

The *Mercy* deployment also suffered immensely from its late arrival to Banda Aceh. By the time the ship arrived on 3 February, the operation was transitioning from the relief phase to the recovery phase. Anyone with acute injuries from the tsunami had already been treated by then. Nevertheless, *Mercy* proved invaluable in helping local hospitals rebuild capacity by relieving them of some of their patient burden, repairing and replacing medical equipment, and helping build their human capital through education and training programs. The NEPMU and its specialized equipment spared thousands and perhaps hundreds of thousands from disease vectors inherent in disaster areas. Serendipitously, the ship was still in Indonesia when the Nias earthquake hit, which allowed its MTF to treat some of the trauma victims the ship was designed to accommodate.

Finally, the strategic effect of *Mercy*'s visit was huge. Images of America's great white ship graced Indonesian newspapers and newscasts nightly, and its caregivers had a profound effect on local citizens treated as well as their families. Even limited care by doctors and nurses can have a profound impact on people's lives, as many of the anecdotes in this study so vividly illustrate. Unquestionably, *Mercy*'s mission contributed significantly to the changed view of most Indonesians towards the United States following OUA. A Pew Charitable Trust survey found that the United States' favorability rating in Indonesia more than doubled after OUA. Additionally, 79 percent of Indonesians said that the aid led them to have a more positive view of the U.S. The strategic effects of this soft power intervention cannot be overstated.<sup>358</sup>

A key theme of OUA that will carry over to subsequent case studies in this volume is the critical role NGOs, international organizations, and USAID played in the operation. The success of OUA depended heavily on NAVFOR's ability to partner with these non-military organizations. These actors played a critical role in nearly every aspect of the HADR: disaster assessments, supply acquisition and distribution, medical care, and even logistics (NAVFOR's major contribution), especially towards the end of the operation. These entities often had local knowledge and contacts that NAVFOR did not possess. The USAID-NAVFOR and IOM-NEPMU collaborations and the transition of the operation to UNJLC control in February illustrate how vital these partnerships are in a HADR. No civil-military partnership developed during the campaign was closer than that of the Project Hope volunteers and the Navy medical personnel aboard *Mercy*. The

Project Hope experiment was a proof of concept that civilians can augment or even replace military personnel in HADR-type situations. The Navy and Marine Corps can contribute unique capabilities in areas such as logistics and C3I in the acute phase of a HADR operation but should strive to allow NGOs and international organizations to perform much of the other work. Building these strategic partnerships should not just occur during an operation but continually through conferences, exchanges, and combined training evolutions.

The success of any operation depends on the ability of key leaders throughout the chain of command to work in concert towards a single set of goals. In OUA, that goal was an all-encompassing humanitarian goal—bringing life-sustaining supplies to those in need—or as Lieutenant General Blackman stated, “doing good things.” At the highest leadership levels, Admiral Fargo, DEPSECDEF Wolfowitz, and Ambassador Pascoe were instrumental in convincing the political leadership in Washington of the humanitarian need for the mission and also its potential benefits—saving large numbers of lives and improving relations with the world’s largest Muslim country. At the next level of the chain of command, leaders such as Blackman, Deptula, and Crowder demonstrated an incredible capacity to work together and also with all the other actors in the drama. It is hard to overstate the role Admiral Crowder played in the operation. As the son of a Navy enlisted sailor who spent his entire childhood on naval bases and then attended the Naval Academy, Crowder’s worldview could have been myopic and his ability to work with people outside the military sphere severely lacking, but Crowder proved himself a diplomat in gold and blue in the highest traditions of naval service. A two-year stint as an Olmsted Scholar plus time spent in the Pentagon gave him the experience and tools to forge relations with everyone from General Bambang to Ambassador Pascoe to members of the media and NGOs.

Even further down the chain were many dedicated lower echelon commanders completely committed to the operation and its success. Colonel Greenwood, Admiral Ames, and Captain Howard were key to the successful ESG deployment and tricky negotiations with TNI over its role in Meulaboh. Llewelyn, Smith, McCully, Comlish, Landro, the Project Hope leadership, and many others transformed a seemingly futile hospital ship deployment into a strategic success. Finally, at the bottom rungs of the ladder were scores of dedicated junior officers and enlisted interacting daily with TNI and other partners to meet mission goals—people like Michael Hsu and Gabriel Piper as well as Americans with other services and agencies like Michael Bäk and Nelson Chang. Chang and Bäk’s knowledge of Indonesian culture and language, in particular, proved invaluable. For future HADR operations, the Navy and Marine Corps will need to deploy more linguists and translators.

As the WHO end-of-mission report stated, OUA was a key military intervention that “helped these devastated populations escape a secondary disaster.” That secondary disaster could have been untold additional deaths from starvation, thirst, medical neglect, and



disease. The Navy and Marine Corps' unique capability to provide life sustaining food, water, and medical support in a timely manner to hundreds of thousands of people in a land far from U.S. shores underscores why the U.S. military represents the most essential and robust force in the world when it comes to humanitarian disaster and relief operations.



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## HURRICANE KATRINA

Hurricane Katrina stands out as the most damaging and costly natural disaster in U.S. history. That hurricane, which raged from 23–31 August 2005, laid waste to more than 90,000 square miles of land along the Gulf Coast from Alabama to Louisiana, leaving thousands homeless and destitute. The storm and its immediate aftermath resulted in 1,833 Americans killed. Storm surges as high as 27 feet above normal flooded coastal areas from Mobile, Alabama, to New Orleans, Louisiana.<sup>1</sup> In New Orleans itself, the surge caused levee failures that left 80 percent of the nation's 35th largest city under water.<sup>2</sup> Property damage and other costs from Katrina exceeded \$165 billion in inflation-adjusted 2020 dollars.<sup>3</sup> The storm also created 118 million cubic yards of debris, and temporarily shut down much of the crude oil and natural gas production in the Gulf of Mexico, causing gasoline prices to rise across the country. It triggered extended power outages that affected more than 2.5 million people. Over 3 million customers lost phone service, including 38 emergency call centers. Oil spills caused by the storm dumped 7.4 million gallons of crude oil in the Gulf and its waterways—two thirds as much as the worst oil spill in American history, the *Exxon Valdez*



An aerial view of the devastating flooding caused by breakage of the levee separating the city of New Orleans from the Mississippi River and Lake Pontchartrain during Hurricane Katrina. (Photographer's Mate Second Class Michael B. Watkins, USN; NARA, DN-SD-06-02467)

incident in 1989.<sup>4</sup> The scale and scope of the Katrina disaster, to this day, is in a class of its own, vastly exceeding all other large-scale natural disasters to befall the United States, including the 1906 San Francisco earthquake, and Hurricanes Harvey (2017) and Maria (2017).<sup>5</sup>

The U.S. Navy was both a victim and an emergency responder during Katrina.<sup>6</sup> Some of the Navy's most significant installations lay in its path of destruction, including bases in Meridian (1,254 personnel), Pascagoula (2,700), and Gulfport (4,380), Mississippi; and New Orleans (3,110), Louisiana. An additional 1,843 sailors and Navy civil servants were stationed at the Stennis Space Center in Mississippi, and another 5,693 sailors and civilians were on temporary duty assignments in the region when the storm struck.<sup>7</sup> The Navy had to establish an entirely new agency, called Task Force Navy Family (TFNF), to care for Navy personnel and families affected by the tragedy. Vast amounts of resources had to be devoted to restoring naval facilities destroyed or damaged in the tempest.<sup>8</sup>

At the same time, the Federal Emergency Management Agency (FEMA) requested naval resources to respond to the general impacts of the storm. Ultimately, 12 Navy warships, 9 logistics ships from MSC, 68 naval aircraft, and 10,000 sailors responded to the disaster. The warships included the aircraft carrier *Harry S. Truman*, the landing platform/dock ship *Iwo Jima* (LPD-7), the amphibious assault ship *Bataan* (LHD-5), plus a variety of other amphibious assault ships and minesweeping vessels.<sup>9</sup> These vessels and their sailors

- transported more than 10,000 people (Navy aircraft and surface vessels rescued 1,559 people, medically evacuated 195, and transported another 8,512 to safe havens);
- delivered approximately 2.2 million pounds of food and water;
- provided medical treatment to an estimated 10,239 patients;
- directed ships to serve as command and control platforms;
- inspected and repaired the region's infrastructure;
- provided hospitality services to relief workers and DoD personnel (4,191 berths and 66,315 meals);
- coordinated relief operations with coalition maritime forces;
- surveyed and removed debris from shipping channels and major waterways.<sup>10</sup>

Navy ships and shore facilities served as bases for many of the 2,600 U.S. Marines deployed to the region after the storm as well as for members of the other services plus federal, state, and local first responders and government personnel. The Naval Air Station Joint Reserve Base (NAS JRB) New Orleans, located south of the city in the suburb of Belle Chasse, emerged as one of the most significant staging bases for search and rescue (SAR) aircraft during the immediate aftermath of the storm. Both Coast Guard and National Guard SAR aircraft used the base for parking and refueling during the initial



chaotic days of the crisis. NAS JRB New Orleans also became the main base for the Louisiana National Guard after the Jackson Barracks flooded.<sup>11</sup> Although Katrina severely damaged the Naval Construction Battalion Center (NCBC) at Gulfport, the “can do” Seabees from this base, along with another 2,200 Seabees from bases across the country, rapidly got this installation up and running. Seabees also established logistics centers to distribute food and water and provide emergency medical services to victims of the storm.<sup>12</sup> They later cleared 750 miles roadways, removed 20,000 tons of debris, and rebuilt 100 schools and 30 public buildings. Seabees performed domestic civic action projects during Katrina on a scale unsurpassed in their history.<sup>13</sup>

The key capabilities the Navy brought to the disaster included logistics (especially food, water, transportation, and basing); command and control (especially from ships); naval construction; evacuation and rescue; and survey and salvage. The Navy’s expeditionary capability meant that for the first five days of the crisis, the federal DoD forces on-scene came mainly from the Navy and Marine Corps. Navy ships served as floating bases, allowing first responders to focus on rescue and recovery efforts rather than logistics functions such as berthing and messing—a critical need in a region lacking dry land areas suitable for military encampments as well as power, potable water, and other basic necessities.<sup>14</sup> The U.S. Senate report on Katrina concluded that “overall, the Navy showed a strong willingness to push assets into response efforts . . . [and] provided a wide variety of mobile platforms for landing and servicing aircraft, treating patients, transporting enormous quantities of cargo and commodities, in addition to land-based assets which included engineering battalions of Seabees and logistics support.”<sup>15</sup>

The chief criticism of the Navy by this report and several other studies was that with the exception of forces already on scene (such as *Bataan*, which began air operations on 30 August, and the Seabees in Gulfport), it was slow to respond. The hospital ship *Comfort*, for example, did not reach the region until 9 September, at which point, its 1,000-bed hospital was no longer needed.<sup>16</sup> The Navy’s response time was affected by laws and regulations governing the use of the U.S. military in domestic situations as well as by the time it takes ships to transit long distances. Federal laws in place in 2005 assigned primary responsibility for domestic disaster relief to state and local resources. The process by which federal military forces could be tasked to respond to a domestic crisis was lengthy and tedious. Moreover, the government agency responsible for coordinating federal relief efforts during Katrina, FEMA, had a very limited understanding of the Navy and its capabilities. Finally, many of the ships ultimately tasked to provide Katrina relief had to travel from Norfolk, Virginia—a multi-day transit even for the Navy’s fastest ships. *Iwo Jima*, which anticipated such a deployment and left Norfolk on 29 August, did not arrive on the Gulf Coast until 3 September.<sup>17</sup> Once on the scene, sailors were forbidden by law from engaging in domestic law enforcement actions.<sup>18</sup> This complicated security arrangements for rescuers, work details, and medical teams, which often had to rely on local law

enforcement or National Guard units for force protection in an environment prone to looting and gang violence.

The Coast Guard, which fell under the Department of Homeland Security (DHS), and the National Guard, which reported to state governors, did not operate under the same legal strictures. These organizations had preexisting legal authority to operate in the domestic sphere and had significant forces already in place near potential areas of operation—two factors that greatly streamlined deployments. The Coast Guard alone had a bigger impact on initial search and rescue operations than the Navy and Marine Corps combined. The 5,300 personnel, 86 aircraft, 29 cutters, and 131 small boats deployed to the Gulf Coast by the nation's smallest armed service rescued 33,735 people.<sup>19</sup> The Louisiana National Guard, which activated 2,000 soldiers for storm relief duty, rescued 25,000 people.<sup>20</sup> National Guard units from across the country eventually swelled to 50,000—a number far larger than the entire active duty response, which included 10,000 sailors, 2,600 marines, and 22,000 regular Army soldiers.<sup>21</sup>

Throughout the operation, the Navy functioned more as a sustainer and enabler of first responders than a first responder itself—a role better befitting its status under Title 10 of the U.S. Code, the Stafford Act, and the Posse Comitatus Act. Naval ships provided food and shelter for first responders from the other services and state and local governments. A significant element of the Joint Force Maritime Component Command (JFMCC) was based on *Iwo Jima*. Seabees worked with National Guard units to clear roads of debris. Various naval air units and surface ships worked tirelessly to keep National Guard, Coast Guard, and state and local first responders supplied with food, water, and in some cases fuel and power. Other naval units provided communications support, helped open up vital waterways with survey and salvage assets, treated those in medical need, provided religious services, acted as a presidential support platform, offered public affairs assistance, and the list goes on. In all, it was a joint effort with the Navy supplying many vital but not necessarily readily visible back-office functions.

### **Legal, Administrative, and Command and Control Challenges**

The U.S. Northern Command (NORTHCOM) is the unified command tasked with protecting the homeland of the United States and its territories. It is the major command DoD utilizes to oversee its response to domestic disasters. As early as 24 August, when Katrina strengthened from a tropical depression to a tropical storm, NORTHCOM issued a warning order for supporting commands to prepare for requests for DoD assets should the need arise.<sup>22</sup> When the storm strengthened to a category one hurricane on the 25th and was tracking towards southeastern Florida, NORTHCOM issued another warning order, telling DoD commands to be prepared to support civil authorities. MSC ships in the gulf region sortied from New Orleans that same day. On the 26th, following the storm's passage across Florida, NORTHCOM issued an execute order, informing commands to anticipate effects that “will exceed state & local emergency services.”<sup>23</sup> Based on

this guidance, the Navy designated Naval Air Station Meridian, Mississippi, as an operational staging area for FEMA, placed naval personnel there on high alert, and evacuated all non-essential personnel and dependents. Vice Admiral Mark Fitzgerald, the commander of the Second Fleet, also began developing a humanitarian assistance plan involving *Bataan*, which was in port at Ingleside, Texas; a Marine amphibious readiness group (ARG); and the hybrid catamaran HSV-2 *Swift*. By the 28th, after the hurricane strengthened to category 5, *Bataan* had re-embarked its helicopters and was prepared to perform relief operations if directed. Seabees in Gulfport, Mississippi, were also primed and ready to assist; the hospital ship USNS *Comfort* began making preparations to get underway; and Fleet Forces Command had stood up a crisis assistance team. When Katrina made landfall the next day, Second Fleet was preparing to deploy additional amphibious readiness ships, including *Iwo Jima*, *Tortuga*, and *Shreveport* (LPD-12).<sup>24</sup>

Far from sitting on its hands, the Navy was leaning as far forward as it could within the law, but federal laws and regulations governing the use of federal armed forces on domestic soil constrained and slowed the response of the Navy and other federal armed forces from the onset. The role of the federal military on U.S. soil is defined by the Posse Comitatus Act (18 U.S.C. § 1385), which limits the powers of the federal government to employ the federal military to enforce domestic policies in the United States. During Reconstruction, President Ulysses S. Grant employed the federal army to suppress the Ku Klux Klan and enforce voting laws. Soon after the election of 1876, southern congressional representatives enacted Posse Comitatus to prevent such “federal interference” in the affairs of the states. The act prohibited the federal government from employing the U.S. Army or Navy in a domestic law enforcement capacity and effectively ended the federal military occupation of the former Confederate states.<sup>25</sup> The only exception was insurrection, lawlessness, and rebellion, which the President could put down with federal troops under the authority of the 1807 Insurrection Act.

Despite lawlessness in Katrina’s immediate aftermath, President George W. Bush never invoked the insurrection act.<sup>26</sup> Instead, he relied heavily on National Guard to provide security during Katrina relief operations. The National Guard can operate under three distinct statuses:

- (1) As a state militia under the authority of a governor and at state expense
- (2) In active duty status under the control of a state governor but performing a mission in support of the federal government and paid for by the federal government as per Title 32 of the U.S. Code
- (3) As a fully federalized active duty force paid for by the federal government and under the authority of the President as per Title 10 of the U.S. Code

Under the first two statuses, the National Guard can assist with domestic law enforcement activities. It is only prohibited from engaging in domestic law enforcement

functions when federalized under Title 10. During Katrina, nearly all National Guard activations fell under Title 32. Guard troops not only had the authority to rescue citizens but arrest them as well—a necessary power for first responders working in a lawless environment. Typically, the federal government prefers to employ the National Guard, as opposed to the regular military, for domestic disaster relief operations because of its law enforcement powers and the guidelines set forth in the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act. The Stafford Act explicitly states that response efforts should first utilize state and local resources before turning to federal military for assistance.<sup>27</sup> DoD Directive 3025.1, *Military Support to Civil Authorities*, further reinforces this principle by acknowledging that “Army and Air National Guard forces, acting under State orders . . . have primary responsibility for providing military assistance to State and local government agencies in civil emergencies.”<sup>28</sup>

The Coast Guard, similarly, can perform domestic law enforcement functions. Although it is one of the five branches of the U.S. federal military, the Coast Guard has a unique status. It falls under the DHS, not the DoD, and has full authority to enforce federal law. Title 14 of the U.S. Code grants law enforcement powers to all Coast Guard commissioned officers, warrant officers, and petty officers. Coastguardsmen can carry firearms, serve warrants, make arrests, and perform any other law enforcement duties



Rear Admiral Robert F. Duncan, Eighth Coast Guard District commander, seen here speaking at an event in New Orleans on 20 April 2006. (Public Affairs Specialist First Class Kyle Niemi, USCG; DVIDS, 1078498)

that the Secretary of DHS may designate. In short, coastguardsmen could enter the disaster area armed and make arrests when necessary.

The Coast Guard also has several pre-ordained domestic missions that gave it license to respond immediately to hurricane-related needs. These included search and rescue, aids to navigation, maritime environmental protection, marine resources regulation, and maritime law enforcement. Consequently, the Coast Guard did not have the same legal constraints as the other federal services when it came to responding to domestic emergencies. It could surge large numbers of forces into affected areas within hours of the storm with little guidance or coordination with higher authorities. Rear Admiral Robert Duncan, the Eighth Coast Guard District commander, launched forces based on a quick phone call with Louisiana Governor Kathleen Blanco's husband, Raymond Sindo "Coach" Blanco. He had tried to call the governor directly but was told by the head of her security detail: "She's busy but let me give you the Coach." Duncan then said, "Coach?" And the security officer said, "That's her husband and they call him Coach." Duncan informed Coach Blanco that, "We've moved resources away from the path of the storm to survive the impact. Our plan is to come in immediately behind the storm and provide lifesaving operations, channel restoration, spill containment, and I want to make sure it lines up with the state's priorities." Coach Blanco said, "That's wonderful, Admiral. Thank you very much for that." And Duncan said, "When the winds die down and people feel safe enough to come out, if they need help I want them to see a big orange helicopter waiting above them when they come out. That's our plan."<sup>29</sup>

The Navy, which fell under DoD, could not operate in this manner. Its response was strictly regulated by a variety of laws and regulations. The Posse Comitatus Act effectively prevented the Navy from performing security functions—a core competency of this service and all the federal military services.<sup>30</sup> The Intelligence Oversight Act of 1980 restricted its ability to conduct surveillance and intelligence operations—another core competency. The Stafford Act prevented the Navy from responding to a domestic disaster until state governors and local officials formally requested assistance from the federal government. The president then must issue a disaster declaration. A federal coordinating officer (FCO), appointed by the director of FEMA, is charged with coordinating federal relief at the state level. During Katrina, FEMA's FCO in Louisiana was William Lokey, and in Mississippi, William Carwile.

Once activated, FEMA establishes a joint field office (JFO) in a disaster-affected area to provide a central point "for federal, state, tribal, and local executives to coordinate their support to the incident." A unified coordination group leads the JFO and generally consists of the FCO, a state coordinating officer (SCO) appointed by the governor to coordinate state recovery efforts with the federal government, and other state, local, and federal officials. The group meets regularly in person and via conference calls to develop goals and coordinate relief efforts.<sup>31</sup> Under the authority of the Stafford Act, the President can direct DoD to assist with relief operations "by providing food, water, and shelter to



victims; conducting search-and-rescue missions; and using engineering assets to remove debris and to open up vital roads and public buildings.”<sup>32</sup>

In 2004, the DHS further refined the process with its National Response Plan (NRP). The Homeland Security Act of 2002 required the DHS to consolidate existing federal government emergency response plans into a single, coordinated national response plan, and the NRP, issued in 2004, was the result. It was “intended to be an all-discipline, all-hazards plan establishing a single, comprehensive framework for the management of domestic incidents where federal involvement is necessary.”<sup>33</sup> The NRP established emergency support functions (ESFs) for government agencies involved in disaster relief. The ESF table identifies the lead agency for each disaster relief requirement:

- ESF #1, Transportation (Department of Transportation)
- ESF #2, Communications (DHS/National Communications System)
- ESF #3, Public Works and Engineering (DoD)
- ESF #4, Firefighting (Department of Agriculture)
- ESF #5, Emergency Management (DHS/FEMA)
- ESF #6, Mass Care, Housing, and Human Services (DHS/FEMA)
- ESF #7, Resource Support (General Services Administration)
- ESF #8, Public Health and Medical Services (Department of Health and Human Services)
- ESF #9, Urban Search and Rescue (DHS/FEMA)
- ESF #10, Oil and Hazardous Materials Response (Environmental Protection Agency)
- ESF #11, Agriculture and Natural Resources (Department of Agriculture)
- ESF #12, Energy (Department of Energy)
- ESF #13, Public Safety and Security (Department of Justice)
- ESF #14, Long-Term Community Recovery (DHS/FEMA)
- ESF #15, External Affairs (DHS)<sup>34</sup>

In the ESF rubric, DoD is only designated the lead agency for one support function (public works)—mainly due to the role the U.S. Army Corps of Engineers has historically played in large-scale domestic public works projects. The NRP as a whole, however, assigns DoD a “general role” in supporting civil authorities during domestic disasters and also identifies DoD “as a supporting agency to the lead agency in all 15 of the NRP’s ESFs, reflecting the fact that DoD has unique resources and capabilities to provide humanitarian relief in a catastrophe.”<sup>35</sup> In essence, DoD often has an oversized role to play in domestic disasters due to its ability to deploy and sustain significant resources related to all 15 ESFs in a disaster-affected area or region.

Under the provisions of the 2004 NRP, the DoD was supposed to provide its support to a disaster stricken area in response to requests coordinated by a defense coordinating officer (DCO) assigned to the JFO. According to the NRP, “The DCO serves as DoD’s single point of contact at the JFO.” The mission of the DCO was to work with local authorities and the FCO to “align DoD capabilities with Katrina response needs.” This might include assessing local needs, validating mission assignments, and monitoring DoD units assigned to a disaster. The DCO also was assigned to the JFO to represent DoD interests and provide information to the DoD chain of command.<sup>36</sup> During Katrina, the DCO was an Army officer from Fifth Army, Colonel Anthony Daskevich. He routed requests for DoD assistance to Joint Task Force Katrina, which in turn routed those requests through NORTHCOM to the Office of the Secretary of Defense and the Joint Directorate of Military Support.<sup>37</sup>

If that were not complicated enough, the NRP also created a second overseer position, known as the principal federal official (PFO). Appointed directly by the Secretary of Homeland Security, the PFO serves as his or her primary representative in the field. During Katrina, Michael D. Brown, the head of FEMA, was the PFO. According to Paul McHale, then the assistant secretary of defense for homeland defense and global security, Brown was appointed to be “a critical enabler of follow-on DoD capabilities.” After Brown was fired on 9 September, Admiral Thad Allen, USCG, took over this position.<sup>38</sup>

The difference between the PFO and FCO is that FCOs are legislatively mandated under Section 302(a) of the Stafford Act to determine types of relief needed, coordinate relief efforts, and establish field offices at the state level. PFOs are appointed by the Secretary of Homeland Security under the provisions of the NRP and serve as the secretary’s personal emissary over the expanse of an entire disaster area, even if that area includes multiple states. During Katrina, the FCO and PFO roles often overlapped, creating confusion on the



Admiral Thad Allen shortly before assuming duties as the 23rd Commandant of the U.S. Coast Guard on 25 May 2006. During Hurricane Katrina, Allen served as PFO for the federal relief effort. (Telfair H. Brown Sr; DVIDS, 1078620)

ground.<sup>39</sup> The PFO was not supposed to direct operations; that was role of the FCOs for each affected state, but once Admiral Allen assumed the role of PFO, he immediately began running operations, and even set up a separate command in New Orleans, “set apart” from the FCO and Joint Field Office. FEMA eventually rectified the disunity of command by appointing Allen the Louisiana FCO as well as PFO for the multistate operation.<sup>40</sup>

It is important to emphasize that throughout the NRP process requests for help had to originate from state and local government officials. To quote Rear Admiral Duncan, “The National Response Plan preserves what in this country has been a principal article of faith and federalism, that the governor (the executive of the state) has primary responsibility for events within the state. You know she uses the National Guard under state authority. She uses her emergency operators for any number of responses, all first responders. The state has ultimate primary responsibility for events that occur within the state. What the national response plan provides for is a national response at the request of the chief executive of a state.” The NRP, in other words, was established to augment and bolster the state and local response, not to replace it or subordinate it.<sup>41</sup>

Federalism thus assured that unity of command would be impossible during Katrina relief operations. Probably the biggest single bureaucratic weakness in the federal response to Katrina was that NORTHCOM and JTF-Katrina only controlled Title 10 forces, not the 50,000 National Guard troops deployed under Title 32. The National Guard units were coordinated state-to-state through emergency management assistance compact (EMAC) agreements and also by the National Guard Bureau. EMACs allowed units in one state to be assigned to work for the governors and state adjutant generals of other states. During Katrina, units from different states were assigned to various National Guard task forces operating in the affected states under the control of state adjutant generals. JTF-Katrina had no statutory control of these units.<sup>42</sup> At one point, federal officials discussed the idea of putting all military personnel under JTF-Katrina and making the JTF commander, Lieutenant General Russel L. Honoré, U.S. Army, commander of all federal troops and guard units. Blanco turned down the idea on 3 September. While she agreed with the imperative of creating a single military commander for Title 10 forces, she stated that National Guard units from 25 different states under Title 32 authority should fall under the adjutant general for the state of Louisiana.<sup>43</sup>

The military command structure remained fragmented throughout the disaster and subsequent recovery. The distributed nature of JTF-Katrina itself made the command system even more complex. The JTF was distributed among the following elements: JTF-Katrina-West was based at Baton Rouge through 8 September and then on *Iwo Jima* after 9 September; JTF-Katrina-Forward was located at Camp Shelby in Hattiesburg, Mississippi; and JTF-Katrina-Rear at Fort Gillem in Atlanta, Georgia.<sup>44</sup> Elements of the JTF’s JFMCC headquarters were similarly spread out among various locations, including Norfolk, Virginia; Pensacola, Florida; New Orleans, Louisiana; and aboard *Harry S.*

*Truman* and *Iwo Jima*. This diaspora of staff, both within the JTF and JFMCC, degraded command, control, and communications and often compelled the JFMCC (or its elements) to function independently and without a formal chain of command. NORTHCOM and other entities up the chain of command generally had to contact the JFMCC directly for maritime assets or information because they could not get a response from the JTF staff.<sup>45</sup> Those lower down the chain often relied on their own initiative. “Our chain of command would give vague direction to us,” explained Ensign Brandon Key, a deck division officer on *Shreveport*. “We were blind. We did not know what supplies were needed, who to talk to. We did not have a lot of direction. It was show up with a backpack full of food and water.”<sup>46</sup>

JTF organization and structure impeded the flow of orders and information up and down chain of command for Title 10 forces and hindered the communications with civilian authorities in the Joint Field Office (JFO). According to Jeff Smith, state coordinating officer for Louisiana, “whenever the task force commander of Hurricane Katrina, General Honoré, came onto the scene, he was also operating independently with little regard whatsoever for the Joint Field Office.”<sup>47</sup> The House Report also noted that “DoD frequently acted on its own, outside the established unified command.” Requests for assistance were supposed to flow from the local level to the state coordinating officer to the FEMA FCO and then DoD via the DCO in the JFO, but given how “broken” and “unworkable” the system became during Katrina, the House forgave Honoré and other federal military officers for bypassing the process on occasion to keep things moving and get the job done.<sup>48</sup>

Honoré was certainly not alone in occasionally bucking the system. State and local civilian entities often behaved in a similar manner due to the dysfunction of the JFOs. For example, when the Hancock Medical Center in Bay St. Louis, Mississippi, urgently needed saline solution, tetanus vaccine, and antibiotics, it contacted the office of Congressman Gene Taylor of the fourth congressional district of Mississippi directly rather than submitting a supply request via its local emergency operations center and up through the JFO. At a loss for what to do and exhausted from working long hours with little sleep, Stephen Peranich, the congressman’s chief of staff, turned to Captain Earl Gay, USN, a Capitol Hill colleague who worked for the Navy’s Office of Legislative Affairs. “Captain Gay was a guy I often turned to for sage advice during the crisis.” After Peranich explained the situation, Gay immediately went to Peranich’s office, took out his cell phone and called his longtime friend, Captain Nora Tyson, the commanding officer of *Bataan* and an officer who would later become the first female carrier strike group commander.<sup>49</sup> As the ship was steaming in confined waters, dodging dead cows and shrimp boats, the two officers calmly conferred and soon hatched a plan to utilize *Bataan* helicopters to ferry the supplies to the medical center, using Google maps for directions. “It was just one of those amazing things.” Had Peranich relied on official channels, it might have taken days or

even weeks for these lifesaving supplies to reach the hospital. Instead, the hospital had what it needed to save lives within hours.<sup>50</sup>

The experiences of Captain Michael McDaniel, the Navy representative to FEMA headquarters in Washington, early in the crisis revealed how difficult it could be for civilian officials at local, state, and federal levels to request military assets from DoD even when proper channels were followed. “You can’t just say, ‘we need a helicopter,’” explained McDaniel. The request had to look like an official DoD tasking written in DoD language with DoD acronyms and DoD justifications. According to the DoD and National Guard Liaison, Colonel Don Harrington, DoD designed the system to ensure that civilian authorities explored all other options before requesting DoD assets. The Stafford Act specifically stated that response efforts should first utilize state and local resources, and many within the department wanted to be sure civilian resources had been exhausted before DoD resources were employed.<sup>51</sup>

Others within DoD and the Joint Staff defended the tasking system. General Richard Myers, Chairman of the Joint Chiefs of Staff at the time said, “I don’t know if we have a 21-step process or not. If we do, it’s one that takes 21 seconds to complete.” Myers said DoD would “never” wait to start planning to execute a mission until formal orders were signed, saying such an approach would be “incongruous” with DoD culture. In other



Air Force General Richard B. Myers (*left*), the 15th Chairman of the Joint Chiefs of Staff, discusses Hurricane Katrina relief efforts with Army Major General Bennett Landreneau (*center*) and Secretary of Defense Donald H. Rumsfeld (*right*) in Baton Rouge, Louisiana, on 4 September 2005. (Technical Sergeant Kevin J. Gruenwald, USAF; NARA; DF-SD-06-01066)



words, a complex legal and regulatory system existed to control when, why, and how Title 10 military resources could be employed on domestic soil, which sometimes was followed strictly by the book and in other instances, expeditiously cast aside to save lives and get the job done.<sup>52</sup> For local commanders in the field, choices often boiled down to letting civilians suffer or even die while requests slowly percolated through multiple bureaucracies or simply acting on their own initiative. Coast Guard officers proved most adept at seizing the initiative, but naval leaders also excelled in this area due to the distributed nature of naval forces during normal operations. The Army, by contrast, tended to take a strict constructionist view of the various laws and regulations governing the use of federal forces on U.S. soil. It was so concerned about following the letter of the law that it deployed elements of the 82nd Airborne Division unarmed—a situation that compelled the JTF to request armed details from the Coast Guard and National Guard to provide security for 82nd units. For the members of one of America's most elite and lethal divisions, it must have been ironic and somewhat embarrassing to have to rely on these other units for force protection.<sup>53</sup>

The Navy, along with the other Title 10 forces assigned to JTF-Katrina, entered into the fray hamstrung from the onset by a variety of laws and regulations. *Posse Comitatus* made it impossible for the federal military to perform the role it was best suited for: armed security operations. The Stafford Act and NRP with its convoluted bureaucratic structure often made it exceedingly difficult for the sea services to provide immediate aid and relief to areas hit hard by the storm. JTF-Katrina's distributed nature further complicated matters. That the Navy still managed to transport 10,000 displaced persons, deliver 2.2 million pounds of food and water, and provide medical treatment for an estimated 10,239 persons is a testament to the ability of its sailors to persevere no matter the obstacles.<sup>54</sup>

### **The Storm and Its Immediate Impact**

On 23 August 2005, the National Weather Service detected a tropical depression off the Bahamas and began monitoring it. NORTHCOM also began tracking the system from its operations center in Colorado Springs. The next day, the system strengthened to a hurricane and was given the name Katrina. FEMA activated its Hurricane Liaison Team at the National Hurricane Center; NORTHCOM issued a Warning Order for supporting commands to prepare for requests for DoD support; and the Joint Operations Center at the National Guard Bureau began preparing for a possible response.<sup>55</sup>

Katrina strengthened to a category one storm just before making impact on the southeast coast of Florida near the border of Miami-Dade and Broward Counties on the 25th. The National Hurricane Center (NHC), a division of the National Weather Service, rates hurricanes based on the Saffir-Simpson wind scale. Category one storms produce winds up to 95 miles per hour; category two, up to 110 mph; category three, up to 129 mph; category four, up to 156 mph; and category five, 157 mph or higher. Any storm rated

two or higher can produce extensive damage and storms rated four or five might render large swaths of territory uninhabitable for weeks or even months.<sup>56</sup> When Katrina made its first landfall as a category one storm, it produced winds over 80 miles per hour and significant flooding. More than a dozen people died in South Florida as a result of the storm and property damage topped \$2 billion. As the storm crossed south Florida, the NHC predicted it would turn and strike the Alabama-Florida panhandle. Alabama and Mississippi soon activated their emergency operations centers,<sup>57</sup> and the MSC ships began to leave New Orleans.<sup>58</sup>

On Friday, 26 August, NHC issued a new track forecasting that the eye of the storm would pass just east of New Orleans on 29 August and make its second landfall as a category four or five storm along the Gulf Coast in the Mississippi-Louisiana area. Louisiana Governor Kathleen Blanco and Mississippi Governor Haley Barbour declared states of emergency for Louisiana and Mississippi, respectively, and state agencies began implementing emergency response plans. The Louisiana National Guard mobilized 2,000 personnel and activated its Joint Operations Center at Jackson Barracks in New Orleans. Mississippi mobilized 750 personnel from its National Guard units.<sup>59</sup> Meanwhile, FEMA began conducting daily video teleconferences from its National Response Coordination Center (NRCC) at FEMA headquarters in Washington with FEMA regional officials on a potential federal response to the storm.<sup>60</sup> Early Friday afternoon, Max Mayfield, the director of the NHC, called his friend, Walter Maestri, the emergency preparedness director of Jefferson Parish, Louisiana, on the western side of New Orleans, and told him: “This is what we’ve been talking about all of these years. It’s a 30-90 storm.” 30-90 refers to the latitude and longitude of the city of New Orleans.<sup>61</sup>

Hurricane Katrina strengthened to a category three storm before dawn on the 27th and nearly doubled in size during the course of the day.<sup>62</sup> That evening, the NHC forecasted the storm would reach category four before landfall with surge flooding 15–20 feet above normal. It issued hurricane warnings from Morgan City, Louisiana, eastward to the Alabama-Florida border.<sup>63</sup> Acting upon a request from Governor Blanco, President George W. Bush signed a federal emergency declaration for the State of Louisiana on the 27th, and signed similar declarations the next day for Mississippi and Alabama. FEMA appointed William Lokey FCO for Louisiana and dispatched him to Baton Rouge later that night.<sup>64</sup>

The Navy designated Naval Air Station Meridian as a FEMA operational staging area and placed base personnel throughout the affected region on the highest alert.<sup>65</sup> Other naval bases in the area, including Naval Construction Battalion Center Gulfport (4,380 personnel), Naval Support Activity New Orleans (1,991 personnel), and NAS JRB New Orleans (1,119 personnel), were placed on high alert and most non-essential personnel were evacuated.<sup>66</sup> Captain Anthony J. Rizzo, the commanding officer of Naval Air Station Joint Reserve Base, New Orleans, evacuated all but 55 people on Saturday. When the storm intensified on Sunday, he opted to fly out another 30 people in a C-40 (a military

variant of a Boeing 737), leaving approximately 25 people to ride out the storm in the Building 31 Operations Center. “We had boats and life preservers,” explained Lieutenant Commander Paul Prokopovich, the base hurricane preparedness officer. “We worried about the levees just outside the front gate breaking.” The operations center was in a two-story building, and the watch standers planned to escape out of a roof hatch should the base levees fail and take to boats. As it turned out, the levees held and all the major base structures survived intact. The skeleton staff on the base were able to have the airfield operational by noon Monday, and shortly thereafter, the first Coast Guard rescue helicopters began operating from the base.<sup>67</sup>

On Sunday the 28th, Katrina strengthened to a category four storm and then a category five system, all within a 6-hour time frame. At 0700, NHC announced that Katrina’s winds extended 230 miles from the center, “making Katrina not only extremely intense but also exceptionally large.” Its diameter was 500 miles—the distance from Washington, DC, to Boston.<sup>68</sup> NHC issued advisories stating that levees in New Orleans could be overtopped, and most of the area “will be uninhabitable for weeks, perhaps longer.” It also warned that “water shortages will make human suffering incredible by modern standards.”<sup>69</sup> At 1100 on the 28th, Mayor Ray Nagin of New Orleans issued a mandatory



An aerial view of the Louisiana Superdome and the surrounding flooded downtown city center in New Orleans, Louisiana. This flooding occurred after several levees around New Orleans broke in the aftermath of Hurricane Katrina. (Photographer's Mate Airman Jeremy L. Grisham, USN; NARA, DN-SD-06-03456)

evacuation order for the city. “This is a once in probably a lifetime event,” he announced at a press conference. “The city of New Orleans has never seen a hurricane of this strength hit it almost directly, which is what they’re projecting right now.”<sup>70</sup> Close to 1.2 million New Orleans residents followed the evacuation orders and departed the city in their private vehicles, but 70,000 citizens either refused to evacuate or were too poor or ill to make their way out on their own. Many had no personal means of transportation. For these unfortunate people, the Superdome would become the shelter of last resort.<sup>71</sup> The Louisiana National Guard pre-positioned 9,792 MREs and 13,440 liters of water at the Superdome, and the New Orleans Regional Transportation Authority began running buses from 12 sites across the city to take riders there.<sup>72</sup> A team of 200 Louisiana National Guard and New Orleans Police Department (NOPD) officers searched people for weapons as they entered the Superdome, but quickly became overwhelmed as thousands of people began fleeing to the building.<sup>73</sup>

In Mississippi, the Mississippi Emergency Management Agency (MEMA) opened 51 shelters on the 28th, and the American Red Cross opened 17 more. The Mississippi National Guard activated two engineering and one military police battalion and several companies and smaller units. These guardsmen would prove critical in restoring order after the storm made landfall. The Mississippi Guard had 12,040 members at the time of the storm, but 40 percent were deployed overseas.<sup>74</sup> Through EMAC agreements, the National Guard ultimately deployed a 14,000-person force from 40 states to Mississippi.<sup>75</sup>

The Navy’s preparations on the 28th included standing up a Crisis Assistance Team at Fleet Forces Command in Norfolk, preparing USNS *Comfort* for deployment from Baltimore, and *Bataan* from Ingleside, Texas. To augment Navy air assets available for relief operations, Vice Admiral Mark Fitzgerald, the Second Fleet commander, called over to Commander, Naval Air Force Atlantic (COMNAVAIRLANT) and told him to send whatever was available. “We were not an Operational Command,” Commander Tom Quinn, the COMNAVAIRLANT N3, recalled, “but we made it happen quickly. We had 68 aircraft involved [by 6 September]. Anything that could move. H-53’s for heavy lift and the H-60’s for picking up people” and C-9s (a military version of a DC-9 airliner) for moving supplies.<sup>76</sup>

Katrina made landfall at 0610 on Monday, 29 August, in Plaquemines Parish, Louisiana—the largest parish in total area in Louisiana.<sup>77</sup> The parish consists of 780 square miles of low-lying Mississippi delta land southeast of New Orleans. Ninety-seven percent of its 26,000 residents had evacuated prior to the storm due in part to the efforts of the parish sheriff’s department, which had sent deputies door-to-door the day before the storm hit, ordering people to depart.<sup>78</sup> Katrina’s winds at landfall were over 115 mph with gusts up to 130. Although the storm was downgraded to category three at landfall, the wave action and storm surge generated by the hurricane when it was category four and five in the Gulf of Mexico created an arc of destruction along the coast unparalleled





U.S. Military Installations in the Gulf Coast Region and the Hurricane Katrina Track.



up to that point in U.S. history. A buoy sensor south of Dauphin Island in Alabama measured a 55-foot wave—the largest such swell ever recorded in the area.<sup>79</sup>

As the storm passed to the east of New Orleans, it blew out building windows and roof sections of the Superdome, where over 10,000 people were sheltering in place. Rain, falling at a rate of one inch per hour, soon overwhelmed the city's drainage system and stressed levees. The 350-mile levee system was constructed by the U.S. Army Corps of Engineers to withstand a strong category two storm. The system consisted of earthen embankments as well as closable gates, canals, and culverts to manage flooding. Large pump stations removed floodwater from a series of four compartmented basins. During Katrina, prodigious rain, high winds, and storm surge caused water to overtop and breach several levees, causing catastrophic flooding of the city. The pumping stations, which may have alleviated some of the flooding, failed due to power outages and flooding in the power plants. The levee and pump failures resulted in flooding in 80 percent of the city with some areas under as much as 20 feet of water. The most noteworthy failures occurred on the 17th Street Canal, the Industrial Canal, and the London Avenue Canal.<sup>80</sup> Dr. Frank Minyard, the Orleans Parish Coroner, estimated that 20 percent of the storm deaths in New Orleans were caused by drowning. Many others died of other causes while trapped in houses, waiting to be rescued.<sup>81</sup> In all, the storm killed over 1,100 people in the state of



An aerial view of the areas still flooded two weeks after Hurricane Katrina struck in and around New Orleans, Louisiana. (Staff Sgt. Ricky A. Melton, USA; NARA, DA-SD-06-08865)

Louisiana with flooding and water contamination being the main causes. Forty-one of Louisiana's 64 parishes suffered serious storm damage. Costs paid by the federal government to aid victims, rebuild homes, and pay national flood insurance claims ultimately reached \$27 billion.<sup>82</sup>

In Mississippi, the storm killed 233 people and flattened numerous homes in the state's three coastal counties, displacing over 66,000 people. Close to one million customers lost power and all counties south of I-20 and east of I-55 suffered extensive damage. The 12-foot storm surge penetrated six miles inland along many sections of the coast and up to 12 miles inland along bays and rivers, sweeping away entire communities in its path. "It looks like a bomb hit," declared Vincent Creel, a spokesman for the government of Biloxi. Storm surges put some of Gulfport's streets under 10 feet of water and decimated the port city.<sup>83</sup> The Gulfport Seabee base, home to 4,380 naval personnel and their families, did not suffer much from flooding, but the storm damaged buildings and rendered many roads impassable. The base commissary cleanup alone involved the removal of 1,700 pounds of debris and rotten food. Approximately 700 Seabees (mostly personnel who lived off base) lost everything they owned, and another 1,300 suffered extensive damage to their homes. For Captain Eric Odderstol, the commodore of the 22nd Naval Construction Regiment at Gulfport, his first priority after the storm was accounting for his sailors and their families; his second was to get his base up and running; and his third was to provide disaster relief to the greater community, including New Orleans.<sup>84</sup>

At Naval Station Pascagoula, home to over 2,700 sailors, winds gusting up to 100 miles per hour put a heavy strain on ship lines. One destroyer there, *Kidd* (DDG-100), smashed into a pier, suffering a 4-inch wide, 2-foot long gash and some significant flooding. Damage control parties quickly contained the flooding. *Forrest Sherman* (DDG-98) also struck the pier but was not holed. Adding insult to injury, the storm flooded the first floor of the Pascagoula Lakeside Naval Support Activity Combined Bachelor Quarters facility where many of the DDG-98 crew were housed, forcing the sailors to move to the second floor. It also flooded much of the shipyard, submerging shipyard equipment and leaving sediment and debris strewn all over the facility.<sup>85</sup>

Governor Barbour, testifying before Congress, lamented that over 80 miles of her state's coastline was "largely destroyed. A town like Waveland, Mississippi, has no inhabitable structures—none." Agriculture, the largest sector of the state's economy, suffered profound losses. The storm killed over 8 million chickens and turkeys and damaged 2,400 of the state's 9,000 poultry houses. It destroyed two years' worth of timber harvests worth over \$1.3 billion. FEMA ultimately brought in over 30,000 mobile homes to house those made homeless by the tempest. The Blue Roof program installed temporary roofs on 50,000 damaged houses. In total, FEMA disbursed \$1 billion in assistance in Mississippi after the storm, and the state and local governments distributed \$666 million.<sup>86</sup>

Alabama was not as affected by the storm as Louisiana or Mississippi, but damage was still severe in parts of the state. At least two people died in the storm and parts of the

coast suffered mightily. Katrina destroyed over 1,000 homes on Dauphin Island and Bayou La Batre, and caused damage as far north as Tuscaloosa County. Large swaths of Mobile flooded and an oil drilling platform became caught under the I-10 bridge. Federal assistance to the state would total close to \$500 million by January 2006.<sup>87</sup>

### **U.S. Coast Guard Response**

Arguably, Katrina stands out as a pivotal event in the history of the U.S. Coast Guard—the equivalent of the Battle of Midway for the Navy, Gettysburg for the Army, or Iwo Jima for the Marine Corps. The Coast Guard aided over half of the 60,000 people stranded by the storm.<sup>88</sup> The nation's smallest military service also helped reopen some of the nation's most important ports and waterways, replacing over 1,400 aids to navigation and coordinating the salvage of over 2,500 wrecked vessels. Coastguardsmen responded to over 4,000 pollution incidents and helped restore operations at 60 refineries in the storm struck region.<sup>89</sup> During normal times, the Eighth Coast Guard District relies on a fleet of 16 cutters and 19 aircraft to patrol an area spanning 26 states, including the Gulf of Mexico coastline from Florida to Mexico, the adjacent offshore waters and outer continental



A U.S. Coast Guard MH-60 Jayhawk carrying out a mission on Gulf Coast of Mississippi on 30 September 2005. Note the distinctive orange U.S. Coast Guard slash painted on the aircraft's fuselage. (Marty Bahamonde, FEMA; NARA, 311-MAD-16857)

shelf, as well as the inland waterways of the Mississippi, Ohio, Missouri, Illinois, and Tennessee River systems. At the apogee of the Katrina response, this force surged to 29 cutters, 86 aircraft, and 131 small boats. Over 46 percent of the service's aircraft and over 10 percent of its active duty personnel deployed to the region. During the peak response, the Coast Guard had over 4,000 active duty coastguardsmen and another 1,500 civilians, reservists, and auxiliary personnel working in the region. Thousands of personnel in other districts also supported the operation behind the scenes. Even Coast Guard spouses contributed by volunteering to cook, clean, and do laundry at Coast Guard facilities affected by the storm. It was an all hands on deck evolution for a service soon to be nicknamed the "New Orleans Saints."<sup>90</sup>

The Coast Guard response is universally praised in all of the post-Katrina reports and studies. Simply put, the Coast Guard saved lives in numbers disproportionate to its size. The Coast Guard performed exceptionally well during the Katrina response for several reasons—many of which are unique to this service. First, the Katrina response demanded capabilities at the core of what the service does on a daily basis: SAR and lifesaving, law enforcement, aids to navigation, salvage, and managing oil spills and other environmental hazards. Of these mission sets, SAR stands out as the central focus of what is essentially America's lifesaving service. The bright orange "slash" painted on every cutter hull and the service's distinctive orange helicopters reinforce this ethos. All coastguardsmen from the lowest seamen up to flag officers receive extensive training in maritime search and rescue throughout their careers. As Captain Bruce Jones, USCG, the commander of Coast Guard Air Station New Orleans, explained, "I think it's a real strength of the Coast Guard because we train so much and because we do 24/7 emergency response ops. Emergency response ops are, for us, routine, and everyone knows each other's roles."<sup>91</sup>

Even coastguardsmen in non-operational jobs receive extensive training in SAR. Lieutenant Commander Daryl Schaffer, USCG, was a good example. At the time of the storm, he was serving in New Orleans as a branch chief with the Coast Guard's Integrated Support Command (ISC)—an administrative unit that provides a number of back office functions to Coast Guard sectors, including computer support and personnel administration. Schaffer's normal hurricane plan was to restore computer operations at the Grangeville, Louisiana, LORAN (long-range navigation) station. On Monday night, he contacted Sector New Orleans, and told the watch officer about his plan. The sector's response was indicative of the lifesaving culture in the Coast Guard: "bag the computers, we don't care about them. Go pick people off rooftops." Schaffer commandeered the station's two "morale" boats (pleasure craft purchased with recreational funds) and crewed them with a diverse group of ISC types from mainly technical ratings (a health service technician, an information systems technician, an electronic technician, etc.). These boats began rescuing people early Tuesday morning in the vicinity of the 27th street levee break and soon joined a FEMA task force of 40 boats, which by the end of the day rescued over 340 people.<sup>92</sup>



The Coast Guard’s small unit focus (small boats and aircraft operating individually or in pairs) places considerable responsibility on junior officers and petty officers—not only the personnel who command small boats and aircraft but rescue swimmers, aviation mechanics, medical personnel, port and maritime security personnel, salvage divers, and a range of other Coast Guard occupational specialties. Junior service members in the Coast Guard have the authority to think, act, and make decisions independently based on commander’s intent, their training, and knowledge of Coast Guard rules and regulations. This local autonomy allowed units on the ground to respond quickly to a rapidly changing situation without seeking approval from higher authorities. The Coast Guard defines this authority as “on-scene initiative.” A good example occurred early in the operation when a C-130 arrived in the area to conduct an environmental survey. Recognizing that SAR helicopters had no airborne command and control and could not communicate with officials on the ground, the junior officer in charge of the aircraft, on her own initiative, redirected the mission of the aircraft to communications relay.<sup>93</sup>

This pilot not only acted autonomously but with flexibility—another hallmark of Coast Guard institutional culture. On any given patrol, a Coast Guard unit performs



The U.S. Coast Guard cutter *Spencer* with a MH-65 Dolphin helicopter aboard. This 270-foot medium endurance cutter and its crew of 100 operated on the Mississippi River during Hurricane Katrina relief operations. (Petty Officer Third Class Amber Howie, USCG; DVIDS, 3336202)

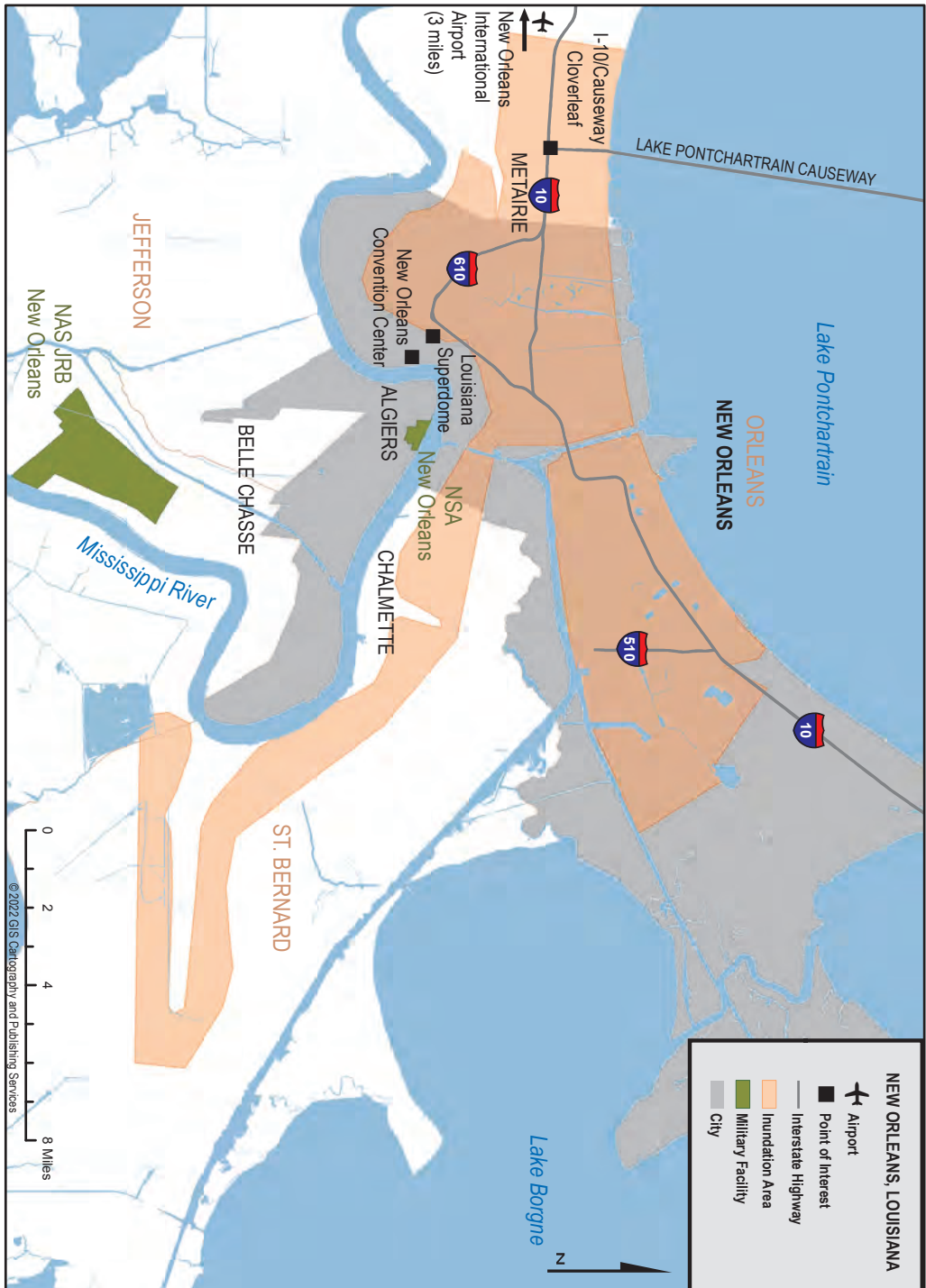


several different missions at the same time. Units must be ready at a moment's notice to shift gears and go from one type of operation to another. This can happen at the small unit level (a helicopter dropping off a FEMA official at the Superdome and then immediately flying into the city to rescue someone trapped in a flooded home) or at higher organizational levels. For example, after Air Station Cape Cod deployed many of its helicopters to New Orleans, it sought assistance from Canadian counterparts to help cover some of their search and rescue needs. Standardized operations and maintenance practices enhance the Coast Guard flexibility by allowing it to mix and match personnel from any operational unit. A rescue swimmer based in the 1st District had no problem operating with pilots based in the 8th District: the equipment, training, and operating procedures were the same. A health services technician assigned to inland construction tender *Pamlico* (WLIC-800) was equally at home in the medium-endurance cutter *Spencer's* (WMEC-905) sickbay.<sup>94</sup>

The service's small size was yet another advantage. At the time of the storm, the entire Coast Guard consisted of 39,000 active duty, 7,000 civilian, and 8,100 reserve members, for a total of approximately 54,100 personnel.<sup>95</sup> By comparison, the Navy's active duty component alone was 362,941 in 2005.<sup>96</sup> Most Coast Guard helicopters during Katrina operated from just one base: the Coast Guard Air Station located at NAS JRB New Orleans. Small boats operated from just three locations: Station New Orleans, Zephyr Field, and *Pamlico* and *Spencer* on the Mississippi River.<sup>97</sup> Officers thrown together from around the country already knew each other from former assignments or from their days at the Coast Guard Academy in New London, where nearly half of Coast Guard officers receive their commissions. Unlike the gargantuan DoD services, the Coast Guard functions like an extended family with everyone, including spouses, looking out for everyone else. As Captain Jones put it, "It was just phenomenal to see these people from around the Coast Guard . . . every air station in the Coast Guard had people in the theater and every one of them was walking through my hangar deck. And every one of them I knew."<sup>98</sup>

The final advantage was the service's unique legal status. Under federal law, the Coast Guard has the authority to engage in such missions as search and rescue and maritime resources protection continually. It also has the power to enforce federal law under Title 14. In short, it does not have to rely on the Stafford Act and the NRP to respond to a natural disaster. It can act immediately.<sup>99</sup> The Coast Guard was able to begin surging units to the region before the storm even hit. Once the disaster occurred, it did not need to wait for a presidential disaster declaration to commence rescues.

Rear Admiral Duncan's response in many ways typifies the flexible, forward leaning response of this "little service that could." Duncan was taking a well-earned "staycation" at his home in New Orleans the week before the storm. On Friday, when the Weather Channel indicated that the storm was turning towards New Orleans, Louisiana (NOLA), he cut his leave short and began working with his 8th District headquarters on implementing its COOP (continuity of operations plan). Some of his staff evacuated to St.



Areas of New Orleans Flooded after Hurricane Katrina.



U.S. Coast Guard HU-25 Guardians at an unidentified airfield during Katrina relief operations. (NARA, 26-HK-55-034)

Louis and he headed to Houston in an HU-25 Guardian surveillance jet. When it was safe to fly again, he and a few members of staff flew a reconnaissance flight over New Orleans at 1700 on Monday just as the storm was leaving the area. The jet flew over the city at 500 feet above sea level surveying storm damage. Duncan recalled, “The city looked to me to be thoroughly flooded, perhaps a 100 percent flooded.” At one point in the flight Duncan called up to the pilot and said, “How far are we from the coast right now?” The pilot responded, “62 miles.” Duncan looked out the port side of the aircraft and it was totally dark. “There was no light to be seen for as far as I could see and it continued that way for the rest of the flight until we got very close to Alexandria. The entire Gulf Coast from Mobile, Alabama, to some point west of New Orleans was blacked out. The damage was overwhelming and throughout the reconnaissance Duncan asked himself, “Where do you begin? How do you provide relief to this size community with 30 helicopters? I mean where do you begin?” As the HU-25 landed at Alexandria, Louisiana, Duncan realized that he had to do what he could with the resources he had on hand. “Because of that flight we had a pretty good understanding of what need might exist,” said Duncan, who decided to “chunk it out” and order his units to begin rescuing people. When he got back on the plane and flew over New Orleans, Coast Guard helicopters were already picking people off roofs. “I wanted to replicate *Apocalypse Now* with orange Coast Guard helicopters.”<sup>100</sup>

Captain Jones commanded much of the service's helicopter force in Katrina and flew missions himself. Because helicopters consume lots of fuel, his first priority, “even before saving lives,” was to establish a forward operating base at Coast Guard Air Station New Orleans located at NAS JRB New Orleans. Knowing that generators and fuel pumps would be crucial for refueling operations, Jones ordered his best electrician’s mate, Rodney Gordon, to ride with him on the first flight back to the air station. After refueling Jones’s helicopter with a refueling truck, the first thing Gordon did was to clear debris from the U.S. Navy Fleet Support Squadron 54 (VR-54) ramp with a front-end loader. He then rigged a generator to the fuel farm pump so that he could refuel follow-on helicopters quickly and more efficiently. During the next few days, several aging Navy generators broke down and needed to be either repaired or replaced. Repeatedly, Electrician’s Mate Second Class Gordon was “out there in blistering heat, not having slept probably in 36 hours. He’s got his sleeves rolled up. He’s got his hands on hot pipes dripping hot oil on him and he’s working and laughing,” recalled Jones. Those generators proved instrumental in keeping the 70 Coast Guard, National Guard, Army, Navy, and Marine Corps helicopters operating out of the base fueled and operational. The U.S. Navy, it should be noted, went out of its way to accommodate the Coast Guard and other rescue helicopters



Captain Bruce Jones, USCG (*right*), with Vice Admiral Thad Allen. Jones commanded Coast Guard Air Station New Orleans during Katrina relief operations. (NARA, 70189125)

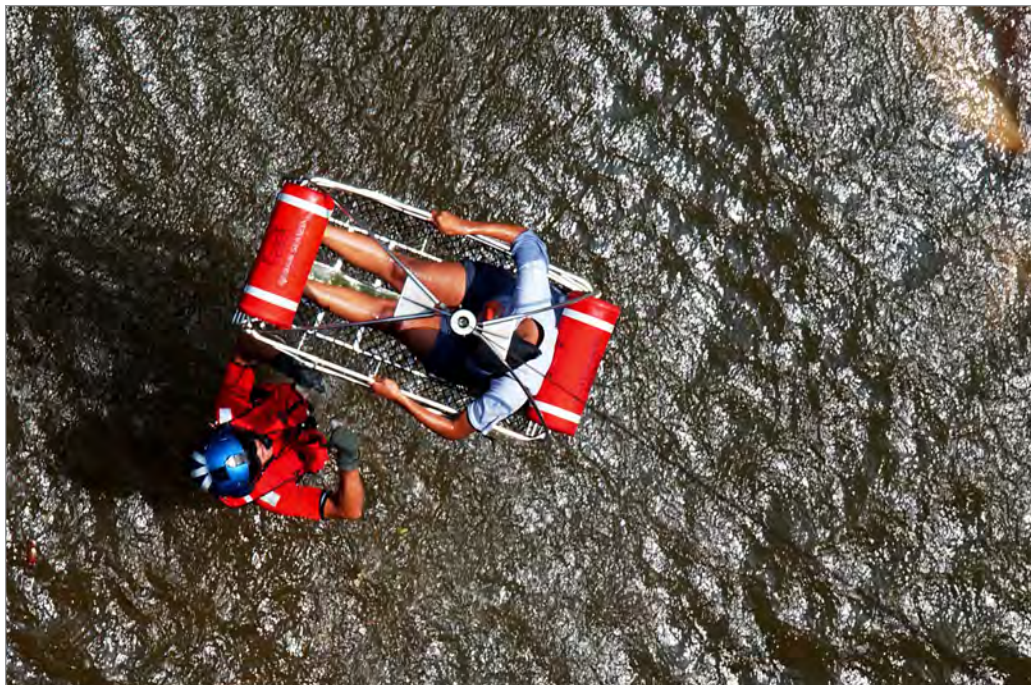
operating from the base. Fuel was provided from Navy fuel farms, and the base moved VR-54's C-130s to another base so its ramp could be used exclusively for SAR helicopters.<sup>101</sup>

Jones, who flew rescue missions until midnight on Monday, recalled the challenges of flying those initial missions: "It was pretty stressful at night because there were no lights over the city. The towers were unlit. Cell phone towers, radio towers, power lines; all the things that normally would be lit at night were unlit. And of course, by the nature of the mission you're flying very, very low. So fortunately on most nights the night vision goggle conditions were pretty good. You could pick up cell towers and radio towers and power lines on your goggles if you were very alert." Another hazard, especially as the mission progressed, were other helicopters. With up to 20 helicopters in the air at the same time and very little command and control, the potential for a midair collision was very real. "I was concerned most about midair collision for the first four or five days."<sup>102</sup> Pilots soon figured out that the best way to watch out for other helicopters was to look for ripples of water underneath them. The concentric circles of water created by rotor wash were often more visible than the helicopter itself from certain angles of approach. That no midair collisions occurred is a testament to the expertise of the military pilots from all service branches.<sup>103</sup>

Flying under these conditions was both mentally and physically exhausting. NOLA's notorious heat and humidity made matters even worse. "We had folks coming back from eight hours of flying, utterly exhausted, sucking down a bottle of Pedialyte [an electrolyte replacement fluid] to keep from passing out, and then yet somehow a few hours later those folks were out turning aircraft around," said Jones. "And yet I've never seen people that were more exhausted and more beat up and tired and at the same time had a higher morale in my life."<sup>104</sup>

Some of the hardest-working coastguardsmen were the enlisted rescue swimmers who literally cut their way into houses with axes and chain saws to rescue people. These professionals faced a myriad of dangers ranging from water contaminated by sewage and chemicals to angry looters. It is impossible to convey all their heroic efforts in this volume, but a few stories stand out. On Monday, 29 August, Lieutenant David M. Johnson, USCG, hovered his aircraft above trees and power lines in rain and 50 knot winds attempting to rescue a mother with an infant, a grandmother, and two dogs from a small boat. His aircraft lowered rescue swimmer Laurence "Noodles" Nettles 100 feet through the trees and power lines. On two occasions in the rescue, downdrafts nearly smashed the aircraft into the trees and power lines, but Johnson and his co-pilot managed to recover just feet above the hazards. The first hoist successfully rescued the mother, infant, and two dogs. The second hoist raised the grandmother, but on the third hoist, a gust snagged the cable in a tree, trapping Nettles. Aviation Electrical Technician Warren Lambeth, the hoist operator, managed to serve out enough slack to allow Nettles to break free of the branches. This was the first Coast Guard rescue of the operation.<sup>105</sup>





Petty Officer Second Class Scott D. Rady, a U.S. Coast Guard rescue swimmer, gives the signal to hoist a pregnant woman from a flooded area near her apartment in New Orleans on 30 August 2005. (Petty Officer Second Class NyxoLyno [*sic*] Cangemi, USCG; NARA, DD-SD-07-15661)

As Aviation Survival Technician Third Class Matthew O’Dell, USCG explained, “We’re not trained for urban rescue; off roofs, in between poles, power lines, trees. I mean there was debris flying everywhere. We didn’t have the equipment at first for trying to get people out of their houses—extraction devices. We picked up axes, chain saws, and Sawzalls [reciprocating saws].”<sup>106</sup> O’Dell, a rescue swimmer, flew in from Coast Guard Air Station Cape Cod to participate in Katrina rescues. On several occasions, he used a crash axe to cut a hole in a roof and pull people out. “On one occasion the survivors were unable to climb out to the roof, so I had to physically lift them out while I was standing on the roof, none of whom were small people.”<sup>107</sup> Just working on tenement roofs in the 98-degree heat and 95-percent humidity prevalent in NOLA required unprecedented courage and physical stamina. “It was kind of nerve-racking on the roof, between the squishy spots in the roof, the neighbors screaming at me to get them out, the sweat absolutely pouring off my head and hands, and the worry of hitting someone underneath the roof that I was slashing through. I found the true meaning of task saturated. . . . I tore back shingles with my hands, chopped through the plywood, and punched out drywall ceiling.” When O’Dell finally created a hole big enough for a person to fit through, he realized his next task was pulling out a 190-pound woman and her 130-pound son. Later that day, O’Dell cut his hand and leg entering a house through a broken window. He later received five stitches on his leg but refused stitches for his hand, fearing the doctor would compel



A U.S. Coast Guard aircrew in front of an HH-60J Jayhawk on a ramp during Hurricane Katrina relief operations. (NARA, 26-HK-53-009)

him to wear a brace, which would ground him from flying. In all, he rescued or assisted in the rescue of 36 people on 31 August.<sup>108</sup>

The human dynamics of these missions often rivaled their physical demands. O'Dell recalled people arguing with him about who should be hoisted first: "Everybody back up, I'm taking you," and it went like that and it's the only way I could do it."<sup>109</sup> Aviation Survival Technician Third Class Sara Faulkner, the Coast Guard's first female rescue swimmer, also discussed handling tired and stressed victims: "They teach you, 'Don't let these people get to you. Even though they are stronger and bigger than you, you are the one in command and in control.'" Faulkner had no problem barking out orders to civilians to get them under control. "Women and children first" was her usual refrain.<sup>110</sup>

By 3 September, the Coast Guard had 44 helicopters on scene and had rescued 9,500 people. By the end of the operation, 49 Coast Guard helicopters and 27 fixed-wing aircraft had contributed to Katrina relief operations. The helicopter total represented 40 percent of the service's inventory and came from every Coast Guard air station in the country. These rotary-wing aircraft were responsible for rescuing 12,535 people. But helicopters alone were not responsible for all Coast Guard rescues. Boats and cutters rescued 21,200 people. Twenty-nine cutters and 131 small boats from the Coast Guard deployed to the Gulf Coast during Katrina operations.<sup>111</sup>



Because of shallow water and extensive debris, small boats from more than a half a dozen maritime safety and security teams, port security units, iceboats, and disaster assistance response teams (DARTs) were the most useful for urban rescue missions in New Orleans. DART teams, designed to respond to inland flooding situations with 16-foot aluminum flat-bottomed boats, were particularly useful.<sup>112</sup> Boatswain's Mate First Class Anna E. Steel from Sector Upper Mississippi Valley commanded one of those skiffs. She and her crew operated for days “cowboy camping” in the open air with no latrines, no showers, or regular meals. Despite the heat and exhaustion, Steel never turned down a mission. One night, she volunteered to rescue a family stuck in a home near a gas leak. Steel's crew had to carefully remove a door to extricate the family and then navigate their boat in the dark around debris to safety. Steel worked 12 consecutive 14–18 hour days after the storm hit. It is estimated that DART teams rescued 500 people on their first day on the scene, which was 31 August.<sup>113</sup>

Boat crews from marine safety units worked equally hard during the early days of the relief effort. A 24-foot utility boat, CG 24713, and its four-person crew from Marine Safety Unit Baton Rouge had to use boat hooks to lift power lines obstructing the passage



A U.S. Coast Guard small boat crew (*seated right*) with members of Nevada Task Force 1 (*seated left*), a FEMA urban search and rescue unit, search a flooded area in New Orleans for survivors of Hurricane Katrina. (Staff Sgt. Ricky R. Melton, USA; NARA, DA-SD-07-19328)

of their craft to rescue a family stuck in a house on 30 August. The boat, under the command of Lieutenant Commander Shannon Gilreath, rescued 69 people that day—mostly shuttling survivors from smaller boats to the St. Claude Bridge for pickup. As the sun began setting, Gilreath and his crew loaded the boat onto a trailer and attempted to transit back to Baton Rouge for the night. The truck soon developed transmission problems and broke down outside of Baton Rouge. Concerned about looters and safety, Gilreath requested a tow as well as body armor and weapons from his operations center. A group of Coast Guard reservists came to the rescue and towed the boat to a fire station near Westwego, where he and his crew spent the night on a hard floor.<sup>114</sup>

The next day, Gilreath and his crew went to Algiers Point to assist in a Coast Guard ferry operation, soon dubbed “Operation Dunkirk.” That operation began on the 30th, when Chief Warrant Officer Three Robert David Lewald, in charge of a flotilla of 13 Coast Guard vessels of various sizes was asked by Naval Support Activity New Orleans to move 100 evacuees from the gate of its east bank facility to dry ground on the west bank. Lewald ordered three 55-footers and four 41-foot boats to move 40 naval personnel and 60 civilians to the west bank of the Mississippi. Shortly thereafter, he received a radio request from a boat captain from the Crescent City Connection Ferry service to help evacuate even more survivors from St. Bernard Parish to the west bank. The ferry company was doing everything it could to respond to a call for assistance from the parish president, A. J. Rodriguez, who had recently told Louisiana lieutenant governor Mitch Landrieu that, “we have 2,000 people that need evacuation from Chalmette. . . . Tomorrow it will be 5,000 people.”<sup>115</sup> Lewald, who commanded the tender *Pamlico*, readily accepted the mission. “Absolutely,” he said, “That’s what we do.”<sup>116</sup> The two men quickly put together a plan. The Crescent City Connection would provide three vessels, each capable of transporting 150–200 people. A deck barge moved by a tug and capable of hauling 500 people also participated in the operation. Coast Guard 41- and 55- footers escorted the barge, which had no guardrails, in case someone fell overboard, and also ferried a limited number of passengers.<sup>117</sup> An enterprising senior chief boatswain’s mate named Steven Noyes improved barge safety further by commandeering life jackets from a grounded ferry.<sup>118</sup>

Lewald’s biggest challenge was dealing with security concerns and an increasingly impatient crowd at Algiers Point, which had to wait for lengthy periods of time to be bused to Houston or other evacuation areas further afield. Evacuees from New Orleans and Jefferson County also attempted to join this crowd, hoping to be transported by the Coast Guard away from the area. “There were bad people everywhere; people with guns.”<sup>119</sup> To manage a potentially violent situation, he established a security perimeter around the ferry terminal area plus roving armed coastguardsmen. For added protection, he posted a couple of snipers at strategic positions around the facility. At one point in the evolution, gang types driving stolen police cars tried to enter the perimeter. “They would drive up, you know, and once they got a little bit closer it definitely wasn’t a policeman in

that police car, so they would do that and we would have to draw, and they'd see that we were serious and they would turn and go," Lewald recalled. In other instances, people with obvious gunshot wounds came to his sentry posts. Lewald speculated that these people may have been involved in looting or other criminal activity.<sup>120</sup>

As the operation progressed, the Coast Guard's crowd-handling skills improved. Barrels were placed at entrances to both ferry terminals and people entering the facilities were told to place all weapons in them, no questions asked. If they refused and weapons were found on them in Coast Guard-controlled areas or boats, there would be legal consequences.<sup>121</sup> Noyes, assigned to aids-to-navigation boat 55119, assisted in crowd control. With a very limited number of security personnel assisting him, he relied heavily on skills he learned in boot camp to keep a highly volatile situation under control:

There were a couple of guys; young punks that were cutting the line and were trying to get ahead of people and I pretty much shut a couple of them down. There was this one kid, he had tattoos all over him, and he walked right by an elderly gentleman trying to carry a big plastic box with some belongings in it, and just walked right by him. And so by then I was a little pissed so I yelled at the guy to help out your neighbor and he just looked at me like I had something growing out of my forehead. So I yelled at him again and I stopped the entire evacuation process and I just unloaded on this guy, and he finally picked up the guy's box and helped him get on the barge.

Noyes also remembered extreme acts of kindness by civilians. One elderly woman from St. Bernard Parish left her wheelchair on the east bank so others could use it. Others helped move elderly, using wheeled office chairs. Throughout the ordeal, Noyes worried about the physical condition of the evacuees: "Everyone was barefoot; there were a lot of cuts and scrapes; and heat exhaustion." Diabetics often fled without insulin. Noyes tried hard to care for these people as best as he could with a small number of medical staff.<sup>122</sup> During the course of Dunkirk, Admiral Duncan initiated a policy in his concept of operations that stated: "Once you touch someone, you own him." That meant that even after the Coast Guard moved people to relatively safe zones such as the Algiers Point ferry terminal, the service took responsibility for caring for and feeding people in these areas. Duncan called it "life sustainment," and it became a hallmark of the Coast Guard operation in Katrina and yet another reason why this service's performance often exceeded that of all other services involved.<sup>123</sup>

Overall, the Coast Guard Chalmette to Algiers Point ferry service moved 6,000 people. Another 33,735 people were rescued by small boats and helicopters. Modestly, the Coast Guard typically does not count persons ferried as persons rescued. Of the total number rescued, 21,200 were rescued by boats and 12,535 by helicopters.<sup>124</sup> The total number of USCG rescues (33,735) represented more than half of the 60,000 survivors



stranded by the storm. The other half were rescued by the Louisiana Department of Wildlife and Fisheries, the National Guard, and a variety of other first responders.<sup>125</sup>

While the Coast Guard will always be remembered for its lifesaving role in Katrina, it also performed a wide variety of other missions, including law enforcement, marine environmental protection, and maritime commerce and port control. The Coast Guard responded to over 4,000 pollution cases, including seven major pollution incidents.<sup>126</sup> A major incident was any spill of over 100,000 gallons; a medium spill, over 10,000 gallons; and a minor one, anything from an unrecoverable sheen to a spill or leak involving up to 10,000 gallons. No matter how large or small, the Coast Guard had to inspect every incident. Captain Frank Paskewich, the Coast Guard Sector New Orleans Commander, ramped up a task force of over 750 Coast Guard, other DoD, federal, state, and local officials just to respond to reports of oil pollution.<sup>127</sup>

Paskewich's sector also had to get the ports and waterways in the NOLA area operational following the storm. The port of New Orleans handles cargo vessels and barges bound for ports in 28 different states—about \$37 billion in annual economic activity. Getting it and the surrounding waterways open for business after the storm was a top



At Ellington Field, Texas, U.S. Navy and U.S. Coast Guard sailors prepare donated food items to be shipped out to the military members supporting Hurricane Katrina relief operations. Behind the group are two Coast Guard HH-65 Dolphin helicopters. (Patrick Nugent; NARA, DF-SD-06-01014)

priority for Paskewich, who as Captain of the Port had the authority both to close and open the port. Sector New Orleans opened the port just four days after the storm on 2 September. By 29 September, 850 of the 1,400 aids to navigation in the area had been repaired or replaced with permanent or temporary aids.<sup>128</sup> “While you’re saving thousands of people you also have to be concerned about the environment,” explained Paskewich, “you have to be concerned about opening up the waterway; you have to be concerned about restoring aids to navigation; and you have to be concerned about pulling vessels out of the channel. So it’s not that you do one and then you move on to the next mission, finish that one and then move on, that’s not what we do. We have to do it all at once.”<sup>129</sup>

The Katrina mission sets for the Coast Guard were multifaceted, complex, and demanded considerable resources—resources well beyond scope of the Coast Guard’s regional assets. It is a testament to the service’s training, operational experience, and institutional culture that it performed each one so effectively following the storm. The service’s unique legal status also facilitated its response, allowing it to react at a moment’s notice and perform many missions not authorized for Title 10 DoD forces. As the relief effort progressed, the Coast Guard began receiving significant augmentation from other local, state, and federal agencies. Included in this group was the U.S. Navy, which had considerable capability in critical need areas such as search and rescue, salvage, command and control, medical, and logistics as well as shore facilities fully capable of supporting Coast Guard operations, both in the air and on water.

## **U.S. Navy Response**

The Navy’s response to Katrina was also wide-ranging and multifaceted. Over 100 aircraft and 21 ships responded, including a big deck aircraft carrier (*Harry S. Truman*) and several large amphibious assault vessels such as *Bataan*, *Iwo Jima*, *Shreveport*, *Whidbey Island* (LSD-41), and *Tortuga* (LSD-46).<sup>130</sup> Navy shore facilities in the region also contributed mightily towards relief efforts. These facilities included Naval Station Pascagoula, Naval Air Station Pensacola, the Stennis Space Center (a NASA-run facility containing five Navy commands),<sup>131</sup> Naval Air Station Meridian, and Naval Support Activity (NSA) New Orleans.<sup>132</sup> The NAS JRB New Orleans became one of the nation’s busiest airports with aircraft from all services utilizing the facility.<sup>133</sup> *Iwo Jima* provided command and control capabilities for the JFMCC. Over 3,000 Navy Seabees built temporary FEMA housing and repaired public buildings, schools, nursing homes, and other infrastructure.<sup>134</sup> A flotilla of four Navy minesweepers assisted in survey and salvage operations, and Navy medical personnel treated over 10,000 patients. Overall, the Katrina relief effort represented the largest deployment of naval forces on U.S. soil in naval history.

### ***Bataan***

Admiral Michael Mullen, the Chief of Naval Operations in 2005, told the crew of *Bataan* on a visit to the ship, “If I was going to associate one name with the rescue operations that



Captain Nora Tyson (*right*), the commander of the amphibious assault ship *Bataan*, speaks with Admiral Michael G. Mullen (*left*), the Chief of Naval Operations. At the time, Mullen was visiting the Gulf Coast to get a personal assessment of damages caused by Hurricane Katrina. (NARA, DN-SD-06-03688)

have occurred, and the immediate assistance that was available, it would be *Bataan*.<sup>135</sup> This ship was the first Navy vessel to arrive in New Orleans after the storm on 30 August and operated in the area until 17 September. It served as a landing platform for rescue helicopters, and provided food, water, and other services for those affected by the storm.

Just prior to the storm, *Bataan* was returning home from a highly successful Panama Canal Maximum (PANAMAX) exercise in the Caribbean with eight other partner nations from Central and South America. The exercise, sponsored by the government of Panama and the U.S. Southern Command, focused on the security of the Panama Canal. On Sunday the 28th, *Bataan*'s commanding officer, Captain Nora Tyson, a graduate of Vanderbilt University with a background in naval aviation, received a call from the Commander Second Fleet, Vice Admiral Mark Fitzgerald. Fitzgerald informed her that he had offered her ship as an asset to NORTHCOM for potential hurricane relief.<sup>136</sup>

An amphibious assault ship like *Bataan* is an ideal HADR platform in many respects. Its flight and hangar decks can accommodate over 24 helicopters, and its well deck, a variety of amphibious vessels including LCAC hovercraft and traditional landing craft such as the LCU. The *Wasp*-class amphibious assault ship had berthing facilities for 1,086 sailors and over 1,687 marines. Its sick bay had 64 beds and six operating rooms. When





Three U.S. Navy MH-53E Sea Dragon helicopters from Helicopter Mine Countermeasures Squadron 15 (HM-15) on the flight deck of the amphibious assault ship *Bataan* wait to provide support to the victims of Hurricane Katrina. (Photographer's Mate Airman Jeremy L. Grisham, USN; NARA, DN-SD-06-03444)

required, an overflow casualty ward can be set up to accommodate an additional 536 beds.<sup>137</sup> The ship arrived in Ingleside, Texas, on 27 August, and began offloading helicopters and personnel from two helicopter mine countermeasures squadrons, HM-14 and HM-15. On the 28th, Captain Tyson received orders from Second Fleet to stand by in the Gulf of Mexico in case the ship was needed for Katrina-related operations. Three MH-53E Sea Dragon helicopters from HM-15 flew back to the ship as it steamed to New Orleans behind the storm on the 29th.<sup>138</sup>

*Bataan* commenced disaster relief operations on 30 August with five helicopters (3 MH-53s and 2 MH-60s). On that day, these aircraft moved 28 people to safety and delivered more than 8,000 pounds of water and 500 pounds of food to various points in New Orleans. With airfields still damaged, the heavy-lift MH-53s with their three engines and seven rotary blades proved particularly useful in delivering much needed supplies to the storm-stricken areas.<sup>139</sup>

Commander Robert Bennett served as the executive officer of HM-15 and flew operations on the 30th. He recalled having to coordinate with the Coast Guard at NAS New Orleans (the Navy side of NAS JRB New Orleans at Belle Chasse) that day to figure out a mission for the 53s: "They knew what to do with the MH-60s—SAR. But MH-53s were



different.” Because of their large size and the powerful downdraft caused by their three 5,000 horsepower engines, these huge beetle-shaped aircraft were more appropriate for hauling supplies and people than plucking people from rooftops. As Lieutenant Commander Bill Mellen, a pilot with HM-14 (HM-15’s partner unit), explained, the MH-53E “makes a lot of noise and puts out hurricane force winds from the downwash of the blades, so we don’t generally try to hoist people off roofs because we’ll blow them over or blow them off their houses.”<sup>140</sup>

Consequently, it was soon decided that Bennett and his crew would fly to Alexandria, Louisiana, and pick up food and water for hurricane victims. Because no forklifts were available, Bennett, Lieutenant (junior grade) Sammy Brake (his copilot), and their aircrew spent two hours breaking down pallets of water, ice, and MREs and loading their contents into the aircraft—a 16,000-pound load.<sup>141</sup> “After I had loaded the aircraft with food and water, I forgot my government charge card. I needed to pay for gas. A Coast Guard officer at the base volunteered to put the \$7,000 charge on his card and away we went.”<sup>142</sup>

Once airborne, Bennett got on the common frequency and asked where to take his load. He was first told to head to the I-10 cloverleaf, but that landing zone proved too dangerous with multiple aircraft flying above it, no effective air traffic control, and numerous buildings, wires, and other urban hazards. Instead, Bennett flew to an empty stretch of I-10 and unloaded a third of his cargo there. He then flew to the university hospital for another delivery. As Bennett recalled, “It was midnight by this time. I had guys on the windows calling out things that posed an immediate hazard to the aircraft. We did not have night vision goggles. We saw a car in an otherwise empty parking lot and carefully descended like in the helicopter scene in *Jurassic Park*.”<sup>143</sup> Brake vividly remembered the entire approach and landing in pitch-black conditions: “We got power lines, we got light poles, trees, cars turned up on their side, and the XO and I are just squeaking it in there.” Fearing that the aircraft might be overrun by rioters, they told the aircrew “to just kick all that stuff out so we can lift off because we don’t want to get swamped by desperate people.”<sup>144</sup>

After unloading 5,000 pounds of supplies, the aircraft delivered their remaining food and water to NAS New Orleans, refueled, and headed 70 miles offshore to *Bataan*. As the weather began to close in, Bennett experienced an automatic flight control system failure, which makes landing very difficult. “It was painful,” said Bennett.<sup>145</sup> Both he and his copilot got vertigo in the clouds. “I had to get a crewman in the cockpit calling out altitudes and monitoring the gyro. I punched out of the goo [low cloud cover] at 500 feet and milked my way in there. I was in the left seat, which was poor planning, because one should be in the right seat for a landing on this type of ship.”<sup>146</sup> After that mission, Bennett and Brake were physically and mentally spent. “The XO just stayed in his seat for five minutes collecting his thoughts,” recalled Brake. “I was a new guy and I’m just like wow. That was my first flight with the XO ever, and only my third flight with the squadron. That was just wild.”<sup>147</sup>



Aircrew from HM-15 attend to Hurricane Katrina victims onboard their MH-53E Sea Dragon Helicopter. During JTF Katrina operations, the squadron transported over 1,600 people to safety. (Photographer's Mate Airman Pedro A. Rodriguez, USN; NARA, DN-SD-06-03469)

During the next few weeks, Bennett, Brake, and other *Bataan* pilots delivered over 160,000 pounds of supplies to Gulf Coast states and transported over 1,600 people to safety.<sup>148</sup> HM-15 helicopters also assisted the Coast Guard in surveying 1,500 miles of coastline, and searching for navigational hazards and lost oil rigs.<sup>149</sup> The high point for the squadron was working with Marine CH-53s and Army CH-47s to evacuate over 10,000 people from the Convention Center on the 1st and 2nd of September. “We combat loaded 50–60 people per sortie from the Convention Center to the international airport,” explained Brake, who flew both those days.<sup>150</sup> The airlift focused initially on transporting ambulatory medical cases. Many of these people were quite sick, extremely tired, and downtrodden. Just the “urine and feces smell” of those people is something Brake will never forget. “They were pushing sick people into the helicopter on shopping carts—people who hadn’t been out of their houses in years. I mean these people had nothing.” An indelible memory of the event for Brake was seeing one of his enlisted crewmen trying to help a little child out of the aircraft at Louis Armstrong International Airport. “This guy’s standing there doing his job and this little girl is just holding his hand and not wanting to let go.” HM-15 units transported over 900 people that day.<sup>151</sup>

To handle the additional helicopter air traffic, *Bataan* eventually deployed three enlisted air traffic controllers to various locations in the city to support rotary-wing operations. “It was just crazy,” said Air Traffic Controller First Class Brian Brownlow. “The amount of planes and helicopters that were flying at one time was unbelievable. I’ve never seen anything like it. There was no radar. We could not see anybody; all we could do was talk. Given that we couldn’t see the whole pattern, we had to come up with holding points and direct the pilots to the next checkpoint.”<sup>152</sup> HM-15 pilot, Lieutenant Sean Mahoney, credits these ground controllers for the excellent safety record of the deployment. “If it wasn’t for the guys on the ground, we couldn’t do our job.”<sup>153</sup>

Another group of unsung heroes on *Bataan* were the enlisted maintainers who kept the aircraft running throughout the operation. Lieutenant Greg Hill, an MH-53E pilot with HM-15, was blown away by the work ethic of his maintainers: “The guys were sleeping in the hangar and working every waking moment. I literally had to order a few of them to go to their racks. One team of four individuals did an entire fuel cell change in a 24-hour period—an evolution that normally takes close to a week!” Many were motivated by the scenes of desperation being aired on television. They were especially proud when Fox News ran a live feed of one of the unit’s helicopters evacuating sick people from the convention center. “The real story was the maintainers,” noted Lieutenant Hill. “In naval aviation, you can only go so far as your maintainers will carry you.”<sup>154</sup>

In addition to aviation assets, *Bataan* also provided a range of other services to the operation. On 31 August, Captain Tyson and a helicopter crew picked up the new Joint Task Force Katrina Commander, Lieutenant General Honoré, and flew him from Gulfport to the Superdome. Along the way, the two officers surveyed the devastation along the coast. Tyson already knew Honoré from a past staff assignment and quickly developed an excellent working relationship with the new commander.<sup>155</sup> To help Honoré gain additional situational awareness, Tyson ordered the ship’s sole LCU to conduct a survey of the Mississippi River on 1 September. “Besides looking for navigational aids, our secondary mission was to help evacuate people and help the first responders, such as the coastguardsmen and policemen,” said Chief Warrant Officer Two William Fish, the captain of the LCU and its four-person crew. On its return voyage to the ship, the LCU struck debris. “We lost our starboard engine and while the winds were picking up even more, we had to turn the rudder to 30 degrees in order to go straight,” said Fish. The boat’s generator also conked out but was fixed by the crew. The LCU finally made it back to the ship late in the day on 3 September. It later helped deliver food and water to storm victims.<sup>156</sup>

In total, *Bataan* and its surface units moved 56,000 pounds of food and water to storm affected areas during the relief operations—more than any other ship deployed to the region by the U.S. Navy. *Bataan* air supply operations exceeded that of any other ship deployed by a factor of four, delivering 172,280 pounds of food and water in total.<sup>157</sup>

### ***Iwo Jima, Tortuga, and Shreveport***

*Iwo Jima* was not supposed to participate in Katrina relief operations. However, after a mechanical problem arose on another ship, *Iwo Jima* was ordered to load up with relief supplies and head to New Orleans from Norfolk.<sup>158</sup> This order came on 26 August, and by the 31st, the *Iwo Jima* and two other ships from the same expeditionary strike group, *Tortuga* and *Shreveport*, were steaming towards NOLA. The three ships arrived in the region on 3 September (five days after the hurricane made landfall) after traveling 1,500 miles at an average speed of 24 knots.<sup>159</sup> By this time, the Coast Guard, the National Guard, and state and local responders had moved most survivors out of flooded areas but there was still significant work to be accomplished. This included moving evacuees to Texas and other inland safe havens, re-establishing security, dewatering flooded areas, restoring power, water, and other critical infrastructure. *Iwo Jima* became a critical base for responders working on these tasks. Docked at a former cruise ship pier in downtown New Orleans, the ship served as a forward command center for JTF-Katrina, a rescue coordination center, a regional intelligence center, and a presidential support center for President George W. Bush, who visited the region three times. It provided multiple staffs with computer systems, network connectivity, and secure communications. It also housed



The amphibious assault ship *Iwo Jima* moored pierside in New Orleans, Louisiana, during the Hurricane Katrina relief operation. (NARA, DN-SD-06-03689)



and fed them as well as first responders, who came to the ship to rest, eat a hot meal, and grab a shower. Between 3 and 22 September, *Iwo Jima* provided 8,075 berths and 41,400 meals to ship guests.<sup>160</sup> When *Iwo Jima* arrived in the City of New Orleans on 5 September, its flight deck became the only full-service airport in the city, conducting over 100 flight evolutions per day on four landing spots.<sup>161</sup> In the words of Captain Richard S. Callas, the ship's commanding officer, "Our mission in New Orleans has never been defined . . . just bring *Iwo Jima* up the Mississippi and embark JTF-Katrina. Our role as airfield, intelligence center, communications platform, conference center, chow hall, laundromat, hotel, and refuge all came about as we saw pressing needs. No one ever directed us to do them, we just did them, in typical Navy fashion on our own."<sup>162</sup>

The ship's naval aviation element consisted of four MH-60s, three H-53s, and three H-3s. These helicopters were deployed from a variety of squadrons, including VX-1, HSC-28, HSC-26, HM-14, and Helicopter Combat Support Squadron 2 (HC-2).<sup>163</sup> The typical missions for *Iwo Jima* based helicopters were transporting supplies and people from one location to another. Most of the roof rescues had already been executed by Coast Guard, the National Guard, and other entities in the days before *Iwo Jima's* arrival. However, one unit from the ship did conduct a small number of water rescues. The "Fleet Angels" of HC-2 had helicopters equipped with hoists and nets for water rescues along with aircrew and combat swimmers proficient in such missions. Under the leadership of Lieutenant Commander Karl Schultz, a 1993 Naval Academy graduate, the HC-2's detachment of three H-3 Sea King helicopters conducted 55 rescues of distressed people in water-inundated areas.<sup>164</sup>

The challenges of flying and maneuvering such a large aircraft around power lines and other ground obstructions were immense. "New Orleans is just set up badly for airborne rescue since it's got power lines everywhere," explained Schultz. "You can rarely get below 60 feet to hoist down a swimmer to these houses." The unit's enlisted swimmers train to drop down into the ocean to pick up downed aviators trained in sea rescues. They had no experience being hoisted down onto roofs or into waist-deep water filled with sewage to rescue sick, elderly, and overweight citizenry. To successfully get these people hoisted up to the H-3, the swimmers relied on their brute strength, problem-solving skills, and tent-shaped rescue nets. In one case, a swimmer used a house ladder to get people up to an elevated flat roof where the rescue net could be safely loaded. Meanwhile, his aircraft was hovering dangerously low over various obstacles. Every crewman was involved in the effort, either working the hoist, serving as extra eyes for the pilots, or providing medical aid to sick passengers recovered from another site. If that were not enough, the aircraft had to safely land on a ship parked pier-side in downtown New Orleans at the end of a 10-hour day. "We were landing perpendicular to the ship's island superstructure," noted Aviation Structural Mechanic First Class Charles "Chuck" Fields. "This is something we had never done before." The stress of flying these aircraft during the Katrina operation was so great that Schultz would not allow any pilot to fly more than

two days in a row without a 48-hour break. He also removed himself from the flying schedule because the administrative demands of running a 30-person detachment and flying 10-hour missions were not allowing him to get enough rest to safely perform his duties.<sup>165</sup>

His 40-year-old H-3 aircraft also needed constant maintenance. HC-2 chiefs and leading petty officers literally had to “beg, borrow, and steal,” parts and tools from other units on the ship to keep these geriatric helicopters in the air. “There was a lot of teamwork between the squadrons,” noted Fields. Desperate for a hard-to-find part, Fields at one point contacted a friend at a California-based aerospace company converting H-3s for police use, for help. That company shipped the part overnight. “People were very willing to give you things on a handshake and at your word.” One of the most unique aspects of the HC-2 deployment was the detachment’s practice of having an aircrew member with a maintenance background flying on every mission to make spot repairs as needed literally on the fly. During at least one refueling stop per mission, these crewmen would pull a ladder out of the bird and apply additional grease to the tail rotor ball bearings, which were steel as opposed to the Teflon ones seen on newer aircraft. On 5 September, Schultz had to get out of his pilot seat just before takeoff to allow one of his crew to make some repairs to the bird’s communication system. Sitting in the back of the aircraft as a passenger was Rear Admiral (upper half) Reubin B. Bookert, commander of Amphibious Group 2. “To his credit, the admiral didn’t bat an eye.”<sup>166</sup>

Rescue missions dropped sharply after the first few days on station. Beginning on the 6th of September, the focus of the unit transitioned to transporting the press and VIPs around the area. HC-2 left *Iwo Jima* on the 17th to make room for more headquarters personnel. “We had 30 beds that somebody else could use,” said Schultz. On his flight home to Norfolk, Schultz’s aircraft suffered its final mechanical casualty of the mission, a broken gyroscope that compelled him to make an unplanned landing for repairs at Joint Base Charleston, South Carolina.<sup>167</sup>

Reflecting on the short deployment, Schultz stated that the emotional impact of saving American citizens in New Orleans had a lasting effect on him and the unit: “I remember picking up a cute little 75-year-old lady in her nicest outfit (a silk shirt, nice skirt, and new shoes) with a garbage bag of personal items slung across her shoulder. When she got on the helicopter, it hit me that she may never return to her house. I get choked up just thinking about her and some of the other people we saved.”<sup>168</sup>

Captain Callas kept a diary during the operations, and it nicely captured the ship’s contributions to the recovery effort and some of the day-to-day drama encountered by the ship and its crew. The ship arrived in the Gulf of Mexico on 4 September and transited the Mississippi to New Orleans on the 5th. It took the ship over eight hours to make this relatively short passage due to all the debris and other hazards in channel. “We sailed past broken levees and flooded towns, smashed buildings, plywood houses stripped bare of shingles and siding, boats and barges—some 200 feet in length—stranded high and dry

20 to 30 feet above the water level on some berm, sail and pleasure boats piled 30–40 feet high in the middle of some woods, sunken or partially submerged barges, huge oil tanks crumpled and smashed with oil leaking into the river. At one point, both sides of the river were covered with miles of stranded river barges.”<sup>169</sup>

With the help of four tugs, Callas moored the ship along the Riverwalk pier—a place normally reserved for cruise ships and luxury yachts. Once pierside, one of the first people to come aboard the ship was the mayor of New Orleans, Ray Nagin. Callas offered him and his small staff hot food, showers, and berthing. Similar hospitality would be extended to other staffs (both civilian and military), personnel from all the services, as well as civilian first responders—transforming the ship into the “Hotel Iwo Jima.”<sup>170</sup> On 6 September, Callas wrote, “All day long we have been accommodating local policemen, firemen, state troopers, National Guard, and 82nd Airborne division personnel with hot showers and hot food. . . . The Deputy Commander of the Rhode Island National Guard reported to me that he had guardsmen who were whipped, but after a hot shower and an *Iwo Jima* breakfast were ready to hit the patrols again. Rarely have I seen so many smiling, happy faces than on these people. After two weeks in the trenches sleeping on concrete floors, no shower, and eating MREs, good ship *Iwo Jima* has been a godsend.” That day, close to 1,200 members of the National Guard and local law enforcement officers descended on the ship to take showers and get hot meals. One army captain told the command master chief that his unit of 60 soldiers had come from 60 miles away because his general told him to “go to *Iwo Jima* and they’ll take care of you.” As Callas put it, “We couldn’t say no.”<sup>171</sup> Culinary specialists on average served out 3,000 extra meals per day, and department leading petty officers found berthing accommodation for an extra 1,000 personnel per night.<sup>172</sup>

On 9 September, the ship showcased another unique capability: laundry services. “With the exception of our sister ships *Tortuga* and *Shreveport*, *Iwo Jima* has the only operable laundry in all of New Orleans. Today, the ship’s servicemembers have washed about a ton of laundry from the troops in the field. But that is just a drop in the bucket. The S3 officer was approached today by an army captain noting that he had 24,000 soldiers and guardsmen whose uniforms needed a good wash.”<sup>173</sup> The ship’s ample supplies of electricity and freshwater were what enabled laundry and many other services. “The bedrock of *Iwo Jima*’s strength,” noted Callas, “lies in three simple things: electricity, air conditioning, and hot water—all provided by the uncomplaining engineers.” During the mission, ship engineers produced and distributed nearly 120,000 gallons of freshwater per day, double the normal crew usage; and 6,200 kilowatts of electrical power, 60–70 percent above normal.<sup>174</sup>

In addition to serving as a makeshift hotel, *Iwo Jima* also performed the role of command and control headquarters for multiple civilian and military staff, including

- The Principal Federal Officer (Vice Admiral Thad Allen, USCG)
- PFO Deputy (Rear Admiral, upper half, Timothy S. Sullivan, USCG)

- 1st Army – Division West / JTF-Katrina Deputy (Brigadier General Mark A. Graham, USA)
- Rescue Coordination Center / Director Air Component Coordinate Elements (Major General Henry C. Morrow, USAF)
- JFMCC (Rear Admiral, lower half, Joseph F. Kilkenny, USN)
- JFMCC (Afloat) (Rear Admiral, upper half, Reubin B. Bookert, USN)
- COMPHIBRON 4 (Captain Sinclair Harris, USN)<sup>175</sup>

These staffs brought 15–20 general/flag officers/Senior Executive Service personnel and many more lower-ranking officers and civilian officials who had to be provided accommodations appropriate for their rank and pay grade. “Yesterday, for the first time ever,” wrote Callas on 6 September, “some 17 admirals and generals got together with the joint task force commander, General Honoré, face-to-face to coordinate the numerous and ever-growing military recovery and support efforts. Today, the same cadre of admirals and generals were back on board but this time accompanied by the civilian side. . . . We have spent the vast majority of our days taking care of and chasing down the myriad staff members. It is like herding cats, except these cats fly on and off our flight deck periodically. . . . It almost sounds surreal, but *Iwo Jima* has literally become the headquarters, the ‘center of the universe’ for all Federal recovery efforts—DoD as well as civilian.” Callas vividly recalled running into Governor Blanco in the Ready Room and being a bit shocked by how tired she looked. “She told me that she was averaging about 4 hours of sleep a night, but smiled, ‘I guess that’s about what you get in the military.’”<sup>176</sup>

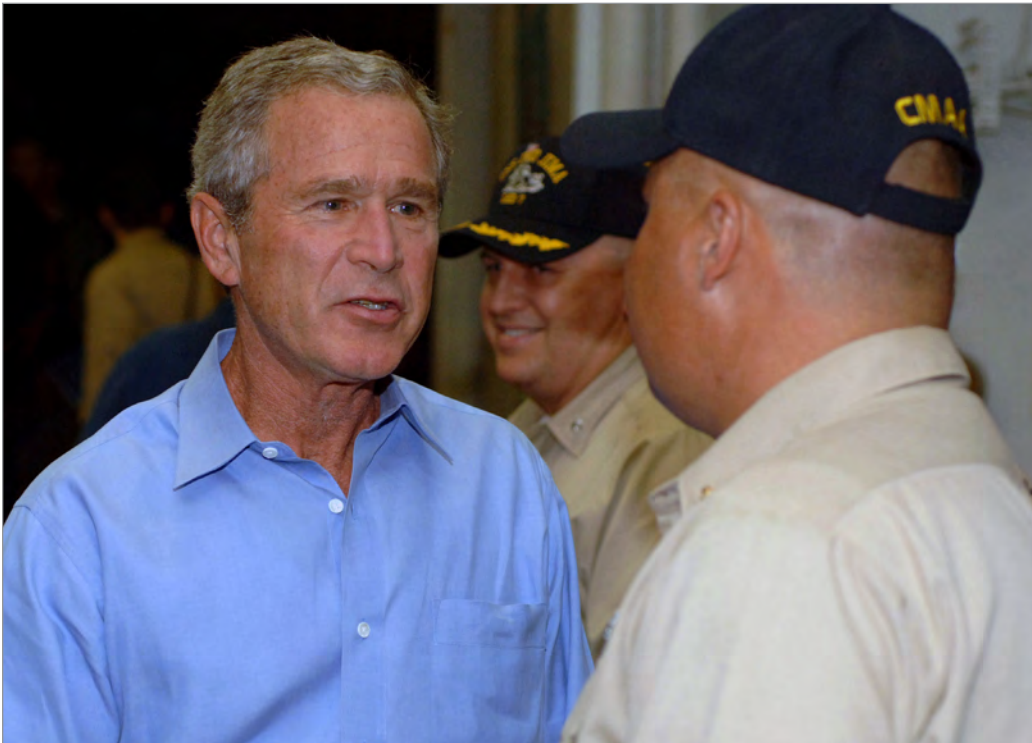
No staff support mission is more challenging for a naval ship than presidential support. *Iwo Jima* embarked the President and his staff on three separate occasions.<sup>177</sup> Historically, Navy ships take great pride in hosting a commander in chief, even for brief visits. In 2005, such a visit included the following moving parts and pieces:

- coordinating security with the U.S. Secret Service;
- assisting the White House Communications Agency in establishing a variety of secure communications channels for the President;
- hosting a very large entourage of staff, security, communications, medical, and logistics personnel;
- hosting a variety of aircraft from HMX-1, the Marine Corps helicopter squadron that supports the President, and reserving proper landing zones and support facilities;
- setting up a presidential suite and special mess, and berthing and mess facilities for his staff;
- media and communications support for representatives from the White House press corps.<sup>178</sup>



It was a Herculean task even under the best of circumstances but with the ship also hosting thousands of other guests, the strain of presidential support was that much greater for the ship during Katrina. Fortunately for Callas and his crew, President George W. Bush was immensely popular with the crew and a humble and gracious guest.<sup>179</sup>

“And then President Bush came, and morale went through the roof,” Callas wrote on 11 September. “As soon as his helicopter landed, the Commander-in-Chief was on the flight deck thanking each of the flight deck sailors for their service and hard work in the recovery efforts. Everywhere he went as he moved around the ship, he took a moment to shake hands with each and every sailor he came across, have a photo taken, and thank them for their service. The President left the ship to tour some of the stricken areas, but when he returned a few hours later, the flight deck and port elevator were crowded with sailors who cheered the President and roared with applause as he walked back across the brow on board his flagship.” After the 43rd president’s first night ever on a Navy ship, he opted not to eat in the specially created presidential mess but in the enlisted mess decks. “Within a few minutes, as word spread throughout the ship, the population of the mess decks swelled to over three hundred people. Hundreds stood in line to shake his hand. The President moved from table to table, greeting sailors, marines, airmen, soldiers,



President George W. Bush speaks with Master-at-Arms Senior Chief David Allen, USN, on the quarterdeck of *Iwo Jima* during the Hurricane Katrina humanitarian assistance operation. (NARA, DN-SD-06-03712)

national guardsmen, coast guardsmen, aircrews, doctors, and civilians, shaking hands, taking a picture with them, and thanking them for their service. . . . As he was departing the ship later this morning, I introduced him to *Iwo Jima*'s veteran chief engineer, Rick Shelar, dressed in coveralls, naturally. The President made a point of thanking him for the 'hot water and cool air'—two commodities greatly appreciated by thousands of *Iwo Jima*'s guests this past week."<sup>180</sup>

The White House's decision to base the President on *Iwo Jima* hinged not only on the services the ship could provide such as air conditioning, running water, good Navy chow, medical support, etc., but also the ship's unique capability as a small aircraft carrier. Every aircraft in HMX-1 could safely land and take off from the ship. The ship's flight deck, named after U.S. Marine Private First Class Jack Lucas (a Medal of Honor recipient from the Battle of Iwo Jima), came alive with various aircraft from the Armed Services and civilian agencies even before the ship moored at Riverwalk Pier. Jack Lucas field conducted 1,600 flight evolutions during *Iwo Jima*'s stay in the New Orleans area. "What we did in one week might normally take nine," said Senior Chief Aviation Boatswain's Mate James C. Wright, flight deck leading petty officer.<sup>181</sup> Flight deck personnel worked 14-hour days to keep the airfield operational for first responder aircraft, including helicopters from the Navy, Air Force, Marine Corps, Army, Coast Guard, National Guard, State Police, NOPD, and Immigrations and Customs Enforcement (ICE). These hardworking crews landed and launched over a hundred aircraft per day, dispensed over 120,000 gallons of JP-5 aviation fuel, and provided maintenance service as needed.<sup>182</sup>

In addition to operating as an air base, *Iwo Jima* also hosted JTF Katrina's rescue coordination center (RCC), which was established on 4 September. The RCC tasked and coordinated SAR missions in the New Orleans area and was staffed with representatives from the Army, Air Force, Navy, Coast Guard, Marine Corps, National Guard, and local hospitals. It reported to the Joint Search and Rescue Center embedded with the JFACC at Tyndall AFB. Prior to its establishment, there was no effective way for residents on the ground to request SAR support. In essence, the RCC became a 911 dispatcher for aerial SAR units. To organize the operational area, the RCC, in consultation with the JFMCC, created a grid overlay system of New Orleans and its nearby parishes. These clearly demarcated boxes made communication with ground forces easier and facilitated better deconfliction of the NOLA airspace. On 19 September, the RCC was transferred to NAS JRB New Orleans.<sup>183</sup>

In many respects, an LHD is a naval Swiss Army knife—a platform capable of providing a myriad of services in varied circumstances. Among other roles, *Iwo Jima* served as an intelligence fusion center by providing intelligence support to 55 different agencies and commands, including the White House. During Katrina operations, *Iwo Jima*'s intelligence officer served as the staff intelligence officer (N-2) for the ship, and also for the Amphibious Group 2, the JFMCC (Afloat), the Composite Aircraft Squadron, Naval Beach Group 2, Assault Craft Unit 2, Beachmaster Unit 2, and other units. In the early

days of the crisis, the *Iwo Jima* intelligence shop was the primary external source of intelligence information for the City of New Orleans Emergency Operations Center, FEMA, the 82nd Airborne Division, and various National Guard Units.<sup>184</sup>

The ship also served as a transshipment center for thousands of pounds of supplies, including Marine Corps supplies, MREs, bottled water, and helicopter equipment. Over 500,000 pounds of supplies were flown onto the ship by aircraft and another 1.5 million tons were delivered by surface craft (boats and trucks). As Captain Callas wrote, “The ship’s yellow forklifts and their experienced drivers were hot commodities in this massive logistics effort as they attacked rows of palletized cargo on the pier and brought them on board the ship.”<sup>185</sup> Other unsung heroes were the ship’s five combat cargo marines. As Callas explained, “They account for and move the thousands of people that cross our flight deck and our well deck during operations and get them to where they need to go in this cavernous and confusing ship. They also move and find storage for tons of cargo, and berth thousands of people on this ship.”<sup>186</sup>

Because of the many logistical services *Iwo Jima* provided for other first responders, its crew did not have the time to participate in many shore parties but when these sailors did set foot on land, they engaged in relief work with the same gusto and enthusiasm they demonstrated in their normal duties. Early in the deployment, a team of *Iwo Jima* sailors led by Captain Callas cleared the site of an Episcopal church in Biloxi, Mississippi,



An aerial view of the dock landing ship *Tortuga* (LSD-46) docked outside the city of New Orleans during Katrina relief operations. Note the helicopter on one of the ship’s two landing spots and the two LCUs (landing craft utility) rafted to the port side of the ship. (NARA, 311-MAD-19211)



destroyed in the storm. “The church was gone,” Callas noted in his diary. “We spent several hours just clearing the wreckage away and piling it along the side. It was like an archeological dig in that we recovered bits of glass, broken china (and quite a few pieces that were intact), toys, a Bible, broken lamps. The church had an open-air mass with some 150 parishioners that morning standing in among all the wreckage. We cleared the wreckage, but carefully stacked all the keepsakes, whether broken or whole, all around the makeshift altar. . . . It was hot, nasty, and dirty work, but everyone was inspired to do their part, and I was glad, even blessed, to have the opportunity to do this with my sailors.”<sup>187</sup>

Due to their shallower draft and smaller size, the two other ships in *Iwo Jima*’s squadron, *Tortuga* and *Shreveport*, were able to push farther up the Mississippi River and consequently participated in more shore party actions than *Iwo Jima*. With their smaller flight decks and less-robust communications capability, these ships were also not employed to the same extent as *Iwo Jima* in a C3I role, nor did they berth, mess, or shower nearly as many members of the National Guard and civilian first responders—thus freeing up their crews for other missions.

*Tortuga* is a 610-foot-long dock landing ship capable of carrying 391 sailors and more than 400 marines. Its flight deck has spots for two helicopters, and its well deck can carry up to five LCACs. As the first amphibious ship to reach New Orleans on 4 September, the



The amphibious transport dock *Shreveport* underway. (NARA, DN-SC-90-11768)



ship's crew went to work immediately, rescuing stranded civilians with combat rubber raiding craft (CRRC)—4.7-meter-long inflatable boats powered by outboard engines and capable of carrying up to ten passengers. During the next three days, CRRCs rescued 130 hurricane victims. Sailors reported grim conditions, including refuse and dead animals. A major concern of the ship's medical department during these CRRC operations were wound infections from contaminated water.<sup>188</sup> Two days after commencing CRRC missions, *Tortuga* enlisted the support of the 82nd Airborne Division to move its rubber rafts further from the ship. 82nd soldiers used 5-ton dump trucks and Light Mobility Terrain Vehicles to transport CRRCs further afield. "We could not work far from the ship until the 82nd arrived. At that point, we could move our boats with their flat bottom trucks," explained GMC Matthew Clark, the chief petty officer in charge of CRRC operations.<sup>189</sup> *Tortuga*, in turn, supported the 82nd by giving its soldiers beds to sleep in, hot chow, and laundry services. The ship provided similar services to elements of the 307th Engineer Battalion, and temporarily housed 170 civilians displaced by the storm. Major Jason Smallfield of the 82nd praised *Tortuga* for its support but admitted that functioning on a Navy ship could be challenging, "Working with the Navy is almost like learning a foreign language."<sup>190</sup>

Like the crew of *Tortuga*, *Shreveport* sailors also volunteered for a variety of cleanup jobs on the shore. On 8 September, sailors assisted the New Orleans Harbor Police in delivering food and water, conducting security patrols, and helping this department recover from the storm. "It was great to be able to cook up chicken alfredo, spaghetti and chili for the police officers and our crew," said Culinary Specialist Second Class Dan Garry. "Their kitchen was really in bad shape and it took us four hours to clean up the mess from the storm." Other *Shreveport* sailors spent hours fixing squad car flat tires, using equipment lent to them from a nearby Walmart.<sup>191</sup> On 10 September, a work detail consisting of 15 *Shreveport* sailors helped clean up Fire Station No. 3 in St. Bernard Parish. "I've never seen any disaster like this," said Information Technician First Class (Surface Warfare) Henry Tift as he consumed an MRE for lunch in his muddy uniform. "This is what I love doing—I don't mind getting dirty."<sup>192</sup> Other sailors cleaned up parish government buildings and a high school football stadium. Visiting the area, Commander, Naval Forces Katrina, Rear Admiral Joseph Kilkenny noted that the goal was to have a football game by Thanksgiving but that in the meantime, the field and its facilities could be used as a staging area for food distribution and medical care until proper services could be restored. "*Shreveport* was first on scene for St. Bernard Parish folks with the restoration of government buildings," said Kilkenny. "It's a symbol to people who have lost everything that there is hope—that this too shall pass."<sup>193</sup> Acts of kindness and compassion by the sailors and marines of *Shreveport*, no matter how small, went a long way. Lance Cassagne, a citizen of St. Bernard Parish, said he was "glad to have the military helping to restore his community. Just the presence is a lot of relief."<sup>194</sup>

## **USNS *Comfort***

In the weeks leading up to Katrina, *Comfort* (T-AH-20) was berthed at Baltimore harbor with a cadre crew of approximately 40 civilian mariners employed by MSC to maintain the ship and keep it ready to deploy with five days' notice. FEMA requested the ship for use in Louisiana in a mission assignment (MA) dated 31 August, and the ship departed Baltimore on 2 September with a core crew of 58 MSC mariners and 250 medical treatment facility (MTF) personnel from the Navy. An additional 240 MTF personnel joined the ship in Mayport, Florida, on 5 September—enough personnel to staff the ship for 250 hospital beds. Included in this MTF cadre were 124 Navy enlisted medical personnel, 10 Navy doctors, 21 Navy Nurses, and 11 Navy Medical Service Corps personnel. By the end of the operation, these numbers would grow to 316, 36, 85, and 16, respectively, plus three dentists.<sup>195</sup>

This augmentation stretched the Navy's medical system close to the breaking point. During Katrina, there was precious little capacity in the system with surgical units deployed on the ground in Afghanistan and Iraq; Navy hospitals in the U.S. burdened with incoming wounded from those same combat zones; and a personnel system struggling to recruit and retain qualified medical personnel.<sup>196</sup> At the same time, costs for purchased care (i.e., for Navy patients admitted to private hospitals outside of the Navy system) were skyrocketing. If BUMED detailed too many of its hospital staff to *Comfort*, hospitals such



The hospital ship *Comfort* as it pulls into Naval Station Mayport, Florida, en route to the Gulf of Mexico to aid victims of Hurricane Katrina. (NARA, DN-SD-06-02404)

as the National Naval Medical Center in Bethesda would have to send more patients to outside hospitals for care, pushing these purchased care expenses even higher.<sup>197</sup> To help fill the gap, the Navy again requested assistance from Project Hope, which ultimately found 71 volunteers to augment the ship's MTF staff. Forty non-Project Hope civilian volunteers from Louisiana State University (LSU) and Tulane University Medical Centers joined the ship when she arrived in NOLA.<sup>198</sup>

Making matters more complex, as the ship steamed towards the Gulf Coast, she received orders from DoD on the 7th stating that the ship would provide an additional 750 "hotel" beds for relief workers but would receive no additional military or civilian mariner personnel. Providing hotel services for these guests as well as constant escorts (mandated by the *Comfort* command group) would place a huge additional strain on support staff as did increased security and force protection measures related to the lawlessness in the Gulf Coast.<sup>199</sup>

Soon after leaving Mayport, the ship also became involved in a political tug of war between MSC, BUMED, JFMCC Katrina, DHS, the Department of Health and Human Services, and members of the Mississippi and Louisiana congressional delegations over where the ship would berth on the Gulf Coast. Since only a few ports had piers capable of receiving such a large vessel, the choice eventually narrowed to NOLA, Gulfport, and



USNS *Comfort* being assisted by the commercial tugboat *Natalie Colle* while conducting mooring operations at the Port of Pascagoula, Mississippi, on 9 September 2005. (NARA, DN-SD-06-03668)

Pascagoula. JFMCC Katrina wanted the ship to remain offshore and receive patients by helicopters or else dock at Gulfport. Health and Human Services pushed for New Orleans. Although FEMA (a DHS agency) stated that the vessel was not needed in Mississippi, DHS (its parent department) ultimately decided to send the ship to Pascagoula after being pressured to do so by Mississippi senator and former majority leader Trent Lott, whose hometown was Pascagoula.<sup>200</sup>

By the time the ship docked in Pascagoula on 9 September, most of the hospitals in the hardest hit areas had reopened as had most major highways and bridges. There was also a 500-bed medical facility established by a disaster medical assistance team (a civilian volunteer medical unit funded by the Department of Health and Human Services) at NAS Meridian as well as smaller DMAT tent facilities throughout the region. The 661 DMAT staff had already treated nearly 13,000 people prior to *Comfort's* arrival. Consequently, rather than serving in the acute care role for which it was designed, the ship became a walk-in clinic mainly for people with minor ailments and chronic conditions—sort of a shipboard “CVS minute clinic.” In all, 1,258 patients visited the ship in Pascagoula from 9–18 September with most seeking primary care services, medication refills, and immunizations.<sup>201</sup> The most common category of visit was “Miscellaneous/ Administrative/ Follow-up.” This category, which accounted for 30.6 percent of visits, consisted mainly of medication refills and shots. The next four categories seen, in order, were “other medical/ surgical, respiratory (including upper respiratory infections and asthma attacks), injury (other), and dermatology.” During the Pascagoula visit, the pharmacy boomed with business (filling over 2,000 prescriptions in 10 days) while surgeons and surgical nurses sat idle.<sup>202</sup> According to emergency room nurse Lieutenant Ricky Thompson, “There wasn’t a real surgical mission during the hurricane. . . . Frustrating definitely.” Commander Teri Fahlgren, the chief of operating room nurses, concurred, “It’s kind of slow here; in Bethesda, it’s going from one patient to the next. And they’re pretty sick.”<sup>203</sup> According to Captain Richard Jeffries, who served as the BUMED representative on the JFMCC staff, many patients seen on *Comfort* were “poor, uninsured people” visiting the ship to receive free medical care for chronic conditions: “people who never saw a doctor unless it was an emergency.”<sup>204</sup>

Potentially, *Comfort* could have assigned some of its medical staff ashore to augment DMAT and other medical shore facilities, but a variety of legal concerns prevented the ship from sending Navy personnel ashore for most of the deployment. These legal issues involved medical certifications: were Navy doctors, nurses, and hospital corpsmen authorized to practice medicine on civilians outside of their jurisdiction and, in certain cases, outside of their specialty areas? Additionally, there were concerns over whether the Posse Comitatus Act extended to the military medical community: in particular, could military medical personnel employ force of restraint on mentally ill or violent patients? In both Mississippi and Louisiana, state officials gave expressed permission for military medical personnel to practice on civilians, especially in life-saving situations, but news of these



authorizations took time to reach *Comfort*. Captain Jeffries also mentioned in an oral history that local health care providers “raised a flap” about the potential for Navy medical personnel ashore to see “their patients and rob them of their livelihood.”<sup>205</sup> The ship instead employed civilian volunteers from Project Hope on shore details.<sup>206</sup> These NGO personnel treated 7,000 people on shore at the hospitals, clinics, emergency tents, and aid stations.<sup>207</sup>

On 16 September, Fleet Forces Command (FFC) and Second Fleet considered having the ship return home because of “low numbers of patients seen” and excess medical capacity in Mississippi. “Big Navy was concerned about *Comfort* getting stuck in the region in a long-term commitment situation,” explained Jeffries, but “the mayor of New Orleans and the governor [of Louisiana] wanted its trauma capability once people started returning to the area because the local hospitals were severely understaffed.”<sup>208</sup> Consequently, FFC and Second Fleet deferred any decision in consultation with the JTF until after Hurricane Rita blew through. *Comfort* closed the ship to new patients on the 18th and put to sea on the 20th to avoid Rita. On 26 September, HHS declared that the New Orleans health care system could not support the return of the evacuees and requested that *Comfort* sail to NOLA. On 27 September, NORTHCOM directed the ship to provide Level 1 trauma care capabilities until 11 October.<sup>209</sup> “The decision to bring her back to NOLA was above my pay grade,” according to Rear Admiral (lower half) Jon W. Bayless Jr., Joint Reserve Base and Joint Forces Maritime Component Commander New Orleans. “She was a political football. She was supposed to be here 14 days, and General Honoré said the ship was being held hostage for 14 days. Friction over this ship existed at the four-star level within NORTHCOM, at Office of the Secretary of Defense, the Louisiana Governor, and even the White House.”<sup>210</sup>

*Comfort* docked in New Orleans on 1 October and stayed through the eighth. At the time, only 6 of 41 hospitals in the city were open. During the seven days the ship was in town, the ship averaged three trauma calls a day and saw 102 patients.<sup>211</sup> The ship made arrangements with a local DMAT to take dental emergencies because the DMAT did not have such capability. Consequently, most visits to the ship involved dentistry. The next four categories were “Injury (Other), Injury (Motor Vehicle Accident), Respiratory, and then Miscellaneous/Administrative/Follow-up.”<sup>212</sup> The ship might have seen more patients during this period had accessibility to the ship been easier. As mentioned earlier, the ship was designed to receive patients by helicopter. Pierside access to the ship was extremely limited—a special gangway had to be constructed to deliver non-ambulatory patients to the ship.<sup>213</sup> Additionally, all walk-ins and ambulances had to be vetted by the ship’s security team before they could enter the ship’s security perimeter. Unlike an emergency room at a civilian hospital, cars could not simply drive up and drop passengers off curbside. “If patients were not brought by helicopter or ambulance,” one MTF office noted, “they had a difficult time getting there at all.”<sup>214</sup>

Throughout the deployment, fears of looting and lawlessness in the hurricane-stricken areas compelled *Comfort's* leadership to place the ship on Force Protection Bravo status (DoD's second highest force protection level). The Navy deployed Mobile Security Squadron 22 to assist the ship's security team with pierside force protection. Despite some concerns raised over posse comitatus, members of this unit and master at arms sailors from *Comfort* always remained armed on the pier and aboard ship. Everyone entering the ship had to undergo a thorough security screening, and once on board, patients and visitors always had to be escorted for both security and safety reasons. All these precautions placed a tremendous and unexpected burden on the ship's security personnel.<sup>215</sup>

*Comfort* treated 1,258 patients during Katrina. This number far surpasses that of any other naval ship sent to the Gulf. By comparison, *Shreveport* treated 485; *Bataan*, 334; *Iwo Jima*, 285; and *Tortuga*, 131. Even when compared to ground-based military medical units, it is still a significant number. Only a small number of expeditionary units treated more people. National Guard and Air National Guard medical units at the Superdome treated 6,492 patients. National Guard Task Force Cyclone treated 1,423; and Task Force Pelican, 1,411. Several Air National Guard expeditionary medical support system (EMEDS) mobile field hospitals also saw large numbers of patients, including EMEDS basic at Gulfport (1,340), the 4th EMEDS at NOLA (927), and the EMEDS at NAS JRB New Orleans (873).<sup>216</sup>

As impressive as *Comfort's* numbers appear, they only tell part of the medical story. They do not tell us the types of patients treated, the numbers of hours medical personnel devoted to each patient, and the other medical resources employed for each visit (diagnostic and life support equipment, medications, bandages, etc.). Much of the medicine delivered by the ship was very basic primary care—the type of treatment one might seek at a local clinic rather than a level III trauma hospital with 12 surgical theaters.<sup>217</sup> For lower level outpatient care and level II trauma care,<sup>218</sup> an EMEDS with 11 tents and 97 medical personnel is much cheaper than moving a floating hospital from Baltimore to the Gulf of Mexico at a cost of over \$700,000 per day in 2005 dollars. Furthermore, staffing the MTF depleted other Navy medical facilities of much needed personnel. Finally, a hospital ship is far more difficult for patients to access than a tented or modular field hospital.<sup>219</sup>

The chief criticism of the *Comfort's* deployment by Congress and the press, however, was the length of time it took to reach the scene. In medicine, speed is life. The faster medical support reaches a disaster zone, the greater its utility. Ships, by their very nature, cannot reach a scene as fast as a palletized EMEDS flown into an area by air. Moreover, *Comfort* required a minimum of five days to prepare for a deployment. That the ship departed Baltimore three days after receiving an alert is a testament to the hard work and skills of the civilian mariner crew and MTF staff. With a top speed of 17 knots, *Comfort* travelled slower than the *Iwo Jima* ESG, which could steam at 22 knots, but it still managed to transit to the Gulf in seven days versus five for the ESG. Had the political

leadership provided the ship with more clarity about its first destination earlier in the transit, it might have docked in Mississippi a day earlier rather than holding offshore for much of the 8th, awaiting orders. Legal concerns about deploying Navy medical personnel ashore further decreased the MTF's impact. If Navy doctors had joined their Project Hope colleagues on shore details, the total number of patients seen by the MTF staff might have been three or four times higher.<sup>220</sup>

Do all these issues combined mean that the Navy should decommission the *Mercy*-class hospital ships? Perhaps. Designed for a large-war scenario, these ships are not versatile and nimble enough for most modern contingencies, including combat operations. A smaller, faster hospital ship with a well deck for easy access by sea and/or roll-on, roll-off capability might be more appropriate for future operations and certainly easier to staff. An LPD-17 hospital conversion could accommodate 250 beds, 8 operating theaters, and a 398-person medical staff.<sup>221</sup> Such a conversion, in theory, could handle three times the number of patients as an EMEDS and be more quickly, and less expensively forward deployed to respond to a variety of contingencies than a *Mercy*-class hospital ship. "When Katrina happened, they took *Comfort* down there," explained Lieutenant Commander Thomas C. Shu of BUMED. "They parked it offshore for a while; it really didn't do anything. . . . Their primary design was, if we had a big war, to sit offshore and receive our guys coming in." Sending one to Katrina was merely symbolic. "It's the Great White Ship," to quote Shu, but as forward medical treatment facility for Katrina, it was more of a white elephant in terms of practicality.<sup>222</sup>

### *Harry S. Truman*

Another ship deployment that may not have been appropriate for the Katrina operation was *Harry S. Truman*. This *Nimitz*-class supercarrier was designed to accommodate fixed-wing tactical fighter/attack aircraft, not perform as a helicopter carrier. With its deep 37-foot draft, it had to remain eight miles from the coast, making transit times for its helicopters lengthy and fuel intensive. *Harry S. Truman* operated off Louisiana just 10 days (4–14 September) before Fleet Forces Command decided its capabilities were no longer needed. It mainly served as a floating airport for helicopters and a "reach-back" JFMCC—additional command and control for the main forward JFMCC on *Iwo Jima*.<sup>223</sup>

In the first few days of the deployment, SH-60s from HS-7 on *Harry S. Truman* rescued over 700 civilians.<sup>224</sup> Many of these rescues involved moving people from a landing zone near a flooded area to higher ground, but some rescues involved cutting through roofs with axes. Larger helicopters from the ship such as MH-53s moved water and MREs to affected areas. "We became that afloat forward support base where we could provide fuel, food, maintenance support and a mobile landing strip that would allow us to fly helos to the affected area," explained Captain James P. Gigliotti, *Harry S. Truman*'s commanding officer.<sup>225</sup>



Sailors on the flight deck of the aircraft carrier *Harry S. Truman* load boxes of Meals Ready-to-Eat (MREs) onto an HH-60H Rescue Hawk helicopter during Hurricane Katrina relief operations. (NARA, DN-SD-06-03353)

During the course of the mission, helicopters from the ship delivered nearly 7,000 bottles of water and 6,000 MREs to the shore in 161 separate sorties. Using non-traditional helicopter spots on the flight deck, the ship often had eight helicopters with rotors turning on the deck. Up to three MH-53s could operate on the ship simultaneously.<sup>226</sup> Despite this impressive capability, by the time the ship arrived on scene, the Army had its logistics operation “up to speed” and massive amounts of supplies were arriving in the affected areas. *Harry S. Truman* helicopters mainly took supplies to drops of opportunity. “We were out of sight, out of mind,” according to Gigliotti. “We were not the center of things. We were a floating gas station for helicopters. That was our contribution.”<sup>227</sup>

### **USNS *Pollux***

Like *Truman*, *Pollux* (T-AK-290) was not ideally suited to the HADR mission. This *Algol*-class vehicle cargo ship was designed to transport large numbers of heavy military vehicles to a distant theater of war rather than berthing first responders or providing medical services to a local community. A converted container ship built in Germany, *Pollux* is essentially a floating parking garage. Vehicles drive onto the ship and up to various decks linked by ramps for easy and fast loading and unloading. During Desert Storm and Desert Shield, the 946-foot ship transported 14 percent of all military cargo to Saudi Arabia.<sup>228</sup>



When Katrina hit, *Pollux* was in New Orleans having its engines repaired and could not put to sea as per standard Navy practice when storms hit a port. Instead, it rode out the storm pierside in New Orleans with line handlers working from sheltered line handling positions within the ship—a very handy design feature for heavy weather and rough sea states. Once the storm passed, the ship’s master officer, Captain Robert Lansden, immediately drove to a local hospital to see if his ship could be of any assistance. “The hospital already lost some dialysis patients. They wanted us to do dialysis on ship.” After consulting his superior, Vice Admiral David L. Brewer, the commander of MSC, he ordered his men to load dialysis machines on the ship and set up a makeshift dialysis center. The hospital and local National Guard units also needed diesel fuel. Soon the ship was pumping prodigious amount of fuel to National Guard trucks, which in turn delivered it to local hospitals and other emergency facilities.<sup>229</sup> In just one week, *Pollux* provided more than 220,000 gallons of diesel fuel.<sup>230</sup> One of the ship’s civilian mariners, Jack Ryan, even built a small pipeline to better deliver stores of fuel to National Guard tanker trucks. Lansden recruited volunteer firefighters to help pump the fuel and stand fire watches.<sup>231</sup>

Lansden, a graduate of the U.S. Merchant Marine Academy at Kings Point, New York, also allowed hospital staff to sleep, eat, and shower on the ship. One hospital director later told him that “if we had not housed and fed his doctors and nurses, many would have been forced to leave,” and he might have had to close down his hospital. *Pollux* also provided meals, showers, laundry, and berthing services to members of the National Guard, the Army, FEMA, and state relief workers. *Pollux* Chief Engineer Chris Wallace repaired the New Orleans Aquarium’s air compressors to help save the rare species of fish. “God blessed us to be here and to have the crew and the skill to ride out the storm,” said Lansden, “and by having the command structure under Vice Admiral [David L.] Brewer and the U.S. Navy to approve and support our ideas for immediate humanitarian response to the people in the New Orleans area devastated by Hurricane Katrina.”<sup>232</sup>

## Seabees

No single group of sailors proved more adept at cleanup, construction, and other shore related humanitarian work than the Seabees, the Navy’s mobile construction force. The Seabees have multiple capabilities vital to disaster relief work, including the ability: (1) to build almost anything permanent or portable; (2) to deploy rapidly to an affected area; and (3) to triage a disaster site quickly and complete the most vital work first. Seabees, moreover, are trained to work under the worst possible conditions (including combat) and make do with limited equipment and supplies. “We build, we fight” is their motto, and since their founding in 1942, the Seabees have played a highly significant role in nearly every American war and many natural disasters.

Naval Mobile Construction Battalion 7 (NMCB-7), based in Gulfport, Mississippi, was both a victim of the storm and a first responder. As soon as it helped get its base operational, the unit moved out into its local community to provide assistance. During the



U.S. Navy Seabees in HMMWVs observe firsthand the devastation from Hurricane Katrina as they travel along Route 90 near their base in Gulfport, Mississippi. (NARA, DN-SD-06-03364)

next month, it completed over 100 projects and devoted 7,295 man-days in support of disaster relief. This work included clearing vital roads in Gulfport, Long Beach, and Pass Christian; removing debris, and demolishing unsafe structures throughout the De Lisle and Biloxi school system; distributing food and water to over 24,000 families; debris cleanup around the port of Gulfport; and minor repair/cleanup efforts to over 400 homes within the Gulfport area. Cumulatively, these efforts helped over 10,000 people return to their homes and businesses.<sup>233</sup>

One of the most rewarding projects for the Seabees of this battalion was rendering assistance to the Armed Forces Retirement Home in Gulfport, Mississippi. The retirement facility, built in the 1800s, was home to more than 400 retired military personnel in 2005. Seabees established a security perimeter around the home and began helping staff provide basic services to residents.<sup>234</sup> “We had Seabees (20) at the Armed Forces Retirement Home taking care of veterans,” explained Captain Eric Odderstol, the commodore for 22nd Naval Construction Regiment (NMCB-7’s parent unit). “They rescued disabled residents, moving them to upper floors. They also made sure they got meds, oxygen, etc.”<sup>235</sup>

NMCB-40, based at Port Hueneme, California, was another workhorse unit during Katrina. It deployed 400 Seabees to NOLA for over a month. Its main efforts included



U.S. Navy Seabees assigned to Naval Mobile Construction Battalion 133 (NMCB-133) remove plywood sub-flooring in order to restore Hope Haven, a shelter for abused and neglected children, in Waveland, Mississippi, during Katrina relief operations. (NARA, DN-SD-06-03698)

building a 7,500-person tent camp at NAS JRB New Orleans; public works assistance and base reconstruction; repairs to schools and levees; and debris removal from parks.<sup>236</sup> At the St. Louis King of France Catholic School in Jefferson Parish, Seabees cleared debris, removed broken glass, cleaned classrooms, installed plywood over broken windows, and even mowed the lawn. “Doing work like this for these kids is great,” said Chief Hospital Corpsman Cecilio Liwanag. “This is what Seabees do. We help those who cannot help themselves.” Pam Schott, the principal for this co-ed school serving over 400 students from preschool through the 7th grade, praised the Seabees and their efforts: “The Seabees work 10- to 12-hour days, and never complain. They are the most polite people I have ever met.” This was high praise indeed from a woman accustomed to working with priests and nuns.<sup>237</sup>

The Katrina relief effort drew from active duty and reserve Seabee units from across the fleet. Notable contributions included those from NMCB-4, which deployed over 250 sailors, and NMCB-74, which sent 123.<sup>238</sup> In addition to building structures, the Seabees also had the ability to restore water and sewage systems, and electrical grids. As U.S. Congressman Gene Taylor of Mississippi’s Fourth District explained, “Those guys were particularly great at getting water wells [and] sewage lift stations going again.”<sup>239</sup> For utilities restoration, one Seabee unit in particular stood out: the Navy Mobile Utilities Support

Equipment (MUSE) Division based at the Naval Facilities Expeditionary Logistics Center in Port Hueneme. The MUSE mission is to provide portable diesel engine-driven generators, substations, and switchgear to meet utility shortcomings.<sup>240</sup> Just hours after Katrina cleared the Gulf Coast, MUSE sent 12 technicians and multiple generators to Gulfport. Six members of this team, MUSE Detachment Alpha, worked to restore power at various Naval Construction Battalion Center Gulfport facilities, including the emergency operations center, the main galley, and a converted warehouse used to house more than 2,000 civilian emergency workers. With a 400-watt generator installed by the MUSE team, the mess went from serving 500 cold meals per day on paper plates in a hot building to over 2,000 hot meals on standard Navy crockery in a cool, clean environment. Detachment Alpha also installed five generators to operate sewage system lift stations on the base, and helped repair 130 sewage lift stations in the communities of Gulfport and Biloxi. Detachment Bravo, the other half of the team, worked in New Orleans. Among other projects, it installed a 750-kilowatt power plant at Naval Support Activity West Bank that ultimately provided stable power to 7,500 soldiers of the 82nd Airborne Division. During relief efforts, Detachment Bravo also supplied 1.5 megawatts of power, without interruption, for 34 consecutive days to 3,000 service personnel from all the services stationed at Naval Support Activity New Orleans East Bank.<sup>241</sup> As one soldier from the 41st Brigade Combat Team, 1st Cavalry, commented, “It’s the small things you take for granted.”<sup>242</sup> Overall, MUSE detachments restored power at 17 critical facilities, thus improving the quality of life for over 250,000 civilians and military personnel within an 80 square mile area.<sup>243</sup>

Given the high demand for the unique capabilities possessed by the Seabees, it is not surprising that some friction occurred when it came to assigning tasks to the Seabees and command and control. Lieutenant Colonel Paul Deckert, USMC, served as chief of staff for the 22nd Naval Construction Regiment Forward. An infantry officer by training, Deckert admittedly did not know “Diddley about engineering,” but he did understand the human terrain of the Gulf Coast, having attended high school in the region and college at Loyola University New Orleans. Every day, he would attend meetings with various parish officials, trying to develop understanding of the situation and determine where the Seabees were most needed. “It was an absolute nightmare. Nobody was cooperating with anyone. Don’t come in and tell them you will help them plan or run meetings. You have to come in with something tangible—cash, water, food, gas, generators, communications equipment.” Deckert only succeeded because he had high school and college buddies working in various parish offices. “You’d have an easier time getting onto the bridge of the *Enterprise* during nuclear operations than the [New] Orleans Parish EOC [emergency operations center].”<sup>244</sup>

An example of how complex the situation often became for the Seabees was Charity Hospital in New Orleans. When Seabees sent out to the hospital to board up 360 windows in blazing heat asked for permission to restore power in the building for air conditioning



and elevators, the state refused the request “because it wanted the hospital condemned and a new one built with FEMA money in Baton Rouge.”<sup>245</sup>

Deckert’s military command could be just as difficult. “The military chain of command thing did not work. The chain never tasked us. We found our own tasks working with the parish.” Deckert also complained about tensions between the JFMCC and Seabee commanders at Port Hueneme, Gulfport, and other bases. “You work for the JFMCC and not your local command. You don’t have to constantly inform your boss back home. I did not run across a single O-6 who understood this.” Along similar lines, every flag officer up to the CNO, Admiral Michael Mullen, wanted to visit the Seabees. These visits could absorb 2–3 hours of Deckert’s time per day. Deckert complained about how some of these officers did not simply visit and offer support but proffered guidance as well: “We were periodically hit by GOBIs—General Officer’s Bright Ideas. We had to spend hours trying to change the minds of these officers.”<sup>246</sup>

Despite these and other challenges, Deckert took great pride in the efforts of the Seabee forces:

We got a call one day asking us to meet with the president of Jefferson Parish, Aaron Broussard, and one of his councilmen at large, John Young. We met with them. They did not fully understand our capabilities at first. They were exhausted and fried. Whenever they saw guys in tree suits [green camouflage], they thought all we could do is provide security and move stuff with trucks. We had to explain that Seabees could do a lot more than that. At first, they wanted us to haul trash. I had to explain that our guys were skilled tradesmen. They then asked us to rehab schools and community centers. We ended up fixing up four high schools, six grammar schools, one old folks home, and several large parks. We did a lot of clearing and stabilization. Every day thereafter I would get phone calls from Young, asking us to do more jobs. We had 2–3 projects a day in Jefferson Parish.<sup>247</sup>

### **Support from Foreign Armed Services**

In addition to the U.S. armed forces, foreign military services also participated in Katrina operations. In the maritime realm, the Dutch sent the frigate HNLMS *Van Amstel* (F831), which had been operating in the Caribbean when the storm hit. Members of its 187-person crew participated in shore work details with the Seabees and crews of the U.S. amphibious ships in the area. France dispatched a detachment of Navy divers to assist with survey and salvage efforts.<sup>248</sup> Our foreign neighbors to the north and south made even greater contributions. Mexico sent an Army task force of 1,846 soldiers plus ARM *Papaloapan* (A-411), the former USS *Newport* (LST-1179), loaded with 75 Mexican marines. Canada contributed a task force of four ships plus 1,000 personnel. This task force, Canadian Forces Joint Task Group 306, provided both manpower to restore and clean up

areas hard-hit by the storm and unique capabilities in short supply during the event, including military diving and aids to navigation expertise. Cumulatively, foreign military relief forces demonstrated the willingness of friends of the United States to help this country in a time of need and underscored the importance of U.S. overseas humanitarian operations—sometimes favors get repaid and goodwill can travel both ways. Canadian foreign relations, still smarting from Canada’s refusal to participate in the Iraq war, experienced a new high. The Mexican military, which had not operated in the United States in such numbers since the Mexican-American War (1846–1848), experienced a huge boost of confidence working hand in hand with the U.S. military as a highly effective partner.<sup>249</sup>

Stephen R. Kelly was the deputy chief of mission at the U.S. Embassy in Mexico when the Mexican military offered to send relief assistance for Katrina. “The next 48 hours were a mad scramble to get Washington to say yes, to figure out how to admit more than 200 military personnel [the number ultimately grew to 1,846] without passports or visas, and to recognize that the Mexican army, traditionally one of the most nationalistic and anti-American elements in the Mexican government, was making an extraordinary gesture.”<sup>250</sup> Local U.S. commanders worried how these troops would be received by U.S. populace in affected regions. When Captain Tyson of *Bataan* informed one of her



Mexican service personnel from the Mexican navy ship *Papaloapan* and U.S. Navy sailors from *Bataan* carry a log over their shoulders near D’Iberville, Mississippi. Shore parties from both ships worked together to remove debris at D’Iberville Elementary School in support of Hurricane Katrina relief efforts. (NARA, DN-SD-06-03666)

superiors that her sailors would be willing to work with Mexican sailors and marines from *Papaloapan*, he told her, “Do not send any Mexican sailors to the beach!” When she asked why, he said, “This is Southern Mississippi, do you want these sailors riding around in assault vehicles to get shot?”<sup>251</sup> Other officials raised concerns about Mexican medical personnel treating patients on U.S. soil. The Federal Aviation Administration barred a flight of Mexican military helicopters from entering the country because there is no status of forces agreement between the two nations. Even the U.S. Department of Agriculture voiced objections, arguing that all Mexican food supplies needed to be inspected and no Mexican beef could enter the country out of groundless fears over mad cow disease (a Mexican field kitchen instead purchased U.S. beef to feed to displaced American citizens). No similar concerns were raised about the Canadians or the Dutch—both of whom were NATO allies with a long history of working with the U.S. military.<sup>252</sup> Because of long-standing obligations related to the 1958 North American Aerospace Defense Command Agreement between the two countries, the Canadian armed forces had a particularly close working relationship with the U.S. military.<sup>253</sup> In fact, the Royal Canadian Air Force sent two CH-146 Griffon helicopters to Cape Cod to assist the U.S. Coast Guard during a busy holiday weekend with nary a U.S. agency blinking an eye. While the NATO status of forces agreement (SOFA) applied to Canadian Armed Forces in the United States, it did not necessarily authorize these foreign military forces to perform Title 14 U.S. Coast Guard type operations.<sup>254</sup>

Despite the initial concerns raised over the deployment of Mexican troops to the United States, its military personnel performed magnificently. The Mexican army’s field kitchen served 170,000 meals to persons displaced by the storm at the former Kelly Air Force Base, not far from the Alamo in San Antonio, Texas. Mexican army, navy, and marine forces distributed more than 184,000 tons of supplies. A 12-member Mexican medical team performed over 1,000 consultations, evaluations, and medical evacuations.<sup>255</sup> Among other shore cleanup tasks, sailors and marines from *Papaloapan*, along with U.S. personnel from *Whidbey Island*, and NMCB-7, removed fallen trees and helped clear debris in Biloxi, Mississippi.<sup>256</sup> When foreign media representatives asked Captain Tyson for her thoughts on the Mexican military response, she replied, “I think it’s great. We have had a catastrophic disaster. We would do the same thing for them. The foreign sailors were great—everyone worked great together.”<sup>257</sup> According to Kelly, “Nobody was more surprised by this humanitarian mission than the Mexican military itself. Perhaps pumped up by its unexpected display of competence and compassion, even for a normally haughty northern neighbor, the Mexican army became far less defensive, and more willing to cooperate with its U.S. counterpart” after the mission was over.<sup>258</sup>

No ally contributed more to the Katrina relief operations in the maritime sphere than Canada. Our northern neighbor sent a task force composed of three navy warships and a coast guard vessel. It also sent a composite army-navy dive team consisting of 35 divers. Over 900 Canadian sailors, soldiers, and airmen participated in the Katrina relief



A three-quarter port view of the Royal Canadian Navy frigate *Toronto* cruising in the Arabian Gulf. *Toronto* was one of four Navy and Coast Guard ships deployed by Canada to the Gulf of Mexico to participate in Hurricane Katrina relief operations. (Photographer's Mate First Class Brien Aho, USN; NARA, DN-SD-05-02973)

operation, code-named Operation Unison. It was the biggest Canadian military operation on American soil since the War of 1812.<sup>259</sup>

The Canadian maritime force, called Joint Task Group 306, left Halifax on 6 September, and included the destroyer HMCS *Athabaskan* (DDG-282), the frigates HMCS *Ville de Québec* (FFH-332) and HMCS *Toronto* (FFH-333), and the Canadian Coast Guard light icebreaker *Sir William Alexander*.<sup>260</sup> It arrived at Pensacola on 11 September to disembark supplies, which consisted of water, food, first aid, and sanitary products. The commander of the unit, Commodore P. Dean McFadden, coordinated with his U.S. counterpart, Rear Admiral (lower half) Joseph F. Kilkenny, at the Pensacola JFMCC Rear. When McFadden was ushered into the operations center, Kilkenny interrupted a video teleconference to welcome his colleague and assure him that the Canadian ships would be given access to the same command channel as the American ships.<sup>261</sup>

JTG-306 arrived off the coast of Mississippi on 12 September and for the next three days sent work parties ashore to assist in relief operations. Sailors from *Toronto*, *Athabaskan*, and *Ville de Québec* helped to clean up the Mississippi Coast Coliseum and Convention Center, the U.S. Armed Forces Retirement Home in Gulfport, Gulfport High School, and Pass Road Elementary. After three days of picking up debris, cleaning up



rotten food, and tidying yards, the task group weighed anchor and began its trip home.<sup>262</sup> JTG-306 left Mississippi on 17 September and arrived back in Halifax on 29 September.

By 17 September, the requirements for labor ashore had greatly diminished due to the influx of civilian contractors. Canadian military personnel focused their work efforts on public buildings to avoid conflicts with private contractors, but after one contractor asked when the Canadians were leaving, a decision was made to withdraw most Canadian military relief forces. As Commander Stuart Moors, the commanding officer of *Toronto* noted: "Once we got ashore and started working and saw the civilian horsepower of the United States come rolling in, it became apparent that the manpower force of our ships wouldn't be required as long as we thought."<sup>263</sup>

The JFMCC, however, requested that three categories of Canadian military personnel remain on station: engineers, divers, and coast guardsmen. The Canadian Military Engineers' contribution to Operation Unison was composed of 18 tradesmen from Naval Construction Troop (NCT) at Canadian Forces Base (CFB) Halifax and 13 field engineers from 4 Engineer Support Regiment out of CFB Galetown. This team worked together with U.S. Seabees on a variety of building projects, including a roof and scullery for a volunteer kitchen, fencing, a temporary roof, and a wall for the Bay St. Louis public works facility. Personnel from this unit were still on various jobs in the Gulf Coast until 3 October.<sup>264</sup> "People driving by would stop, get out of their cars, and come over to shake our hands," recalled Master Warrant Officer André Boudreau, a member of the NCT.<sup>265</sup>

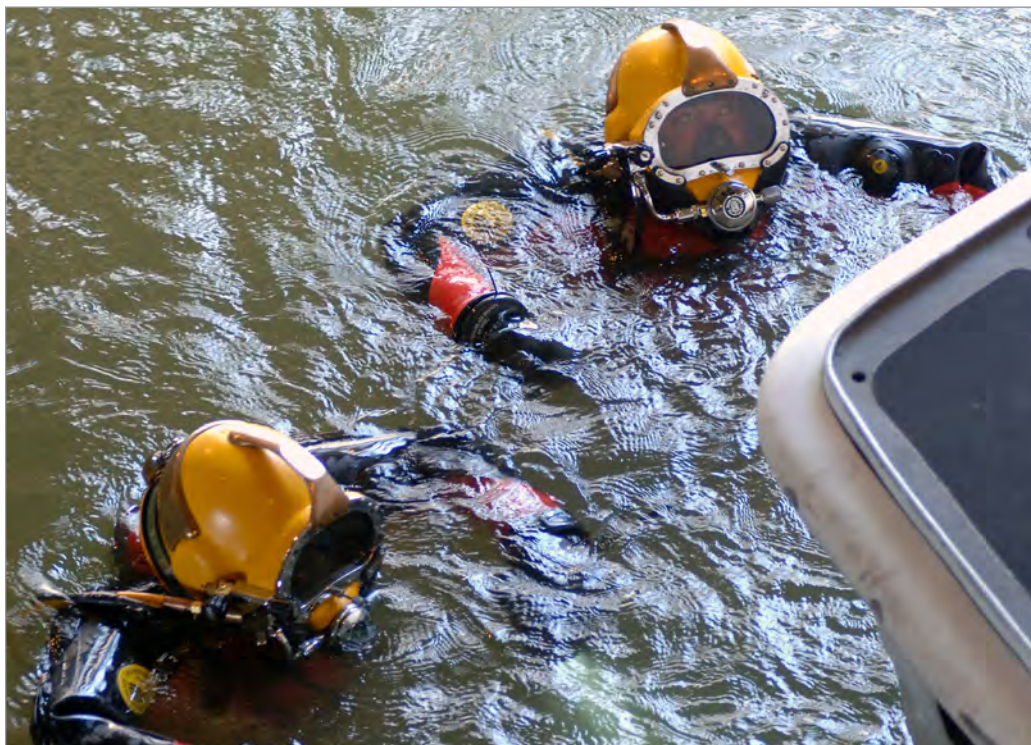
A team of 35 Canadian army and navy divers arrived by air in Pascagoula on 6 September, the same day JTG-306 left Halifax.<sup>266</sup> There, they were met by an officer from the U.S. Navy's Mobile Diving and Salvage Unit 2 (MDSU-2) and were immediately put to work with U.S. dive teams. The Canadians trained annually with MDSU-2 in Virginia Beach and could immediately integrate with the unit as one team. "It wasn't just that the organization had worked together. They knew each other on a first name basis; they knew who to call when they needed things," said Commander Moors. The Canadians also had equipment for diving in polluted waters that the Americans lacked and were consequently the first to dive in certain areas.<sup>267</sup> With MDSU-2, they conducted underwater surveys and inspections, and harbor clearance. In several bayous, they helped remove wire and raise overturned shrimp boats. At the Bayou Casotte Chevron Oil Pier, a MDSU-2 side-scan sonar located a large metal object in the channel and passed the information to the diving command and control cell, and Canadian divers removed the obstruction.<sup>268</sup> The Canadian divers returned home on 20 September.<sup>269</sup>

The Gulf Coast was by far the farthest south the Canadian Coast Guard had ever operated. Canada's coast guard falls under Fisheries and Oceans Canada, and had to seek special permission from its parent department to operate with a Canadian navy task group. The cutter it deployed, *Sir William Alexander*, is a candy apple red, 280-foot ice-breaking buoy tender that normally spends its winters maintaining aids to navigation in the cold waters of the North Atlantic. It had never operated in warm waters prior to

Katrina, but its capabilities proved a godsend. As soon as it arrived in the Gulf of Mexico, the U.S. Coast Guard requested its assistance in replacing and repairing damaged weather buoys—buoys that would soon be desperately needed to track Hurricane Rita. With the help of two National Oceanic and Atmospheric Administration (NOAA) technicians, *Sir William Alexander* managed to get nearly all the damaged buoys repaired. It also recovered and towed a 30-meter-wide buoy back to Pensacola. *Sir William Alexander's* efforts allowed U.S. Coast Guard aids to navigation teams to focus on navigation buoys and opening vital shipping lanes. *Sir William Alexander* did not leave the Gulf of Mexico until late October.<sup>270</sup>

### Survey and Salvage

The Navy has a long history of salvage dating back to the nineteenth century. Maritime salvage is the process of recovering a shipwreck, aircraft, or other object from the sea. It can be a simple process such as towing a stricken vessel to shore or a more complex affair such as re-floating a sunken ship or making underwater repairs to a leaking oil tanker. Prior to Katrina, Navy salvage units rarely got involved in salvaging non-Navy vessels during domestic natural disasters. Civilian salvage companies under Coast Guard



Two U.S. Navy divers assigned to MDSU-2 complete a repair operation on a patrol boat inside the well deck of *Tortuga* during Hurricane Katrina relief operations. (NARA, DN-SD-06-03692)

direction did much of that work. The scale and scope of the storm on the Gulf Coast, however, compelled FEMA to turn to the Navy's Supervisor of Salvage and Diving for support. He in turn arranged for the MDSU-2 and a variety of mine-countermeasures vessels to survey vital shipping lanes and employ salvage capability to remove major channel obstructions. Assisting the U.S. Navy in the effort were the Coast Guard, civilian salvage companies, the U.S. Army Corps of Engineers, and military divers from Canada and France. It would be the biggest domestic survey and salvage operation in U.S. history.<sup>271</sup>

The Navy's mobile expeditionary dive units (MDSU-2 based in Little Creek, Virginia; and MDSU-1 based in Hawaii) are a unique Navy capability well-suited for humanitarian operations. These units can operate anywhere in the world and perform such work as harbor clearance, diving, salvage, repair, and demolition using a variety of Navy and commercial vessels in war or peace. Notable recent salvage operations performed by the unit include TWA Flight 800, Swiss Air Flight 111, the space shuttles *Challenger* and *Columbia*, and USS *Monitor*.<sup>272</sup> MDSU-2 loaded Detachment 2 of divers on *Grapple* (ARS-53), a 255-foot-long *Safeguard*-class salvage ship, on 2 September. Detachment 4 plus a lead command and control element departed by ground convoy to Pascagoula. A third detachment, Detachment 30, was already in Mississippi when the storm hit.<sup>273</sup>

All units and equipment were in place at Pascagoula by 11 September—the first day of salvage and survey operations. They included 42 divers from MDSU-2 plus 16 divers from *Grapple*, 14 from Navy Special Clearance Team 1, 18 from France, and 35 from Canada. Another 146 military personnel supported the operation. Over the next 30 days, the MDSU-2 lead operation surveyed 775 miles of coastline and inland waterways from Florida to Texas, and conducted 229 dives, totaling 181 hours of underwater dive time.<sup>274</sup> According to Lieutenant Commander Kevin M. Brand, the commanding officer of *Grapple*, the “primary focus was to verify the water depths of the main ports,” and make sure all the main channels were safe for navigation. This had to be accomplished fast so that Navy amphibious ships and other deep draft vessels could begin relief efforts in those ports.<sup>275</sup> The ports also supplied oil and gas to the mid-section of the country, so any delays in their opening might have led to critical petroleum shortages in a huge swath of the United States.<sup>276</sup>

Highlights of the effort included scanning and clearing obstructions on all major waterways from Pensacola, Florida, to Galveston, Texas. The Navy-led team salvaged or removed 2,300 tons of debris from key waterways.<sup>277</sup> Surveys were conducted by MDSU-2 units and other elements of the Joint Task Force, including MCM-1 class mine countermeasures ships, mine countermeasures helicopters, and Phoenix International (a search and recovery company under contract with the Naval Sea Systems Command). The team used towed sonars from small boats, the MCM-type minesweepers, helicopters, and Remus autonomous underwater vehicles (AUVs). By 11 September, the Mississippi survey was completed from mile marker 104 to 20 miles south of mile marker 0.<sup>278</sup> The U.S. Army Corps of Engineers praised the Navy's efforts in a teleconference the day

before, noting that Navy dive-salvage units assisted in opening 95 percent of ports from Florida to Pearl River, Mississippi.<sup>279</sup>

Farther off the coast, the minesweepers *Defender* (MCM-2), *Gladiator* (MCM-11), *Scout* (MCM-8), and *Falcon* (MHC-59), as well as helicopters from HM-15, surveyed 2,900 nautical miles of offshore shipping lanes with tools originally developed to locate mines. Using sonar and other measures, the mine hunters completed a survey of the Louisiana Offshore Oil Port (LOOP), a tanker offloading and temporary storage facility for crude oil that typically handles 13 percent of the nation's foreign oil and connects by pipeline to 35 percent of the U.S. refining capability. "This area is essential for the offloading and storage of crude oil," explained Ensign Steve Hickman of *Defender*. His ship also surveyed 50 oil platforms, looking mainly for leaks. Along transit lines, mine hunters cleared water to a depth of 65 feet, looking for anything that could pose a hazard to shipping such as sunken vessels, vehicles, and houses. These units, along with the MDSU-2 team, helped the supervisor of salvage and diving develop a database of 3,000 submerged vessels and other objects in the Gulf Coast area.<sup>280</sup>

It should be emphasized that neither the Navy nor the Coast Guard salvaged most of the vessels sunk or dislocated by the storm. By law, ship owners (known as responsible parties or RPs for short) are responsible for salvaging their own property. The federal government only steps into a situation where there is an egregious environmental issue or if the responsible party refuses to remove a vessel obstructing a vital channel. "There were thousands of vessels stranded by the storm, and the preponderance were salvaged by the responsible parties. RPs had insurance and salvage plans to deal with the issue," explained Captain James Wilkins, the director of ocean engineering, and supervisor of salvage and diving. Nevertheless, the Navy's survey efforts located many of these vessels for the RPs, thereby expediting their eventual salvage and recovery by privately hired salvage firms.<sup>281</sup>

## **Navy Shore Facilities**

Throughout this narrative, Navy shore facilities stand out as a near constant fixture in the Katrina relief story. The location of several of these bases in the disaster area and the fact that many emerged from the storm relatively unscathed (especially when compared to civilian infrastructure) allowed these bases to bounce back quickly and be utilized by first responders, including the Navy. For a service that typically values its ships more than its shore facilities, Katrina is a cogent reminder of just how valuable these bases and their tenants are for maintaining and sustaining the fleet and a myriad of other functions.

NAS JRB New Orleans became the entry point for tens of thousands of first responders from the National Guard, Coast Guard, and other agencies.<sup>282</sup> The Coast Guard maintained its tactical operations center for search and rescue and much of its orange helicopter force at the base.<sup>283</sup> Without this facility, the Coast Guard would not have been able to rescue the large numbers of people it did. Within hours of the storm's passing, the NAS JRB also became the operational, logistical, and administrative hub for relief efforts in





A US Marine Corps CH-46E Sea Knight helicopter, assigned to Marine Medium Helicopter Squadron 365 (HMM-365), departs Naval Air Station New Orleans at Belle Chasse to conduct search and rescue operations. NAS JRB New Orleans became a major air base for the U.S. armed forces and other agencies during Hurricane Katrina relief operations. (NARA, DN-SD-06-03349)

New Orleans. The base handled 18 million pounds of relief supplies during the first few days of the crisis. Aircraft from the Coast Guard, Navy, Army, Air Force, Marine Corps, and National Guard operated from the two runways on the base, which became the sixth busiest airport in the country for a short period of time, handling as much traffic as Denver International Airport.<sup>284</sup>

Other crucial facilities included the Stennis Space Center, NCBC Gulfport, NAS Pensacola, NSA New Orleans, and NAS Meridian. The National Air and Space Administration's Stennis Space Center, located in the southwest corner of Mississippi about 50 miles northeast of New Orleans, encompasses 200 square miles of land and is where the space shuttle's main engines were tested. The nearby Michoud Assembly Facility is where the space shuttle external fuel tanks were fabricated. Navy units tenanted at the facility include the Naval Research Lab Stennis Space Center; Naval Meteorology and Oceanography Command; and the Naval Oceanographic Office. During Katrina, the Marine Corps utilized the facility as an air base, and FEMA stationed 50 trailers there. Stennis also had ample stores of diesel and aviation fuel, which facilitated the Marine Corps' heavy equipment operations in the region and eliminated a huge logistical concern for that service.<sup>285</sup> NCBC Gulfport, in addition to sustaining its own Seabee units, had large amounts of construction equipment in warehouses that were utilized by other construction units coming into the region. The facility also housed and fed 2,000 responders from other agencies. NAS Pensacola handled 669 relief sorties by various aircraft and 280,054 pounds of relief supplies. It also accepted displaced workers. NSA New

Orleans (now known as the U.S. Marine Corps Support Facility New Orleans) hosted the 82nd Airborne Division and a 5,000-tent National Guard encampment; and NAS Meridian, a 500-bed FEMA medical facility. Taken together, the plethora of naval bases in the region became, as Brian Walsh of CNA noted, “forward operating areas from which they [the U.S. armed forces and other responders] could project their relief efforts into the surrounding communities.” They emerged as the “focal points” in regional relief efforts—islands of hope in the storm ravaged region.<sup>286</sup>

## **U.S. Marine Corps**

When Katrina hit, Major General Douglas O’Dell was in Maine, taking some R&R after a long deployment to Iraq. At the time, O’Dell was the commanding officer of the Fourth Marine Division, a reserve unit headquartered in New Orleans. O’Dell joined the Marine Corps after graduating from Rutgers University in 1971 and earned a commission through the Platoon Leaders Class program. Prior to Katrina, O’Dell had studied humanitarian operations as the Deputy J-3 of the Standing Joint Task Force at Camp Lejeune and as Commander of the Fourth Marine Division. He also had extensive training in drug interdiction and counterterrorism.

When he learned that he would be leading the Marine Corps relief mission in the Gulf Region, his initial priority was moving heavy equipment into the region. Marine infantry are well trained in house-to-house searches, but without vehicles, their range of movement is highly limited. For neighborhoods underwater, amphibious vehicles capable of traveling over water as well as land would be required. Consequently, O’Dell decided to begin moving heavy equipment into the region even before orders were received. He determined that “most of the motor units would come from artillery units from Texas, Mississippi, and Alabama. We ultimately received eight amphibians. The motorized vehicles fell under the command of my anti-terrorism battalion, which was based in Bessemer, Alabama. Ground units came from 1st Battalion, 8th Marines, based in Lejeune.”<sup>287</sup>

He justified this movement of Title 10 forces into the region based on a briefing he had given Admiral Timothy J. Keating, the NORTHCOM commander in January 2005. According to O’Dell, “Nobody has drawn the roles of Federal troops in CONUS [continental U.S.] in black and white. You have to rely on intuition. The enablers I deployed were based . . . on two factors: (1) certain 4th MARDIV [marine division] assets were already forward deployed; and (2) our unique capabilities—trucks capable of wading in high water and ATVs [all-terrain vehicles] capable of all terrain access.”<sup>288</sup> O’Dell and General James Amos, the commander of the II MEF, anticipated that a deployment order would be signed imminently. They began planning for the operation in late August and moving equipment, including aircraft, to the region beginning on 1 September even though the presidential order was not signed until the third. As the House Report later described it, “without concern for service lines and or [sic] ‘Title of Authority,’” O’Dell accepted the mission and executed all requirements, until directed by his higher

headquarters to move to New Orleans.”<sup>289</sup> There is a distinct “first to the fight” philosophy within the Marine Corps that gives commanders like O’Dell some latitude when it comes to cutting through bureaucracy and red tape, especially when lives are at stake.

The forward command element for the Marine Corps relief effort departed for NAS JRB New Orleans on 1 September. That same day, Marine Corps’ rotary-wing aircraft deployed to Pensacola and a 300-person Marine Corps element began loading on *Shreveport*.<sup>290</sup> The Marine Corps helicopter contingent ultimately included ten CH-53E Super Stallion and two CH-46E Sea Knight helicopters from Marine Heavy Helicopter Squadrons 461 and 464, Marine Medium Helicopter Squadron 365, and Marine Reserve Medium Helicopter Squadron 772; and three UH-1N Hueys and one AH-1W Super Cobra from Marine Light Helicopter Attack Squadron (HMLA) 773.<sup>291</sup> Major Gregory W. Johnson, a UH-1 pilot with HMLA-773, flew some of the earliest Marine helicopter missions on the first, second, and third of September.<sup>292</sup> Like the pilots from the other services, he vividly recalls the chaos of the early days of the operation: “Almost no guidance provided. Show up and do what you can. There was no air traffic control: See and avoid was the air traffic control.” The situation got more dangerous as more and more helicopters surged into the area. “There was a Navy E-2C airborne controller that issued transponder codes before you could legally enter the area. That identified us as a participant in rescue operations. The E-2C could not do much for us. You were on your own.” Johnson spent most of the first and second day pulling people from rooftops. He later worked to evacuate people from hospitals and even a Buddhist temple.<sup>293</sup>

O’Dell later pointed out that most of the helicopters the marines sent to New Orleans were more appropriate for hauling supplies than plucking people from rooftops.<sup>294</sup> About half of 815 U.S. Marine helicopter sorties during the Katrina operation were utilized to haul cargo and passengers to and from established landing zones and airports—a total of one million tons of cargo and 5,248 survivors. With that said, Marine UH-1s and CH-46s still managed to rescue 1,500 citizens, often taking tremendous risks to save lives.<sup>295</sup> O’Dell eventually moved much of the Marine Corps’ aviation assets to the Stennis Space Center because it offered ample runway space and plenty of fuel. The marines brought in a HMMWV with a remote landing site tower to help manage air traffic at the facility.<sup>296</sup>

O’Dell’s “ground game” entailed marrying up vehicles sent by artillery units with infantry from Camp Lejeune (many of whom initially came from the 1st Battalion, 8th Marines). Early in the planning process, O’Dell opted to enter NOLA from coastal Mississippi because of the availability of dry roads along that axis, a large runway at Stennis capable of handling all military cargo aircraft including the massive C-5A Galaxy, and prodigious amounts of diesel fuel at Stennis (500,000 gallons). For a command center, he chose *Shreveport* because it possessed lots of berthing and could be moved to critical locations such as the Chalmette Slip, which was only two kilometers from the St. Bernard Parish Emergency Operations Center. He and his staff also appreciated the ship’s showers, climate control, and “decent meals.” For communications, the staff relied on satellite





A U.S. Marine Corps AAV7A1 assault amphibious vehicle travels through the heavily flooded areas of New Orleans looking for survivors of Hurricane Katrina. (Lance Cpl. Zachary Frank, USMC; NARA, DM-SD-06-05740)



A convoy of U.S. Marine Corps MK-23 medium tactical vehicle replacement (MTVR) 7-ton cargo trucks loaded with supplies and cleaning materials arrives in Biloxi, Mississippi. The trucks are part of the 24th MEU, which is supporting Hurricane Katrina relief operations. (NARA, DN-SD-06-03361)



phones, cell phones (which came back up quickly), and on the ship, POTS (plain old telephone service). An Air Force team eventually established an 8-gigabyte internet service on the ship as well.<sup>297</sup>

A unique capability the marines brought to the operation were assault amphibious vehicles. These vehicles were particularly useful in the water-inundated St. Bernard Parish where the marines searched every structure and rescued 78 residents.<sup>298</sup> Not since Vietnam had Marine Corps' amphibious vehicles encountered a more difficult operational environment. "There's so much crap floating around out there," said Corporal Andrew Neilson, USMC, an amphibious assault vehicle (also called amtrac) crewman with Bravo Company, 4th Tracks, as he ripped the remains of an above-ground swimming pool from his vehicle's tracks. "And the water's so dirty you can't see debris, so you can't steer around it." Amphibs had to negotiate downed trees, submerged power lines, and other flotsam. Marine personnel worked long hours just to maintain their vehicles. "I was up until 2 a.m. using my K-Bar [combat knife] to cut a carpet out of the water jets," said Corporal Marcus Acosta, a radio operator with Bravo Company, 4th Tracks. "One of the other amtracs broke off two blades from something that got stuck in its jets."<sup>299</sup>

The Marine ground operation ran from 3 until 28 September. It, along with the aviation elements, ultimately swelled to over 2,500 marines. The ground task force of the 24th MEU (one of the largest contingents of marines) rescued 138 people with ground vehicles, recovered the remains of 23 deceased, distributed 1,989 cases of MREs, 3,081 cases of water, and 1,000 gallons of fuel.<sup>300</sup> It is estimated that the marines in St. Bernard Parish alone searched over 5,000 individual homes, delivered two million pounds of supplies, and cleared debris from more than 1,000 homes, schools, and municipal buildings.<sup>301</sup>

O'Dell was admittedly proud of all these accomplishments, but one story of Marine-Navy cooperation, kindness, and ingenuity stands out in his mind. During the hasty evacuation of the Gulf Coast before and immediately after the storm, many people were forced to leave their pets behind. Marines and other rescuers had to focus initially on saving human lives before they could turn their attention to stranded pets. Part of the failure stemmed from a lack of an official evacuation plan that included provisions for animals. The American Society for the Prevention of Cruelty to Animals estimated that 250,000 cats and dogs perished or were displaced as a result of the storm.<sup>302</sup> On 18 September, General O'Dell and a few of his staff were driving back from a meeting on *Iwo Jima* when he spotted a sign that said, "Camp Lucky." He asked his aides what it was and they had no idea. O'Dell recalled visiting the camp:

We went down this deserted street and found this open sided warehouse with a mostly dirt floor. It was a beehive of activity. There were 5–6 people there and it was hot and humid. There was an RV being used as shelter. And cots and a barbeque. These people were camping out with 35 stray dogs. More dogs were arriving by the minute, being dropped off by Guard or Police. It turned out this

was a group of volunteers that had come unsolicited and largely unscripted.<sup>303</sup>

The group came from the Shenandoah Valley area of Virginia and was led by Lynchburg veterinarian Al Henry.<sup>304</sup>

As he drove back to *Shreveport*, O'Dell reflected on what he had seen: "The situation did not look good. People were living in squalor with dogs. So I knew I could not just leave them to their own devices and plus I like dogs." O'Dell contacted a lawyer on his staff, Colonel Joe Collins, and told him to "fix it." Collins made a few phone calls and soon secured a warehouse with air conditioning and running water in Orleans Parish plus a few portable toilets for a new shelter. The 82nd Airborne Division stepped in and donated kennels for the new facility. The chief engineer from USNS *Pollux*, Chris Wallace, helped install generators to provide outdoor lightning for the new camp.<sup>305</sup>

While all this was taking place, working parties of *Shreveport* sailors volunteered to help staff the original Camp Lucky so that the civilian volunteers could go to the ship to take showers, eat hot meals, and receive a medical wellness check. By the time the move to the new facility occurred a few days later, sailors and civilian volunteers were caring for over 300 dogs in difficult conditions.<sup>306</sup> "We built some kennels for the larger dogs, and have been cleaning and sterilizing cages," explained Quartermaster Third Class Michael



An unidentified U.S. Coast Guard ensign cares for a puppy rescued during Hurricane Katrina relief operations, shown here in an undated photograph. Thousands of pets were abandoned in the aftermath of the natural disaster. (USCG; NARA, 26-HK-58-47)

Hart. “Others have been taking dogs for walks and giving them decontamination wash-downs.”<sup>307</sup> Because of O’Dell’s initiative and the “can-do” attitude of Collins and his sailor volunteers, over 500 dogs housed at Camp Lucky were eventually reunited with their owners. “It was absolutely one of the most dramatic and emotional times in my life without a doubt,” Al Henry said, adding, “I took a dog home from Katrina myself and found the owners five months later and drove her down there.”<sup>308</sup> Overall, the American Society for the Prevention of Cruelty to Animals estimates that over 10,000 dogs and cats were saved by Camp Lucky and other makeshift shelters established after the storm hit. The largest shelter was the Lamar Dixon Expo Center in Gonzales, Louisiana. During the height of the crisis, this facility held 7,500 animals.<sup>309</sup>

### **Task Force Navy Family**

In recounting the responses of the Navy and its sea service partners during and after Katrina, it is easy to overlook the fact that the Navy was not only a first responder but also a victim of the storm. In addition to suffering extensive damage to its port facilities in the region and a small number of ships as well, the lives of over 25,000 Navy families were severely disrupted. If this number is expanded to include retirees and their families, Department of the Navy (DoN) civilians and their families, and extended Navy family members (parents, in-laws, and siblings), it would swell to 85,000. To cope with this humanitarian disaster within its own ranks, the Chief of Naval Operations, Admiral Michael Mullen, authorized service members and their families to evacuate to safe havens anywhere in the continental United States with all expenses paid for by the Navy. He also stood up Task Force Navy Family (TFNF) to gather information and facilitate the delivery of aid to Navy families whose homes were destroyed or damaged during the storm.<sup>310</sup>

Up to this point in its history, the Navy’s response to natural disasters and other catastrophes at its various bases had been local. Navy resources and commands in an area affected by a disaster responded to local needs. No enterprise-wide disaster management office existed. The CNO promulgated a planning order for TFNF on 16 September 2005 and officially stood up the organization on 19 September in Commander, Navy Installations Command (CNIC) spaces at the Washington Navy Yard. That same day, TFNF adapted the Navy’s Bureau of Personnel Online (BOL) system to track storm victims and their level of need. Originally developed to manage information about service members’ careers, the system was modified to locate and identify individual families and determine their needs.<sup>311</sup>

In the next few days, TFNF began hiring staff (or detailing personnel from other commands to TFNF) and sending liaison officers to each affected command. To quote the CNO planning order, TFNF’s initial goal was to “conduct full spectrum community service operations in order to provide a rapid and coordinated return to a stable environment for our affected Navy family.”<sup>312</sup> This included housing, transport, medical, pay and benefits, childcare, education, pastoral counsel, and legal counsel. “I want the net cast

wide, and I want it hauled in often,” the CNO stated in a subsequent naval administrative message (NAVADMIN) on TFNF. “There are people hurting out there—our people and their loved ones—and we will do all we can to alleviate their pain.”<sup>313</sup> Mullen appointed Rear Admiral Bob Passmore, vice commander of the Naval Reserve Forces Command, to head up TFNF because he was a proven leader with a lot of operational experience and already had joined the Navy’s hurricane response as a member of the JTF-Katrina staff.<sup>314</sup>

With limited staff, TFNF could not provide these services directly in most cases. Instead, it served as an information clearing house to assist case workers on the ground, who generally worked at base community support centers (CSCs) or fleet and family support centers (FFSCs), in connecting victims with services. TFNF also utilized BOL to measure and assess the demand for services and the performance of TFNF, CSCs, and FFSCs in meeting local needs. Individual families entered their requirements into the system on a scale of 0 (no need for assistance) to 4 (critical and immediate need).<sup>315</sup> TFNF used its influence and position in the national capital to help secure resources for CSCs and FFSCs in the affected area, advocate for legal or policy changes where needed, and eliminate obstacles to the provision of relief to families.<sup>316</sup>

By 21 October, 18,636 Navy families in the Gulf Coast region had registered in BOL. 4,281 had needs of some type and 2,764 had level 3 or 4 issues. With regard to housing, one of the biggest immediate concerns of the task force, the Navy’s CNIC announced that 83 percent of on-base family housing, 55 percent of bachelor housing, and 50 percent of visitors’ quarters on bases in the affected region had returned to service.<sup>317</sup> By 17 November, 19,754 families had registered in BOL with only 1,753 still claiming some type of need.<sup>318</sup> By 21 December, the BOL database contained information on 20,369 families in the region with 1,547 still reporting unfulfilled needs.<sup>319</sup>

TFNF was generally successful in meeting the needs of displaced Navy families because of the high level of support it received from CNO and local commands. Its highly dedicated staff also could take some of the credit. Many members of the TFNF, both at headquarters and in the field, were Navy spouses intimately familiar with such as issues as Navy housing, Tricare, the Navy personnel system, the Defense Travel System, and a host of other issues related to the unique and complex lives of service members and their families. CNIC hired 40 spouses of service members directly affected by the hurricanes to act as case managers for families, and work at CSCs across the Gulf Coast region. TFNF not only provided these unemployed spouses with good jobs but hired people with a personal stake in their work.<sup>320</sup> “The moment we came through the gates of NAS Pensacola, there were people to take care of us,” reported a displaced spouse of a chief quartermaster assigned to the guided-missile cruiser *Thomas S. Gates* (CG-51). “The staff there were right on the ball and told me what I needed to do and how to do it.”<sup>321</sup>



Examples of the type of assistance provided by TFNF case workers included:

- handing out Salvation Army food vouchers;<sup>322</sup>
- assisting a homeless Army Reserve family of seven living out of a car to find temporary housing on a cruise ship. (Note: anyone living on a Navy base received help from TFNF regardless of service affiliation);<sup>323</sup>
- finding a state autism consultant to work with a Seaman whose autistic child was having severe difficulties adjusting to a new environment;<sup>324</sup>
- obtaining food, clothes, and American Red Cross assistance for a single mother in Panama City, Florida, who had lost everything;<sup>325</sup>
- finding a local doctor to help a government employee fill a prescription for a hard to find medication.<sup>326</sup>

On a broader scale, TFNF facilitated the distribution of 20,000 turkeys during Thanksgiving in Harrison County, Mississippi—the home of Naval Construction Battalion Center Gulfport and Keesler Air Force Base. It arranged for DoD to sponsor giveaways of comfort kits at Navy exchanges that contained high-demand items such as socks, T-shirts, bug spray, prepaid cell phones, deodorant, toothpaste, etc.<sup>327</sup> TFNF arranged for temporary childhood development centers (CDCs) and youth activity programs at bases where such facilities had been forced to close due to the storm. At Gulfport, 25 kids attended a temporary CDC called “Camp Katrina,” which allowed parents to focus on work and other concerns. Eligible families included all active-duty personnel, DoD civilian employees, and child and youth programs staff.<sup>328</sup>

The CSCs themselves were hives of activity. Families visited the centers to use phones and computers, get legal advice, process Safe Haven orders, attend seminars, and register for assistance from FEMA, the American Red Cross, and other relief agencies.<sup>329</sup> “We can help people determine whether they are eligible,” said Carolyn McCorvey, director of the Fleet and Family Support Center at NAS Pascagoula. “We want to sit down with them and make sure they have all the information necessary to make the best decision about their future.” McCorvey and her staff dealt with 1,600 storm victims housed temporarily at the base. One innovative project involved transforming a vacant hangar into a donation center where base residents could give or receive clothing, uniforms, books, toys, household goods, linens, and baby items. She staffed the facility with volunteers.<sup>330</sup>

Displacement and the loss of property and personal effects often took a severe emotional toll on Navy families. Navy chaplains and guidance counselors were available around the clock to provide grief and stress counseling to both victims and staff. “Every person on our team had damage to his or her own home, and they all acted in a completely selfless manner to help get others’ lives back on track,” said the command chaplain, Commander John Lyle, who worked at Gulfport. “They should be commended. Most of them worked for three and a half weeks without a day off, and I never once heard a complaint from one of them.” During the storm itself and immediately thereafter,

chaplains ministered to families sheltering in a large warehouse complex on base. “There were a lot of people from all different backgrounds living in a very close space with little to no privacy,” Lieutenant Bruce Vaughan, the Gulfport Seabee Center’s Protestant chaplain, said. “Tempers ran high, and it was our job to help people adjust. We had to establish a sense of community among the people living there.”<sup>331</sup>

After supporting Navy family members affected by hurricanes Katrina, Rita, and Wilma, TFNF stood down on 15 February 2006 and transferred its responsibilities to other commands. Before closing shop, TFNF developed a “Functional Plan” for future catastrophe response and fully documented its processes, procedures, and lessons learned. In essence, it left a template for how the service should respond to future disasters. This template emphasized the need to track families impacted by an event and prioritize needs. It also emphasized hiring Navy spouses to the extent possible to staff up a disaster response organization. Navy spouses have a strong personal stake in the mission and vast knowledge of the Navy institution. One of TFNF’s greatest strengths was its ability to leverage other Navy commands, including the chief of personnel, CNIC, BUMED, the Navy Legal Service Command, and the Office of Civilian Human Resources to fulfill its mission. As one commanding officer’s wife (and a former Navy dependent) once told me, “I have social contacts at every major command in the fleet: I am only 1–2 emails away from solving just about any problem thrown at me.”<sup>332</sup> Finally, these spouses and other TFNF staffers possessed ample quantities of Navy grit. Whether it was tracking down an obscure medication for a victim or finding 20,000 turkeys to give to Navy families for Thanksgiving, no challenge seemed too big or too small for TFNF. Its staff worked long hours to provide the “full spectrum support” demanded by the CNO. “I liken it to a man overboard,” as Mullen described the organization. “You shift the rudder over, go flank speed, and pluck the sailor out of the water.”<sup>333</sup>

## **Conclusion**

During Katrina, Navy units made important contributions to search and rescue, evacuation, and lifesaving, but its most significant role was providing enabling capabilities for other rescuers: transportation, basing, C3I, food, fuel, power, and water. The Navy was a key logistics provider for the other services. Its assets also were valuable as the region struggled to restore basic services. Seabees repaired roads, bridges, levees, and schools. Divers and survey teams opened vital ports and waterways. Navy bases and ships provided a home for other entities working on various recovery efforts.

Except for ships and units already in the area, the Navy was slow by modern standards to get resources into the region. Part of the problem was the distance involved in moving ships from Norfolk to New Orleans, but federal laws and regulations also impeded the Navy response. As a Title 10 military service, the Navy could not surge resources from far afield into the area on its own initiative as the Coast Guard did. Rather, it could only respond in a manner prescribed by the Stafford Act. Once on the scene, its roles and

missions were subject to the parameters set forth by the Posse Comitatus Act. These limitations included strict rules about carrying weapons and also a fragmented command structure with Title 10 forces operating under one command, Title 32 units under another, and Title 14 under yet a third command structure. The Navy, Marine Corps, and Coast Guard have over 200 years of shared history and cooperation, so very little friction occurred between these services at the operational level. Similarly, the Navy worked well with individual Guard and Army units using its ships or shore facilities as bases. Confusion occurred in the challenge that individual Navy commanders confronted in dealing with multiple command structures—the JFMCC for JTF-Katrina, NORTHCOM, Fleet Forces Command and Second Fleet, the National Guard task force headquarters, local emergency operations centers, and a host of politicians ranging from parish presidents all the way up to the White House. Captain Callas's experience hosting 17 admirals, the New Orleans mayor, the Louisiana governor, and the President of the United States provided a glimpse of how complex the leadership structure became for some local commanders. The distributed nature of naval warfare, however, equips ship commanders with the intellectual tools to make decisions even in confused situations with little guidance from higher-level commanders. Officers such as Callas and Tyson often had to act on their own initiative to save lives and alleviate human suffering.

In terms of resources, by far the Navy's most useful assets were its existing shore facilities in the region. The success of the Coast Guard SAR response had much to do with its ability to stage large numbers of aircraft at NAS JRB New Orleans. Similarly, the marines benefited from Stennis facility with its ample fuel stores and large runway. NCBC Gulfport proved vital for the efforts of the Seabees and other engineering and construction units and contractors, which utilized equipment warehoused there. Bases also served as a place for other responders and Navy families to live during the disaster response.



A U.S. Navy SH-60 Seahawk helicopter filled with evacuees comes in for a landing on *Tortuga* underway in the Gulf of Mexico. (Photographer's Mate Second Class Michael B. Watkins, USN; NARA, DN-SD-06-02868)

The Navy's amphibious ships and mine countermeasures vessels were its most useful ships for this HADR. The amphibs served a variety of functions ranging from messing and berthing to air operations and medical. Mine countermeasures vessels were invaluable for survey and salvage operations. Except for the rubber rafts and amphibious vehicles brought in by the marines, the Navy did not possess large numbers of small boats suitable for urban search and rescue operations. Future disaster response task forces might look to the Navy's Expeditionary Combat Command for such resources. The Navy did possess hospital ships—a unique capability—but in the case of *Comfort*, it arrived too late to be of much use. It was more geared for mass trauma than the basic primary care in demand at that point. Navy medical resources might have been better utilized at field medical facilities run by the National Guard. However, legal issues made it difficult for Navy medical personnel to practice ashore in Louisiana.

Like *Comfort*, *Harry S. Truman* was not the right platform for this type of humanitarian operations—its presence seemed like overkill. Nevertheless, the 700 rescues made by the ship's helicopters stand out as a significant number. Similarly, the contributions of



U.S. Navy Constructionman Seaman Michael Jackson (*foreground*) from Naval Mobile Construction Battalion 1 (NMCB-1) helps to fill a portable potable water tank at the South Mississippi Kidney Center located in North Gulfport, Mississippi, during Hurricane Katrina relief operations. The U.S. Navy was a key logistics enabler for the JTF Katrina. (NARA, DN-SD-06-03330)



foreign navies were more symbolic than vital. There were two notable exceptions: the survey and salvage efforts of the Canadian and French divers and the aids to navigation work of the Canadian Coast Guard cutter *Sir William Alexander*.

Much of the focus of the media and official reports on the Navy and Katrina has been on number and types of ships sent instead of the specific capabilities delivered. Few reports emphasize such Navy contributions as power generation (provided by ships as well as Navy generators ashore), fuel, cooked meals, air conditioning, or laundry, but these services sustained Coast Guard, Army, Marine Corps, and National Guard units operating in sweltering conditions for extended periods. The Navy provided safe, secure, and connected workspaces for command staffs and political leaders (including the President of the United States). Its ships became cooling centers for the National Guard and other first responders, and places to get muddy uniforms cleaned and pressed. One ship even served as makeshift dialysis center. Some of the more obscure tools in the Navy toolbox, such as minesweepers or power generation units, became invaluable assets.

As is the case in many modern natural disasters, the Navy was both a responder and a victim during the Katrina disaster. The lives of over of over 25,000 Navy families were severely disrupted, and several of its bases suffered significant damage during the storm. It is a wonder, for example, that the Seabees in Gulfport managed to deal with family issues and a damaged base while also responding to calls from help in the neighboring community and beyond. Fixing mechanical casualties has always been a way of life for the Navy, but it had never dealt with such mass displacement of Navy families previously. TFNF's role in coordinating the Navy's response to family displacement and other home-front issues stands out as a model for handling future disasters. TFNF developed a muster system for the displaced and a methodology for prioritizing needs. Its highly dedicated staff as well as local staffs in CSCs and FFSCs worked tirelessly to ensure that affected families were taken care of and that active duty personnel could focus on the mission rather than troubles at home.

Finally, the Katrina response was a joint operation in every sense. The Navy worked with partners from other services, civilian agencies, NGOs, and even foreign militaries throughout the crisis. What separates a HADR operation from many types of combat operations is the near constant interaction Navy personnel have with actors outside of the sea services. During ports of call in foreign countries, naval officers must behave as diplomats in uniform. Similar diplomacy is required for domestic HADR operations. Whether in dealing with a cantankerous parish leader, a family who had just lost everything, or an overly bureaucratic command structure, the humanity demonstrated by members of the sea services throughout Katrina remains one of its biggest achievements. From pulling victims out of submerged houses to building dog shelters, sailors, coastguardsmen, and marines invested every ounce of their energy into the job at hand, thus becoming role models for other responders and victims alike. The exact route and ferocity of the storm was unpredicted until the last moment, leaving few military first responders

(except the Coast Guard) prepared for what they might encounter. When Navy and Marine Corps units arrived on the scene, everyone from individual service members to entire commands was able to adapt to the evolving situation and thus performed as well or better than expected thanks to training, tenacity, and innovative thinking.

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## OPERATION TOMODACHI

Rear Admiral Sean Buck was not a man who startled easily. As a young naval flight officer in the 1990s, he had flown overland missions over heavily defended targets in the Balkans in vulnerable, slow-moving maritime patrol aircraft. More recently, he had flown combat missions over Iraq and Afghanistan. On 11 March 2011, he was the commander of Task Force 72, the Seventh Fleet's maritime patrol force—the long-range eyes and ears of the fleet. That day, Buck was visiting Naval Air Facility Misawa located near the northern tip of Honshu and speaking to sailors in the operations building when an earthquake struck:

We'd all become accustomed to shaking from other earthquakes in Japan, but when the intensity of the shaking accelerated quickly, we realized that we had to get out of our operations building. We all got out safely. We were expecting it to last about 30 to 40 seconds, the typical duration of even a powerful earthquake. It went well beyond that and it lasted five minutes and twenty-one seconds. We watched the blacktop parking lot that we were standing on undulate with about a foot-and-a-half of waves and we watched trees bounce 90 degrees to either side. We all began to actually feel motion sickness because the horizon was moving so much. Everything was moving. I don't get motion sick. I don't get airsick. I don't get seasick, and we all could not find a stable horizon to orient on. Everything continued to move, and then it got really scary. We really didn't understand what we were experiencing. We just knew it was really bad, but we didn't know how bad.<sup>1</sup>

Buck would later learn that he had just experienced world's fourth biggest recorded earthquake and Japan's largest since 1900. The 9.0 magnitude earthquake was centered 130 kilometers off the shore of Miyagi Prefecture on the eastern coast of Honshu. Less than an hour after the event, tsunami waves measuring up to 40 meters<sup>2</sup> in height struck prefectures along a 200-square-mile swath of Japan's east coast, washing away habitations up to six miles inland. The earthquake and resulting tsunami killed over 19,000 people, destroyed over 129,000 houses, and damaged 2,000 miles of roads, 56 bridges, and 26



Debris and wreckage in Kamaishi, Japan, from the 11 March 2011 earthquake and tsunami. Note the snow in this photo taken on 16 March 2011. (Master Sgt. Jeremy Lock, USAF; DVIDS, 379406)

railway lines. Following these events, an estimated 1.4 million households in 14 prefectures had no access to running water, and 1.25 million households were without electricity.<sup>3</sup>

If that were not enough, the tsunami triggered a third disaster at the Fukushima Daiichi Nuclear Power Complex. Sensors at the plant automatically shut down the reactors after detecting the earthquake, but the waves from the tsunami flooded lower portions of all four of facility's nuclear reactors. This flooding shut down the plant's emergency generators and caused a loss of power to the reactors' cooling systems. Loss of cooling precipitated multiple hydrogen explosions and three reactor meltdowns. Releases of radiation from the plant led to the evacuation of everyone living within 20 kilometers of the plant—approximately 177,000 people. The evacuation zone was increased to 30 kilometers on 18 March.<sup>4</sup> In total, the triple disaster (earthquake, tsunami, and nuclear accident) displaced over 500,000 persons and caused over \$234 billion in damages.<sup>5</sup> The scale and scope of this tragedy spurred what Vice Admiral Scott Van Buskirk, the commander of the Seventh Fleet in 2011, later described “without a doubt” as the “most complex humanitarian mission ever conducted.”<sup>6</sup>

Unlike Operation Unified Assistance or the U.S. military response to the 2010 Haiti earthquake (Operation Unified Response), Tomodachi did not occur in a less-developed country lacking resources and ill-equipped to handle large-scale natural disasters. Rather,



it occurred in one of the most developed nations in the world—one with a highly capable military and civilian disaster response apparatus accustomed to large earthquakes and tsunamis. Japan also has some of the most stringent building codes on the planet: nearly all of Japan’s buildings and infrastructure are built to withstand strong earthquakes. Many of its coastal towns have high seawalls to protect them from tsunamis. Its citizens regularly practice tsunami drills. Most vital buildings (emergency services buildings, schools, and medical facilities) in coastal areas are constructed on high ground. That said, even the most prepared areas could not withstand the force of a 9.0 earthquake and its resulting tsunami. Commander Sil Perrella, the commander of HSL-51, described the coastal devastation as so complete it was as if “God’s thumb went in and just wiped every nook and cranny of the coast out, just cleaned it out of there.”<sup>7</sup> And it was not just the tsunami that caused extensive damage but the earthquake and resulting fires as well. After the earthquake flattened the city of Sendai, including the vital airport, a massive conflagration erupted at the city’s petrochemical plant. Fires also destroyed huge swaths of the key port city of Kesenuma.<sup>8</sup>

The Japan Self-Defense Forces (JSDF) and Japanese civilian emergency services (especially the police, fire departments, and local civil defense personnel) carried out much of the disaster response. Twenty percent of Japan’s 158,000-strong collection of local fire departments responded to the disaster.<sup>9</sup> The JSDF mobilized over 100,000 of its personnel for the disaster (approximately 75 percent of its total active duty and reserve strength)<sup>10</sup> as well as the entire Japanese Maritime Self-Defense Force (JMSDF) fleet of 60 ships and more than 500 fixed- and rotary- wing aircraft.<sup>11</sup> It was the biggest JSDF mobilization since its founding in 1954, and the first JSDF joint operation on the Japanese mainland.<sup>12</sup> As such, it was a major test for the force. For many Japanese citizens, the JSDF’s heroic response to the triple disaster of 2011 represented the first major validation of the force since its founding after World War II.

U.S. forces, consequently, had to balance a strong desire to do their utmost to help Japan, one of America’s most important allies, with an awareness that JSDF had to play the lead role in the response. As much as certain units wanted to lean forward in their response, the U.S. armed forces could only act after formal requests for assistance had been received from the Japanese government. For the most part, American commanders had to play a subordinate role to their JSDF counterparts in the response. Throughout the operation, they had to be mindful not to overshadow the role of JSDF—an often tricky balancing act given the sheer mass of U.S. forces in the region.<sup>13</sup> At the time of the earthquake, DoD had over 47,000 uniformed personnel stationed at or near 23 military facilities in Japan. Navy and Marine forces available on 11 March included a CSG, an ARG, elements of a Marine expeditionary brigade (based in Okinawa), a sizable force of auxiliary ships, and numerous aircraft from all the services.<sup>14</sup>

One of the first U.S. units to arrive on the scene was the *Ronald Reagan* CSG, which arrived off the east coast of Japan on 12 March and employed its air wing to search for

survivors and deliver supplies to hard-hit areas in Miyagi Prefecture. The next major unit to arrive on scene was the *Essex* ARG, which arrived off the east coast of Japan on 18 March.<sup>15</sup> Other U.S. military units deployed to Northern Honshu included airlift (from the Air Force, Air National Guard, Air Force Reserve, and Marine Corps) and additional rotary-wing aircraft capacity from the Air Force and two Atsugi-based Navy helicopter squadrons (HS-14 and HSL-51). MSC dry cargo and ammunition ships (T-AKES) ships transported much of the relief supplies airlifted to survivors by U.S. helicopters and medium transport aircraft. MSC fast combat support ships (T-AOEs) replenished CSG and ARG ships on station and provided them with HADR supplies.<sup>16</sup> At Operation Tomodachi's peak, the U.S. had 24 naval ships, 189 aircraft, and approximately 24,000 personnel supporting the disaster relief efforts.<sup>17</sup>

Throughout the U.S. response, the Joint Support Force, the U.S. military coordinating entity for much of the operation, strove to provide unique U.S. capabilities to enhance and complement the ongoing JSDF efforts.<sup>18</sup> Specialized ISR aircraft such as Navy P-3 maritime patrol aircraft were especially helpful for surveying the damage caused by the disaster and searching for victims. The Japanese also relied on these aircraft and other ISR assets to make sure its adversaries (namely China and Russia) did not attempt to take advantage of the situation to challenge Japanese sovereignty in disputed territories such as the Senkaku Islands.<sup>19</sup> Finally, U.S. Global Hawk drones, capable of flying at an altitude of 18,000 meters and imaging areas up to 560 kilometers away, offered Japanese authorities an effective means of monitoring Fukushima at a safe distance. The Joint Support Force also sent out WC-135 Constant Phoenix atmospheric collection aircraft to measure and analyze radiation leaks from the Fukushima complex.<sup>20</sup>

Navy survey, salvage, diving, and explosive ordnance disposal (EOD) units surveyed and cleared debris at several vital eastern Japan ports, including Hachinohe, Miyako, and Kesenuma. Navy divers also removed cofferdams and performed other work on *George Washington* (CVN-73) so it could depart the shipyard in Yokosuka, where it was undergoing maintenance, and escape projected radioactive fallout from Fukushima.<sup>21</sup>

Seabees embedded into separate III Marine Expeditionary Force (MEF) humanitarian assistance survey teams (HASTs) conducted damage surveys of bridges, schools, and other government buildings around Sendai. These teams also surveyed areas for potential IDP camps, and offered guidance on what services would be needed for continued life support, hygiene, and sanitation (showers, kitchens, etc.). Other Seabees and Marines provided oversight of debris and mud removal projects, conducted utility assessments, and assisted with HAST assessments.<sup>22</sup>

One of the most significant U.S. military debris-clearing operations occurred at Sendai International Airport in the hard-hit Miyagi Prefecture. A 260-person joint force of marines, soldiers, and airmen armed with forklifts, bulldozers, and other heavy equipment undertook a massive recovery effort there, clearing thousands of cubic meters of mud and debris from the airport's runways and taxiways. The joint force opened a

5,000-foot stretch of the main runway on 16 March, and the entire airport by the end of the month. Sendai airport soon emerged as a vital logistical hub for the region and what Professor Shuichi Wada of Heisei International University defined as “a symbol of the success of Operation Tomodachi.”<sup>23</sup>

The Fukushima Daiichi disaster transformed a massive HADR operation into something entirely different and more complex. Sensitive radiation detection systems on *Ronald Reagan* (CVN-76) first began detecting above normal radiation levels on 13 March. Other units (ships and aircraft) in the area soon began reporting similar radiation exposure. For much of the operation, radiation decontamination of ships, aircraft, and personnel would become a regular part of life as well as a massive additional workload for many sailors attached to ships and air wings. Balancing HADR response and radiation decontamination made Tomodachi unique as a humanitarian operation—a very “different animal” to quote Vice Admiral Van Buskirk.<sup>24</sup> Radiation affected everything from operational tempo to ship/aircraft/task force movements, to crew morale.

The Navy ultimately sent scores of personnel trained in radiation and reactors to provide guidance to Navy units operating in a contaminated environment. Many Navy Nuclear Power School trained officers also were part of a 450-person team sent by the U.S. government to provide guidance and expertise to the Japanese government on the Fukushima crisis. The U.S. Navy provided high-capacity pumping systems, airport fire engines, and a water barge to help in efforts to cool the reactors.<sup>25</sup>

When the U.S. Pacific Command decided to offer voluntary evacuation to military dependents living in Japan in response to the nuclear disaster at Fukushima, Navy and Marine officers helped plan and execute this non-combat evacuation operation called Pacific Passage. In the early days of the disaster, Fukushima became an existential threat to Japan and its government, and Tomodachi became a “live fire” exercise for conducting large-scale military operations in a radiation contaminated environment. The Great East Japan Earthquake reveals how natural disasters can precipitate other types of disasters—both natural and man-made. In Japan’s case it was a nuclear accident. In the future, a natural disaster could precipitate a foreign invasion, a civil war, or even a pandemic. Disasters create extreme vulnerabilities for nations.

That America responded as forcefully as it did without being overbearing endeared it to the Japanese people. Tomodachi greatly strengthened America’s most important Pacific alliance at a critical point in history—the beginning stages of great power competition between the U.S. and China. The U.S. Navy and its sister services provided key capabilities and filled critical gaps in the overall Japanese HADR response. As Vice Admiral Van Buskirk later explained, “As a result of us helping them in a nuclear disaster with our nuclear ships, the entire relationship is now different.” The United States’ favorability rating in Japan soared from 66 percent the year prior to 85 percent in the weeks following the earthquake. This was the highest rating among the 23 nations the Pew Center surveyed in 2011.<sup>26</sup>

It was not just the U.S. military in Japan that benefited from the response. More importantly, the JSDF—an armed force that has struggled to earn credibility with the Japanese citizenry since its formal establishment in 1954—finally proved its value to the Japanese people in a highly visible manner. For the United States, the JSDF remains a linchpin for the defense of the Western Pacific. With the rapid growth of the Chinese Navy and the resurgence of Russian naval activity in the Pacific, the U.S. has to rely more heavily on the JSDF for the protection of sea and air lines of communications well beyond Japan's maritime borders as well as the defense of America's important military installations in Japan. The JSDF response to the crisis precipitated by the Great East Japan Earthquake, more than any other event in its history, demonstrated the efficacy of standing national defense forces. It paved the way for continued buildup and modernization for the Ground, Air, and most importantly, the Maritime Self-Defense Force. As Goshi Hosono, the special advisor to the prime minister, explained, the response proved to the Japanese people during the direst days of the event that “the only people who can save the nation from this crisis are the SDF [Self-Defense Forces]. The SDF are the only ones we can ask.”<sup>27</sup> Simply put, the Great East Japan Earthquake was the most significant watershed for the JSDF since its founding in 1954.

### **The U.S.-Japan Defense Relationship prior to Tomodachi**

The JSDF developed from the ashes of imperial Japanese army and navy following their defeat in World War II. Japan's experiences during that war awakened a strong current of pacifism and anti-militarism in the Japanese body politic that extends to the present and is embodied in the constitution of Japan. The war also left a legacy of territorial disputes, distrust, and hatred between Japan and its neighboring countries, especially China, the Koreans, and Russia. That legacy helped spur the rebirth of Japan's military and continues to drive current defense policy. Throughout the Cold War and beyond, conservative realists in Japan's government have desired a strong military alliance with the United States and a JSDF capable of defending Japan's territory (including its maritime territory and regional trade routes). The pacifists and anti-militarists, by contrast, preferred to chart a more neutralist course with a small, constabulary military force and no U.S. military presence in Japan. The anti-militarist viewpoint was dominant in Japanese politics during the early Cold War period. Over time, especially with the rise of China (and to a lesser degree North Korea), the Japanese government has gradually shifted towards conservative realism.

Shortly after the surrender document was signed on the battleship *Missouri* (BB-63) on 2 September 1945, General Douglas MacArthur, the Supreme Commander of Allied Powers, started demobilizing Japan's imperial military, including its defense industries. MacArthur, who led the occupation of Japan, pushed the Japanese government to draw up a new constitution, which came into effect in May 1947. The 1947 constitution



transformed Japan from a totalitarian state with a divine emperor into a parliamentary democracy with the emperor relegated to a symbolic role. Article 9 of the constitution renounced war or threat of force “as a means of settling international disputes,” and stated that “in order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained.”<sup>28</sup>

From 1947 onward, Article 9 would severely limit Japan’s military capabilities, and make Japan highly dependent on the United States for its national defense. The constitution, however, did not explicitly rule out the use of force in self-defense or “self-defense forces.” As Sheila A. Smith of the Council on Foreign Relations contends, its framers argued at the time that “the use of force for self-defense was legitimate under the charter of the newly created United Nations.”<sup>29</sup> The Korean War became the first test for this more liberal interpretation of the constitution. Soon after the war started, much of the U.S. occupation force in Japan deployed to Korea, leaving the Japanese homeland open to internal unrest. At the request of U.S. authorities, the Japanese government established a national police reserve in July 1950 to maintain order in the homeland. Japan also supported the UN’s Korean War effort in two significant ways. The Shipping Control Administration Japan (SCAJAP) deployed 30 former U.S. Navy LSTs crewed by Japanese to support the Inchon landing in the fall of 1950, and the Japan Maritime Safety Agency, the predecessor of modern Japan Coast Guard, deployed 13 minesweepers.<sup>30</sup>

Throughout the conflict, 1,200 Japanese civilian mariners served on these ships. Japanese minesweepers on some occasions represented half of active minesweepers in the theater. After one Japanese boat (MS-14) struck a mine and sunk, the Japanese government requested that the minesweepers be withdrawn because they were clearly involved in combat operations—a violation of Article 9. General MacArthur rejected the request, arguing that Japanese mariners were serving “humanitarian purposes” by keeping shipping lanes clear of mines.<sup>31</sup> Korea set the stage for future political debates about the role of Japanese forces in collective security efforts beyond Japan’s shores. It also revealed the challenges of regional Cold War conflicts to Japan’s national security and its relationship to the United States.<sup>32</sup>

For the United States, it highlighted the importance of its bases in Japan, especially Atsugi, Yokosuka, Sasebo, and the collection of installations on Okinawa. During the Korean War, Seabees repaired the runway and other facilities at Atsugi, located near Tokyo, and within a few years the Naval Air Facility would host over 5,000 U.S. Navy and Marine personnel. Sasebo became the main logistics hub for troops, and supplies destined for Korea and its population of American military personnel grew to 20,000. Yokosuka, a port city and former imperial Japanese naval base in the Tokyo metropolitan area, routinely serviced warships of four carrier task forces during the Cold War period. It emerged after 1954 as the main port for the newly formed Japan Maritime Self-Defense Force (JMSDF). The White Beach base in Okinawa became the home for the Seventh Fleet’s amphibious forces; Kadena developed as a significant U.S. air base; and the



Aerial view of Yokosuka Naval Base, Japan, in March 1963. Yokosuka is often cited as America's most important naval base abroad. (NHHC, L40-05.07.01)

marines stationed a division at Camp Courtney, Okinawa. During the Cold War, forward bases in Japan became a critical component of America's strategy of containment in the Pacific. In the current competition with China, they are arguably indispensable.<sup>33</sup> Yokosuka is often cited as America's most important naval base abroad and the Okinawa complex as "America's Gibraltar in the Pacific."<sup>34</sup>

The 1951 Security Treaty between the U.S. and Japan formalized the U.S. basing arrangements in Japan once the occupation came to an end in 1952. The treaty recognized America's importance in deterring aggression against Japan by authorizing the continued basing of U.S. forces in Japan. The treaty also affirmed Japan's inherent right to self-defense and pledged it to assume greater responsibility for its own defense in the future. This pledge was partially realized two years later in 1954 with the establishment of the JSDF and its three components: the air, ground, and maritime self-defense forces.<sup>35</sup>

The new JSDF would struggle to balance the security constraints imposed by Article 9 with the reality of Japan's vulnerability in the Western Pacific and the demands of the United States for it to play a greater role in regional defense. From its inception, the most outward looking of Japan's SDF components was JMSDF. Rear Admiral Arleigh A. Burke, deputy chief of staff to the commander of U.S. Naval Forces, Far East, saw the potential of

the JMSDF early on. He pushed the nascent maritime force to develop capabilities that would allow it to grow into being a valuable U.S. Navy partner during the Cold War and beyond. Building upon its Korean War experiences, the JMSDF first looked to strengthen its mine countermeasures and anti-submarine forces—assets often in short supply in the U.S. arsenal. It also sought to develop a destroyer force capable of defending regional sea lines of communications. The Japan Ground Self-Defense Force (JGSDF), the largest of the three components, focused on territorial defense with major units stationed in the various regions of the Japan homeland: north, northeast, east, central, and west. Similarly, the Japan Air Self-Defense Force (JASDF) developed mainly as an air defense and air transportation service during its early years.<sup>36</sup>



Rear Admiral Arleigh Burke in a photo taken in the early 1950s. Burke was an early champion of the Japan Maritime Self-Defense Force. (NHHC, UA-472.03.01)

As concerns with the spread of communism in Asia continued into the 1960s, the U.S. and Japan solidified their security relationship with a revised treaty. The new treaty offered the U.S. continued access to military bases in Japan in exchange for a guarantee of military support in the event of an attack against Japan. The 1960 Treaty of Mutual Cooperation and Security contained a SOFA that allowed the U.S. to utilize its forces in Japan for missions other than the defense of Japan, and granted U.S. Forces Japan complete legal jurisdiction within Japan over all persons subject to U.S. military law.<sup>37</sup> In 1960, the U.S. had 46,295 troops on the main islands of Japan, and another 37,142 on Okinawa.<sup>38</sup> In 1972, the Navy decided to homeport the *Midway* carrier task group, which included a destroyer squadron, at Yokosuka. The Japanese government and people reacted positively to this development, believing that a carrier stationed in Japan would strengthen the Mutual Cooperation and Security Treaty. The Navy continues to homeport a carrier strike group at Yokosuka to this day, and it has become a powerful symbol of American forward presence in Asia.<sup>39</sup>

Despite Washington's desire to see Japan play a greater role in regional defense, Japan did not participate in the Vietnam War or any other U.S. military operation during latter Cold War period. In 1972, its government reaffirmed that Article 9 expressly forbade the JSDF from participating in collective defense beyond Japan's shores.<sup>40</sup> After the fall of the Berlin Wall in 1989, several factors persuaded Japan to soften its stance on overseas deployments. Japan's emergence as an economic superpower in the 1980s put pressure on the country to share more of the defense burden in the Pacific. How could Japan retain its place as the world's second largest economy, some politicians in both Tokyo and Washington reasoned, without making stronger contributions to the defense of its vital trade routes and energy sources? Increasing security threats from North Korea and China also justified greater participation of the JSDF beyond Japan's shores.

Because of its over-the-horizon focus and integration with the U.S. Navy, the JMSDF was the first service to make tangible military contributions abroad. It participated in nearly all major U.S.-led military coalitions in the post-Cold War era.<sup>41</sup> Highlights included the deployment of six JMSDF minesweepers for operations in the Arabian Gulf at the conclusion of Desert Storm in 1991 and participation in the U.S.-led anti-piracy coalition in the Horn of Africa region, beginning in 2009. During the wars in Iraq and Afghanistan following 9/11, 14 JMDSF replenishment ships provided fuel for U.S. and



The Japanese Defense Ship (JDS) *Onhami* (DD-111) (*foreground*) sails in formation with USS *Kitty Hawk* (CV-63) (*center*), JDS *Harusame* (DD-102) (*left rear*), and USS *Vandegrift* (FFG-48) (*right rear*) on 15 November 2005. In the post-Cold War era, the Japan Self-Defense Forces emerged as a key U.S. Navy partner in the Western Pacific. (NARA, DN-SD-06-07056)



coalition vessels in the CENTCOM area of responsibility. Other services also contributed to foreign operations in the post-Cold War era. The JGSDF began deploying troops for UN peacekeeping operations, beginning in 1989, and by the early 2000s had become a regular participant in such operations. From 2004 to 2006, the JGSDF deployed a battalion-sized force to Iraq to provide humanitarian assistance and construction services to the people of Samawah in southern Iraq.<sup>42</sup>

Japan also shared more of the defense burden with the U.S. by continually modernizing its weaponry and increasing both the capability and capacity of its forces. During the 1980s, it boasted one of the fastest growing defense spending rates in world, averaging 6.5 percent growth per year. By the end of that decade, it had 60 destroyers, 100 P-3 maritime surveillance aircraft, and a 340-plane air force. By the early 1990s, Japan was spending more than twice that of China on defense and had a vastly superior military force as measured by capability. The 1990s and early 2000s also saw the development of advanced *Kongo*-class guided missile destroyers equipped with the AEGIS combat system.<sup>43</sup> In 2009, Japan stood up a fully operational ballistic missile defense (BMD) system that included both BMD capable AEGIS destroyers and Patriot missile batteries ashore. On the eve of Tomodachi, the JMSDF possessed a large number of advanced submarines powered by lithium-ion batteries as well as two 19,000-ton *Hyuga*-class helicopter carriers



The Japanese helicopter destroyer *Hyuga* during a Rim of the Pacific (RIMPAC) exercise in 2016. (Ryo Tanaka; DVIDS, 2740544)

capable of carrying 18 aircraft each. The JASDF had 12 fighter squadrons in 2010 (260 fighter aircraft in total) with seven of those units equipped with modern, fourth generation F-15 fighters.<sup>44</sup> By 2011, a JGSDF force of 148,000 fielded a large collection of advanced equipment, including 600 main battle tanks, numerous infantry fighting vehicles, and 13 modern Apache Longbow helicopters.<sup>45</sup>

Burden sharing for Japan also meant providing direct and indirect financial support for U.S. bases. Under the terms of the 1960 SOFA agreement, Japan's financial contribution to the American military presence in Japan was limited to land and any existing infrastructure. In 1978, it agreed to pay the salaries of Japanese workers employed by American forces in Japan. In 1987, it extended its so-called "sympathy budget (*omoiyari yosan*)" to include ongoing facility maintenance costs and upgrades, utilities, and some relocation costs for U.S. training exercises that Japan requested to be moved away from certain bases near population centers. Between 1978 and 1999, Japan's contributions to the U.S. military bases in its country grew from 6.2 billion yen per year to over 275 billion yen. The U.S. Government Accountability Office (GAO) estimated recently that between 2016 and 2019, Japan paid \$13.4 billion for the DoD presence in its country (including Okinawa)—64 percent of the total sum (\$20.9 billion) spent by the United States on its bases there. GAO also emphasized that Japan provided indirect support for the U.S. military in Japan in the form of forgone rent for land and facilities as well as waived taxes.<sup>46</sup>

Given the national security and economic benefits of the bases for many local communities, it is not surprising that many Japanese strongly support the U.S. military presence in their country. According to a poll conducted by Associated Press and Growth for Knowledge, support for U.S. bases stood at 47 percent in 2005 despite strong opposition in Japan to the war in Iraq.<sup>47</sup> This support could be seen at community events near U.S. facilities as well as in the membership of Japanese "fan" clubs that have developed around certain U.S. aviation squadrons, homeported ships, and other units.<sup>48</sup> Most of the U.S. military personnel interviewed for this study praised Japan as the most hospitable host country for the U.S. military in the world, and noted the many lifelong friendships and marriages that developed between U.S. service personnel and Japanese citizens. As one officer told me, many of his sailors came to "love Japan" so much that they never wanted to leave. They would move from one Japan-based unit to another during the course of a 20-year career.<sup>49</sup>

As much as certain segments of the Japanese populace supported the U.S. presence in Japan, there also was a strong, left-leaning anti-war faction that not only opposed the U.S. presence but the very existence of the JSDF. Debates over the ratification of the 1960 defense treaty sparked the biggest protests in Japan's history. Following the treaty's passage in Japan's house of representatives in May 1960, 5.4 million workers staged strikes and over 100,000 people surrounded the National Diet Building (Japan's parliament). In June that number swelled to 300,000. The protesters wanted Japan to chart a more neutralist course in the Cold War, scrap its military alliance with the United States, and terminate



U.S. base leases in Japan. Protests fizzled after the ratification of the bill in June, but the unrest led to the cancellation of a planned visit to Japan by President Dwight Eisenhower and the resignation of Prime Minister Nobusuke Kishi in June 1960. When it was later revealed that Prime Minister Kishi had considered deploying the defense forces against the protestors, the JSDF image also became blemished in the eyes of many Japanese citizens across the political spectrum.<sup>50</sup>

The next major series of protests occurred during the Vietnam War. Over 80,000 Japanese staged a variety of protests against the war and the U.S. bases in Japan between 1968 and 1969. Because it continued to fall under U.S. administration until 1972 and was a significant base for B-52 bombing missions against targets in Vietnam, Okinawa became a hotbed of protest. Anger over the U.S. occupation of island boiled over in December 1970, when 5,000 Okinawans clashed with 700 American military police at Kadena Air Base (AB). Over 500 protestors breached the base's gate and set cars and several buildings ablaze. Citing Cold War needs, Washington refused to return the island to Japanese sovereignty until 1972, when it finally turned the Ryukyu Islands over to Japan in exchange for continued basing rights in Okinawa. Most Okinawans, who do not consider themselves Japanese, continue to protest the U.S. military presence on their island to this day, complaining in particular about pollution, military aircraft and vehicle crashes, and crimes committed by U.S. service personnel on the island. Since 1959, there have been 18 major U.S. military aircraft crashes and incidents around the town of Kadena alone.<sup>51</sup> However, it was the rape of a 12-year-old girl by three U.S. servicemen on the island in 1995 that precipitated an 85,000 person protest in Naha, the island's capital. This event led to a modification of the SOFA agreement to allow Japanese courts to try U.S. service personnel accused of rape or murder, but did not convince the Japanese government to terminate any of the base leases on the island. In recent years, the Japanese government's concerns about protecting the nearby Senkaku Islands from Chinese encroachment, as Sheila Smith points out, have "overshadowed protests against the U.S. military presence in Okinawa" and made the protest movement's efforts to convince Tokyo to shutter Marine bases on the island "difficult as it ran counter to the Japanese government's efforts to strengthen their defenses."<sup>52</sup>

While much of the wrath of Japan's antiwar left has been directed against the U.S. bases and its presence, the JSDF was not immune from criticism either. Over 40,000 people turned out in Tokyo in 2004 to protest Prime Minister's Junichiro Koizumi's decision to send Japanese forces to Iraq and the Arabian Gulf in support of the U.S.-led war there. Beginning in 2008 and culminating in 2015, legislative attempts by Prime Minister Shinzo Abe to secure greater latitude for the JSDF to engage in collective defense efforts beyond Japan's shores and respond to security threats below the level of armed conflict drew over 120,000 protestors in front of the National Diet.<sup>53</sup>

Since its founding in 1955, the Liberal Democratic Party (LDP) has ruled Japan nearly continuously.<sup>54</sup> Often described as a big-tent conservative party, the LDP has traditionally



avored a close relationship with the United States in both defense and foreign policy, and strong economic growth based on a western capitalist model. However, in 2009 the Democratic Party of Japan (DPJ) defeated the LDP and assumed control over Japan's government. It was the first time another party had won more seats in the Lower House since the LDP was established; the first time since World War II that voters forced a change of control of government to an opposition party; and the worst defeat for the LDP in its history. The resulting coalition government with the Socialist Democratic Party (many of whom were pacifists) threatened to unravel years of diplomacy between successive LDP administrations and the US, slash the JSDF budget, and severely restrict JSDF operations beyond Japan's territory.<sup>55</sup> One of the DPJ's key campaign pledges was to relocate the Marine Corps Air Station in Futenma outside Okinawa. Toshimi Kitazawa, who served as the minister of defense from September 2009 to September 2011, had protested the 1960 security treaty as a student. Later, as head of the foreign relations committee in the Japanese parliament, he had taken a tough stance towards the Ministry of Defense and the JSDF. In his first speech as minister of defense, he pledged to never again "repeat the mistakes of our history," and promised strict, uncompromising civilian control of the JSDF. One of the DPJ government's first moves was to set up an inquiry to examine various agreements between Japan and the U.S., make diplomatic overtures to China, and review the Okinawa base agreements.<sup>56</sup>

In 2009–2010, the JSDF found itself once again in a struggle to prove its worth to the Japanese people and its new left-leaning government. At the same time, it continued to build the capability of its forces, engage in collective defense efforts abroad, solidify its bilateral relationship with the U.S. armed forces, and develop stronger ties with other allies such as Australia and India. Three events spared the JSDF from new operational restrictions and financial cuts as well as solidified its alliance with the U.S.

The first was the internal political turmoil in the DPJ after its ascendancy in 2009. The first DPJ Prime Minister, Yukio Hatoyama, only managed to hold onto his job until June 2010. He resigned that month after he broke his campaign promise to close Marine Corps Air Station Futenma in Okinawa—an action that spurred more than 90,000 Okinawans to protest its continued presence on the island in April 2010.<sup>57</sup> The Hatoyama administration also suffered fallout from a financial scandal involving unreported campaign donations. "Their political system is much like ours today," explained Air Force Lieutenant General Burton "Burt" Field Jr., the U.S. Forces Japan (USFJ) commander from 2010–2012, "much of the focus of the incoming administration was on consolidating power, internal politics, and making political appointments. Things were pretty chaotic during that transition. I didn't worry too much about our situation."<sup>58</sup>

The second issue that prevented a major defense policy shift during DPJ rule was the growing threat to Japan's Senkaku Islands by China. Located 300 kilometers from China's coast and 400 kilometers from Okinawa, the islands are close to some significant natural gas deposits. Ever since those gas fields were discovered in the 1970s, China has laid claim

to these islands. On 7 September 2010, a Chinese fishing boat collided with two Japanese Coast Guard vessels near the Senkakus. The incident resulted in the boat's captain being temporarily detained by Japan. China retaliated with a rare earth export ban and encouraged mass protests and vandalism against Japanese property in China. The incident underscored China's territorial ambitions and newfound diplomatic and military muscle. If Japan was to defend its 2.8 million square mile maritime exclusive economic zone against encroachments by China and others, it would require further enhancement of JSDF capabilities and a commitment to stay the course with the 1960 Security Treaty due in part to the United States' Article 5 pledge to protect "any territory" Japan administers, including the Senkakus and Japan's territorial waters.<sup>59</sup>

The third was the Triple Disaster. Tomodachi showed the Japanese people and government the profound depth of the American friendship with Japan. The JSDF's role in the response revealed that Japan can always depend on its defense forces to protect its citizens even in the direst situations; and that at its core, the JSDF was not the imperial army or navy of old but a modern, professional defense establishment completely dedicated to the Japanese people.<sup>60</sup>

### **The Great East Japan Earthquake and Tsunami**

The 2011 Japan earthquake goes by several names. Some refer to it as the Tohoku earthquake because the epicenter of the quake occurred 72 kilometers east of the Oshika Peninsula in the Tohoku region of the country—an area consisting of six prefectures in the northeast region of main Japanese island of Honshu: Akita, Aomori, Fukushima, Iwate, Miyagi, and Yamagata. While the Japan Meteorological Agency insists on calling it the Tohoku earthquake, other Japanese government agencies, including their ministry of defense, refer to it as the Great East Japan Earthquake (GEJE) in official documents.<sup>61</sup> I also prefer to call it the GEJE because it better reflects the entire east coast area most affected by the event, including all or parts of the prefectures of Tokyo, Chiba, Ibaraki, Tochigi, Miyagi, Fukushima, Iwate, and Aomori.<sup>62</sup>

Another point of confusion about the GEJE is that it was not one earthquake but three separate ones, followed by numerous aftershocks. At 1446 local time on 11 March 2011, the three earthquakes occurred along the tectonic plates east of the Oshika Peninsula during a six-minute period. The earthquakes caused the Pacific plate to shift westward 20 meters and were felt as far away as Alaska and Chile. Tremors from the GEJE and aftershocks caused seven tsunamis in six hours with some reaching as high as 40 meters. Water from the waves inundated a 200-square-mile area of coastal land on Japan's east coast and penetrated up to six miles inland.<sup>63</sup>

Based on the most up-to-date data from multiple Japanese government sources, the Centre for Research on Epidemiology of Disasters (CRED) has arrived at the figure of 19,846 as the current tally of deaths for the disaster.<sup>64</sup> The tsunamis claimed 92.5 percent of those killed or missing. Another 6,000 were injured in those calamities.<sup>65</sup> In the years

following the event, the Japan Reconstruction Ministry (Fukkōchō) documented 3,000 additional “deaths associated with the disaster,” or *kanrenshi*, which includes disease brought about by forced dislocation as well as mental illness and its effects such as increased substance abuse and suicide.<sup>66</sup>

One of the hardest-hit cities was the port of Kesennuma and the nearby island of Oshima. This area lost 1,454 people (including 250 missing), representing close to 2 percent of the city’s population and 7.5 percent of the total death toll of the GEJE.<sup>67</sup> Kesennuma’s location on the coast in Miyagi Prefecture made it particularly vulnerable. Fuel leaks from some of the nearly two dozen fuel tanks in the port transformed the area into a scene not seen in Japan since World War II with huge fires raging on sea and land. It took 700 firefighters from as far away as Tokyo nearly 12 days to extinguish the fires. Oshima Island, which sat in the middle of Kesennuma Bay, was pulverized multiple times by tsunami waves. As historian Robert Eldridge described it, “The waves would hit, go over the lower section of the island, and then come back out over again dragging the debris with it, to include boats, houses (or their roofs), cars, and other materials.” These waves killed 38 people on the island—1.2 percent of its population of 3,063.<sup>68</sup>



Aerial view of a tsunami-devastated area on Honshu, Japan, taken on 18 March 2011. (Lance Cpl. Ethan Johnson, USMC; DVIDS, 380371)

Kesennuma is an extreme example of the damage wrought by the event throughout northeast Japan and beyond. Throughout Honshu, the GEJE plus tsunami destroyed or damaged over 1.1 million structures, nine commercial ports, 56 bridges, 2,000 roads, 26 railway lines, and the Sendai airport. It precipitated over 200 landslides and shut down basic utilities such as electricity, water, and gas for millions.<sup>69</sup> It took weeks for crews to restore those utilities in many areas, and much longer to rebuild housing stock and other basic infrastructure. Six months after the earthquake, 131,000 displaced Japanese citizens continued to sleep in shelters and other temporary housing. Even excluding the third disaster at the Fukushima Daiichi Nuclear Power Plant, the GEJE was the worst natural disaster to strike Japan in over a thousand years.<sup>70</sup>

At the time of the earthquake, there were 105,000 DoD personnel and dependents in Japan, including 47,000 uniformed personnel, 52,000 dependents, and 6,000 civilian contractors.<sup>71</sup> Fortunately for DoD, none of the major U.S. bases were located in Miyagi Prefecture or other hard-hit prefectures such as Fukushima, Ibaraki, and Tochigi. Most U.S. military personnel were concentrated at bases in Okinawa, southern Honshu (Marine Corps Air Station Iwakuni and Fleet Activities Sasebo), and in the Tokyo area (Naval Air Facility Atsugi, Naval Base Yokosuka, Yokota AB, and Camp Zama). These bases only suffered minor physical damage due to their distance from the earthquake's epicenter and Japan's stringent building codes. Only Misawa, the home of the Air Force's 35th Fighter Wing and a Navy P-3 maintenance squadron, was north of Tokyo and relatively near the impact zone, but it was not affected by the tsunami and suffered only a few small fires, broken water lines, and power outages as a result of the earthquake.<sup>72</sup>

While the physical impact of the earthquake on U.S. forces was minimal, it left an indelible impression on all those who experienced it. One serviceman at Misawa told *Stars and Stripes* that buildings on base rocked and swayed, "not a super rough up and down but a constant swaying," he said. "Water poured out of the front door of the pool building; it was bizarre. The quake was so strong that water rushed out of the pool, and out the front door and down the steps, into the street." All non-essential buildings on base lost power during a day with temperatures below freezing and snow.<sup>73</sup> Rear Admiral Buck's wife was having lunch at the base bowling alley when the earthquake hit. She and the other Navy wives rallied outside in a parking lot and then went to the base gym to escape the bitter cold. "Then they hunkered down there, and they did a really nice job of accounting for spouses and children" while Buck and his staff worked to account for uniformed sailors, aircraft, and other assets. "I had a young lieutenant on the shinkansen, the bullet train, and we could not account for him for two-and-a-half days."<sup>74</sup>

At Atsugi, Lieutenant Mary Robinson, a hard-charging SH-60B pilot with HSL-51, will never forget 11 March 2011. "It was insane." Robinson was doing a normal maintenance inspection as part of her duties as the squadron quality assurance officer when the quake occurred. "When it hit, I looked up and could see the ceiling of the hangar doing this wave like thing [she makes a wave motion with her hands]. I ran into the QA [Quality



Assurance] office. We hadn't had an earthquake drill, so we did not know what to do, but the ceiling looked like it was about to buckle, so we [her and a group of enlisted maintainers] ran outside. We ran to the parking lot and the cars were bobbing up and down. We milled around a bit because no one was sure if they could return to the hangar. We knew something intense had happened, but we being HSL-51, we went right back to work."<sup>75</sup>

Commander Marcello "Cello" Caceres, the commander of Carrier Airborne Early Warning Squadron 115 (VAW-115) at Atsugi, was at his base house getting ready for an event when it hit: "I pulled the razor away from my chin, thinking it will just be a small tremor, and as it gets stronger and stronger, my daughter starts to scream. I said, 'Come see Dad in the bathroom,' and she walks across the hall. I grab her and we stand in the doorjamb. So I'm in the doorjamb and then it sounds like a locomotive coming through the house. I mean it is bac! bac! bac! you know really loud. And then I started hearing some screams outside and so as it starts to settle, I hustle my daughter out the front door and we gathered together outside with the rest of my family and our neighbors." The dazed and confused look on the faces of the young children is something he will never forget.<sup>76</sup>

Commander Perrella was driving to a sailor-of-the-year dinner at Yokosuka and had just stopped at a traffic light when it happened:

My car started rocking and shaking and I was like is something wrong with my transmission? I'm like what the heck's wrong with my car? I get out of my car and I don't feel anything, but I'm watching my car do this. I was like what the [expletive deleted]! So then I drive into my neighborhood and I see everybody outside. I was like ah! It was an earthquake. I started heading to Yokosuka and then halfway to Yokosuka, I realized something was different. The streets started getting closed off. I'll tell you right now. I was probably the last person on Yoko Yoko Expressway [The toll expressway that links Yokohama to Yokosuka].<sup>77</sup>



Vice Admiral Sean Buck in a photo taken in July 2019 after he became the 63rd superintendent of the U.S. Naval Academy. (U.S. Naval Academy)

A common theme for service personnel stationed in Tokyo was their nonchalant initial reaction to the earthquake and their strong desire to press on with their duties. Commander Geoffrey Moore, the commanding officer of HS-14, was doing an out-brief with an outgoing chief petty officer in his office when it occurred:

The essential effect of the earthquake at Atsugi was less than six on the scale. Still pretty significant, but not unusual. Tokyo gets a lot of earthquakes, but the facilities are all built to absorb that, and so to a certain degree you treat these things casually . . . But what was interesting was the duration: it went on for a long time. We both sat there and waited a bit to see how long it would last and the chief said, 'Maybe we should just stop. Let's go out of the hangar,' and so I evacuated the whole hangar.<sup>78</sup>

At Yokota AB in Tokyo, Lieutenant General Field had a similar reaction: "Earthquakes are not unusual in Japan so you kind of get accustomed to them. I was meeting with the Fifth Air Force staff and the chairs started rocking pretty good, and someone remarked, 'Wow, this is a pretty big one.' And we kept rocking and we said, 'Wow, this is going on for a long time.' And then finally, being the brilliant analysts we are, we decided, 'Perhaps we ought to get out of this building like normal people would.' So we evacuated the building, and it kept going on and on. My deputy, [Brigadier General John W.] Jay Raymond, volunteered to walk a couple of blocks to check on the spouses. I occasionally hear about that because I didn't check on my wife Lisa."<sup>79</sup> Instead, Field immediately got his interpreter, Janette Coleman, to start simultaneously translating Japanese news broadcasts so he could develop situational awareness and begin to develop a plan for managing the catastrophe.<sup>80</sup>

At 1530, Field received a call that 11 long-haul U.S. flagged commercial aircraft with thousands of civilian passengers on board were inbound to Yokota after being informed that Narita and Haneda airports had closed. "This is probably bigger than we might have originally surmised," Field concluded. "That's when we started standing up crisis action teams." Other U.S. military commanders similarly started going into planning and crisis mode as soon as news reports indicated that this earthquake was indeed the "big one," the 1 in 1,000 year event.<sup>81</sup>

### **The Fukushima Nuclear Power Plant Disaster, 11–15 March**

In 1991, General Electric (GE) ran a clever television advertisement featuring Tokyo in all its glory—from the bright lights of the Ginza to the bullet train and the Tokyo Dome sports arena. "The People of Tokyo like people everywhere know their future depends on getting more electricity in a cleaner, more economical way," it pronounced, "to get it, they turn to GE, the world's leader in gas and steam turbine technology."<sup>82</sup> The ad does not explicitly mention nuclear power or that this company had been building nuclear reactors

with various Japanese partner companies since 1961. Nor does it mention that two of Tokyo Electric Power Company's (TEPCO) most important nuclear power plants (Fukushima Daiichi and Fukushima Daini) were constructed with GE Hitachi reactors, or that Japan's economic miracle of the 1980s had been powered by neutrons. Nuclear power, by the 1990s, had become the answer to a problem that had vexed this nation since before World War II—its lack of natural resources in general and energy in particular. By 2011, Japan relied on nuclear power for 30 percent of its total domestic electricity supply, and Tokyo, the economic and political heart of Japan, depended on reactors for over 50 percent of its power.<sup>83</sup>

While nuclear power had emerged as a solution for all of Japan's energy woes, many of its plants were built in the 1960s and 1970s without much regard to the threats posed by earthquakes and tsunamis. The applications to install the first three reactors of Fukushima Daiichi power plant were made in the late 1960s when seismic science was still in a "state of infancy."<sup>84</sup> When constructing Fukushima Daiichi in the late 1960s, GE and TEPCO built facilities to withstand a "remarkably low figure" of 265 Gal ("Gal" is a unit of gravitational acceleration).<sup>85</sup> They built the plant on a bluff that stood 7–10 meters above sea level on the grounds of a former air base used to train kamikaze pilots in World



Aerial view of the Fukushima Daiichi Nuclear Power Plant taken before the disaster in 2011. The tallest six buildings contain the nuclear reactors in numerical order beginning with Unit 1 (*foreground, left*) and ending with Unit 6 (*background, right*). (International Atomic Energy Agency [IAEA], 8388174045)

War II—a site thought to be able to withstand tsunamis up to 5.7 meters high.<sup>86</sup> Taking up an area of 3.5 square kilometers, the plant, located in Fukushima Prefecture 170 miles north of Tokyo, became active in 1971. It was designed, constructed, and operated in a partnership between GE and TEPCO. With six boiling water reactors, it was one of the largest nuclear power plants in the world. GE constructed reactor Unit 1 and its primary Japanese partner, Hitachi, Unit 4. Units 2, 3, 5, and 6 were built by GE in partnership with the Japanese company Toshiba.<sup>87</sup>

After a transformer fire at TEPCO's Kashiwazaki-Kariwa nuclear power station was triggered by a 6.8 magnitude earthquake that struck Chuetsu in 2007, the UN's International Atomic Energy Agency (IAEA) cautioned the Japanese government about Fukushima's vulnerability to a similar seismic event. The government (and TEPCO) ignored the IAEA's warning as well as reports prepared in 2000 and 2008 discussing the plant's vulnerabilities to tsunamis.<sup>88</sup> In 2008, TEPCO submitted an interim seismic report for Unit 5 that stated the unit could withstand up to 600 Gal of ground motion, and that no further seismic improvements were required at Fukushima. Japan's Nuclear and Industrial Safety Agency (NISA) accepted the findings even though TEPCO had only examined one unit and did not consider the other reactors, the reactor buildings, or other critical facilities at the plant. TEPCO's interim reports in 2009 revealed extremely limited seismic safety facilities at all six reactors at the plant.<sup>89</sup> One seismic improvement that TEPCO did authorize following the 2007 Chuetsu earthquake was the construction of an emergency response center (ERC) in an anti-seismic building capable of withstanding a 7.0 magnitude earthquake and possessing its own gas turbine generator and filtered ventilators. Without this building and the heroic efforts of a small group of TEPCO employees who manned it throughout the crisis, all might have been lost after the GEJE and associated tsunamis.<sup>90</sup>

At the time of the earthquake on 11 March at 1446, reactors 1–3 were operating normally and 4–6 were undergoing a periodic inspection. There were 6,400 workers on the site—a larger number than usual due to the inspections.<sup>91</sup> As soon as sensors registered seismic activity, the plant's emergency shutdown system, known as SCRAM, activated the automatic shutdown of reactors 1–3. This process involved the insertion of control rods into the reactors to allow boron to absorb the neutrons and halt the nuclear fission chain reaction. While no electrical power is required for a SCRAM, reactors still need to be cooled for a long period after a shutdown, and these cooling systems required electricity. The seismic activity of the earthquake damaged electrical transmission lines running to the plant, cutting off all power to the facility. Emergency diesel generators (EDGs) started up and began supplying enough power for crews to safely manage the event—at least for the initial 41 minutes of the crisis.<sup>92</sup>

The first tsunami, a 10-meter wave, struck the plant at 1527 local time. A second larger wave 14 meters in height smashed through the area between 1535 and 1537. These waves inundated the plant's EDGs and DC batteries—most of which were located in the



basements of the turbine generator plant.<sup>93</sup> Without electricity, water could not be injected into the vessels that enclose the reactor cores, known as reactor pressure vessels (RPVs), in units 1-3. Consequently, the fuel overheated and melted, releasing radioactive material into the RPVs and eventually into the primary containment vessels (PCVs). PCVs are the containers that enclose the RPVs and provide a second layer of protection against the release of nuclear material into the external environment.<sup>94</sup> As stated in the TEPCO Report, “The chemical reaction between the fuel claddings [the zirconium coverings for the fuel rods] and steam caused the generation of a substantial amount of hydrogen.” Hydrogen pressure in both the RPVs and PCVs eventually led to intentional venting by TEPCO personnel and unintentional explosions.<sup>95</sup> Electrical power was also critical for other reactor safety processes including reactor depressurization, the cooling and depressurizing of the reactor containers, and removal of decay heat to the ultimate heat-sink.<sup>96</sup>

By 1550 on 11 March, Ikuo Izawa, the Reactor 1 and 2 Central Control Room duty manager, could no longer read the reactor water level or pressure meters from the controls at the ERC. He was now flying blind with no idea what was happening within his reactors. DC power from batteries was available for Reactor 3, which allowed its operators to continue controlling and monitoring the reactor water injection until the late morning of the 12th. As for the reactors offline and undergoing inspection, Unit 5 also had DC power and Unit 6, AC power from one of the few EDGs that survived the tsunami. Unit 4 had no power whatsoever, but its fuel had been off-loaded from the reactor core to the fuel storage pool, and no fuel assemblies were in its RPV.<sup>97</sup>

At 1645, Masao Yoshida, the Fukushima Daiichi site superintendent, declared an Article 15 event under the Act on Special Measures Concerning Nuclear Emergency Preparedness due to the near total loss of power at the plant. Article 15 represented the most serious condition at a nuclear power plant: a code red. Within hours of the declaration, the first Nuclear Emergency Response Headquarters (NERHQ) meeting occurred; the Japanese government publicly declared a state of nuclear emergency (at 1903); and Defense Minister Kitazawa ordered the JSDF to send forces to the nuclear disaster site. At 2123, the Japanese government ordered an evacuation of all citizens living within three kilometers of the plant in preparation for manually venting units 1 and 2.<sup>98</sup>

Shortly after 0015 on the 12th, President Barack Obama called Prime Minister Naoto Kan to express his condolences and promise an all-out effort by the United States to support Japan during this time of crisis. A few hours later, John Roos, the U.S. ambassador to Japan, received a call from Hisanori Nei, deputy director general of NISA. Nei told him, “Unit 1 has started to melt down.” Roos asked his interpreter twice if Nei had said “melt-down,” and was about to resume the conversation with Nei when his Japanese colleague abruptly ended the call, saying, “I’m sorry, but I’m terribly busy.” The Japanese government at this stage of the crisis was attempting to evacuate most of the workers from the site as well as civilians in neighboring towns and villages within 3.5 kilometers of the

plant. A pressure reading of the Unit 1 PCV at 2350 on the 11th showed containment pressure at 0.6 Megapascal (MPa) units, exceeding the maximum design pressure of the vessel of 0.528 MPa.<sup>99</sup>

But without electricity, venting a reactor was no simple process. Yoshida had to send out teams of employees into the bowels of the plant to read dials and test valves. He then needed to develop a careful strategy to conduct a safe venting—something Japan's nuclear industry had never done before, nor even trained to carry out.<sup>100</sup> The employees who made these forays outside of the anti-seismic building were soon dubbed "suicide squads," because of their high exposure to radiation. The radiation outside the anti-seismic building was already seven times above normal. In Tyvek suits with breathing apparatus, they had to negotiate a facility utterly demolished by the tsunami: most buildings suffered basement and first floor flooding, debris was strewn everywhere; roads had collapsed and sunk; and uncovered manholes, ditches, and other obstacles made transits throughout the compound extremely hazardous.<sup>101</sup> At 0255 on the 12th, one of these squads confirmed that the Unit 2 reactor core isolation cooling (RCIC) system was still operating and that its PCV pressure was 0.2 MPa. Based on this information, Yoshida decided to vent Unit 1 first.<sup>102</sup>

While this was happening, Prime Minister Kan and his staff in the Kantei building (Japan's White House) became increasingly concerned about the length of time it was taking TEPCO to vent the reactors. Fearing a complete meltdown at the plant, he ordered his JSDF Super Puma helicopter to take him to Fukushima at 0614 on the 12th, so he could personally order the onsite TEPCO staff to vent the reactor. No one informed Yoshida of the visit until Kan arrived. At a hastily arranged conference, a TEPCO employee explained to Kan the complexities of the process, saying that it takes time to organize the compressor and power supply to vent a reactor unit. Kan snapped, "I haven't come to listen to excuses!" Yoshida did not flinch, but instead assured the prime minister that it will be done even if suicide squads have to go into the area to manually turn valves. Still furious about the delay, Kan quickly left, arriving back at the Kantei building at 1047.<sup>103</sup>

Beginning at 0902 on the 12th, three teams of TEPCO volunteers (all over 50) began the process of turning valves in the Unit 1 reactor building and in the central control room. Izawa himself was the first to volunteer for these "suicide squads." The teams operated in shifts to minimize exposure and wore fire protection suits and helmets. They carried oxygen tanks for breathing, portable air compressors, and other tools to open valves. It took 5.5 hours of extreme effort to accomplish the successful venting of Unit 1. Some team members received radiation doses of more than 100 millisieverts—about 10 percent of the annual U.S. Nuclear Regulatory Commission (NRC) dose limit for the general public. Survey meters showed radiation emissions above 1,000 millisieverts in an hour in some spaces in the reactor buildings.<sup>104</sup>

In addition to this venting, fire trucks had been injecting freshwater into Unit 1 since 0915 through the unit's fire protection system.<sup>105</sup> Despite these heroic efforts to bring the

reactor under control, Murphy's Law prevailed. Approximately an hour after the venting at 1536 on 12 March, a hydrogen explosion occurred on the service floor of the Unit 1 reactor building. Izawa, who was in the building at the time, believed the PCV had exploded. "Is this where I am going to die?" he ruminated.<sup>106</sup> In fact, the explosion had occurred outside the PCV, causing extensive damage to the upper reactor building. The blast destroyed much of its steel framework and cover plates as well as alternative seawater injection line assemblies and high-voltage cables, but miraculously did not damage the PCV. However, as the IAEA report noted, the explosion did worsen "the already challenging field conditions for emergency operations throughout the site, injuring workers and causing locally high dose rates around the site due to scattered contaminated rubble."<sup>107</sup> Izawa and his teams mustered in the Unit 1 main control room, and eventually made their way back to the anti-seismic building. Shortly after the explosion, he told his men, "If we evacuate from here, it means we are going to abandon this whole local community. The entire world is watching us. That's why I can't leave."<sup>108</sup> At 1825 on 12 March, the Japanese government extended the evacuation zone to 20 kilometers.<sup>109</sup>

As if his hands were not full enough from the events that transpired at Unit 1, Yoshida still had five other reactors to manage. Unit 3 became a concern after 0246 on the 13th when technicians discovered problems with the turbine powering the reactor's high-pressure coolant injection (HPCI) pump. The operators decided to manually stop the HPCI pump and try to use an alternative means of coolant injection using a stationary diesel driven fire pump (DDFP). Safety relief valves (SRVs) would keep RPV pressure low enough for the DDFP to push coolant (borated freshwater) into the system. Enter Murphy's Law again—the SRVs failed to open and reactor pressure increased beyond the level at which the DDFP could inject. For the next seven hours, Unit 3 had no cooling, leading to what the IAEA report euphemistically called "an adverse turning point." In desperation, operators attempted to pump both fresh- and seawater into the reactor and associated spaces, using fire engine pumps. They also attempted to vent the unit, but data remains unclear if that effort had any effect. If that were not enough, various control rooms began running out of DC power from emergency batteries, so Yoshida ordered workers to go to the parking lots and begin stripping cars and trucks of batteries. He sent others to purchase batteries from local gas stations, car dealerships, and automobile parts stores.<sup>110</sup>

At 1101 on 14 March, an explosion (probably from hydrogen) occurred on the upper part of the Unit 3 reactor building, injuring workers and compelling Yoshida to order a temporary evacuation of all outside spaces at the plant. The explosion also destroyed an alternative water injection arrangement for Unit 2 as well as Unit 2's containment venting system.<sup>111</sup> Operators attempted to vent the unit and inject it with seawater, but to no avail. Later that day, Yoshida called Goshi Hosono, a special advisor to the prime minister and the crisis manager in the Kantei building, and told him:



The remains of the building housing Unit 4 after hydrogen explosions there on 15 and 16 March 2011. This photo was taken on 18 December 2021. (Gill Tudor, IAEA; Unit 4 IAEA Photo)

We may be finished. We can't get water into Unit 2. If we can't get water in, the reactor core will melt down, the fuel rods will be completely exposed. It will be a China Syndrome. In that case, nothing can be done. Like Unit 1 and 3, water will disappear. Three plants are headed the same way. It is a tragic disaster.<sup>112</sup>

Early in the morning of 15 March, Yoshida's predictions materialized. An uncontrolled release of hydrogen occurred at Unit 2, prompting Yoshida to order a complete evacuation of the remaining 650 workers at the Daiichi plant except for a skeleton crew of 70 older workers in the ERC. Shortly thereafter, an explosion occurred at Unit 4 that destroyed large parts of the building structure and internal components on the third, fourth, and fifth floors. The situation was now completely out of control, and TEPCO was in full retreat mode.<sup>113</sup>

Prime Minister Kan began to consider the worst case scenario at this time—the loss of all of eastern Honshu, including the Tokyo metropolitan area.<sup>114</sup> After hearing of the plant evacuation, Kan considered returning to Fukushima to personally countermand the order but instead summoned his driver to take him to the TEPCO headquarters building in Tokyo. “If TEPCO pulls out, in the last instance, I'll return to the site again,” he told his advisors and ordered them to ready his JSDF Super Puma just in case. Once at the TEPCO headquarters' ERC, he gave a speech unique in the history of Japanese politics. He told the



TEPCO staff, which included all the company's top executives and also the staff at the Fukushima ERC live-streamed on a video conference system, that if they abandon the plant now, they will create an event two to three times worse than Chernobyl:

Do you think other countries, America, Russia, will just sit by and watch if Japan can't deal with its own nuclear emergency? Will they just leave it be for dozens of days or hundreds of days? They may well start saying that they'll do it themselves. That means Japan being occupied. . . . You are the ones who have to do it. Put your lives on the line. . . . I want you to go at it with the resolution that it doesn't matter if all the executives over the age of sixty go to the site and die!<sup>115</sup>

### **First Responder: Japan Self-Defense Forces**

In 1995, a 7.4 magnitude earthquake struck Kobe, a city on Osaka Bay on the southern side of Honshu. The so-called Great Hanshin earthquake killed over 6,400 people, injured over 43,000, and forced over 316,000 to evacuate their homes. Over 250,000 buildings were heavily damaged or destroyed. After the earthquake hit, JSDF units in nearby Itami had to wait many hours for the governor of Hyogo Prefecture to secure a mobilization order from Tokyo before they could respond—a process that wasted precious time and cost lives. Only 20 percent of those trapped in buildings were rescued by JSDF, police, and firefighters. The remaining 80 percent were dug out by civilians, who had neither the tools nor the training for the task. Most of Kobe's police were preoccupied with traffic control, and its firefighters, with battling numerous blazes in the city sparked by the quake. Following the disaster, the Japanese press severely criticized the JSDF's slow response. The institution's standing with the Japanese people reached a new nadir with only 26.4 percent of Japanese polled by the cabinet office stating that they had a good image of the JSDF.<sup>116</sup>

This event emphasized the criticality of disaster response mission for the JSDF, and the Self-Defense Forces Law was quickly amended to allow the JSDF to respond to such events in the future without waiting for a formal request to be approved in Tokyo.<sup>117</sup> After the Great Hanshin quake, the JSDF also placed certain units on 24-hour alert for disaster response. Hence, when the GEJE occurred 16 years later, the JSDF was able to spring into action. A mere six minutes after the quake hit at 1452 local time, the JMSDF issued an order for "all operational ships to leave port." This was the first time in the service's history that such an order had been issued. Before sunrise on 12 March, 20 JMSDF vessels were on station on the east coast of the Tohoku region engaging in search and rescue missions.<sup>118</sup> Within days, another 40 ships would join the force, bringing the total JMSDF surface force in the affected region to 60 ships.<sup>119</sup> The helicopter destroyer *Hyuga* (DDH-181), the first Japanese aircraft carrier commissioned since World War II, would serve as the JMSDF flagship during the operation, and its 11 helicopters would prove instrumental in search and rescue efforts during the early days of the response.<sup>120</sup>



The helicopter destroyer *Hyuga* anchored off Oshima Island on 1 April 2011. During relief operations following the Great East Japan Earthquake and tsunami in 2011, *Hyuga* served as the JMSDF flagship. (Cpl. Megan Angel, USMC; DVIDS, 385993)

The JGSDF's initial response was equally as impressive. The Northeastern Army under the command of Lieutenant General Eiji Kimizuka provided much of the ground power for the response, initially with a cadre of 8,400 troops on 11 March and swelling to 70,000 troops by 15 March. The bulk of the Northeastern Army was on the northern island of Hokkaido on 11 March, compelling JSDF commanders to enlist the support of Japan's very capable ferry companies to help move troops to northeast Honshu. Ferries transported 93 percent of units deployed for the GEJE response from Hokkaido—the first such mass movement of troops in the SDF's history.<sup>121</sup>

The Japan Air Self-Defense Force (JASDF) along with the JGSDF and JMSDF deployed over 500 fixed- and rotary-wing aircraft to the operation.<sup>122</sup> Misawa AB in northern Honshu, a combined facility maintained by the JASDF and the U.S. Air Force and Navy, along with other JASDF air bases north of Tokyo, including Hyakuri and Matsushima, became important hubs for rescue, relief, and supply aircraft. Matsushima AB on the northeast coast was hit hard by the quake and its aftermath. The tsunami flooded the base, rendered the main runway inoperable for a number of days, and destroyed or heavily damaged 18 F-2 fighter planes (the JSDF version of the U.S. F-16). "Most of the base was under water because it's right on the coast," explained Lieutenant



General Ryoichi Oriki, chief of staff of JGSDF (*left*), shown here with Lieutenant General Burton Field, the commander of U.S. Forces Japan (*right*). Following the Great East Japan Earthquake and tsunami relief, Oriki commanded all JSDF relief operations. Field commanded the U.S. relief operation, known as Tomodachi, from 11 to 18 March 2011 and again from 12 April until 1 June 2011. (Jose Sanchez Alonso, USA; DVIDS, 388449)

General Field, who landed at the facility on a helicopter early in the operation. “They had an F-2 nose first into the side of their base ops building and a whole bunch of other ones stacked over in a corner like cordwood.”<sup>123</sup>

On 14 March, the Japan Ministry of Defense issued an order designating the Chief of Staff of the Joint Staff, General Ryoichi Oriki, JGSDF, to be the head of JSDF operations associated with the GEJE relief activities. That same day, Defense Minister Kitazawa flew to Sendai and appointed Lieutenant General Kimizuka as the commander of Joint Task Force Tohoku, the operational formation for the JSDF response. JTF-Tohoku was the first Japanese joint task force. As such, it was a huge step forward in “jointness,” and the next step in an evolutionary process that began in 2006 when the JSDF established a joint operation system with a powerful joint staff office similar to the U.S. Joint Chiefs of Staff.<sup>124</sup> Prior to 2006, Japan’s armed services were separate fiefdoms that rarely interacted or operated together. Tomodachi would be the ultimate test of its new joint operations focus and organization. In his speech to JTF-Tohoku staff, Kitazawa stated:

I want you to work with the U.S. troops and make the maximum effort. I think this moment has brought the SDF and the people closer together than ever



before. I want you to know that the people have extremely high expectations of you.<sup>125</sup>

Placing the first joint operation in Japan's history in the hands of the JGSDF, traditionally the most inwards focused and parochial of Japan's armed forces, was a huge risk, but Kimizuka and Oriki represented a new breed of JGSDF officers completely prepared for the huge task. Kimizuka, an airborne ranger by training, had developed an understanding of joint operations at the United States Army Command and General Staff College at Fort Leavenworth earlier in his career and later in 1999 as the chief of the Defense Planning Division, Ground Staff Office. General Oriki, similarly, had held several positions that compelled him to work closely with other services, including the commander of the JGSDF 9th Division and the director of the equipment division of the ground staff. Field, who developed a strong friendship with Oriki, described him as a "liberal thinker" and a prodigious reader. "He could see and think in a much broader way than average army, air force, and navy guys."<sup>126</sup>

JGSDF personnel performed four main missions during the relief operation: search and rescue and recovery, transportation services, livelihood sustainment operations, and



Aerial view of JGSDF personnel and disaster relief crews searching Sukuiso, Japan, for victims of earthquake and tsunami on 17 March 2011. (Christopher McCord; DVIDS, 379754)



nuclear disaster response. For the first six days of the operation, the JSDF worked with other branches of government (police, fire, and coast guard) to rescue survivors and transport them to safe locations. In all, the JSDF saved 19,286 lives—70 percent of the total survivors rescued. JSDF also took a lead role in mortuary affairs, recovering 60 percent of the people who died. Most JSDF personnel had no training or preparation in mortuary affairs but took on this solemn duty without hesitation or complaint. They also spared U.S. personnel from this difficult duty and ensured that the bodies were handled according to Japanese rituals and traditions.<sup>127</sup>

JSDF units also provided transportation assistance to civil authorities by transporting victims to shelters, providing medical evacuation services, and traffic control. The JSDF was instrumental in sustaining displaced populations with food, water, medical care, and sanitation services. JSDF engineering units repaired roads, bridges, and seaports. They partnered with U.S. forces to reopen Sendai airport—a vital and Herculean task. More than a third of the JSDF's active force as well as reservists and ready reservists (106,000 personnel in total) participated in JTF-Tohoku operations for two full months and a smaller cadre continued relief efforts until 11 August.<sup>128</sup> In thanking first responders for their efforts, the Japanese emperor consciously cited the JSDF first among the first responders in a speech delivered on 16 March.<sup>129</sup> In the biennial opinion poll on the JSDF and defense issues conducted by the Japanese government in January 2012, the percentage of the respondents who had a positive image of the JSDF reached its all-time high at 91.7 percent.<sup>130</sup>

While the disaster relief and recovery efforts of the JTF-Tohoku represented the most significant contribution of the JSDF, it was the SDF's response to Fukushima that had the greatest symbolic impact with Japanese citizens. At 1930 on 11 March, 10 minutes after Prime Minister Kan had declared a nuclear disaster, Kitazawa issued a “nuclear disaster action order” to the JSDF. Under the existing JSDF operational plan for a nuclear accident, SDF's role would be to monitor radiation levels, aid in the evacuation of civilians, and provide emergency transportation for power plant staff and supplies. Nothing in the action order mentioned JSDF personnel “responding to the accident itself,” but in the end, the JSDF, along with the Tokyo Fire Department and Riot Police, would play an important role in cooling the reactors. Whereas most of the TEPCO staff at Fukushima evacuated from the plant, these defense and emergency services personnel risked their health to save eastern Honshu by manning fire equipment involved in cooling the reactors, and flying water dropping missions on JSDF helicopters. The JSDF also decontaminated equipment (aircraft, vehicles, etc.) exposed to radiation and continuously monitored the radiation level in the atmosphere around Fukushima Daiichi.<sup>131</sup>

The Central Readiness Force (CRF) was the first JSDF unit to respond to the event. Established in 2007, the CRF was a 4,000-person rapid response force trained to react to a variety of emergencies ranging from a natural disaster to an armed incursion on Japanese soil. Its major units included a helicopter unit, an airborne brigade, a special operations

team, and the Central Nuclear Biological Chemical Weapon Defense Unit (*chuo tokushu buki bogo tai*, CNBC). It was the CNBC unit's predecessor unit, the 101st Chemical Protective Corps, that responded to Aum Shinrikyo sarin gas attacks in Tokyo in 1995 and 1999.<sup>132</sup>

Soon after Kitazawa's order was issued on 11 March, the CRF commander, JGSDF Lieutenant General Toshinobu Miyajima, dispatched an advance team from his CNBC unit to Fukushima: a 20-person chemical reconnaissance platoon. JGSDF Captain Shinji Iwakuma, the commander of the platoon, believed that the main duty of his unit would be to monitor radiation outside the gates of the plant. At 0700 on 14 March, he was summoned to the offsite center by Motohisa Ikeda, a deputy minister from the Ministry of Economy, Trade and Industry (METI), one of the Japanese agencies that oversees nuclear power in Japan. Ikeda asked Iwakuma if his unit could help workers pump water into the Reactor 3 pit. TEPCO workers were using two fire engines pumping water from the ocean and seven tanker trucks supplied by the JSDF. "I can only count on the SDF," Ikeda pleaded. Iwakuma then picked up his satellite phone and called Miyajima who asked, "The safety of the troops is guaranteed, right?" "To the extent that it can be," Iwakuma replied. Although he knew he might be walking into a death trap, this young captain and his men never hesitated to carry out their assigned task.<sup>133</sup> The JSDF is one of the few military organizations in the world that explicitly asks its personnel to risk life and limb for their country. Upon entering the JSDF, a recruit swears an oath of duty to "face events without regard to risk, to strive to the utmost to complete assigned tasks, and respond to the will of the people." All the JSDF personnel who deployed to Fukushima Daiichi understood implicitly that when you go into action, you may not come back.<sup>134</sup>

Wearing full face masks and other protective gear provided by TEPCO, Iwakuma and 17 members of his unit headed to the back of the turbine building on the eastern side of Unit 3 in three vehicles. They arrived just as the hydrogen explosion occurred in Unit 3. Debris from the explosion shattered the windshield of Iwakuma's lead armored car. Dosimeters on all six occupants went off, indicating that each person had received a radiation dose of over 20 millisieverts. "Leave the equipment!" Iwakuma yelled as the men emerged from the stricken vehicle. "Withdraw! Quickly!" Four platoon members were injured but none seriously. Everyone's Tyvek suits were torn to pieces. The men rallied in an abandoned truck that fortuitously still had a key in the ignition. They drove to the main gate, abandoned the contaminated truck, and hitched a ride in another truck to a recently established decontamination site near the offsite center, where they became its first clients. Ambulances then rushed the relatively unscathed to Fukushima Medical University and those who had received higher radiation doses to the National Institute of Radiological Sciences (NIRS) in Inage, where they underwent eight rounds of whole-body decontamination. After his treatment, Iwakuma was back at the offsite center attending meetings and continuing to assist with the JSDF response.<sup>135</sup>



Captain Thom Burke, commanding officer of the aircraft carrier *Ronald Reagan*, observes navigational operations while transiting San Diego Bay on 2 February 2011. (Mass Communication Specialist Third Class Brandie Nuzzi, USN; DVIDS, 363108)

Back in Tokyo in the Ichigaya building (Japan's equivalent to the Pentagon), members of the Japanese joint staff were stunned at what had just happened to Iwakuma and his men. They had thought JSDF troops would be working offsite, monitoring radiation and decontaminating TEPCO workers and not directly involved in the cooling operation. As Japanese investigative journalist Yoichi Funabashi wrote in his seminal book *Meltdown: Inside the Fukushima Nuclear Crisis*, the injuries made them “aware of the reality of the nuclear crisis for the first time.”<sup>136</sup>

### ***Ronald Reagan* Carrier Strike Group: Arrival and Contamination**

Captain Thom Burke, the commanding officer of *Ronald Reagan* in 2011, is a mild-mannered Midwesterner from suburban Detroit. As a 1984 graduate of the University of Michigan who did not participate in ROTC, Burke never imagined himself commanding an aircraft carrier: “I was interested in the FBI, the CIA, those kinds of things.” But after recruiters for those agencies expressed little interest in his application, he chose naval service as an alternative, hoping to become an intelligence officer. As fate would have it, Burke passed the flight physical and aptitude test during recruitment, and with some urging from his Air Force pilot father, decided to “give aviation a shot.” He soon found



Sailors scrub the flight deck of the aircraft carrier *Ronald Reagan* on 23 March 2011. These scrub downs became a regular practice for the ship while it operated off the east coast of Japan during Operation Tomodachi. (Kevin Gray; DVIDS, 381251)

himself flying Navy helicopters. Between 1987 and 1990, he served as an H-3 pilot with HS-4, and later did tours with HS-6 and HS-8. A capable leader, Burke successfully screened for squadron command of HS-8 and led that unit from 2002 to 2004. When he completed that tour, he expected to have a relaxed student assignment at the Naval War College when his detailer called and said, “Hey, I think you’re gonna screen for nuclear power. We’d like to cancel your orders to War College. Can you get it done by correspondence?” Thus began the toughest academic evolution in Thom’s career.<sup>137</sup>

Although Burke had attended one of the top-ranked public universities in the country and later in 1996 earned a master’s degree at the Kennedy School of Government, nothing in his past curriculum vitae prepared him for Nuclear Power School in Goose Creek, South Carolina. “I was a Poli Sci major with the minimum number of math and science courses needed to qualify. I spent 18 hours a day, seven days a week studying or taking classes to pass the 10-month-long program.”<sup>138</sup> In a typical week, students spend 45 hours taking classes on a range of nuclear-power-related subjects and another 35 hours studying in a SCIF (sensitive compartmented information facility).<sup>139</sup> Commander Robert Aguilar, who commanded HS-4 based on *Ronald Reagan* during Tomodachi and later attended the same program, described it as a “15” on a scale of 1 to 10 in terms of



difficulty.<sup>140</sup> “Nuclear Power School,” Rear Admiral Robert Thomas, the submarine force commander of Seventh Fleet (CTF-74), told me, “is a master’s degree from a fire hose in operational nuclear engineering.”<sup>141</sup> Rear Admiral Dan Cloyd, the theater strike warfare commander during Tomodachi (CTF-70), said it was the “most challenging academic experience” of his life because of the “rapid pace and volume” of material presented.<sup>142</sup> Nuclear Power School is arduous because it is designed to produce an elite cadre of personnel (both officers and enlisted) highly trained in nuclear power and ready for any contingency ranging from a small reactor leak to a meltdown.<sup>143</sup> Cumulatively, the expertise that Thom and many others in the Seventh Fleet received at this school enabled the Navy to perform a complex HADR operation in a radiologically contaminated environment.

On 11 March, *Ronald Reagan* was transiting the Pacific on the way to exercises in South Korea. At the time of Tomodachi, *Ronald Reagan* had planned to be in the Seventh Fleet area of operations to provide carrier coverage while *George Washington* was in drydock at Yokosuka, undergoing major maintenance.<sup>144</sup> Captain Burke first learned about the earthquake on the ship’s television feeds from major news networks. He immediately asked the carrier strike group commander, Rear Admiral Robert Girrier, for permission to make a 10-degree course correction and head for Japan in case their aircraft were needed there. Girrier, who was in the flag mess watching the same CNN footage, immediately concurred. “I thought to myself: ‘my gosh this is going to change everything.’ Sure enough I got a phone call immediately from Vice Admiral Scott Van Buskirk [the Seventh Fleet commander] basically directing me to alter course and then make best speed to the east coast of Honshu.” Van Buskirk did not want *Ronald Reagan* to formally begin HADR operations until the Japanese invited it to do so, but he wanted the ship on station off the coast of Japan, ready to leap into action as soon as permission was granted.<sup>145</sup>

The ship, along with *Chancellorsville* (CG-62), *Preble* (DDG-88), and USNS *Bridge* (T-AOE-10) arrived off the east coast late in the day on 12 March. “When we showed up, I noticed that the sea was littered with flotsam and jetsam, just massive amounts of wood and floating debris,” said Burke.<sup>146</sup> One of his first concerns was to avoid damaging the ship by hitting debris at high speed or sucking too much flotsam into water intakes. “Since the carrier couldn’t see the debris, throughout the night you could hear CONEX [container and express] boxes bouncing off the bow of the ship,” recalled Commander James Elias, who commanded the carrier’s E-2C squadron, VAW-113. “It was crazy loud.”<sup>147</sup> Commander Aguilar, who flew some of the initial helicopter missions, said that “you could walk across the sea and not get your feet wet with the amount of debris that was floating in the water, entire houses, and lots of drifting boats.” Aguilar, who commanded *George Washington* later in his career, was impressed with how close Burke got the ship to the scene without damaging it.<sup>148</sup>

Burke’s other immediate concern was Fukushima: “We knew at this point that the tsunami had hit the plant and that there were risks.”<sup>149</sup> At the time neither he nor Girrier

knew about the hydrogen explosion in Unit 1, but they both suspected something was amiss. According to Girrier, “You could see the plume; I actually saw it when we had arrived off the coast. It was very distinctive and it was kind of moving toward the northeast.” After discussing the situation with Vice Admiral Van Buskirk, both officers decided to maintain a 100-mile exclusion zone around the plant. Admiral Girrier then flew over to the Japanese ship *Kirishima* (DDG-174), the Escort Flotilla One flagship, to confer with his JMSDF counterpart.<sup>150</sup> Although Girrier did not personally know the Japanese commodore, he had worked with the flotilla closely when he commanded Destroyer Squadron 15 from 2005 to 2007, and also had experience working with JMSDF when he commanded a Sasebo-based minesweeper, *Guardian* (MCM-5), from 1997 to 1998. Girrier reflected later, “One of my biggest takeaways from Tomodachi operation was how quickly we were able to immediately fall in and support the JMSDF. We train with them constantly and have a very mature relationship. Trust is everything, and trust doesn’t happen overnight.” Girrier and his counterpart quickly came up with a plan to divide the operational area into a grid, and then assign the JMSDF flotilla and the American CSG to separate zones. The two also agreed to exchange liaison officers to coordinate and deconflict throughout the operation. For the initial missions, the JMSDF assigned the U.S. strike group three helicopter landing zones on the mainland and promised to add more as the operation progressed.<sup>151</sup>

At 1300 local time on 13 March, while Girrier was still on *Kirishima*, airborne radioactivity was detected on *Ronald Reagan*’s flight deck by a portable air sampler and in the engineering spaces by a much more sensitive propulsion plant air particulate detector. The ship was operating approximately 110 nautical miles from Fukushima Daiichi.<sup>152</sup> The readings were low, but nuclear-powered ships operate under a zero standard for radioactive emissions. Consequently, it was imperative for Burke to get the ship out of there. “We couldn’t exactly set ‘Circle William’ [prepare for a nuclear, chemical, or biological attack], set general quarters . . . and close off the whole ship like we were in some serious combat scenario, because we weren’t.” So instead Burke moved the ship north of the plume (above 40 degrees latitude) and thereafter kept the ship at between 120 and 180 miles from Fukushima. In all, the ship was only exposed to the plume for 5–6 hours. During this period, a few interior spaces of the ship suffered contamination, including the filter shop and two locations in the aft mess decks. These spaces were quickly decontaminated, either with soap and water or a degreaser without pumice. Burke opted not to immediately activate the countermeasure wash-down sprinklers on the flight deck fearing that the resultant plume of spray would wash radiation into spaces below the deck that had not been contaminated.<sup>153</sup> In hindsight, this decision as well as his decision to move the ship away from Fukushima as soon as radiation was detected spared the ship a lengthy in-port decontamination period. Except for the ship’s aircraft, which occasionally flew through contamination, Burke later said, “we never got any additional contamination.”<sup>154</sup>



Rear Admiral Robert P. Girrier (*left*), shown here visiting the sailors on the amphibious assault ship *Iwo Jima* on 2 February 2009. During Operation Tomodachi, Girrier commanded Carrier Strike Group 7. (Petty Officer Second Class Michael Starkey, USN; DVIDS, 149579)

A later analysis of *Ronald Reagan*'s decontamination effort by the Center for Naval Analyses concluded that quick action by the crew probably spared the ship from having to undergo extensive decontamination at a shipyard. "Once contamination penetrates into the interior of a ship," CNA analysts Kathleen Ward and E.D. McGrady wrote, "The number of opportunities for it to become persistent increase (variety of materials, complexity of the compartments), and the difficulty of decontamination also increases due to the presence of electronics and other sensitive equipment."<sup>155</sup>

What little radiation the ship did receive still took months to decontaminate. As Burke later explained, "We eventually did a full flight deck scrub, we changed every filter on the ship from computer filters to filters in the ship's ventilation system." There was no official guidance at the time for how to operate in a mildly contaminated environment. Burke had to rely on the advice of his staff to balance the operational needs of Tomodachi with the strategic imperative to keep his ship uncontaminated and mission ready. For the most part, this meant constantly maneuvering the ship away from the Fukushima plume and diligently decontaminating equipment and personnel after exposure.<sup>156</sup>

When Girrier returned to the ship, enlisted engineering laboratory technicians (ELTs) trained in radiation control began scanning the helicopters with devices called

AN-PDQ-1 RADIACs (radioactivity, detection, indication and computation). They immediately detected some contamination on the aircraft, but allowed Girrier to return to his sea cabin. Less than 30 seconds after he shut the door, an ELT knocked and informed the admiral that he was going to be scanned. The ELT said, "You got some levels on you that are higher than normal. Let's see if your boots are contaminated. Let's take those off. In fact, why don't you take everything off and then go take a soapy shower and put all your clothes in a plastic bag."<sup>157</sup> Only in the U.S. Navy can an E-6 order an admiral to strip naked and take shower. As Girrier described the situation, "After asking him to tell me the RADIAC readout, I did exactly what he told me to do despite the obvious difference in rank. In the Navy, you can't know everything and have to trust your people. ELTs are highly educated and know what they are doing. It's a beautiful thing and it's one of the main reasons why our Navy is the best in the world."<sup>158</sup>

Aguilar's helicopter landed a few minutes after Girrier's. Aguilar was not allowed to leave the flight deck until he and his crew had been fully scanned. After detecting radiation on their flight suits, the ELTs led the crew to an area of the flight deck called the battle dressing station, which is used to triage casualties during battle. There, the ELTs told the crew to remove their flight suits and boots. "Most of us had thermal underwear on beneath our flight suits," explained Aguilar, "but it was still cold."<sup>159</sup> Throughout Tomodachi, any clothing that registered a radiation level above 100 counts per minute on a RADIAC had to be decontaminated or properly disposed. Equipment, by comparison, was not decontaminated until its radiation level exceeded 2,000 counts per minute.<sup>160</sup>

Losing expensive, hard to acquire flight suits, boots, and other clothing after every mission took its toll on the crews. "If this keeps going," Lieutenant Mary Robinson told her squadron commander, "we are going to be out of things to wear."<sup>161</sup> Her husband, Lieutenant Aaron Robinson, a pilot with HS-14, claims he lost "many" kneeboards and several pairs of boots, but what concerned him the most was his dry suit. "I only had one dry suit, so after many missions I would wait on the freezing cold flight line for up to 20 minutes while a maintainer hosed it down and scrubbed away the hot spots."<sup>162</sup> Commander Perrella recalled having to go to his quarters after many missions in nothing but his skivvies. To limit clothing contamination, crews eventually started wearing disposable Tyvek hazmat suits over their flight suits. "You'd wear thermal underwear, a dry suit, a normal Nomex flight suit, a Tyvek hazmat jumper, big clunky rubber boots, a normal pair of gloves and a pair of nitrile gloves," explained Aguilar. "We were like the Stay-Puft Marshmallow Man."<sup>163</sup>

To streamline the decontamination process, maintainers on the ship built a cart with five different radiation sensors on it that could be run past aircraft as soon as they landed. A similar type of sensor device was constructed for personnel. "We had folks go down and grab this sensor. We called it hugging the pig," said Burke. "The highest levels we got on anybody in the crew were extraordinarily small."<sup>164</sup> The primary means of decontaminating hot spots on aircraft or personnel was soap and water. This methodology worked



well for windshields and the fuselage, but some equipment was extremely hard to decontaminate—ventilation systems, air intakes, filters, and anything made of rubber or other porous substances such as tires or wheel chocks.<sup>165</sup> Decontamination added many hours to the schedule of the maintainers for the carrier’s helicopter squadron (HS-4) and E-2C unit (VAW-113), the ship’s two workhorse units for Tomodachi. To ease their workload, maintainers from the carrier’s four fighter squadrons soon volunteered to help out. “Anyone who could help, absolutely helped and everybody wanted to help. We had fighter pilots loading helicopters. Nobody sat on their hands. It was a complete team effort,” proclaimed Commander James Elias. After a snowstorm, Elias had to request volunteers from his unit to help clear the deck of “radioactive snow.” Every sailor and non-flying officer volunteered.<sup>166</sup> As Rear Admiral Girrier pointed out, “This was unprecedented but the strike group fought through it.” They did this through risk mitigation and control (i.e., maneuvering away from the radiation), rigorous surveillance, and decontamination.<sup>167</sup>

Girrier attributed the strike group’s stoicism and lack of panic in the face of radiation concerns to the educational sessions held by Burke and other Nuclear Power School trained officers as well as the outreach efforts of the ELTs: “The ELTs talk to other sailors in the mess decks and elsewhere. So the crew knows before I know about baselines and other information relevant to radiation environment on the ship.”<sup>168</sup> Commander Kevin P. Lenox, a 2009 Nuclear Power School graduate and the ship’s executive officer, briefed HS-4 crews about the long-term effects of radiation, and assured them that it was unlikely that they would experience any of the effects. Commander Aguilar then got up and told them that he would be flying missions and if he “thought there would be a problem,” he “wouldn’t send them into it.”<sup>169</sup> This meeting and Aguilar’s re-assurances in particular lowered the emotional temperature in the unit significantly. “The sailors trusted me.”<sup>170</sup>

According to a DoD study of the radiation exposure received by *Ronald Reagan* crew members wearing radiation monitors or who reported exposure to the ship’s medical department during the period 11 March to 11 May 2011, radiation doses were “very low.”<sup>171</sup> For the entire 60-day surveillance period, no personnel on the ship, including aircraft crew and maintainers, received a whole-body dose over 8 millirem, and thyroid doses over 110 millirem. By comparison, the average yearly dosage a citizen of the United States living on the Atlantic coast receives, according to the Environmental Protection Agency, is 90 millirem. The radiation one receives during a typical chest x-ray is 10 millirem, and during a flight from New York to Los Angeles, 4.6. The DoD study calculations were based on the assumption “that individuals aboard the ship remained outside and on-deck for 24 hours every day and had a constantly high level of physical activity (and associated breathing rates) for the entire 60-day period, March 12–11 May 2011.”<sup>172</sup> “There was no hysteria,” said Girrier, “because the crew was getting good information from the top down and bottom up.”<sup>173</sup> They knew they were being exposed to radiation but not at dangerous levels.

## **Navy Helicopters during Tomodachi**

During the early periods of natural disasters, helicopters are the Navy's most significant assets. They are invaluable for supplying isolated groups of people with water, food, and medicine. They are also highly capable search and rescue platforms and can provide medical evacuation support. During Tomodachi, *Ronald Reagan* CSG's fleet of rotary-wing aircraft was augmented by two land-based helicopter squadrons based at Atsugi. In all, the Navy responded to the GEJE disaster with 22 SH-60s from four Navy helicopter squadrons:

- Eight helicopters (three HH-60Hs and five SH-60Fs) from HS-4 based on *Ronald Reagan*
- A two-helicopter detachment (two SH-60Bs) from HSL-43 based on *Preble*
- Five helicopters (SH-60Bs) from HSL-51 detailed to NAF Misawa from NAF Atsugi
- Seven helicopters from HS-14 (three HH-60Hs and four SH-60Fs) detailed to NAF Misawa from NAF Atsugi<sup>174</sup>

Optimized for anti-submarine and anti-surface warfare, most of these light helicopters were equipped with a dazzling array of sensors and weaponry but did not have much cargo space. Maintainers had to work overtime to remove weapons and sensors for the HADR mission—work that freed up valuable cargo space and inadvertently prevented a lot of this sensitive equipment and weaponry from being contaminated by radiation from Fukushima. For most of Tomodachi, the two basic missions performed by Navy H-60 helicopters were searching for survivors and bodies, and delivering vital supplies to isolated villages and hamlets.

The SH-60 Seahawk was the workhorse Navy helicopter in 2011 and remains so today. Navy SH-60s are a maritime version of the Army's UH-60 with more powerful engines, corrosion protection, and landing gear configured for shipboard landings on small platforms. The SH-60B helicopters utilized for the operation by HSL-51 and HSL-43 had a maximum speed of 145 miles per hour and a range of 170 miles with a one hour loiter time. Designed for both anti-submarine and anti-surface warfare, the SH-60B featured light airborne multi-purpose system (LAMPS) avionics system, a towed magnetic anomaly detector, and a 25-tube pneumatic sonobuoy launcher. Other sensors included the APS-124 search radar, ALQ-142 electronic support measures (ESM) system, a nose-mounted forward-looking infrared (FLIR) turret along with various torpedoes, missiles (Hellfire and Penguin), and a door gun (a 7.62-mm or .50-caliber machine gun). Its crew consisted of a pilot, an airborne tactical officer, and an enlisted sensor operator. There was very little room for cargo. To free up space, maintainers from HSL-51 removed a significant amount of warfighting equipment from the five SH-60Bs it deployed to Misawa, including the 25-sonobuoy launcher, but these aircraft still could not carry as much HADR supplies as SH-60Fs and HH-60Hs flown by the other units.<sup>175</sup>



Sailors and marines load humanitarian supplies onto an SH-60F helicopter assigned to HS-4 aboard the aircraft carrier *Ronald Reagan* in support of Operation Tomodachi. (Seaman Nicholas A. Groesch, USN; 20 March 2011; DVIDS, 380363)

The SH-60F Oceanhawk was the main anti-submarine warfare helicopter for the carrier strike group. HS-4 had five sea-based Foxtrots, and HS-14 deployed four SH-60Fs to Misawa. The Oceanhawk had an easy-to-remove dipping sonar (the AQS-13F) and a 6-sonobuoy system that took up much less space than the Bravo's 25-sonobuoy system. It also carried an additional enlisted sensor operator—a useful asset for controlling HADR landing zones and handing out supplies to civilians.<sup>176</sup>

The most useful airframes for the operation were the six HH-60Hs deployed by HS-4 and HS-14. Developed with the Coast Guard, the HH-60H “Rescue Hawk” was optimized for personnel recovery and combat search and rescue. It had a large, open cabin highly suitable for transporting personnel and supplies. It also had a large crew consisting of a pilot, a copilot, a crew chief, two door gunners, and a combat swimmer. The Hotel carried Hellfire missiles, a variety of guns, and a hydraulically powered rescue hoist, and had an extremely sensitive FLIR turret—ideal for search and rescue. Unlike Foxtrot and Bravo training, which focused heavily on anti-submarine warfare, a large part of the Hotel's training curriculum was devoted to the combat search and rescue mission set. According to Lieutenant Aaron Robinson, “We trained to do visit, board, search, and seizure missions with the Seals, and practiced landing in brown-out conditions or in close proximity to obstacles such as buildings and power lines with varying loads and no visibility. In



Petty Officer Second Class Zack DelCorte, a naval air crewman assigned to HS-4, hands bottled water to a Japanese citizen at a coastal Japanese city affected by the Great East Japan Earthquake and tsunami. Note how these Japanese citizens have formed an orderly “bucket brigade” line to receive supplies from the helicopter and the dusty, low-visibility conditions of the landing zone. (Kevin Gray; 15 March 2011; DVIDS, 378003)

these types of situations, you had to rely on your enlisted crew to help guide you into a confined landing zone. It was a true team effort and the skills we learned directly carried over to the HADR mission.”<sup>177</sup>

Robinson’s first mission was to deliver water supplies to seven isolated locations near Sendai. The day started with him and his co-pilot, Lieutenant John Callahan, flying out of Naval Air Facility (NAF) Atsugi to Yamagata Airport in central Honshu for fuel. Robinson then made a steep spiraling climb to acquire enough altitude to get his heavy aircraft over the snow-covered mountains surrounding Yamagata. Once he passed over the mountains, he could not believe the scene in front of him. “Everything was knocked down. It’s like my kids after playing with blocks, like everything was flattened and the buildings were just piles of sticks on the ground.”<sup>178</sup>

Lieutenant Robinson made his first delivery run to a remote hamlet on the side of a mountain. The only flat land suitable for a landing zone was a parking lot near a baseball diamond. He noticed that the villagers had driven the cars to one side to clear the zone, but was still concerned about damaging his rotors on a fence that surrounded the lot. “It took us three tries to land but we finally got in there.” The Japanese did not rush the aircraft, but instead they sent a single individual to the helicopter to confer with the crew chief. The chief showed them cards written in Japanese by some of the unit’s bilingual





Commander Geoffrey Moore (*left*), the commander of HS-14, and Commander Sil Perrella (*right*), the commander of HSL-51, at Misawa AB during Tomodachi. The two units integrated much of their planning and maintenance during the relief operation. (Photo courtesy of Sil Perrella)

personnel and Japanese spouses. The cards asked them what they needed and if anyone needed medical treatment. The first group took some water but left most of it in the aircraft. There was no hoarding. “The Japanese were aware that there were other people in the same situation all up and down the coast. That part was really impressive.”<sup>179</sup>

After distributing the rest of their load to civilians at six other landing zones, Robinson and Callahan flew back over the mountains to Atsugi, stopping once again at Yamagata for fuel. The entire mission took four hours. Exhausted but also elated after flying such a difficult mission, Robinson and his crew then had to wait on the tarmac at Atsugi for another four hours until a decontamination team arrived from CTF-74 at Yokosuka to check them and their aircraft for radiation. “It was all very secretive in the beginning,” explained Commander Geoffrey Moore, but once the group arrived, “I put the big arm around them and said you’re now part of my squadron. Here’s your HS-14 hats and I want you to interact with my team and people.”<sup>180</sup> After confiscating a few articles of clothing, the team eventually cleared Robinson and his crew to return to the hangar and instructed the maintainers to scrub certain spots on the airframe with soap and water. Throughout the ordeal, Robinson’s main concern was for his maintainers, who had to wash down aircraft at an outside decontamination area. “It was cold and they were not dressed as well as us.”<sup>181</sup>

Commander Aguilar's first mission was a search and rescue mission over water near the strike group. "We looked for people who might have survived, but there were no survivors in the water. When the water retreated, it just pulled everything into the ocean, but we never saw a body in it. It cleaned everything off the surface of the earth and left nothing but rubble in the water, but there were no bodies."<sup>182</sup> It was not for lack of effort that a few bodies were recovered. For nearly a month, the Navy assigned helicopters to water searches. According to Lieutenant Mary Robinson, "We spent a lot of time combing the coast looking for bodies. We couldn't find many. It's really hard to find a person floating in water. We spent many hours looking for them."<sup>183</sup> Even during the last three days of the mission, when the JSDF requested that all Navy helicopter missions focus on search and recovery, no bodies were found.<sup>184</sup>

By 16 March, the U.S. military helicopters and fixed-wing aircraft had delivered 129,000 gallons of water and 4,200 pounds of food to affected areas.<sup>185</sup> Sortie generation and supplies delivered would increase dramatically on the 18th following the Seventh Fleet's decision to move 13 helicopters and 500 personnel from Atsugi to Misawa.<sup>186</sup> Although HSL-51 and HS-14 had occasionally deployed mixed two-aircraft detachments to ships (one from each squadron), never in the history of either unit had such a large mixed deployment occurred. Before Tomodachi, the two units were rivals that competed against each other constantly. As Commander Moore, attested: "We had to integrate almost as a big single squadron, so we created a joint ops center for joint planning, and a joint maintenance center where tools could be shared between the two units."<sup>187</sup> According to Commander Perrella, the commanding officer of HSL-51, "It was a unique, human story about two groups working together to take care of people in a very interesting time."<sup>188</sup>

Within days of the forced integration of the two units, the composite unit was dubbed the "Charlords," and a new patch created. Charlords was a combination of the two official squadron names: the HS-14 "Chargers" and the HSL-51 "Warlords." The move to Misawa came at a time when dependents at Atsugi were preparing to be evacuated due to radiation concerns. "We were basically told that you need to leave like you're never coming back," said Perrella. Many of the details of that evacuation had to be left to a stay-behind group of administrative staff aided by Navy spouse volunteers. For the Perrella family, it was an all-hands evolution. After helping Sil pack and depart, his wife Stacey worked in his office processing paperwork for the evacuees while his two middle-school-age daughters, Sophie and Sydney, did their best to entertain anxious dependent children. When Sil reached Misawa, Stacey called him and said, "Hey, if you ever do go back to your squadron and your office smells a little like vomit, I think Sophie used your M&M machine and gave all of the kids too much chocolate and one of them got sick."<sup>189</sup>

Once at Misawa, the units had to scramble to find lodging. Officers and senior enlisted tripled up in rooms at the base's Air Force Inn while most junior enlisted slept on cots in a gym. After learning that the HSL-51 executive officer, Commander Dave Walt, couldn't find a room, Lieutenant Mary Robinson volunteered to give up her room and

bunk up with her husband, Lieutenant Aaron Robinson, of HS-14, who had a single. “Mary is that okay with you?” Walt asked demurely. “I think we can make that work,” she said. “Everybody knew us as a married couple, so nobody cared.” Mary’s main focus was getting her enlisted sailors out of the gym and acquiring proper winter clothing for them: “I remember coming home after a mission in a blizzard and seeing one of the maintainers painstakingly scanning the aircraft for radiation for over 30 minutes. It was much colder at Misawa than Atsugi.” She also was concerned about costs of the Air Force dining facility (DFAC) for her sailors. “I bought a chocolate milk and a soda and they’re like, ‘that will be eight dollars, ma’am.’ In Navy galleys, it was usually five dollars for all you can eat.” Whenever she was not flying, Mary worked in the maintenance spaces on quality assurance issues, did rumor control [mainly regarding the radiation issues], and “a lot of like mental health checks with our maintainers to see how they were feeling with work.” Commanders Moore and Perrella managed to get the enlisted out of the gym quickly and that improved morale considerably. For her own mental health, Mary and some of the other pilots liked to gather around the television for 30 minutes or so at the end the day to watch *16 and Pregnant* and other “trashy” television shows. “Aaron refused to watch it with us but it was a nice break.”<sup>190</sup>

Soon after their arrival at Misawa, Moore and Perrella flew out to *Ronald Reagan* to brief the Commander Carrier Air Group 14 (CAG-14) on their situation and establish a battle rhythm. It was decided that the Misawa helicopters would deliver their first daily load of supplies as far inland as possible and then fly to *Ronald Reagan* to refuel and re-supply for subsequent sorties. They would do this for approximately 3–4 hours before returning to Misawa. Some helicopters would search for groups on the ground needing help, and then land and find out what they needed. If that aircraft did not have the needed supplies, it would convey the request to an airborne E-2C, which would then locate the necessary goods and dispatch another unit to the scene. Girrier called the system “precision HADR.” With a limited number of light helicopters at his disposal, he could not move massive amounts of supplies to the populace. Instead, his H-60s addressed very specific, life sustaining needs, transporting such items as medicine, water, and baby formula to isolated populations.<sup>191</sup>

Everyone involved in these missions praised the Japanese civilians for their discipline. “Absolutely nobody rushed the aircraft,” explained Perrella. “These were the most controlled and civilized crowds I have ever seen, and they would never take anything they did not need. They would say, ‘We don’t need water; we need toilet paper,’ and we would tell the E-2C to send toilet paper.”<sup>192</sup> The fact that she did not “have to worry about people stealing stuff from the helicopter” or getting out-of-control allowed Mary Robinson and crew to concentrate on other aspects of the mission. “I could focus on calculating fuel and weight loads while my aircrewman distributed supplies.” Helicopter pilots learn early on in their career that it is the small details that can kill you. As Mary later told me, “If you get focused on doing the awesome thing and forget about the basics, then you crash.”<sup>193</sup>



Sailors decontaminate an SH-60B Seahawk helicopter assigned to HSL-51 on the flight deck of the guided missile cruiser *Shiloh* during Operation Tomodachi. (Seaman Charles Oki, USN; 23 March 2011; DVIDS, 382013)

Aguilar put it more bluntly: “They don’t make movies about helicopter guys. Whenever you ever see a helicopter in a movie I guarantee you it’s going to crash. It always does.”<sup>194</sup>

Some items could not be easily acquired through the military supply system. At Misawa, officers purchased diapers and baby formula at the exchange with their own funds to donate to the Japanese. Similarly, sailors on *Ronald Reagan* donated stuffed animals and other items they believed might bring a smile to a child’s face.<sup>195</sup> “It snowed the second day, and it was cold, and so we started asking for donations of clothing and things, because we didn’t have that in our relief supply train,” said Burke.<sup>196</sup> Sailors from *Ronald Reagan* filled large, triple-wall boxes with sweaters, mittens, sweatshirts, and blankets—anything to keep people lacking heat, hot water, and electricity warm.<sup>197</sup> Some items donated were not life essential, but they were meant to buoy the spirits of the victims. “We all chipped in to buy candy and cigarettes for them because that was not provided by the Navy, but that’s really what they wanted,” said Mary Robinson.<sup>198</sup>

Radiation concerns meant that helicopter pilots always needed to be cognizant of the Fukushima radiation plume and avoid flying into it, but sometimes aviators would take calculated risks to deliver vital supplies. “My most memorable mission,” recalled Aaron Robinson, “was flying during a beautiful purple and red sunset with a planeload of baby supplies and medicine.” A warning about a wind shift suddenly came in over the radio, and Aaron soon realized he was flying straight into the plume. “My initial gut reaction



was to get out of there because we had eight people in a two aircraft formation,” but then he questioned his instincts. “Someone needed this medicine and we were less than 30 minutes away from the landing site.” So Aaron asked his crew chief if a course to the site could be plotted that avoided the plume, and the two helicopters were able to skirt the edge of the plume to deliver their supplies. “I had to balance the safety of my crew with the needs of the Japanese,” he said. “It was my first command decision dealing with the radiation aspect of the mission.” When he landed back at Misawa, maintainers found a less than usual amount of contamination on him and his crew. “They only took my knee pads, not my boots.”<sup>199</sup>

By the end of their active participation in Tomodachi on 2 April, the Seventh Fleet forces delivered more than 260 tons of relief supplies to survivors.<sup>200</sup> HS-4, the workhorse rotary-wing unit on *Ronald Reagan*, flew 219.7 hours with a 100 percent sortie completion rate and delivered 440,500 pounds of cargo to unprepared landing zones despite sleet, snow, rain, unfamiliar terrain, and the presence of radiological contamination.<sup>201</sup> HSL-51 delivered 200,000 pounds of supplies and HS-14, a bit more material due to its higher load capacity SH-60F and HH-60H aircraft.<sup>202</sup> Overall, the SH-60s flown by the Seventh Fleet were not the best cargo helicopters: a fully stripped down SH-60 can only carry approximately 2,500 pounds of extra weight whereas a Marine Corps MH-53 can carry 36,000 pounds, and a CH-46, 7,000. However, they arrived in the disaster area over a week before the heavier helicopters of Marine Medium Helicopter Squadron 262. During that critical week, they were able to fly in life-sustaining supplies quickly and efficiently due to forward basing at sea and at Misawa, superb battle management, and the discipline and disaster preparedness of the Japanese. Unlike in Indonesia during Unified Assistance, where a lot of potable water was needed quickly, many Japanese towns already had water stocks. They just needed medicines, sanitary products, and other lightweight goods. Even after the 53s and 46s arrived, the SH-60s continued to prove useful for flying into small, remote landing zones inaccessible to the larger helicopters.<sup>203</sup>

### Navy Fixed-Wing Aircraft in Tomodachi

As in the case of many HADR-type operations, helicopters often commanded center stage in Tomodachi. Nevertheless, fixed-wing aircraft had a considerable role to play. Fifteen U.S. Air Force transport planes (C-17s, C-130s, KC-135s, and C-12s), for example, flew 127 sorties, carried 6,213 passengers, moved 816 tons of cargo, and delivered 489,300 tons of fuel on aerial refueling missions during Tomodachi.<sup>204</sup> Air Force C-12 Hurons, Global Hawk drones, and U-2 reconnaissance aircraft were used extensively for mapping contamination levels around Fukushima.<sup>205</sup> For the Navy, the most significant fixed-wing contributions were made by P-3C maritime surveillance aircraft and E-2C Hawkeye airborne early warning aircraft.<sup>206</sup>

The P-3C is a four-engine, land-based ocean surveillance aircraft. It carries a variety of weaponry (torpedoes, mines, rockets, and missiles) for anti-submarine and

anti-surface warfare as well as a range of sensors designed to pick out targets on land and sea from great distances. For HADR missions, its infrared detection system and surveillance radar were particularly useful as was its mission range of 2,380 nautical miles and its endurance.<sup>207</sup> Although most missions rarely extend beyond three hours, the aircraft can remain airborne for up to ten hours. Its crew of 11 consists of three pilots, two naval flight officers, two flight engineers, three sensor operators, and one in-flight sensor operator.<sup>208</sup>

Rear Admiral Buck, who not only commanded the Seventh Fleet's patrol and reconnaissance force (CTF-72) but also the Middle East maritime surveillance task force (CTF-57), normally had 8 to 12 P-3s in Bahrain and a similar number in Japan. The Japan-based aircraft supplemented a much larger JMSDF contingent of 107 P-3 and P-1 aircraft. When the earthquake hit, Admiral Buck had two aircraft in the air: "We first told them what had happened and assured them that they had good runways to return to and then we asked them to commence SAR operations on the western end of the debris field." For the next few days, SAR became the central focus of the Japan-based P-3C squadron, the VP-4 "Skinny Dragons," and it was this unit that found one of the few survivors in the water. "My crews found a Japanese man alive sitting on the roof of his house floating 71 nautical miles off the coast of Japan. They vectored a fishing boat to the house to rescue the man.



A P-3C Orion maritime patrol aircraft attached to the "Skinny Dragons" of Patrol Squadron (VP) 4. During Operation Tomodachi, VP-4 aircraft employed its surveillance technology to search for survivors and mapped debris fields of the east coast of Japan. (Petty Officer First Class John Herman, USN; 15 November 2014; DVIDS, 1666643)

It was divine intervention as far as I was concerned.”<sup>209</sup> On another mission, a VP-4 crew spotted the words “HELP WATER” formed in the snow of a baseball field located beside an elementary school. They relayed the information to the JSDF, which dispatched a ground unit to deliver water to the beleaguered village.<sup>210</sup>

By 15 March, aircraft from the CTF-72 had flown five SAR sorties totaling 41.6 flight hours and 14.4 hours on-station.<sup>211</sup> A few days later, VP-4 aircraft began mapping the western edge of the debris field.<sup>212</sup> “We have built a pretty effective map of the debris field as well as cleared areas in the water, which enables other rescuers the ability to focus on new areas,” said Lieutenant Matthew Welch, a VP-4 pilot.<sup>213</sup> Eventually, a select number of VP-4 aircraft received sensors that allowed them to map the radiological water plume emanating from Fukushima. According to Buck, “We were asked to go out and map the water plume of radiation, which turned out to be massive, and unfortunately and tragically, it was happening right in the richest fishing grounds off the east coast of Japan.”<sup>214</sup> Buck coordinated closely with his JMSDF counterpart at Atsugi throughout the operation. The JMSDF also assigned liaison officers to certain P-3 flights.<sup>215</sup> Overall, VP-4 searched over 2,000 square miles of ocean and contributed 270 hours of flight time in support of Tomodachi before its mission was scaled back at the end of March.<sup>216</sup> At least 10 VP-4 aircraft received some contamination. Anything on the fuselages of the planes scrubbed



Two aviation flight handlers assist an E-2 Hawkeye park at Naval Air Facility Misawa. The aircraft belongs to Carrier Airborne Early Warning Squadron 113 deployed on *Ronald Reagan*. During Operation Tomodachi, E-2s provided communication relay services for rotary-wing aircraft delivering relief supplies to survivors. (Petty Officer First Class Jose Lopez, USN; 22 March 2011; DVIDS, 380527)

away easily, but interior contamination proved more difficult to expunge. “A lot of radiation got into the integrated circuit boards of the avionics,” noted Buck, “We ended up having to dispose of millions and millions of dollars of avionics equipment because we could not decontaminate it.”<sup>217</sup>

The other significant Navy fixed-wing aircraft in the operation was the E-2C Hawkeye. The Hawkeye provides airborne early warning, battle management, and command and control functions for a Carrier Strike Group. It is essentially the Navy’s airborne warning and control system (AWACS), and is easily distinguished by its 24-foot (7.3 m) diameter rotating radar dome (radome) mounted above its fuselage and wings. This enhanced target detection (ETD) radar can see aircraft, missiles, and ground targets at extreme distances and is the aircraft’s primary sensor. The Hawkeye’s data links and communications systems represent its other main capability. The aircraft can send sensor information to any other unit in the strike group (both in the air and at sea), receive information from other units, or relay information between units. Its typical crew consists of a pilot, a co-pilot, a combat information center officer, an air control officer, and a radar operator. The plane’s twin Allison turboprop engines can generate an airspeed of more than 300 knots. The most impressive feature of this ungainly looking aircraft is its ability to take off and land on an aircraft carrier without damaging its enormous radome or other sensitive components.<sup>218</sup>

Carrier Airborne Command and Control Squadron 113 (VAW-113), the E-2C unit on *Ronald Reagan*, flew its first mission on the 13th. Initially, the unit provided situation awareness and battle space management for helicopters searching the debris fields for survivors. “There was not a lot we could do in terms of communications relay for those early missions and our radar did not have an IR [infrared] capability so we could not find people in the water,” explained the VAW-113 commander, James J. Elias. But once the JSDF requested that the Navy begin searching for groups of survivors over land, the E-2C mission became more involved, relaying requests for various goods between units. With just a few Navy helicopters in the airspace at any given time, air traffic control and deconfliction was not necessary. Instead, the E-2Cs acted like “OnStar or Siri,” according to Commander Elias. “How many survivors are at this location and what do they need?” The E-2C crews kept a running tally of what each landing zone needed and made sure each one received supplies in order of priority. “We used the SIPRNET chat function to transmit our order lists back to the ship.” In all, VAW-113’s four E-2Cs flew a total of 33 missions and 134 flight hours during the operation. Its aircraft helped coordinate the delivery of 325,495 pounds of supplies to over 74 landing sites.<sup>219</sup> VAW-115 based in Atsugi also flew missions early in the operation before all of its aircraft were transferred to Guam.<sup>220</sup>

In terms of contamination, the E-2Cs received as high or in some cases higher doses of contamination than the helicopters. According to Aguilar, the E-2Cs sometimes received higher amounts of radiation because they flew at more contaminated higher



altitudes: “They had one aircraft that was so heavily contaminated that when we got back to San Diego that aircraft was sitting on the ramp behind the magenta and yellow tape for a long time before it finally got cleaned up.”<sup>221</sup> Commander Elias denied that his aircraft took greater radiation risks than other aircraft from HS-4.<sup>222</sup>

## **Command and Control**

When the earthquake hit Japan, the top U.S. military official in the country was Lieutenant General Field, the commander of USFJ and also Fifth Air Force. The son of an Air Force fighter pilot, Field graduated from the U.S. Air Force Academy in 1979 and then spent much of his career flying F-16s. He commanded some of the top combat units in the Air Force, including the legendary 8th Fighter Wing, “the Wolf Pack,” based in Korea (2001–2002), and the 332nd Air Expeditionary Wing in Iraq (2007–2008). Prior to his USFJ assignment, he also had extensive staff experience working in the political-military affairs field. He worked on the Joint Staff from 2002 to 2005, and at the State Department as the senior military adviser to Ambassador Richard Holbrooke, the U.S. special representative for Afghanistan and Pakistan, during the period 2009 to 2010. Those staff positions gave him an opportunity to learn about the relationship between DoD and U.S. foreign policy—critical insights for his eventual position as the commander of USFJ, which mainly involved managing the military relationship between the United States and Japan and “being the focal point for planning, coordinating, and supporting U.S. defense issues in Japan.”<sup>223</sup> Holbrooke, in particular, taught him how to move beyond a military mindset that he had been cultivating since childhood and approach problems more like a diplomat.<sup>224</sup>

Although Field had spent very little time in Japan prior to assuming the USFJ position in 2010, he understood the culture of its military due to a lifelong interest in Japanese martial arts, the samurai, and the Bushido code. In fact, he had planned to devote a good portion of free time in Japan studying kendo (Japanese swordsmanship), but a hip replacement surgery followed by Tomodachi dashed these plans. Nevertheless, his knowledge of the samurai honor code helped Field negotiate a very thorny situation that occurred early in his tenure. In April 2010 General Oriki summoned Field to his office and asked him to cancel an exercise to be held in Okinawa because of the extremely tense political situation there. “This is something we never do and Oriki was in a really terrible position to have to ask me.” He told the JSDF Chief of Staff, “Sir, I’ll do this just one time,” thereby preserving the honor of his counterpart and also solidifying a key relationship for Tomodachi. He made this pledge despite having no operational control over the marines or their exercise in Okinawa. Except for the Fifth Air Force, “I really had no OPCON [operational control] over anything in Japan.” Fortunately for Field, the III MEF commander, Lieutenant General Kenneth J. Glueck, USMC, understood the political situation on the island well and heeded his request to cancel the exercise.<sup>225</sup>



U.S. Ambassador John Roos speaks to sailors upon his arrival aboard the aircraft carrier *Ronald Reagan* on 4 April 2011. (Petty Officer Third Class Shawn J. Stewart, USN; DVIDS, 386025)

Even after PACOM designated USFJ as the supported command for all military operations in support of Operation Tomodachi on 11 March, Field had no authority to deploy Marine Corps, Army, and Navy forces to the affected areas for prolonged periods of time.<sup>226</sup> “My [maritime and ground] component commanders were never sure what I could ask them to do.”<sup>227</sup> Field had to rely on his diplomatic skills (and the strong desire of the other services to help) to convince them to move forces forward. The fact that he had a closer relationship with the U.S. ambassador than any other military officer in the region helped him significantly. Ambassador John Roos, a Silicon Valley lawyer, arrived in Japan in 2009 with little experience, either with Japan, the U.S. military, or diplomacy. Field later said, “He wasn’t sure what to do with me or the military in general. So I just kept going over to his house for breakfast every other week.” During these repasts, the two men forged a strong relationship, and Field was able to educate the ambassador on the strategic military relationship between the two countries.<sup>228</sup>

After assuming control of Tomodachi, Field’s first action was to develop three overarching objectives. First, “I said at the end of this crisis, the U.S.-Japan alliance has to be closer than it is right now.” Second, he wanted to support the JSDF, but in a secondary role: “We are going to be in support of the Japanese running the show, not doing the standard U.S. thing and kicking the door open and saying there’s a new sheriff in town and let me show you how to suck eggs.” Lastly, he wanted to help the victims of the

disaster—the Japanese people. Every decision his command made going forward had to support those goals, especially the goal of alleviating Japanese “suffering the worst disaster in modern history.”<sup>229</sup>

For his staff, Field relied on USFJ’s permanent staff of 127 officers plus some additional officers from the Fifth Air Force, the Seventh Fleet, the U.S. Army, and the 3rd Marine Division in Okinawa. He placed graduates of the Air Force’s School of Advanced Air and Space Studies (SAASS), a 50-week professional military education program that focuses heavily on strategy and international relations, in key staff billets. These officers, in turn, worked tirelessly to transform USFJ into a functional operational command center.<sup>230</sup>

The first Japanese official he spoke with was General Oriki, who informed him that Japan’s initial need was air and naval assets for search and rescue. Vice Admiral Van Buskirk, the newly appointed Tomodachi joint force maritime component commander (JFMCC), was in Malaysia at the time, visiting their submarine base in Kota Kinabalu. A 1979 Naval Academy graduate and a submariner by profession, Van Buskirk had served as the deputy commander of the U.S. Pacific Fleet before taking command of the Seventh Fleet in 2010, and had deep knowledge of the Asia Pacific region and the significance of the Japanese alliance. When the earthquake and tsunami hit, he immediately offered Field nearly every asset in his command, starting with the *Ronald Reagan* carrier strike group and every Navy helicopter and maritime patrol aircraft in Japan. He then flew to Singapore to meet up with his flagship, *Blue Ridge* (LCC-19). Later criticized for not flying directly to Yokosuka, Van Buskirk defended his decision to command the crisis from *Blue Ridge*. The ship had the information and communications technology to support an afloat staff of 268 officers and 1,173 enlisted. Historian Edward Marolda defined it as the symbol of the Seventh Fleet and “America’s ambassador in far eastern waters” due to its regular port visits to nearly every major friendly port in Asia.<sup>231</sup> “I went to *Blue Ridge*,” stated Van Buskirk, “because that’s where the Seventh Fleet commander belongs. It’s got some of the



Vice Admiral Scott Van Buskirk, commander of the Seventh Fleet, addresses the crew through the 1MC (the carrier’s public address system) aboard the aircraft carrier *Ronald Reagan*. Van Buskirk is visiting the ship to recognize the crew for their efforts in support of Operation Tomodachi. (Petty Officer Third Class Kevin B. Gray, USN; DVIDS, 384296)

most incredible capability in the world. You can command a war from that ship and it can host multiple commands in addition to my Seventh Fleet command.”<sup>232</sup> Throughout the operation, he was able to lead the Tomodachi JFMCC from *Blue Ridge* with a staff of 300 officers embarked.<sup>233</sup>

Additionally, Van Buskirk had a team of highly capable task force commanders in or near Japan. Rear Admiral Dan Cloyd, the commander of the Seventh Fleet battle force (CTF-70), worked at the Seventh Fleet headquarters in Yokosuka throughout the crisis as did Rear Admiral Robert Thomas, the Seventh Fleet submarine force commander (CTF-74). Rear Admiral Buck, the Seventh Fleet patrol and reconnaissance force (CTF-72) commander, operated out of Atsugi, and Rear Admiral Jeffery “Scott” Jones, who commanded the Seventh Fleet Amphibious Force (CTF-76), ran his command from his flagship, *Essex*. The acting commander of the Logistics Group Western Pacific (CTF-73), Captain Matthew Garside, was the only force commander not in Japan or Japanese waters during the crisis. He worked at the CTF-73 headquarters at Sembawang Naval Base in Singapore, a major ship repair facility and logistics hub for the Seventh Fleet.<sup>234</sup>

For Field, one of the most unique and significant aspects of the Navy team of flag officers was that three of them had graduated from the Nuclear Power School (Van Buskirk, Cloyd, and Thomas). Except for a reservist whose civilian job was in a nuclear power plant, none of Field’s Air Force staff had any nuclear expertise. This paucity of knowledge quickly became a liability once the Fukushima disaster became apparent. According to Field, General Oriki’s second request after SAR support was for nuclear expertise “because he didn’t have a clue, and nobody in his headquarters had a clue on the nuclear side of things. I informed him not to feel bad because nobody in my headquarters had a clue either about that.”<sup>235</sup>

For Fukushima related advice early in the crisis, Field leaned heavily on Thomas as a stopgap until the Defense Threat Reduction Agency (DTRA) sent experts. Thomas not only had plethora of officers and enlisted personnel trained at Nuclear Power School on his staff, but he also had longstanding relationship with Admiral Kirkland Donald, the director of Naval Reactors (NR). NR, a part of the National Nuclear Security Administration, maintained a small command center in Yokosuka designed to handle a nuclear incident involving a U.S. ship. “We utilized that for the Fukushima issue and given the culture [of the U.S. Navy nuclear power program], they’re very, very good at incident management and reaction and response,” explained Thomas. To head up the command center, Admiral Donald dispatched one of his most knowledgeable and capable deputies, Troy Mueller, the head of radiation control for NR.<sup>236</sup> Mueller’s team examined data coming in from U.S. ship and shore-based radiation detectors as well as from TEPCO, the government of Japan, and a team of interagency experts at the U.S. Embassy. They then produced timely situational reports that synthesized and analyzed the information for senior U.S. leadership. Mueller’s people also provided modeling and simulation support for senior U.S. and JSDF leadership—information that would be critical in



helping them decide if and when to evacuate U.S. citizens from Japan. As soon as he started receiving more subject matter experts at Yokota, Field established his own radiological analysis shop called the radiological consequence management team (RCMT) and staffed it with personnel from DTRA and Air Force intelligence officers. Similar to the Navy unit at Yokosuka, this team synthesized all incoming data and reports and coordinated modeling efforts. They also built a model of Fukushima to help senior leaders grasp various events happening at the plant.<sup>237</sup>

The increasing complexity of Tomodachi and the fact that USFJ was never meant to be an operational command eventually convinced Admiral Robert F. Willard, the PACOM commander, to establish a new headquarters organization headed by his Pacific Fleet commander, Admiral Patrick M. Walsh. The new organization, Joint Task Force 519 (JTF-519), was stood up on 18 March and activated on the 24th. Lieutenant General Field would continue to play a significant role in the operation as the JFACC and USFJ. Vice Admiral Van Buskirk also stayed on as the JFMCC, and Major General Mark Brilakis, USMC, the 3rd Marine Division commander, became the joint force land component commander (JFLCC).<sup>238</sup> A consequence management support force (CMSF) was established directly under the JTF-519 commander to focus on Fukushima. It analyzed the constant stream of data about the nuclear disaster and developed models, plans, and responses to major releases of radiation at the plant.<sup>239</sup> JSDF liaison officers would serve on the JTF-519 staff and the staffs of all component commanders. They would coordinate tasking from the JSDF, which would remain in overall control of the operation, and also participate in daily bilateral battle updates where stakeholders presented and discussed operational issues.<sup>240</sup>

Admiral Walsh, a 1977 Naval Academy graduate and a fighter pilot by training, had extensive command experience, having commanded Carrier Group 7, the Fifth Fleet, and most recently the U.S. Pacific Fleet—the largest naval fleet in the world with 180 ships, 2,000 aircraft, and 125,000 people. He also had served as a White House Fellow and earned a PhD from the Fletcher School of Diplomacy. One of Admiral Walsh's first moves as the



Admiral Patrick M. Walsh, commander of the Joint Support Force Japan (JSF-519) and the U.S. Pacific Fleet, speaking to American and Japanese forces at Camp Sendai on 10 April 2011. Admiral Walsh commanded JSF-519 from 18 March to 12 April 2011. (Jose Sanchez Alonso; DVIDS, 388473)

new JTF commander was to change the name of the command to Joint Support Force on the very day his command was activated, 24 March 2011. He made that change to assure Generals Oriki and Kimizuka that despite his high rank and position as commander of PACFLT, he would be working for them in a support role.<sup>241</sup> The mission of the new support force would be to conduct “foreign humanitarian assistance and foreign consequence management operations in areas of Japan affected by the earthquake and tsunami to alleviate human suffering and provide support to the government of Japan.”<sup>242</sup> This mission would take place in three phases:

- Phase 1 SAR and lifesaving: provide emergency medical services (HADR); and support emergency containment measures (consequence management).
- Phase 2 Life support and sustainment: distribute HADR supplies (HADR); and stabilize the reactors (consequence management).
- Phase 3 Recovery and reconstruction: provide critical equipment and engineering support (HADR); and support recovery, containment, and radiation mitigation efforts (consequence management).<sup>243</sup>

The method of providing humanitarian assistance and foreign consequence management was to be “by, with, and through the government of Japan.” The operation would terminate only after “Japanese nationals and their families’ suffering is reduced to a level manageable by the government of Japan” and “bilateral ties are strengthened.”<sup>244</sup>

When asked if he agreed with Admiral Willard’s decision to replace him as the overall commander of Tomodachi with Admiral Walsh, Lieutenant General Field stated that he supported the decision wholeheartedly because it fit well with his three main objectives: “making the U.S.-Japan alliance better, supporting the Japanese Self-Defense Forces, and making sure that we’re focusing on the Japanese people who are going through this disaster.” None of those objectives, he told me, “had anything to do with Burt Field being in charge.” Field emphasized that Walsh came to Japan with a fourth star on his shoulders, a staff of reservists who train constantly for joint operations, and a cadre of full-time staff from the Pacific Fleet, PACOM, and Naval Reactors. Before appointing Walsh to the position, Admiral Willard personally called Field to explain his rationale for the command structure change. “If I’m saying that I’m going to give the Japanese everything that I can,” Willard asked him, “Why wouldn’t I give them this?” Field completely agreed. He also had the greatest respect for Walsh. “Pat and I had worked together before and there is nothing bad you will ever hear me say about Pat Walsh. I love that guy. He’s brilliant. He’s an incredible leader, and he’s just a great American.” With Walsh in overall control of Tomodachi, Field had more time to focus on his JFACC, Fifth Air Force, and USFJ positions—each a full-time job in and of itself. For three months, “I don’t think I ever got more than three or four hours a night of sleep.”<sup>245</sup>

## **Reopening Sendai Airport**

One of Lieutenant General Field's most significant decisions during his brief tenure in command of Tomodachi occurred late at night on 14 March in a stairwell at Yokota AB. Field was leaving the building to catch a few hours of precious sleep when his new joint special forces component commander, Colonel Robert Toth, USAF, approached him. Toth and his team of special operators had just come up with a plan to reopen Sendai airport, which had been heavily damaged by the tsunami. "I did not know this guy from Adam," explained Field. "It was late and he's a colonel that I've never met before and I'm a three-star general. I just looked at him and I said it just like this: 'bull——t on that. There's no f——ing way!'" Sendai airport had been hit by a wave over 60 feet high and had cars from a nearby automobile factory and other debris strewn all over its runways. Field had recently flown over the airport and described it as looking like a messy child's bedroom with trucks, cars, and other equipment piled up to 20 feet high. Neither Field nor his JSDF counterparts believed it could be returned to operation in time to be of much use to the operation.<sup>246</sup>

Toth refused to back down. A Special Forces MC-130 navigator by training, he had spent his career landing on short, unimproved airfields throughout the world and had a team of operators trained to quickly repair damaged airstrips in wartime situations. His special forces MC-130Hs could land on airfields 325 meters in length.<sup>247</sup> Sendai's two runways, by comparison, were 1,200 and 3,000 meters in length. "Sir, I'm telling you. My guys have been up there. They did an aerial survey," he told the general and over the next few minutes convinced the skeptical commander to allow him to give it a shot. "You take your team and you let me know what I can do to help, and if you pull this off, drinks are on me," Field told him.<sup>248</sup>

The next day, 15 March, Toth ordered three MH-60s to fly to Sendai and insert a team of 320th Special Tactics Squadron (STS) personnel into the airport. The Kadena-based 320th STS trains to set up air bases in hostile and austere conditions. It has a wide variety of highly skilled personnel, including combat weathermen, combat controllers, special tactics airmen, and pararescuemen. Their plan was to establish contact with the local airport authorities, survey the facility, and determine the next steps required to clear enough runway for an MC-130 to land. Approximately 20 minutes after departure, all three MH-60s were recalled to Yokota AB in order to pick up dosimeters to check radiation levels at the airport. By the time dosimeters were located six hours later, a severe line of weather had popped up 80 miles south of Sendai, compelling Toth to abort the mission that day.<sup>249</sup> A team of marines from the 31st MEU, however, did manage to land at Sendai and conduct a site survey on the 15th that convinced Marine Corps leadership to begin assembling a team of logistics personnel to support Toth's efforts.<sup>250</sup>

On the 16th, Toth and his team decided to send an MC-130 to Matsushima AB loaded with 21 personnel, various equipment, and two HMMWVs under the command of Colonel Royce "Dwayne" Lott, USAF, from the 353rd Special Operations Group (SOG).

The plan called for Lott to leave some of his team at Matsushima to assist the JASDF there in reestablishing air traffic control and drive the rest overland 22 miles south to Sendai airport to help clear enough runway for MC-130s to begin delivering heavy equipment and supplies. The MC-130P (Jackal 17), flown by Captain Chris Stewart, found half of one of Matsushima's runways cleared of debris—enough for him to make an assault landing. After making one more visual reconnaissance pass over the air base, the MC-130 touched down at 0550 local time, rolled out the team and equipment from the 353rd SOG, and soon departed.<sup>251</sup>

Lott quickly linked up with its JASDF escort and set Toth's plan into motion. Combat controllers reestablished air traffic control at Matsushima by 0700, and at 1100 Captain Stewart took off from Yokota for his second sortie to the base loaded with pallets of water, food, and blankets. One hour later, Jackal 17 delivered the first HADR supplies into Matsushima since the tsunami on 11 March 2011.<sup>252</sup>

Meanwhile, Lott and an advance team from the 353rd SOG arrived at Sendai airport at 0830 and, with the help of his JASDF escort officer, found Tetsuro Ikeda, the senior Japanese official on the airport. Ikeda quickly approved Lott's plan for his personnel to work with airport crews to clear enough runway space for C-130s to land. Lott was also pleased to see that Japanese crews had already moved a lot of debris from a 5,000-foot stretch of Runway 27. Working side by side with the Japanese civilian crew, it only took the 353rd SOG operators 60 minutes to clear the remaining debris with chain saws,



Members of the U.S. Air Force 320th STS arrive at Sendai airport on 16 March 2011. (Staff Sgt. Samuel Morse, USAF; DVIDS, 383460)



HMMWV winches, street cleaners, and “whatever else they could find at the airport.” At 1000, combat controllers had set up a makeshift air traffic control system and declared Sendai open for C-130 landings. Lott then asked his Japanese counterpart what he needed in terms of supplies. Ikeda stated that his most urgent need was for diesel and gasoline. Without fuel, he would not be able to power his generators or recovery vehicles much longer.<sup>253</sup>

When Toth received the request from Lott, he ordered an MC-130H, call sign Goose 56, loaded with 50-gallon drums of diesel, a forklift with a 10,000-pound load capacity, and extra generators to fly to Sendai. Goose 56 became the first fixed-wing aircraft to land at Sendai since the tsunami when it touched down at 1500 local time on the 16 March. According to Toth, who was on that flight, “We quickly offloaded the material and from that point on all the way through April 6th, we ran nonstop, 24/7 operations at Sendai airport.”<sup>254</sup>

One of those follow-on flights on the 16th was a Marine CH-46 helicopter carrying a HAST team of nine Seabees from NMCB-133 based at Camp Shields in Okinawa. This team was deployed to survey damage in the Sendai area and conduct structural assessments of buildings, roads, bridges, ports, schools, and other critical infrastructure.<sup>255</sup> According to Commander Christopher Kurgan, the commander of NMCB-133, the team was composed of senior subject matter experts (officer and enlisted) “who could make recommendations on whether things were safe or not and come up with a plan to fix problems.” In most cases, the Japanese took primary responsibility for construction and rebuilding, but seven Seabees did help clean up the Ishinomaki Technical High School on 30 March 2011. In total, NMCB-133 sent four HAST teams to Sendai during Tomodachi, and these teams visited 49 sites and produced detailed survey assessments of 13 facilities during their two weeks in Sendai.<sup>256</sup>

The 12 Air Force special operations airmen who arrived at Sendai on the 16th were the vanguard of a massive U.S. military effort to transform Sendai airport from a disaster zone to the air hub for humanitarian supplies destined for the Miyagi Prefecture. On 19 March, Toth took the Tomodachi JFLCC commander, Major General Brilakis, on a tour of the facility. Seeing the work that still needed to be done there, Brilakis quickly agreed to send elements of the U.S. Army Logistics Task Force 35 and the 3rd Marine Logistics Group along with heavy equipment to assist in the cleanup. Between 20 March and 6 April, a force of over 400 soldiers, airmen, sailors, and marines removed all debris from the airport’s runways, taxiways, parking aprons, grass areas, and buildings, nearly transforming the airport back to its original condition before the tsunami. One of their most visible accomplishments was the removal of over one thousand derelict vehicles to a field near the base.<sup>257</sup>

Throughout the cleanup, U.S. forces lived in tents and unheated terminal buildings. Toth and the Japanese were impressed that the troops did not steal any food or other items from stores and kiosks in the airport: “They were cold, wet, and hungry from



Lance Corporal Robert Branch, an electrician attached to the 3rd Marine Logistics Group, repairs a generator-powered floodlight at the Sendai airport on 29 March 2011. (Gunnery Sgt. J. L. Wright Jr., USMC; DVIDS, 383924)

working outside all day but they did not pilfer any snacks. They didn't even attempt to buy energy drinks or beer from vending machines." One of the coldest jobs was that of the combat controllers. For much of the operation, they worked from a card table set up on a rooftop because the tower had cracks in it. Temperatures often dipped below freezing, and snow was common.<sup>258</sup>

On 20 March, the first C-17 landed at Sendai with 18 pallets of HADR supplies.<sup>259</sup> To help his team unload larger transport planes such as this one, Toth requested a palletized container loader known as a "K Loader." These loaders have two platforms that raise and lower independently and a very low wheel clearance for rolling on and off transport ramps. Twenty-four hours after requesting this valuable piece of equipment from PACAF, a C-5 delivered one to Sendai. "Our crews were running ragged offloading airplanes with forklifts," explained Toth, "and it was only a matter of time before we had a mishap if we did not have the right equipment to offload airplanes." General Gary L. North, USAF, the PACAF commander, understood the situation implicitly and moved mountains to get that K Loader to Sendai as expeditiously as possible.<sup>260</sup>

On 29 March, Japanese and American work crews had cleared debris from all three thousand meters of the main runway and equipped it with temporary lighting. Two days later, control tower operations commenced, and air traffic control was transferred back to



Aerial view of the runways and taxiways at the Sendai airport on 28 March 2011. Note the piles of debris pushed to the side of the runway by U.S. armed forces members and Japanese civilian workers during airport restoration and cleanup operations following the Great East Japan Earthquake and tsunami. (Staff Sgt. Samuel Morse, USAF; DVIDS, 383473)

Japanese authorities on 1 April. During the previous 21 days, Air Force combat controllers sitting on that cold rooftop had controlled over 250 aircraft from the Air Force, Marine Corps, Army, Navy, and Royal Australian Air Force. These planes delivered more than 2.31 million pounds of humanitarian aid and more than 15,000 gallons of diesel and gasoline to Sendai.<sup>261</sup> On 6 April, Lieutenant General Kimizuka visited Sendai airport and oversaw the final transfer of all remaining airport operations from the U.S. military to the Japanese.<sup>262</sup> Four days later, General Oriki, Admiral Walsh, and Lieutenant General Field joined Japanese Prime Minister Naoto Kan at a ceremony marking the official reopening of the Sendai airport.<sup>263</sup> On the 13th, commercial domestic air service resumed.<sup>264</sup>

During a state visit to Japan in August 2011, Vice President Joseph Biden gave a speech at the Sendai airport, telling Japanese officials gathered there that “I’m proud that our military was given the privilege of being able to join your forces. And within a week of the earthquake, able to reopen the runway that enabled the arrival of hundreds of relief workers and more than two million tons of humanitarian supplies. And just a month after the earthquake, on April 13th, the airport reopened to commercial flights.”<sup>265</sup> According to Toth, Prime Minister Kan had personally insisted that the vice president’s plane land at Sendai because the combined effort to open that airport in a miraculously short amount of time symbolized the “strength of the partnership” between the two nations. Admiral

Willard later told Toth and Field that it was the “best example of a combined operation that he has seen going all the way back to World War II, and one of the most successfully executed joint combined operations that he ever witnessed.”<sup>266</sup> Field, who nearly rejected Toth’s pleas to tackle the project, said, “It was a huge morale boost in the arm for the Japanese people and government when the Sendai airport opened again. One of my leadership lessons now and I tell people this all the time. Say yes to good ideas, especially the ones you know nothing about, and Rob Toth knew something about it. He had a team of folks that knew stuff about it and all I had to do was say knock yourself out.”<sup>267</sup>

### **Fukushima Stabilization Operations: 16 March–6 April**

By 16 March, the situation at Fukushima Daiichi Nuclear Power Plant was dire. The extended loss of electrical power had halted normal reactor cooling processes for Units 1, 2, and 3. All three had suffered severe damage as fuel overheated and melted. Radioactive material had not only breached the RPVs that enclosed the reactor cores for those units but also the primary containment vessels that separated the reactors from the outside environment. There had been hydrogen explosions at Units 1 and 3 and an uncontrolled release of hydrogen at Unit 2. An additional hydrogen explosion occurred at the Unit 4 building and was eventually traced to the spent fuel pond there. No firefighters or other emergency personnel were pumping water into these units on the 16th. Only a skeleton crew of 70 manned the ERC, and these controllers had only minimal situational awareness of much of the plant’s operations due to lack of electricity. The only rays of hope in this entire mess were Units 5 and 6. By some miracle, the Unit 6 emergency generator had survived the tsunami and was providing enough electricity to power the water injection systems for both reactors.<sup>268</sup>

It was on this darkest of days that Emperor Akihito gave a speech on Japanese radio and television. It was first time an emperor had directly addressed the Japanese people since Emperor Hirohito had made two pronouncements at the end of World War II: one announcing the Japanese surrender in August 1945 and another in January 1946 declaring himself to be human and not divine. In the 35-minute-long address on 16 March 2011, Akihito expressed his “grave concern” about the “unpredictable condition of the affected nuclear power plant.”<sup>269</sup> Japan was truly facing its greatest existential crisis since Hiroshima and Nagasaki—a *Götterdämmerung* moment. Would the nation rise to the challenge posed by the meltdowns at Fukushima or lose all of Eastern Honshu?

At the Yokosuka NR emergency operations center, Rear Admiral Thomas was monitoring the situation with Troy Mueller and was shocked at what he was witnessing. “At this point it looked like TEPCO was just going to walk away from the plant and let nature take its course.” This was unthinkable for a Navy nuclear submariner grounded in a culture of excellence that dates back to the commissioning of the Navy’s first nuclear submarine, *Nautilus* (SSN-571), in 1954. Thomas had been interviewed for the Naval Nuclear Power Program by its legendary founder, Admiral Hyman G. Rickover, and as a young



officer survived the 1984 battery well fire on the nuclear submarine *Guitarro* (SSN-665).<sup>270</sup> “You are trained to risk life and limb to contain a reactor leak. You march to the sound of the cannons.” A few minutes later, he received a call from an unnamed high official who said, “Hey Robert, you’ve got to call the ambassador. You’re the Navy’s radiological control active duty flag officer here in Yokosuka and it sounds like TEPCO may be using hope as a course of action.” Thomas had never spoken directly with Roos before, but as ordered, he phoned the ambassador and said, “Mr. Ambassador, you’re going to get a bunch of advice, but our strong recommendation is for you to talk to the Japanese government and tell them to put water on units one, two, and three and keep them covered.”<sup>271</sup> It was around this time that an JSDF helicopter had attempted a water drop water on Unit 3 but had turned back due to high radiation readings and strong winds.<sup>272</sup>

Back in Washington, Kurt Campbell, the assistant secretary of state for the Bureau of East Asian and Pacific Affairs, requested a meeting with the Japanese ambassador, Ichiro Fujisaki, after reading a Fukushima core analysis produced by Naval Reactors and hearing about the aborted helicopter mission. In the meeting, he said, “Ambassador Fujisaki. Let me be frank. Japan is not doing what it should. The United States intends to help, but the government of Japan isn’t pulling together. You need to work together to deal with this. . . . If TEPCO isn’t capable of dealing with the nuclear accident, the Japanese government will have to. . . . It looks like the JSDF and the police are running away. You need heroic sacrifice at a time like this.”<sup>273</sup> Later that day, Fujisaki met with Admiral Michael Mullen, the 17th Chairman of the Joint Chiefs of Staff, who reiterated Campbell’s concerns and implored him to throw the JSDF at the problem. “Don’t they have armies for times like this?” Mullen asked the ambassador. “Why isn’t the Japanese government using the SDF? I just can’t understand it. . . . If this state of affairs continues, we may have to think about bringing the U.S. forces home.”<sup>274</sup>

Frustrated with the slowness of the JSDF response, Admiral Mullen also called General Oriki several times, imploring him to take more decisive action. “When the survival of the state is on the line, in the end it comes down to the military,” he told his counterpart. “Shouldn’t the SDF be taking a more aggressive role in controlling the situation? . . . The only person who can decide in Japan is the chief of staff of the joint staff.” After one call, Oriki told his director of operations (J-3), Lieutenant General Masayuki Hironaka, JASDF, “I’ve been scolded by Mullen-san.”<sup>275</sup> This was a cultural faux pas of the highest magnitude. As Lieutenant General Field explained to me, “They’re from a culture where you need to be able to handle your shit, and when you can’t, they’re going to take you out and behead you, not literally, but figuratively. . . . You had all sorts of people trying to offer the Japanese advice but no one knew what was really happening at the plant because all the electrical systems were down.” Nonetheless, Mullen was correct in his assessment that only the JSDF could right this sinking ship. It was truly the “last bastion” as journalist Yoichi Funabashi emphasized throughout his book on Fukushima, *Meltdown*. Hironaka later told Field and his staff, “The SDF is doing what it should.

Anything that threatens our dignity is not allowed, and we won't allow it. . . . You may find the Japanese way of doing things frustrating. . . . We do things differently." Field interpreted this speech as Hironaka's way of telling his American colleagues that the JSDF would fight to the end, but they would do it their way, not the American way.<sup>276</sup>

Late in the day on 16th, General Oriki met with Kitazawa and other officials to determine how the JSDF would be employed at Fukushima in the days ahead to help stabilize fuel pools and reactors. Goshi Hosono, special advisor to the prime minister, suggested that volunteers be solicited from the JSDF. Kitazawa opposed this idea, arguing, "if we did introduce a volunteer system and no one volunteered, we'd be criticized as an organization full of wimps. And if we honored volunteers with medals, it'd create an atmosphere similar to suicide pilots." In the end, Kitazawa, Hosono, and Oriki agreed that the best-qualified JSDF units would be ordered to Fukushima, starting with helicopter water bombers from the First Helicopter Group.<sup>277</sup> At a press conference later that day, Kitazawa told the media: "It is the SDF's duty to protect the lives of citizens to the end. While it is difficult to determine with 100 percent certainty that lives will not be lost, the SDF and Ministry of Defense, for our part, have determined to carry out this duty to the limit."<sup>278</sup>

On the 17th, two CH-47 helicopters from the 104 Squadron of the JGSDF took off from Camp Kasuminome near Sendai. Each was equipped with a water bucket capable of carrying 7.5 metric tons of water. The plan called for each helicopter to make two drops on Unit 3. There was concern that the drops might trigger additional hydrogen explosions. Prime Minister Kan personally approved the mission despite this risk. The pilots wore lead vests and protective masks. They also took iodine pills before the mission. Most of the aircraft windows were sealed with lead plating, and tungsten steel mats were placed on the pilot seats. They passed over the carcass of the Unit 1 building and dropped their water loads on Unit 3. Steam was rising from it, and their dosimeters jumped as soon as they passed over it. Yoshiyuki Yamaoka, one of the pilots, was sure that at least one drop made it in. Thirty tons of water were dropped in four flights by the helicopters before 1000. Their "success" saw stock prices rally. As dramatic and daring as these drops appeared on television, they had almost no cooling effect on the reactor. Site superintendent Yoshida later confessed to Funabashi that "the helicopters were ineffective. I apologize to the SDF for saying so, but they were ineffective in terms of volume."<sup>279</sup>

On the 17th, ground-based operations also resumed. The first unit to deploy to the scene was a group of Tokyo riot police and trucks equipped with water cannons. Beginning at 1900, the police sprayed 44 tons of water into the spent fuel pool at Unit 3. Designed to spray water downwards at rioters, the water cannons on these trucks did not have enough elevation to hit their intended target—a fuel pool on the fifth floor. According to Yoshida, "The riot police were not in the least bit effective."<sup>280</sup>

At 1935, the JSDF took over water injection efforts, using five airport fire trucks airlifted from various bases in the Kanto area, including Shimofusa, Atsugi, Kisarazu, Kasuminome, Hyakuri, and Iruma. Two of these specialized trucks came from NAF

Atsugi. The JSDF began pumping water into the Unit 3 fuel pool at 1935. These units were more effective than the riot police trucks, but once the trucks emptied their tanks, they had to return to an evacuation area 20 kilometers south of the plant to refill their tanks. This meant that they could only discharge water once a day. Despite these challenges, JSDF sprayed over 250 cubic meters of freshwater into the pool between 17 and 23 March.<sup>281</sup>

Ground-based injection operations improved further on 19 March with the arrival of the Tokyo Fire Department's hyper rescue team. Created in 1996 after the Great Hanshin earthquake, this specialized task force trained for disaster relief operations anywhere in the country and had subject matter expertise in chemical and biological hazards, urban search and rescue, and extreme firefighting. Within three hours of their arrival, they had discharged over 2,400 tons of water on Unit 3. This action caused radiation levels at Unit 3 to drop rapidly. That same day, 10 industrial pumps from the U.S. Navy arrived at the site. On 20 March, the JSDF assumed coordinating authority for all water-cooling operations at the site and began using the Navy pumps to cool the Unit 4 spent fuel pool pond while the hyper rescue team continued to focus its attention on Unit 3. One of Prime Minister Kan's staff later explained the justification for putting the JSDF in charge of the cooling operations as follows: "At the time, I was utterly convinced that we should have had the SDF in charge of overall coordination from the outset [because] they're the only ones who can risk their lives to do it."<sup>282</sup>

While cooling operations stepped up, TEPCO personnel worked feverishly to restore electricity at the plant. Alternating current (AC) electricity to the cooling systems for Unit 5 and 6 was restored on the 19th. The next day, Unit 5 became the first reactor to reach cold shutdown mode followed by Unit 6. Between 17 and 20 March, workers laid temporary power cables to Units 1 and 2, and AC electricity was restored to these reactors on the 20th. Power was restored to Units 3 and 4 on 26 March 2011.<sup>283</sup>

The end of March also saw the arrival of the Putzmeister concrete boom trucks, known affectionately as Giraffes. In the middle of the night on 17 March, Kiyohiko Toyama, a member of the Japanese parliament, received a call from a constituent suggesting that the government consider using these pumps at Fukushima. He informed Toyama that these German-manufactured pumps have 58-meter-long boom and could be utilized to pump either concrete or water into the affected reactors and spent fuel pools. One of these trucks had the capacity to deliver as much water as three airport fire trucks and could reach spent fuel pools over 40 meters from the ground. As luck would have it, there were two Giraffe trucks at Yokosuka awaiting transfer to Vietnam, and the Japanese government quickly arranged for them to be transported to Fukushima. The trucks would be operated by Toden Kogyo, a TEPCO subcontractor, and supervised by a Putzmeister support team based in Japan. The trucks arrived at the site on 22 March, and one of them immediately went into action at the Unit 4 spent fuel pond, which was running out of water. From the 22nd to the 27th, water was injected into Unit 4's spent fuel pond by a Giraffe to stabilize the situation there. Giraffes were subsequently employed to cool Units

1 and 3 as well. A week after the arrival of these trucks, Yoshida expressed his gratitude to the TEPCO front office for sending them. On 25 March, Charles Casto, head of Japanese site support operations for the U.S. Nuclear Regulatory Commission, told Hosono and other Japanese officials gathered in the Diet members' office building that based on a recent assessment by his agency, the U.S. Department of Energy, Naval Reactors, and General Electric, Tokyo is no longer "seriously threatened. The use of Giraffes from March 22 has clearly had an impact."<sup>284</sup>

The combined efforts of the Giraffes, fire engines, and industrial pumps represented the first step in the process of cooling the reactors, but much of the water being pumped into the reactors and spent fuel pools was seawater taken directly from the ocean. Salt from this water threatened to corrode important structural components of Units 1–4, and TEPCO soon found itself looking for large supplies of freshwater as a substitute for seawater. It needed one million gallons to sustain cooling operations. Lieutenant Commander Michael Weatherford, the operations officer for Commander Fleet Activities Yokosuka (CFAY), arrived at an innovative solution: transfer two Navy non-self-propelled gasoline barges, both oceangoing and capable of carrying over 250,000 gallons of water each, to Fukushima. CFAY was willing to deliver the barges pierside to the plant, but Hosono insisted that the JMSDF take on this job. The first barge, *YOGN-115*, departed CFAY on 25



U.S. Navy barge *YON-287* departs Fleet Activities Yokosuka on 26 March 2011 to support cooling efforts at the Fukushima Daiichi nuclear power plant. *YON-287* is the second barge supplied by the U.S. Navy at the request of the government of Japan to aid in the cooling efforts. (Petty Officer Third Class John Smolinski, USN; DVIDS, 382661)



March and arrived at Fukushima on the 31st. A second barge reached the power plant on 2 April.<sup>285</sup>

Freshwater from the barges allowed TEPCO to stop using seawater as a coolant, but it did not halt the unintentional and intentional release of radioactive water into the ocean. Some of this radioactive material was deposited from the atmosphere as fallout; other material entered the ocean from contaminated groundwater, streams, and rivers; and a third source was direct release of contaminated water from flooded buildings, trenches, and shafts. On 26 March, seawater samples near the plant contained radioactive material 1,250 times higher than normal. Tests conducted 28 kilometers offshore found radioactive iodine-131 at levels nearing the regulatory limit established by the Japanese government prior to GEJE.<sup>286</sup> The biggest source of radiation discharge into the ocean was an intentional release of contaminated water from the plant's concentrated radwaste building between 4 and 10 April. The IAEA stated that the ocean would quickly dilute the worst contamination. "The solution," as Rear Admiral Thomas told me, "was Pacific Ocean dilution." But the Japanese press, concerned about Japan's fisheries, clamored for such releases to halt immediately and for all water leaks to be plugged. TEPCO initially tried to stop the leaks using polymer, sawdust, and newspaper to block the outflow of contaminated water. Eventually, it employed "water glass," a transparent liquid that solidified when mixed with soil hardener. On 6 April, TEPCO announced that the outflow of highly contaminated water had stopped. On 30 April, it commenced work on a water treatment and recirculation system, which went into operation on 17 June. By 27 June, recirculation cooling was occurring at Units 1–3.<sup>287</sup>

On 9 April, the NRC declared that "the threat of a major event was real, but relatively small."<sup>288</sup> Between then and December, Fukushima workers continued repairs at the site and cooling the affected reactors and spent fuel ponds. On 16 December 2011, a new Japanese prime minister, Yoshihiko Noda, announced that all Fukushima Daiichi reactors were in a stable state of cold shutdown.<sup>289</sup> Fukushima was the worst man-made disaster in Japan since the atomic bombing in World War II. It would have been far worse had it not been for the heroic efforts made to cool reactors 1–3 and the Unit 4 spent fuel pool by the JSDF, the hyper rescue unit of the Tokyo fire department, and the TEPCO workers who manned the Putzmeister concrete booms and other equipment as well as restored electricity at the plant. Throughout this crisis, the JSDF's coordination of cooling and willingness to take on the most dangerous tasks without hesitation inspired other first responders, government officials, and TEPCO managers to follow their example. For the people and government of Japan, the JSDF provided a wellspring of hope during its darkest hours. Their response at Fukushima swept away any doubts many citizens had about the forces before 11 March and revealed them as saviors of the nation.

## Salvage and Harbor Clearance Response

The Navy salvage community attracts a special breed of officer. Captain Charles A. “Black Bart” Bartholomew, who led the Navy’s recovery efforts after the explosion of the space shuttle *Challenger* and later became the supervisor for salvage and diving, wrote that “salvage is not for everyone. It is hard work—dirty, dangerous, and demanding. The jobs look easier than they are. The risks are high, the problems severe and unique, and the line between success and failure thin.” It attracts people of supreme confidence “with egos to match” but with “judgement” not to take unnecessary risks.<sup>290</sup> Lieutenant Commander Derek Peterson, the Seventh Fleet salvage officer who coordinated the Navy’s salvage response during Tomodachi, is an archetypical salvor.

Derek grew up near Cape Canaveral, Florida. He worked at boatyards as a kid, and raced motorboats in his spare time. His first successful salvage effort was the recovery of a 24-foot sailboat sunk in a Florida storm. In the hope of doing “bigger things” with his life, he applied to the Naval Academy and after agreeing to spend a year improving his grades at the Naval Academy Preparatory School in Rhode Island, matriculated to Annapolis in 1995. There, he majored in naval architecture and was a long snapper and an offensive lineman on the football team. At the urging of a family friend and close mentor, Admiral Samuel Locklear, Peterson applied to serve on the guided missile destroyer *Barry* (DDG-52) for his first assignment after graduation in 1999 and worked as the damage control assistant (DCA). During his time with the ship, Al Qaeda suicide bombers attacked *Cole* (DDG-67) in Aden, Yemen. Peterson later said, “I imagined what I would have done had I been the DCA on the ship and sort of wished I had been there because I wanted to help people and be the guy who runs towards the fire, not away from it.”<sup>291</sup>

That attack and the subsequent salvage of the ship motivated him to apply to become an engineering duty officer and work in the salvage community: “I knew it would screw my career, but it’s what I wanted to do. I realized I could have a huge impact as a salvor. It’s a love that at the end of the day makes me happy.” He received his master’s degree in naval architecture at the Naval Postgraduate School in 2006, and later qualified as a Navy diver. In 2010, he served as the lead salvage officer for the Republic of Korea corvette *Cheonan* (PCC-772) after it was torpedoed by a North Korean submarine. The torpedo cut the ship into two parts, killing 46 of the ship’s 104-person crew. A South Korean navy diver died attempting to recover bodies from the vessel. Peterson was the only American allowed to assist in winching up and dewatering the aft section of the vessel: “It sunk in 500 feet of water and we had to battle 30-foot tidal shifts to float that section while at the same time worrying about whether North Korea would attempt another attack.”<sup>292</sup>

On 11 March 2011, Peterson was back in Korea for a training exercise with a company of 17 Mobile Diving and Salvage Unit One personnel on USNS *Safeguard* (T-ARS-50) when the earthquake hit. The ship itself was in a voyage repair period at the time—a status during which the ship conducts emergency maintenance while still attempting to adhere to its normal operating schedule. *Safeguard* received orders to steam to Japan on



The MSC rescue and salvage ship USNS *Safeguard* shown here in Thailand. In 2011, the ship participated in a variety of survey, salvage, and underwater husbandry operations in support of Operation Tomodachi. (Mass Communications Specialist First Class Jay C. Pugh, USN; 3 June 2013; DVIDS, 946540)

the 12th, forcing the maintenance crews and ship's company to work doubly hard to finish repairs in time for the ship to leave Korea that same day.<sup>293</sup>

Immediately after its arrival on the 15th, Peterson was summoned to the U.S. naval headquarters and informed by a flag officer there that the pumps on *Safeguard* were going to be removed and sent to Fukushima. "No, sir, they're not," said Peterson. The admiral scowled and repeated the order. "Well, go ahead. It's the equivalent of me going outside and taking the wheels off your car. You're degrading my ship by doing that." Salvors need pumps to remove water from boats or other large objects that are being salvaged. "Okay, so what do I do?" Peterson suggested sending five larger, more capable pumps from Naval Sea Systems Command (NAVSEA)'s Emergency Ship Salvage Material Locker located in Sasebo, Japan. He volunteered to personally deliver the pumps to Fukushima and help run the pumping operation, but the Japan Self-Defense Forces turned down the request.<sup>294</sup> Instead the JSDF sent a crew to pick up the pumps at Yokota on 18 March, and Peterson and his people gave them a crash course on how to operate them.<sup>295</sup> The JSDF crew were also given 100 nuclear, biological, and chemical (NBC) firefighting suits donated by *George Washington*, which was pierside in Yokosuka in a selected restricted availability (SRA) at the time.<sup>296</sup>

On 15 March, the same day *Safeguard* arrived at Yokosuka, *George Washington's* instruments began picking up radiation. This was the first indication that radiation from Fukushima had reached the Tokyo region.<sup>297</sup> This detection set off alarm bells up the chain of command. The Seventh Fleet soon ordered the relocation of all its ships at Yokosuka away from Tokyo, and had most of the Carrier Air Wing 5 (CVW-5) aircraft in Atsugi flown to Guam. Most of the grey hulls in Yokosuka steamed out of port under their own power, but *George Washington* and *Lassen* (DDG-82) were in SRA status and having extensive maintenance performed on their hulls, propulsion systems, and other equipment.<sup>298</sup> To allow access to certain equipment, workers had created 38 openings in the hull of *George Washington* and had installed cofferdams to prevent water from flooding its interior spaces. The Seventh Fleet requested divers from *Safeguard* to assist Japanese contract divers in removing the cofferdams, closing the openings in the hull, and conducting other types of underwater husbandry as needed. Peterson assigned his top enlisted diver, Master Chief Jon Klukas, to head up that effort. "It was mind-boggling, all the details of work," said Klukas. His team also inspected the ship's anchor chain and towlines in case *Safeguard* was ordered to tow it. The Navy only has a handful of vessels capable of towing an aircraft carrier in open ocean—a dangerous and risky proposition—and Klukas was the only crewmember on *Safeguard* with any towing experience.<sup>299</sup>

Thanks to the expeditious efforts of the ship's company of 3,100 (its air wing stayed ashore) as well as some 450 civilian shipyard workers from the naval shipyards in Washington State and Virginia, *George Washington* left port under its own power. The crew and shipyard workers continued to perform maintenance on the ship at sea. Captain David Lausman, *George Washington's* commanding officer, sang praises about the Herculean effort in a 27 March Facebook post: "Every system was dismantled and undergoing routine maintenance and improvement when the earthquake struck. In record time, just 11 days after the earthquake, the ship got underway completely under her own power."<sup>300</sup> *Lassen* left port that same day, 21 March 2011.<sup>301</sup>

After briefing the JSDF team headed to Fukushima with the pumps, Peterson flew to Misawa and then transited overland to the port city of Hachinohe to meet with local Japanese government officials and coast guard personnel. The tsunami had washed more than 400 shipping containers and other debris from shore into the harbor so the first priority for the team would be to survey the main shipping channels leading into the port. To do so, it employed sophisticated side-scan sonar (SSS) equipment and remotely operated vehicles (ROVs). Any hazards to navigation found by the SSS and ROVs were marked on maps for removal. Peterson's units also surveyed damaged pier and breakwater structures. The repair of those structures and the salvage and removal of objects found in the harbor by the SSS and ROV systems was mainly done by private Japanese salvage companies as opposed to Navy salvors. "Japan is very marine-oriented and has a lot of salvage and other capability," he later told me. What they lacked was autonomous survey



capability—a U.S. Navy forte. Throughout their deployment, U.S. Navy personnel only engaged in light salvage and repair in high-priority channels and piers.<sup>302</sup>

Following one of the meetings, the deputy police chief took Peterson to meet a local fisherman who had done some initial soundings of the port with a fathometer: “His little shop still had piles of debris in it, and the first thing this gentleman did was give me a glass of milk. It was probably his last glass.” Peterson, who is slightly lactose intolerant, politely consumed the milk and went over the debris field meticulously plotted by this fisherman. The man desperately needed Peterson’s crew to salvage his fishing trawler. “He was so gracious and so nice, but I could not help him personally. I had to focus on the bigger issue of getting the port open.”<sup>303</sup>

Hachinohe was particularly important as a port because nearly all natural gas and most other fuel for the region, including the air base at Misawa, came through it. Reopening the liquid natural gas pier and other fuel facilities at the port was Peterson’s top priority. The lines of 50–60 cars waiting for gas that he witnessed driving to the city underscored the gravity of the situation, as did the cold weather. Japanese houses are notoriously cold in the winter due to lack of insulation and inadequate heating systems. Lieutenant Commander Tony Brinkley, the EOD advisor to CTF-76, said that his toothpaste froze every night in his tiny Yokosuka apartment, which was heated by a single propane space heater.<sup>304</sup>

While waiting for *Safeguard* to arrive with SSS and ROV equipment, Peterson took the sounding information provided to him by local fishermen and the Japanese coast guard and then utilized an advance team of five divers from Underwater Construction Team 2 (UCT-2) and Explosive Ordnance Disposal Mobile Unit 5 (EODMU-5) to do some preliminary dives to verify the positions of several large obstructions in the major channels and around the piers. The UCT-2 divers worked around the piers, and the EODMU-5 divers worked further out in the harbor from RHIBs (rigid-hulled inflatable boats). Deeper dives near the mouth of the harbor were performed by MDSU-1 divers after they arrived aboard *Safeguard* on 24 March. One initial problem confronted by the dive teams was a shortage of dry suits for cold weather dives. The water temperature averaged 43 degrees and it snowed three times during the operation. Hypothermia was a serious threat. The EODMU team was the only unit equipped with these suits. It lent five to the MDSU-1 divers, but the UCT-2 Seabee divers had to enter the water in seamless wet suits.<sup>305</sup>

Fortunately, the team only needed to make 13 dives at Hachinohe to mark and inspect objects. Only three objects were salvaged by the U.S. Navy: one car, one 20x20-foot shed, and one 4x4x8-foot generator.<sup>306</sup> Surveying the channels with the SSS represented the bulk of the work at Hachinohe, and much of this remote imaging work occurred on the 25th and 26th of March. Once the scans were completed and major obstacles removed on the 26th, the Japanese port captain authorized the first liquid natural gas tanker to enter into the harbor and unload gas for the heat-starved prefecture.<sup>307</sup> “Had we not opened the



Petty Officer First Class Timothy Plummer (*center*) and Petty Officer Second Class Joshua Knolla (*left*), both assigned to Underwater Construction Team 2 (UCT-2), go over charts with Lieutenant Commander Derek Peterson, the Seventh Fleet salvage officer, on 25 March 2011 at the port of Hachinohe, Japan. (Petty Officer Second Class Devon Dow, USN; DVIDS, 382055)

port on the 26th,” explained Peterson, “the Tohoku region would have run out of natural gas that same day.”<sup>308</sup> As Klukas later put it: “The mission for Hachinohe was to clear a path for the natural gas tanker that was supposed to arrive on Saturday [26 March]. Simple as that.”<sup>309</sup>

On the 28th, *Safeguard* weighed anchor and proceeded to the port of Miyako. By this point, the group had a clear concept of operations that had already been pre-approved by local authorities. Hence, they commenced work immediately after their arrival on the 29th. The team first surveyed the main channels with the SSS, marked larger objects with the ROV or in some cases a diver, and then turned over data to the Japanese Coast Guard and local salvage companies. They only removed a small number of objects. According to Klukas, “We could have stayed in any one of these ports for a considerable amount of time pulling things out, but if we did that, we’d be taking work away from the local salvage companies, which was definitely not a goal of ours. Our goal was simply to scan, verify shipping lanes are clear . . . and then if there were objects in the way, we would pull some of those objects.” At Miyako, Klukas recalled removing logs and large fishing nets “Stuff that would do significant damage if a ship hit it or if it fouled a prop.”<sup>310</sup>

By the time the team left Miyako on 2 April, it had swelled to 53 personnel: 18 MDSU-1 members (including 14 divers), 15 UCT-2 Seabee divers, and 20 EODMU-5 sailors (including five divers).<sup>311</sup> The amalgamated harbor clearance unit arrived at Kesennuma on 4 April for its final survey and clearance of the operation. “By this time we were on auto pilot and the [MDSU] deep sea divers and EOD techs knew the tasking,” wrote Peterson in his after-action report. “Scan, mark, salvage if needed. Small debris was removed. The focus was on scanning the channel for the incoming ships to pass freely. Once the channel was clear, the LCU from the *Tortuga* took the UCT and EOD personnel back to the ship to wait for the next port. The next port would never come and we were released to head back to Yokosuka on the 8th.”<sup>312</sup> During the operation as a whole, the team surveyed three major ports, conducted 106 dives (13 at Hachinohe, 51 at Miyako, and 42 at Kesennuma/Oshima), and removed 15 tons of debris, including small boats, cars, trailers, fishing nets, and telephone-pole sized logs. In addition, 71 targets were positively identified and marked for removal by local commercial salvage assets.<sup>313</sup>

The efforts of the Navy salvage community during Tomodachi revealed just how valuable this capability can be in disaster situations. Often seen as a niche specialty in the Navy, this community was front and center during some of the most high-profile Navy missions in Tomodachi. From helping to get *George Washington* underway to providing pumps to help cool the reactors at Fukushima to opening up vital ports in northern Japan for commercial shipping, Navy salvors were there to save the day.

### **Pacific Passage Military Assisted Departure**

Of the many challenges that the Navy confronted during Tomodachi, the military assisted voluntary departure of dependents—Operation Pacific Passage—proved to be one of the biggest. It compelled the Navy to plan and execute a complicated NEO while at the same time orchestrating one of the largest HADR operations in history in a radiologically contaminated environment. The tensions fomented by Pacific Passage, especially for Japan-based units involved in HADR missions, were tremendous. “Far and away our biggest challenge,” noted Sil Perrella, “was the dependent evacuation. I needed to keep my squadron focused on the mission, so I devoted a lot of my attention to the NEO. ‘I got your families,’ I told my people in all-hands meetings.”<sup>314</sup> Many dependent spouses were “really anxious,” observed Lieutenant Mary Robinson. “They did not have their husbands to lean on for support while they prepared to evacuate.” While serving as senior duty officer for HSL-51 during her unit’s deployment from Atsugi to Misawa, she received a call from a frantic spouse. “Could you come into my house and get my cat out of the attic because I’m leaving,” she implored. “Ma’am, I am sorry but I can’t. I am busy trying to make sure the squadron can leave.”<sup>315</sup>

Discussion at the U.S. Embassy in Tokyo of a possible NEO began on 13 March. Deputy Chief of Mission James P. Zumwalt, the nephew of Admiral Elmo Zumwalt (the Navy’s 19th Chief of Naval Operations), asked a team of experts from the NRC if the

embassy should start planning for an evacuation of American citizens in the Tokyo metropolitan area. “The plant is 160 miles away,” they reassured him. “If this were in the United States, we wouldn’t evacuate a city that far away from a nuclear power facility.” Early the next day, the explosion in the Unit 3 reactor building occurred, and Zumwalt became more concerned. “Before I left home that day, I asked Ann [his wife] to pack each of us a ‘go bag’ in a backpack.”<sup>316</sup>

After the hydrogen explosion in Unit 4 on 15 March, the State Department invited a group of experts from the Department of Energy, NRC, and Naval Reactors to discuss the situation in a conference call. During the discussion, Admiral Kirkland Donald shocked the participants by recommending that all Americans living within 200 miles of the plant, including the ninety thousand Americans living in Tokyo be evacuated.<sup>317</sup> Gregory Jaczko, the NRC Chairman, countered with a proposal to evacuate any American living within 50 miles of the plant. Charles Casto, the lead NRC official with the U.S. Embassy Tokyo team, later explained the difference between the two positions:

The Naval Reactors organization, rightfully so, is extremely cautious about any amount of radiation, because even traces released on a nuclear submarine or ship can turn into a crisis quickly; measures must be taken immediately to protect the lives of the sailors, who are not able to evacuate and might not even be able to call for help. The NRC, on the other hand, deals with big commercial reactors that routinely put out a higher level of radiation. They have more experience with small leaks.<sup>318</sup>

After the meeting, Casto told Roos that the NR “guys are extreme” and that there was “no need to listen to them.”<sup>319</sup> Lieutenant General Field, as much as he respected the Navy’s nuclear culture, offered similar advice to the ambassador:

Everybody was panicked about this and to be perfectly frank, the Navy Nuke people were not helpful, and the reason they were not helpful is because of the way they’re trained and brought up. . . . If you are a Navy Nuke dude and you work on a submarine or a carrier or something like that, you have to know that you can go up to that nuclear reactor stark naked, French kiss it, lay down next to it, and spend the night cuddled up to that nuclear reactor and get zero radiation. That’s their culture and they tried to apply the same standards to Fukushima.<sup>320</sup>

In a press briefing on the 16th, Under Secretary of State Patrick Kennedy and Deputy Secretary of Energy Dan Poneman “recommended the evacuation of American citizens to at least 50 miles” from Fukushima.<sup>321</sup> That same day the Department of State authorized voluntary departure of family members of U.S. government personnel stationed in



Japan.<sup>322</sup> The following day, Admiral Willard ordered Marine Lieutenant General Kenneth Glueck, the commander of III MEF, based in Okinawa, to fly immediately to Yokota to stand up a new command to handle evacuation efforts and planning for DoD dependents and personnel. The new command, JTF-505, was based a few floors below the JSF-519 command, but it would not contain any JSDF liaison officers. The evacuation was a politically sensitive issue, and Willard did not want to spook his allies by including them in planning. His initial command guidance to Glueck was to draw up plans to evacuate any DoD and U.S. government dependents who *wanted* to leave—approximately 7,400 people. As such, Phase I of Operation Pacific Passage would be a voluntary MAD and not an evacuation or a NEO. At the same time, he also told Glueck to draw up contingency plans to evacuate additional people if the situation worsened. Phase II would expand the pool of eligible evacuees to include all U.S. citizens and designated foreign nationals. Phase III would be an ordered departure in which “all available DoD assets, including aircraft and ships, would be used to evacuate U.S. citizens and designated foreign nationals from Japan to any available safe haven—over eighty-four thousand people.”<sup>323</sup> To put it in historical perspective, Phase III would have been the biggest non-combatant evacuation operation since the U.S. Navy repatriated Japanese soldiers left in Northeast China to Japan following the conclusion of World War II—bigger than the evacuation of Saigon in 1975 (Operation Frequent Wind) and on par with the repatriation operations following the Korean War (Operation Big Switch).

Phase I and II operations would rely almost exclusively on chartered commercial flights and military airlift. Phase III, however, would require a massive sealift. Glueck’s staff reached out to Vice Admiral Van Buskirk, who was prepared to lend nearly every ship in the Seventh Fleet for the effort. “We could have gotten 40,000 people on board an aircraft carrier for short transits,” Van Buskirk told me. Glueck also requested support from Military Sealift Command Far East (MSCFE) based in Singapore. Captain Charles “Chip” Denman, a 1985 Naval Academy graduate and a former destroyer commander, was in charge of MSCFE in 2011. He recommended that JTF-505 consider employing *Westpac Express* (T-HSV-4676), a catamaran capable of speeds up to 45 knots (52 miles per hour). That ship could comfortably accommodate 1,000 passengers for extended transits and up to 10,000 for shorter trips. Additionally, Denman’s staff looked into leasing commercial ferries and utilizing LMSRs (Large, Medium-Speed Roll-on/Roll-off Vessel).<sup>324</sup> The newer *Bob Hope*-class LMSRs were designed to carry the equipment of a U.S. Army Task Force and had more than 338,000 square feet of cargo space, the equivalent of eight football fields.<sup>325</sup> “They are fast and can carry a lot of people,” explained Commander Mike Snoderly, MSCFE operations officer, but the prepositioned ships are full of cargo, which would have needed to have been offloaded, and were “not exactly ideally suited for packing people in there like toothpicks in a toothpick box.” They do not have the messing, berthing, and comfort facilities for large numbers of people. Commercial passenger planes, by comparison, come pre-equipped with seating, restrooms, and galley

facilities for passengers. Moreover, they can take people directly back to the United States, whereas ships would need to disembark people much closer to Honshu. Any port of disembarkation would need to be able house and feed large numbers of people and also potentially decontaminate them and their personal effects.<sup>326</sup>

Fortunately for MSCFE and the Navy, Glueck never executed Phase III or even Phase II. Pacific Passage relied exclusively on chartered commercial airliners to transport approximately 5,000 voluntary departures back to the United States.<sup>327</sup> The Phase I concept of operation called for DoD dependents signed up with the program to fly commercial jets from Yokota, Misawa, or Atsugi air bases directly to the United States. DoD agreed to pay all travel expenses and provide a 30-day, safe haven evacuation allowance to all dependents 12 years of age or older. Each passenger could carry up to two 70-pound bags and each household was allowed to bring two household pets. It was a very generous arrangement but not without some sticking points.<sup>328</sup>

Commercial airliners could only accommodate a limited number of pets per flight, which meant that families with pets often had to wait in staging areas (usually base gymnasiums) for many hours or even days before they could board a flight. The longer families had to wait with their pets and children in tow, the more stressful the situation became.<sup>329</sup> Some families opted to leave pets with a service member on base and that created a need for extra kennel spaces where animals could be cared for while that person was on duty. Naval Mobile Construction Battalion 133 detachments at Sasebo and Yokota built extra kennels at those facilities and at Misawa, but there was still not enough kennel space at those bases to handle the deluge of refugee pets.<sup>330</sup> At the height of the airlift, the Misawa Kennel, which had a capacity for 61 dogs and 18 cats, was taking in 200 pets per day.<sup>331</sup>

Exotic pets were another problem. The original Phase I concept of operations expressly forbade the transportation of horses, fish, birds, and rodents.<sup>332</sup> Mindy Van Buskirk and Diane Wren (the wife of Rear Admiral Rick Wren, the commander of Navy Region Japan) opted to evacuate the Buskirks' two birds and each family's dog in a small car from Yokosuka to Sasebo in the middle of a snowstorm.<sup>333</sup> Seeing the torment being caused by pets, JTF-505 eventually changed the rules about animals. "Pictures, children, and pets seemed to be the three things that they [the evacuating families] cared about the most," said Rear Admiral Buck. "It was very emotional. . . . We talked to the logistics folks and figured out that there would be a real nice system to get all our pets" out of Japan. "We took a horse. We took Great Dane dogs. We took snakes. We took birds. We took fish. We took them all."<sup>334</sup>

The first wave of MAD flights began arriving in the United States on 19 March. At Seattle-Tacoma International Airport, more than 100 sailors, civilian employees, and volunteers organized and coordinated by the Fleet and Family Support Centers at Naval Air Station Whidbey Island and Naval Base Kitsap greeted the arrivals and provided them assistance with lodging, relocation, child care, new parent support, phone contact



Hundreds of military family members from Yokota and Misawa Air Bases in Japan arrive at Travis Air Force Base, California, on 25 March 2011, during Operation Pacific Passage. (Kenneth Wright, 60th Air Mobility Wing Public Affairs; DVIDS, 383203)



From left to right: Ansley Galman holding Levi Galman, Tammy Ward, Audra Morris, Ashley Taylor, Kerry Olson, Christine Jamplis, and Stacey Perrella, shown here in an undated photograph. These HSL-51 spouses volunteered to provide food for dependents evacuating Japan during Operation Pacific Passage. (Photo courtesy of Sil Perrella)

information, and interpretation services (for Japanese spouses).<sup>335</sup> Additional support offered included emergency management, information systems, counseling, chaplain services, legal support, ombudsmen, medical, and family member assistance for disabled and handicapped dependents. At Travis Air Force Base, California, another major port of entry for the evacuees, Navy Region Southwest sailors partnered with airmen, soldiers and marines to welcome over 2,700 evacuees to the base. The outpouring of support from all the services meant that the ratio of passengers to assistance volunteers was almost one to one. The typical passenger was a young mother with several children, and much of the preparation and support was geared to their needs, including the creation of makeshift private areas for nursing children and changing diapers before and after immigration. “I literally started crying when I saw toothbrushes and toothpaste in the bathroom. They’ve thought of everything and have been so helpful here,” said Heather Lewis who arrived from Misawa.<sup>336</sup>

To help families from HS-14 and HSL-51 process their travel claims and entitlements stateside, Commander Geoffrey Moore sent his best yeomen to San Diego.<sup>337</sup> Back at Atsugi, Commander Perrella’s wife and other yeomen helped process travel orders for those same families. It was an all hands on deck operation and stay-behind spouses were a critical node in the process.<sup>338</sup> Early on in the crisis, Lieutenant General Field’s wife Lisa asked him if she should leave. “I think you should leave because I’m scared for you here,” he advised. Lisa then pointed out that many of the female secretaries and translators were staying on. She said:

“If these people aren’t leaving and the American Red Cross is going to need help, I’m not leaving.”

“Thank you,” the humbled Air Force general replied from the bottom of his heart.

Lisa ended up donning an iconic American Red Cross vest and helping to manage flow in the makeshift departure area of Yokota. Lisa and the other Yokota volunteers baked cookies, changed diapers, cared for children, walked dogs, and did whatever needed to be done to ease the stress of departure for the evacuees. People would stop her on the base and say, “We heard you left,” and she would reply, “No, I’m still here.” And they would respond, “I’m so happy you stayed. It makes me feel so much better.” Lisa and other wives who stayed behind had a huge positive impact on the base communities.<sup>339</sup>

To calm anxious families, most bases also held frequent town hall meetings for the military community. Rear Admiral Thomas and Rear Admiral Wren hosted some of those meetings at the Benny Decker Theater in Yokosuka. They displayed charts showing plumes and discussed how inconsequential radiation levels in Tokyo were compared to the radiation one receives flying, eating bananas, or getting routine dental x-rays. In one meeting, Thomas brought his two dogs and said, “Here are my dogs. They’re probably about 300 counts above background, but no big deal.”<sup>340</sup> A common theme in my 24 years of experience interviewing flag officers is that these people tend to be great communicators with an ability to connect with sailors from all walks of life. Admiral Willard, the



PACOM commander, epitomized that role. On 22 March, he spoke to a standing room only group of 700 service personnel and their families at the Benny Decker Theater. Captain Benton W. “Benny” Decker commanded Fleet Activities Yokosuka from 1946 to 1950 and was famous for his outreach efforts with the local Japanese community. In the spirit of Decker, Willard began his talk by emphasizing the importance of the U.S.-Japan relationship. “We’re going to stay with the Japanese and work with them through this in a supporting role until we win.” He then talked about his two tours in Japan and his deep personal love for the country. Finally, he expressed thanks to everyone in attendance for their patience during the crisis and voluntary evacuation. He then invited his wife Donna to speak. “I was at Yokota this morning,” she told the audience. “I found out that 240 of our families were being taken through to the passenger terminal. . . . Those Navy spouses, they were all exhausted . . . and the kids were totally out of control. . . . I gave them Tootsie Rolls. I wasn’t really helping. . . . We had airmen up there, carrying babies. . . . But I’m here to tell you that it went smoothly.” The couple then stayed for over three hours answering questions. Seeing the Willards calmly walking among the audience and taking endless questions, Vice Admiral Katsutoshi Kawano, the commander of the Maritime Self-Defense Force Fleet, thought to himself, “The Americans are so good at this kind of thing.”<sup>341</sup>

During the course of the crisis, an issue that created tremendous anxiety for dependents was the distribution of stable iodine. On 15 March, Navy flight surgeons began distributing potassium iodide tablets to helicopter crews flying missions in the disaster-affected region. The Air Force did likewise for flight crews operating within 70 miles of the plant. Mary Robinson had vivid memories of receiving her first dose: “We’re good naval people. We did what the flight doc told us to do.” What upset her was that a week later, the doctor told the squadron to stop taking the pills. He was worried about possible side effects, especially goiter (an enlarged thyroid). It created a lot of confusion within the ranks, she told me. “We felt whipsawed.”<sup>342</sup>

The situation became even more confusing on 21 March when Admiral Willard began making potassium iodide available for any service member or dependents living within 200 miles of Fukushima.<sup>343</sup> Casto and several medical experts at the embassy thought this move was an overreaction and advised the ambassador to refrain from a broader distribution of the pills to American citizens living within the same zone. State Department headquarters in Washington, however, quickly capitulated after receiving many complaints from American citizens in Japan and their congressional representatives. It directed the embassy to begin distributing potassium iodide to Americans living in Tokyo beginning 22 March.<sup>344</sup> “We had a disconnect,” explained Zumwalt. “The Japanese government wisely was saying they would not distribute its stockpile to the public before it was needed. Our experts agreed. But the U.S. Embassy acted as if it did not believe the Japanese government’s advice. The genesis of this problem was poor coordination with the resident U.S. military. From their perspective, they decided to distribute this



Admiral Robert F. Willard, shown here at the U.S. Pacific Fleet change of command ceremony at Joint Base Pearl Harbor-Hickam on 20 January 2012. Admiral Willard was the commander of U.S. Pacific Command during Operation Tomodachi. (Tech Sgt. Michael Holzworth, USAF; DVIDS, 512541)

drug because they had a better chain of custody and they could educate their disciplined community about how to handle this potentially dangerous drug. But they did not consider the spillover impact of their actions on the American and Japanese civilian communities.”<sup>345</sup>

On 28 March, the last contracted flight for DoD dependents participating in Operation Pacific Passage left NAF Atsugi. By this date, a total of 5,268 passengers had been evacuated by military charter. Another 2,595 additional passengers flew out on commercial flights.<sup>346</sup> Regular commercial service resumed at all Japanese airports except Sendai on the 31st. On 17 April, JTF-505 issued the Pacific Homecoming Executive Order (EXORD), and the first returnees arrived back at Yokota on the 19th.<sup>347</sup> The relief on the faces of dependents returning home to NAF Atsugi was palpable. “These people thought they would never again see their homes in Japan,” said Perrella.<sup>348</sup>

### ***Essex Amphibious Ready Group***

Many of the ships and Marine units that would comprise the *Essex* amphibious ready group (ARG) during Operation Tomodachi were in Kota Kinabalu, Malaysia, on 11 March enjoying a well-deserved liberty. After three days in Malaysia, *Essex* and *Harpers Ferry* (LSD-49), along with a large contingent of marines from the 31st MEU, were to depart for an Association of Southeast Asian Nations disaster response exercise (DIREX)

in Indonesia. Captain Bradley Lee, the Amphibious Squadron 11 commander, was in a car with Colonel Andrew MacMannis, the head of 31st MEU, and Captain Dave Fluker, the skipper of *Essex*, when the earthquake hit. They were headed to meet the mayor of Kota Kinabalu and other local officials when Lee's cell phone rang. It was Vice Admiral Van Buskirk.

"Hey, are you guys watching the news?"

"No, sir, we're doing a meet and greet with local dignitaries," Lee responded.

"Get everybody back on board and do a recall and get underway as soon as possible."

Lee immediately pulled the car over, and the three officers ran out on the street in their dress uniforms and started flagging down liberty buses, telling them to head back to the ship. Quick thinking on Lee's part literally prevented busloads of marines and sailors from scattering to the four winds. In the chaos of that day, over 1,800 sailors and marines dutifully returned to their ships without incident. "It's funny in retrospect to think about three O-6s assuming the role of traffic cops," Lee said, "But it's a testament to the professionalism of those young people that they all returned to the ships without complaint. I've never felt prouder than on that day."<sup>349</sup>

*Essex* and *Harpers Ferry* left Malaysia early in the morning on 12 March and arrived off the west coast of Japan on the 18th where they were joined by *Germantown* (LSD-42) and *Tortuga*. Those latter ships sailed from Okinawa. Collectively, the *Essex* ARG along with 4,000 marines, part of the Seventh Fleet's Task Force 76, was the last major naval unit to participate in Tomodachi. While it did not arrive until six days after the *Ronald Reagan* CSG, it was the only sea-based unit to deploy large numbers of personnel ashore and have extensive, direct contact with the Japanese people. Because it had been preparing to participate in a DIREX, its ships came pre-loaded with all the necessary equipment and supplies ready at hand for a major disaster response, allowing MEU to hit the ground running once assigned a landing zone.<sup>350</sup>

The U.S. Marine Corps fielded seven MEUs in 2011. The 31st was the only one permanently stationed overseas. As such, it functioned on a compressed 12-month deployment cycle with a 6-month work-up period followed by a 6-month deployment. All other MEUs have a 12-month work-up period followed by a 6-month deployment. Because of its more intense schedule and home base in Okinawa, many of its members jokingly referred to it as the "thirty-worst" MEU. Others loved the unit and its Okinawa home, especially those like Captain Caleb Eames, who had a Japanese spouse. "For me, it was the Thirty-BEST MEU," Eames proudly proclaimed.<sup>351</sup>

Its commander, Colonel MacMannis, became a marine infantry officer almost by accident. He grew up in Poughkeepsie, New York, and attended Penn State University where he majored in petroleum engineering. He also played baseball and briefly participated in Navy ROTC but dropped out after learning that a summer cruise would interfere with his plans to attend his brother's wedding. "I didn't know a whole lot about life then. So, I quit." An admittedly poor student, MacMannis graduated in 1984 with a low class

ranking and no job prospects. Still interested in military service after his brief flirtation with NROTC, he joined the Marine Corps in January 1984, hoping to fly planes. After attending the Officer Candidate School and The Basic School in Quantico, the Marine Corps sent him to the infantry school because no aviation slots were available at the time. While at Camp Lejeune, Andrew discovered that infantry was his true calling and transferred branches: “I really liked what I was doing as an infantry officer—being in charge of a platoon of marines, and deploying to places.”<sup>352</sup>

During his career, he served in Latin America, the Far East (including Japan), and Afghanistan. He also earned a master’s of science in applied physics at the Naval Postgraduate School with a specialization in nuclear weapons and effects—a skillset that served him well in Tomodachi.<sup>353</sup> His command tours prior to the 31st included the 2nd Battalion, 3d Marines, from 2003 to 2004, and the Marine Corps Training Command from 2008 to 2010. When he took command of the MEU in June 2010, his subordinates were immediately impressed. “The way that Colonel MacMannis dealt with the many complex challenges the 31st MEU faced while spread across the Asia-Pacific Region was inspiring,” said Lieutenant Colonel G. Troy Roesti, the executive officer of the 31st. “I was impressed by how well he could cut through all of the background noise and get to the heart of any problem, and then come up with solutions that satisfied many competing requirements.”<sup>354</sup> In his first year as MEU commander, MacMannis gained firsthand knowledge in humanitarian operations when the 31st responded to Super Typhoon Megi in the Philippines in October 2010. The event underscored the disaster-prone nature of the Pacific Rim and the fact that his MEU, like a cop walking a beat, had to be prepared for any type of contingency.<sup>355</sup>

Another thing that typhoon revealed to him is that “whenever there’s a HADR, there’s a period when there’s no organizational control of anything and people are just doing whatever they can to help, and there’s no one really in charge.” MacMannis called that phase the “period of jackassery (POJ).” For Tomodachi, the POJ lasted from 11 March until his unit landed on Oshima Island on 27 March. One of the most frustrating aspects of the POJ for him was the decision by the Joint Support Force to send the *Essex* ARG initially to the western side of Japan. “We had proposed the east side of Japan where the damage was,” he explained, but “because of the possible radiation and all of the unknowns that went with this release of radiation, we were told to go to the west side.” Planners with JSF-519 also felt that the west side was a better choice because its ports and roads were intact and free of navigation hazards. The main drawback of the west coast was the distance to the affected area (approximately 152 miles) and the fact that a large range of mountains separate the west and east side of Honshu. In March 2011, most of the passes over these mountains were covered with snow and impassable by road. Operating helicopters over these mountains posed challenges because of long transit distances and lack of refueling ramps. MacMannis considered establishing a forward aerial refueling point (FARP) in a valley halfway between Akita and Miyako, but getting fuel to the FARP by



road would have been “difficult at best and often impossible” due to the snow. “Getting permission for a FARP on Japanese soil was also problematic.”<sup>356</sup>

Looking for some way to help the Japanese from the ARG’s awkward position near Akita, MacMannis went ashore on an LCU to meet with local government officials and ask them if there might be something the MEU could do on the west coast. “We’re kind of looking at them and they’re kind of looking at us, and they’re like, ‘we don’t need any help.’ They had some damage, but it was easily repairable by themselves.” Discouraged, MacMannis and his team boarded their LCUs and transited back to *Essex* in heavy seas. “It took us something like three hours or more to get back. The seas had just come up almost out of nowhere that day. We’re going up and down in the troughs. You couldn’t even see the other LCU.” Nearly everyone on the boat got horribly seasick.<sup>357</sup>

The only upside of the Akita stopover was that the MEU picked up a couple of JGSDF liaison officers. Additional liaison officers from the JMSDF joined the ship a few days later. These bilingual Japanese officers would handle all taskings from the JSDF and local Japanese government officials. They facilitated communications with the Japanese and helped MacMannis avoid future awkward encounters like the one at Akita. Lieutenant Hiroaki Tanaka, a JMSDF officer from the Yokosuka-based Communications Commander Force One (CCF-1), served as a communications officer on the staff of Amphibious Squadron 11 on *Essex*: “My job is to help coordinate humanitarian relief efforts between the ship, CCF-1, and Japanese relief efforts on the ground. I communicate the needs of the Japanese people affected by the earthquake and tsunami to the ship for helo operations and supplies.” Tanaka and his other JSDF teammates worked long hours to expedite taskings. Lieutenant Justin Jomoto, USN, who served on the staff of Amphibious Squadron 11, said that having Tanaka aboard the ship was essential to coordinating HADR operations. “It’s been very helpful having him serve with us,” he said. “He streamlined the process for coordinating with CCF-1.”<sup>358</sup> Captain Lee was similarly impressed with Tanaka and the personnel he would eventually interact with on *Hyuga*: “There were literally folks on their flagship who had lost family members or did not know where their relatives were, yet they were still doing their mission. It was impressive to see.”<sup>359</sup>

While the LCUs were returning to *Essex*, the ARG finally received orders to transit the Tsugaru Strait to Hachinohe on the east coast. “None of the crews had steamed that far north before,” said Captain Lee, “but we figured it out as we transited, getting a lot of help from the Japanese in the process.” The Tsugaru Strait is only 12.1 miles across at its narrowest point, and while not the most difficult “nav detail” in the Pacific, it was important for his ships to make sure their navigation teams had updated charts and knew where all the hazards were because the “last thing we needed was to have some sort of mishap on our way to try to help.”<sup>360</sup>

The ARG arrived at Hachinohe on the 19th and soon put its helicopters to good use delivering HADR supplies to communities located in Ofunato, Kamaishi, and Miyako—communities that had received minimal or no support since 11 March.<sup>361</sup> The MEU’s



A sailor with the amphibious assault ship *Essex* directs a CH-46E Sea Knight helicopter as it takes off on 2 April 2011. The helicopter, with Marine Medium Helicopter Squadron 262, was flying in support of HADR operations during Operation Tomodachi. (Lance Cpl. Garry J. Welch, USMC; DVIDS, 1850032)

aviation combat element (ACE) consisted of 12 CH-46Es, 4 CH-53Es, 5 AH-1Ws, and 4 UH-1Ns from HMM-262, known as the “Flying Tigers.” The unit made its first delivery of humanitarian supplies, including water and blankets, to Miyako on 21 March. The marine pilots also conducted aerial surveys of 200 miles of affected coastline and identified isolated communities in the area that may be in need of further assistance.<sup>362</sup> By the time the MEU’s participation in Tomodachi ended on 7 April 2011, this unit had flown 204 delivery missions, 15 survey flights, and accumulated over 300 hours of operational flight time.<sup>363</sup> “The CH-53s and CH-46s greatly expedited the offloading of MREs [meals ready to eat] and water to isolated landing zones,” noted Captain Lee.<sup>364</sup> “We didn’t get to fly super long after the 53s arrived,” recalled Lieutenant Mary Robinson of HSL-51, “Those aircraft were orders of magnitude bigger than our SH-60s.” They could carry over six times the amount of supplies in a single sortie as an SH-60B.<sup>365</sup>

On 23 March, helicopters from HMM-262 delivered a beach landing team of Navy personnel to Kesenuma to link up with local JSDF units, the harbormaster, and city officials to help coordinate relief support in the area. The beach landing team also surveyed potential landing sites for the 31st MEU.<sup>366</sup> That very same day, Rear Admiral Jeffery “Scott” Jones, the new CTF-76 commander, arrived on *Essex*. Jones, who succeeded Rear Admiral Richard Landolt,<sup>367</sup> had deep knowledge of HADR operations from his



Commander, Task Force 76, Rear Admiral Jeffery “Scott” Jones, and Rear Admiral Hiroyuki Kasui, commander of the JMSDF First Escort Group, in an interview with a Japanese journalist during Operation Tomodachi. These two officers became close friends during the operation. (Photo courtesy of Jeffery Jones)

experience commanding *Bonhomme Richard* during Operation Unified Assistance. He also excelled in working with allies in general and the JMSDF in particular. A former enlisted sailor from Miami, Jones served as a sonar technician in Iceland before attending college at Florida State University and reentering the Navy as an officer. During his early career, he commanded the minesweeper *Guardian* and spent many months in the Far East operating with the JMSDF. From November 1999 to June 2001, he commanded the frigate *Hawes* (FFG-53)—the first Navy ship to reach Aden after the *Cole* bombing in 2000. The next year, he worked in the Pentagon at the Navy’s Staff’s Resources, Requirements, and Assessments Office (N8), and was in the building when American Airlines Flight 77 hit it on 9/11. He evacuated the building with his boss, Admiral Michael Mullen, who later became the Navy’s 28th CNO and was serving as the chairman of the Joint Chiefs of Staff during Tomodachi, and another staff officer from N8, Michael Gilday, who would become the 32nd CNO.<sup>368</sup>

When Jones arrived on *Essex*, one of his first priorities was to build a relationship with his JMSDF counterpart, Rear Admiral Hiroyuki Kasui, commander of First Escort Group and Communications Control Center 1 (CCC-1). Not knowing Kasui, Jones reached out to a fellow student from the most recent Combined Force Maritime Component Commander Course, who was friends with the Japanese admiral. “Could

you email Kasui and introduce us?” he implored. A short while later, Kasui called Jones on the ship and the two men hit it off immediately: “The next thing you know, we’re brothers.” That golden connection quickly bore fruit a few days later.<sup>369</sup>

During the next few days, Jones, Lee, and MacMannis pored over surveillance photographs, looking for places to put U.S. Marine and Navy boots on the ground. Whenever they found a potential location, the JMSDF would reject the idea. Jones believed it was because these locations did not need our “horsepower,”<sup>370</sup> but MacMannis suspected other reasons: inter-service rivalry and the complexities of the Japanese bureaucracy. The JMSDF “weren’t enamored with sending us ashore because they weren’t sure how to out-chop us to the Ground Self-Defense Force [which controlled all forces over land]. We had all this capability that was not being used.”<sup>371</sup> Lee felt the same way: “We could have taken care of pretty much anything that was needed. We had the equipment. We had the people. We just did not have the direction from the Japanese. The bureaucracy, both theirs and ours, was my biggest headache.”<sup>372</sup> Frustrated with the situation, Jones contacted Kasui and discussed the problem with his fast friend and “sumo brother” as he later called him. Kasui quickly reassured Jones that he would find a place for the marines to land. “That’s how the Marines ended up at Oshima Island” just offshore from the port of Kesenuma.<sup>373</sup>

At close to nine square kilometers in size, Oshima Island is the largest inhabited island in the Tohoku region. At the time of the disaster, it had 3,256 residents, and its main sources of livelihood were fishing and tourism. Oshima had a long history of tsunami strikes, and its residents were well prepared for these waves. All schools and government buildings were on high ground, and citizens were taught to move to high ground immediately when an alert sounded or an earthquake was felt. Such preparedness spared the island large loss of life—only 38 people were swept away to their deaths. Nearby Kesenuma City, by comparison, lost 1,204 people (plus another 250 missing). Damage on the island, however, was extensive. Multiple tsunami waves swept over the low-lying areas of Oshima, dragging all sort of debris with them, including boats, houses, and cars. The waves also damaged all 15 of the island’s harbors and inlets, including the main ferry port of Ura no Hama, and the ferries themselves, which had been dashed against rocks. Without the ferries, authorities on the mainland had no way of transporting any type of relief to the island. Before the marines landed on 27 March, the people had been surviving in the dead of winter with no power, no running water, and dwindling supplies of drinking water—most of which consisted of rainwater collected in swimming pools.<sup>374</sup>

Reiko Kikuta, whose family owned a local fish store, lived in an unheated warehouse with no running water, no heat, and only cement floors to sleep on for the first month after the disaster. Stoically, she and her family worked every day to clear rubble and eventually rebuild their store. Even her eight-year-old son Wataru contributed. “He just wouldn’t stop working,” Eames said. “He would shovel debris and try to salvage anything he found that was still usable. He’s really a symbol for me of a true hero. Just a hard-working kid who refused to give up, and was an example for all of us to follow.” MacMannis



also took note of Wataru: “He came out with a smile on his face every single day to help us out.” Wataru, now 20, hopes to continue serving his country as a merchant mariner.<sup>375</sup>

On 27 March, a Navy P-3 surveyed the seas between *Essex* and Oshima, looking for any obstructions or other hazards to navigation.<sup>376</sup> Once the passage was declared safe, two LCUs disembarked from *Essex* on a chilly morning carrying 177 marines, HADR supplies, and a team of Japanese power company workers and associated equipment, including a 400-kilowatt emergency generator, two bucket trucks, one crane, and a tools and materials truck. Before commencing work, the marines solemnly marched from their landing point to the main port of Ura no Hama, stood at attention, and observed a moment of silence for the deceased.<sup>377</sup> Island assembly member Sugawara Hironobu was deeply moved: “No one had done that before. No one from the mainland who had made it here took the time to do a *mokutō* [a silent honor to the deceased]. The U.S. Marines are more Japanese than my fellow Japanese countrymen are.”<sup>378</sup>

Marines and sailors then began offloading 15,000 pounds of relief supplies, including 900 gallons of water, 288 cases of MREs, tarps for temporary shelter, as well as health and comfort packages with hygienic items, baby wipes, sunscreen, toilet paper, soap, toothpaste, toothbrushes, shampoo, lotion, eye drops, foot powder, razors, and tissue supplies.<sup>379</sup> One box contained toys for children donated by the crew of *Essex*. Rear Admiral Jones tried to give the toys to the crew of *Hyuga* to distribute on the island, but Kasui, who was deeply touched, said no: “I want you to be Santa Jones.”<sup>380</sup>

The next priority was to assist the 23-person team of civilian electrical workers from the Tohoku Power Company to restore power on the island. Roads had to be cleared of debris so the power company trucks could move throughout the island. The marines did not just bulldoze debris to the sides of roads but first inspected it for anything that could be salvaged. They were especially careful to spare photos and other personal mementoes from destruction. In one case, an entire house blocked a road. Captain Eames, the public affairs officer for 31st MEU, respectfully asked permission of the owners to move it. “I would like you to destroy my house,” the owner told him with tears streaming down his face. Eames and a few other volunteers decided to enter the house and search for personal items of value before bulldozing it. The house had been swept over a half kilometer from its original foundation.<sup>381</sup>

“The people of Oshima thought we would just bulldoze everything into one big pile,” said MacMannis. “But we didn’t. We sorted debris into various categories [salvageable items, recyclable materials, and general refuse]. I think that was actually one of the most helpful things we did for the people on Oshima.”<sup>382</sup> Dr. Robert Eldridge, a civilian political advisor for III MEF who later authored a book on the Oshima relief effort, wrote that the Japanese media filmed “Marines separating dishes, cups, photo albums, books, money, graduation certificates, toys, sports equipment, musical instruments, antiques, anything that might be salvageable or irreplaceable for the residents. Unexpectedly, the Japanese public and mainland media, quietly watching this, finally began to see the Marines as



Marines with the 31st MEU carefully sort and remove debris from damaged homes on Oshima Island during Operation Tomodachi on 3 April 2011. (Capt. Caleb Eames, USMC; DVIDS, 1847602)

human beings.”<sup>383</sup> A strategic messaging goal that the Marine Corps had spent decades trying to achieve in Okinawa was accomplished in Oshima in a single day.

A pressing concern of many local Japanese was personal hygiene—a hugely important issue in a country famous for being cleanest in the world with a strong bathing culture that had roots in both the Buddhist and Shinto religions.<sup>384</sup> Most had not showered or bathed since 11 March. Admiral Kasui arranged for a number of islanders to take showers on *Hyuga* while MacMannis and his team built temporary shower units on land. The locals who utilized the showers were extremely grateful. “The showers are very good,” said Murakami Seiko, a woman living in the school being used to shelter 300 displaced citizens. “I help cook for all the people staying here, so I couldn’t go to the Japanese ship and shower there. I really appreciate what they are doing for us, it makes things much easier.”<sup>385</sup>

The Tohoku Electric Power Company team restored partial power to the island on the 27th and full power a few days later.<sup>386</sup> Cheers erupted in shelters as the lights flickered on. At a briefing on *Essex* later that night, Captain Masanori Ide, the JGSDF liaison officer to Amphibious Force, Seventh Fleet, got up to give his brief and tears started streaming down his face. “I just really wanna thank you marines for moving those trucks, because the islanders have power and heat for the first time in three weeks because of you. Thank



Colonel Andrew MacMannis, commanding officer of the 31st MEU, discusses humanitarian assistance operations with Lieutenant General Eiji Kimizuka, commanding general of Joint Task Force Tohoku, aboard *Essex* on 31 March 2011. (Mass Communications Specialist Second Class Eva-Marie Ramsaran, USN; DVIDS, 603180)

you from me personally but also the people of Japan.” Seeing a usually self-composed JSDF officer express such emotion underscored the importance of the mission. “Just thinking about that moment brings tears to my eyes,” Eames told me. “How much he cared for his country and appreciated the good work the Marines were doing there.”<sup>387</sup>

To personally thank the U.S. Navy and Marine Corps for their help, Lieutenant General Eiji Kimizuka, the commander of Joint Task Force Tohoku, flew out to *Ronald Reagan* and then to *Essex* on 31 March. The visit to *Ronald Reagan* went off without a hitch, but the JSDF delegation got weathered in on *Essex* and had to spend the night. “I put the general up in the VIP cabin next to mine,” Jones said. “We had a nice dinner, invited him to the nightly planning meeting, and even showed him a movie.”<sup>388</sup> According to Colonel Grant Newsham, USMC, the head of the U.S.-Japan Bilateral Coordination Action Team (BCAT)<sup>389</sup> who accompanied the general on the visit, he got to “see the USMC and USN working together, and working together harmoniously.” It was a lesson in jointness that helped him understand what can be accomplished when two services work well together.<sup>390</sup> He also learned a lot about amphibious capability. He had been impressed early in the operation when *Tortuga* ferried 93 vehicles and 273 JGSDF troops to Ominato on 16 March, but seeing the capabilities of a landing helicopter dock (LHD) vessel up close was even more of an “eye opener” for him.<sup>391</sup>

The lessons learned during Tomodachi later convinced Kimizuka to develop greater JSDF expeditionary capability when he became the 32nd Chief of Staff of the JGSDF. “He was surprised at all of the stuff that was down in the well deck and all the engineering equipment we had. . . . He got a great picture of what we could actually provide,” explained MacMannis.<sup>392</sup> Jones made such a powerful impression on Kimizuka that the general made a point of having lunch with the admiral every time he visited Yokosuka. During one of those meals, Jones presented Kimizuka with pictures of a small Japanese military cemetery he had recently visited in Bangladesh. Kimizuka was very moved. “You no longer are American. You are Japanese,” he told the admiral.<sup>393</sup>

From 3 to 7 April, 170 marines and 30 sailors deployed to Oshima for Operation Field Day—a mission to clear debris, open roads, and improve living conditions throughout the island. An additional 120 personnel from the 2nd Battalion of the 5th Marines and Combat Logistics Battalion 31 were deployed on 5 April to expedite the ongoing cleanup operations and provide additional shower services to the residents of the island.<sup>394</sup> Throughout the effort, MacMannis and Eames were struck by the kindness and stoicism of the Japanese. “Some of them had lost everything, including family members,” recalled Eames. “They were bringing us little cookies or little treats. One lady even brought homemade rice balls to the marines.”<sup>395</sup> MacMannis was similarly floored. “These were people facing severe food shortages and here they are giving food to marines who had plenty to eat.”<sup>396</sup>

Throughout the mission, radiation did not pose an issue for marines and sailors working on Oshima. Only U.S. Marine helicopters delivering supplies elsewhere were affected. The first aircraft to require decontamination was the CH-46E that delivered Admiral Jones to *Essex* on 23 March.<sup>397</sup> The next day a mixed section—a CH-53E and a CH-46E—returned with internal and external aircraft contamination after completing HADR supply drops on the mainland. Members of the crew had their boots confiscated.<sup>398</sup> “You get radiation when you fly under normal circumstances,” MacMannis told me. “We were being safe. I knew a lot about radiation from my graduate school experience at NPS [Naval Postgraduate School] and was not too concerned.”<sup>399</sup> The Seventh Fleet deployed a team of 21 radiological control technicians (13 sailors and 8 civilian employees) to the ARG on 22 March to detect radiation and assist with decontamination, which was mainly done with soap and water. All the civilians on the team were volunteers. “We are all trained to do this,” said George Dowyer, a civilian supervisory physical science technician. “We jumped at the chance to come over here and do this job.”<sup>400</sup>

In one instance, the *Essex* ARG had to reposition because of a wind shift at Fukushima. Captain Eames was ashore on Oshima Island at the time with a Japanese journalist and her film crew. The return LCU trip to the ship, which should have taken 40 minutes, took nearly 12 hours because of the longer transit distance and heavy seas and snow. “Everybody, even the Navy crew, was absolutely sick everywhere and the cameraman and the lady spent the night on the open LCU well deck in freezing temperatures with water and puke



sloshing throughout the deck.” When the group got back to the ship, Eames apologized profusely for the ordeal. “Don’t apologize,” she said. “I’m glad to be able to be here. Now I know what you all go through to help Japan.”<sup>401</sup>

On 7 April, the *Essex* ARG wrapped up operations at Oshima and headed to Naval Facility White Beach in Okinawa. Overall, it delivered more than 160,000 pounds of relief supplies to those affected by the disaster, 65,500 pounds of which were brought to Oshima Island. Marines and sailors on Oshima removed more than 400,000 pounds of debris from roads and port infrastructure on Oshima, including more than 100 destroyed vehicles.<sup>402</sup> It was an impressive accomplishment—one which Ambassador Roos and Admiral Walsh personally thanked them for at an all hands gathering on 4 April aboard *Essex*.<sup>403</sup> MacMannis was less impressed: “We didn’t use not even 20 percent of our capability out there. We had so much more if only the bureaucracy had let us.”<sup>404</sup> Lee mentioned that another reason that so few marines and sailors were deployed ashore was concern about radiation exposure.<sup>405</sup>

Despite concerns over the underutilization of the ARG’s capacity and capability, all officers interviewed agreed that the mission paid huge dividends in terms of strategic messaging, public affairs, and alliance building. As one innkeeper, Murakami Morifumi, told Eldridge his previous “image of the marines in Okinawa, as portrayed in the news—our only source until then for information—was not good. . . . However, once I got to see them up close, I realized we had been mistaken about the marines. They were gentle. I saw some holding back tears as they were clearing the debris from our neighborhood ports.”<sup>406</sup> For Bradley Lee, a 1987 ROTC graduate from North Carolina State University with many of years of experience serving on amphibious readiness ships, “it was the children on the island and their appreciation for what those sailors and marines did to bring some normalcy back to the island that was our biggest sort of success.”<sup>407</sup>

### **The Contamination of USNS *Bridge***

Immediately after the earthquake hit, MSCFE’s watch center in Singapore sprang into action. To protect its auxiliary fleet from the potential impact of a tsunami, orders were issued for all ships in the western and central Pacific to sortie from port. MSC ships in Japan, Saipan, and Palau were soon weighing anchor and making haste to sea. In Guam, its inner harbor experienced a four-foot surge. Prepositioning ship USNS *Soderman* (T-AKR-317) got underway prior to the surge while the submarine tenders USNS *Frank Cable* (AS-40) and USNS *Sumner* (T-AGS-61) rode out the tsunami in port with no serious damage reported.<sup>408</sup>

Twenty minutes later, Captain Matthew Garside, CTF-73, received a call from Vice Admiral Van Buskirk requesting logistical support for potential relief operations in Japan. Garside and his assistant chief of staff for operations (N3), Captain Paul Kennedy, quickly went to work tasking CLF oilers and dry cargo/ammunition ships to head to Japan. “There are normally eight CLF ships (AOs and AKEs) that I can reach out and touch at any time,”

said Kennedy.<sup>409</sup> The CLF force is the Navy's underway replenishment force and was essential during Tomodachi for keeping the *Ronald Reagan* and *Essex* task forces supplied with both HADR supplies and fuel, food, and other supplies for the warships. Without CLF support, these ships would have had to return frequently to Sasebo for supplies and fuel.

If more logistical assets were required (such as in the case of a mass-scale evacuation of Honshu), Kennedy could have drawn on a fleet of 50 MSC ships that generally operate in the Indo-Pacific region and a total of 125 MSC ships spread across the globe. It is the largest such auxiliary force on the planet—bigger in terms of ship numbers and tonnage than some of the world's biggest navies, including those of Britain, Germany, and Australia. Its fleet cannot only keep the largest navy in the world replenished at sea for extended periods but, in the event of a conflict overseas, can move 90 percent of the Army's and Marine Corps' equipment.<sup>410</sup>

On 12 March, the first CLF ship, the fast combat support ship *Bridge*, arrived off the west coast of Japan with the *Ronald Reagan* carrier strike group. By 25 March, the number of MSC ships in the Japan theater of operations grew to seven. They included USNS *Safeguard*, USNS *Bridge*, USNS *Pecos* (T-AO-197), USNS *Rappahannock* (T-AO-204), USNS *Richard E. Byrd* (T-AKE-4), USNS *Carl Brashear* (T-AKE-7), and USNS *Matthew Perry* (T-AKE-9).<sup>411</sup> The AKEs came preloaded with HADR kits—basic supplies for disaster relief operations that included water, MREs, blankets, cooking equipment, tents, body bags, and first aid materials. Additional HADR type supplies were quickly loaded onto the ships at ports in Japan. As Kennedy explained, MSC likes to allow for some flexibility during disaster relief operations: “We don't want to bring a thousand pallets of water if the victims need blankets. Part of the challenge was finding out what the demand signals were; getting that equipment and material ordered and stocked at Sasebo; and then getting the ships to that port and loaded up with the goods.”<sup>412</sup> After radiation was detected at Yokosuka, Sasebo became the major logistics hub for the operation. An ammunition depot and repair facility prior to Tomodachi, Sasebo lacked adequate refrigerated storage facilities for food and certain medications. CTF-73 made up for this deficiency by using ships with refrigerated compartments to temporarily warehouse perishable food.<sup>413</sup>

By 30 March, the CLF ships of CTF-73 had moved close to 240 tons of humanitarian supplies for Japan and fueled and replenished a Navy force that included 16 massive warships, 130 gas-guzzling aircraft, and 13,076 hungry sailors and marines.<sup>414</sup> The CLF ships replenished U.S. Navy ships distributed along both coasts of Japan plus Okinawa (where the Seventh Fleet command ship *Blue Ridge* was stationed), and the island of Shikoku (where *George Washington* evacuated to escape radiation in Yokosuka).<sup>415</sup> It was a Herculean effort but all in a day's work for MSCFE and the CTF-73. “We do rapid-surge response to disaster events quite often,” said Kennedy. “If it's not typhoons in the Philippines, it's mudslides in Indonesia, earthquakes in Malaysia, floods in Thailand,

etcetera, so we're pretty used to responding to that type of thing. The MSC and CLF response was, in reality, just a minor modification of what we do every day."<sup>416</sup>

The major difference for Tomodachi was the challenge of operating in a radiologically contaminated environment. That issue in general and travails of one ship in particular, USNS *Bridge*, transformed the event from a large-scale, but otherwise routine, HADR, into something altogether different, and unforeseen. "The thing that took most of my time was the radiological concerns with the USNS *Bridge*," noted Garside, a graduate of the Massachusetts Maritime Academy who had served in the Merchant Marine before accepting a Navy commission. "It was just an incredibly time-consuming evolution because we'd never dealt with that before for real."<sup>417</sup>

Commissioned in 1998, *Bridge* was the fourth ship in the *Supply*-class of fast combat support ships (AOEs). These are special CLF ships designed to keep up with a carrier strike group traveling at flank speed (25 knots or higher). At a displacement of 48,000 tons and a length of 755 feet, these floating warehouses carry everything a CSG requires, including various types of fuel (for aircraft and surface ships), food, supplies, and ordnance. The crew consisted of 180 civilian mariners commanded by a civilian shipmaster. Built to combat standards, *Bridge* featured a shock-resistant hull, and a collective protective system (CPS) for all crew living areas and most workspaces. The CPS filtered the air



An HH-60H Rescue Hawk helicopter approaches USNS *Bridge* to pick up supplies. (Petty Officer Second Class James Evans, USN, 30 September 2011; DVIDS, 467508)

with chemical, biological, and radiological filters. *Supply*-class AOE ships were the only CLF ships in the MSC inventory with CPS systems in 2011.<sup>418</sup>

On 13 March, *Bridge* was with *Ronald Reagan* when it sailed through a part of the Fukushima radioactive plume. Its first course of action was to initiate a countermeasures wash-down, which effectively removed most of the radiation on the external surfaces of the ship. “They were getting zero radiation readings on the weather decks from after the countermeasure wash finished, so it was very effective,” recalled John McIntire, chemical-biological-radiological (CBR) training and development officer for MSCFE. *Bridge* continued its mission supplying *Ronald Reagan* and other ships operating off the coast of Japan until late March. In total, it conducted 25 underway replenishments and delivered more than 1.8 million gallons of fuel in support of Operation Tomodachi. Its helicopters delivered more than 30,000 pounds of supplies ashore.<sup>419</sup>

Towards the end of March, a three-person U.S. Navy radiological survey team from CTF-74 came aboard the ship and surveyed the interior spaces. These radiological control technicians discovered that the CPS system worked well. Its high-efficiency particulate air (HEPA) filters effectively contained contamination and prevented it from entering crew spaces. The only areas of the ship that received radiation buildup above acceptable standards were areas not protected by the CPS, such as the ventilation systems for certain cargo spaces, the aircraft hangar, and the engineering systems that were online when the ship passed through the plume. These included the gas turbine engines, the diesel generators, and one of the auxiliary boilers. Captain Garside later praised the effectiveness of the CPS system during Tomodachi: “We were pretty damn lucky that *Bridge* was the one that got contaminated because if it had been any other ship we would have been dealing with a lot more than just scrubbing some fallout off the exterior of the ship; we would have been dealing with contaminated crew members.”<sup>420</sup>

Once contamination was discovered, the next challenge for MSCFE was how and where to decontaminate the ship. On *Ronald Reagan*, Captain Burke could rely on uniformed sailors to change filters and scrub contaminated spaces, but civil service mariner crews on MSC ships cannot be ordered to do such work. As Captain Charles Denman, the commodore of MSCFE described the situation, “Since it wasn’t in their job description, they didn’t have to clean up the radiological contamination.” Denman and Garside’s next course of action was to request support from the U.S. Navy. Garside believed that “Big Navy” would “come in and save the day,” said Lieutenant Commander Michael Little, the officer-in-charge of the MSC’s ship support unit in Singapore, but Navy’s response was: “You are a commercial resource when it comes to repairs.”<sup>421</sup> That rejection sent MSCFE scrambling to find an alternative solution.

Staff at MSCFE contacted ports in Singapore, Thailand, and the Philippines to see if they had contractors who could help. These inquiries all came back negative. MSCFE then contacted the Naval Base Guam to inquire if *Bridge* could use that port as a safe haven until a solution was found. The governor of Guam vetoed the idea and soon put out



a press release saying that no vessels from Tomodachi would be allowed to enter the territory. The Puget Sound Naval Shipyard, a nuclear qualified shipyard, in Bremerton, Washington, could have potentially been used to decontaminate the ship, but *Bridge's* master was concerned that additional contamination would occur during the Pacific crossing. The CPS filters were already near the end of their life cycle before Tomodachi, and if they became saturated with dirt or other material during the transit, the ventilation system would automatically bypass the filters, potentially spreading contamination into the crew spaces.<sup>422</sup>

While the ship sat at anchor off the port of Sasebo waiting for MSCFE come up with a solution, a larger problem arose. A large group of civilian mariners were threatening to walk off the job and abandon the ship. MSC, and by extension the Navy, now confronted a breakdown in morale not seen in the fleet since black sailors protested institutional racism in the Navy in the early 1970s. The possibility of MSC mariners abandoning a ship contaminated with radiation in a Japanese harbor and the negative media attention that would have generated sent shock waves up the chain of command. Admiral Mark Buzby, the commander of MSC, became personally involved. He immediately approved on-the-spot, \$1,000 impact bonuses for the crew, and ordered Captain Denman to fly to Sasebo and personally take control of the unfolding situation.<sup>423</sup>



Captain Charles Denman, the MSCFE commodore in 2011. Denman oversaw the radiological decontamination of USNS *Bridge* in Sasebo, Japan, during Operation Tomodachi. (NHHHC, AR/561-1-2, Content Manager)

Denman was up for the challenge. His first action was to hold an all hands meeting on the mess deck. Accompanied by Captain James Rice, the force surgeon for MSC, he announced the bonuses and calmly informed the crew that the amount of radiation exposure received was minimal—less than smoking cigarettes or flying from New York to Denver. When several members of crew complained about rashes, coughs, and other ailments they thought might be connected with radiation, Captain Rice said, “No, no. That’s not radiation sickness. If you have radiation sickness, you’re shitting blood. And if you’re shitting blood, you should see a doctor anyway.” That “shut them down,” recalled Denman.<sup>424</sup> To demonstrate this point, Denman authorized the crew to wear dosimeters to measure radiation uptake and track such uptake for any potential workers’ compensation claims. He also had the CTF-74 survey team train the crew in using Geiger counters, and then had crew members regularly check the habitable spaces and other ship spaces used by the crew for radioactive contamination.<sup>425</sup>

For the next three-plus weeks, Denman spent nearly every waking hour on the ship, holding meetings with contractors and crew, walking the decks, and talking to anyone who had questions or concerns. Rice defined his leadership as “covenant” leadership—i.e., leadership in service to one’s followers. “He understood how to communicate with the crew, how to remain credible, and show compassion,” said Captain Rice.<sup>426</sup> Garside also praised Denman’s work in Sasebo. “By having the commodore in Sasebo throughout the decontamination,” it showed that “Hey, the MSC chain of command cares and the commodore’s going to stay there and see to it that the job is done properly.”<sup>427</sup> The longer Denman stayed, the more morale on the ship improved. “I have a special place in my heart for the *Bridge*,” Denman told an NHHHC interviewer, “because I spent a lot of time with her and walked all over that ship and know her crew very well.”<sup>428</sup>

On 8 April, MSC signed a contract with Yoshitomo Limited, a Japanese chemical company, to decontaminate the ship. Yoshitomo had a handful of radiation control specialists and many more asbestos abatement workers whose skillsets and protocols could be applied to a radiological decontamination job. “Sam Reynolds, who is the director of the SSU [ship support unit] in Japan,” said Denman, “did an outstanding job in finding the six remaining qualified radiological decontamination experts in Japan.”<sup>429</sup> The MSC ship support units provide engineering, logistics, and information technology support to MSC ships in their given area of responsibility. This includes maintaining contracts with local shipyards and with local contractors. It was through these contractors and other contacts that Reynolds, a 1980 U.S. Merchant Marine Academy graduate who had worked for MSC in Japan since 1996, was able to rapidly put together a decontamination contract. A contact at Fleet Industrial Supply Center Yokosuka found Yoshitomo and Reynolds recruited additional hazmat workers for the project from a lead paint and asbestos removal firm in Yokohama.<sup>430</sup> The number of Japanese contractors and subcontractors working on *Bridge* eventually grew to 40 workers. A smaller team of workers from

NAVSEA did select decontamination work on the CPS system—primarily changing the specialized HEPA filters.<sup>431</sup>

The job of decontaminating a ship the size of *Bridge* first involved using small boats to haul the Yoshitomo crew and their staging materials to the ship, which was anchored offshore. *Bridge* was not allowed to pull up to a pier because it was fully loaded with 1.8 million pounds of ammunition.<sup>432</sup> Next, the contractors erected plastic sheathing and, in some cases, scaffolding around all spaces requiring decontamination, and then entered those spaces wearing disposable Tyvek suits and ventilators to perform the work. It was a very tedious job, requiring extensive lead time, preparation, and cleanup. All contaminated equipment had to be either wiped down by hand or replaced altogether. No power washers could be used for fear of spreading contamination. At the end of the day, workers who had entered contaminated spaces had to strip naked and have their entire body surveyed with a pancake-style Geiger counter. If any hot spots were found, they had to jump into a special decontamination shower (which *Bridge* fortunately possessed) and scrub themselves until a second scan determined they were clean.<sup>433</sup>

The CPS system protected all the ship's habitable spaces, so nearly all the work occurred outside those areas—primarily within the ship's massive ventilation systems. In those systems, much of the radiation collected wherever there were turns in the ducts. These turns usually contained louvers with vanes, and large vane-axial fans. Workers had to replace many of these vane-axial fans, and hand wipe other areas where contamination had collected. Air intake filters for the ship's gas-turbine engines had to be replaced, and air supply plenums cleaned—a massive job given that some of the plenums were over 28 feet long.<sup>434</sup>

Several factors delayed work on *Bridge*. Two HEPA filters for the CPS system got lost in the military supply system and had to be reordered and shipped directly from the vendor. Radiological survey teams found new contamination in an auxiliary boiler, a turbo charger, air ducts, exhaust fans, and grating. These findings compelled Reynolds to re-scope the contract in mid-April, but even under a new expanded contract, Yoshitomo was not able to finish all the work by 1 May—the date *Bridge* had to sail for the Middle East and the contractor team had to depart for other jobs. Commodore Denman therefore had to make several key course corrections designed to streamline the decontamination process. Rather than decontaminate preheaters, he told Yoshitomo to “rip them out” since heat would not be required in the Middle East. He also instructed the contractors to skip over the hangar ventilation system because it was very difficult to access and would have taken too long to decontaminate. Internal engine contamination was also left alone since it was contained in the engine housing.<sup>435</sup> Before the contract ended on 30 April, Reynolds and the radiation survey team inspected the ventilation system to be sure it was safe for the crew. “It was ok,” he said. “As long as someone did not disturb it by banging on it with a hammer,” he felt it would “be in pretty good shape” for the upcoming deployment.<sup>436</sup>

*Bridge* left Sasebo on schedule on 1 May. The last issue negotiated by MSC before the ship left was the disposal of nuclear waste. Under the SOFA in effect in 2011, no radioactive material from a U.S. warship can “touch Japanese soil.” The civilian ship’s master of *Bridge*, however, refused to haul the material to the Puget Sound Naval Shipyard. What is more, the U.S. Nuclear Regulatory Commission informed MSC that Fukushima contamination could not be disposed of in the United States. It had to remain in Japan. Reynolds tried to seek guidance from the Puget Sound Shipyard, but it refused to help. “Hey, you’re MSC, you’re on your own,” they told him. To extricate itself from this logjam, MSC, with the help of the U.S. Embassy and U.S. Forces Japan, negotiated a SOFA exception with the government of Japan—no small task! Ultimately, TEPCO agreed to store *Bridge*’s waste. “It took a lot of coordination,” said Reynolds, “but we finally managed to get it off the ship and get *Bridge* underway.”<sup>437</sup>

In July 2011, NAVSEA contractors conducted another full radiation survey of the ship. This team of contractors from Oak Ridge Associated Universities found residual contamination in gas turbine engines 1B and 2B, a fan providing cooling to the 1B engine, and another fan unit on the ship. The team concluded that decontaminating this equipment would not exceed exposure levels “considered protective of human health and the environment.” It also stated that “all other items investigated were below both the limits in Table 4.1 of the *Radiological Controls Manual* and satisfied the requirements for release from radiological control.”<sup>438</sup>

The contamination of *Bridge* served to remind Navy leadership of the many dangers that MSC ships confront on a daily basis, even in peacetime situations. As Navy Lieutenant Elee Wakim recently wrote in *War on the Rocks*, MSC’s fleet is “America’s Achilles heel in the age of great power competition.”<sup>439</sup> Not since the mining of the aircraft ferry *Card* (T-AKV-40) in Vietnam in 1964 had the MSC faced a crisis on the magnitude of *Bridge* contamination. In the case of *Card*, MSC could draw upon its own salvage units to refloat the ship and tow it to Subic Bay for emergency repairs, and thence to Yokosuka for major repairs. In both ports, MSC had well-established maintenance contracts with reliable repair firms to complete work quickly and effectively.<sup>440</sup> For *Bridge*, by contrast, MSC had only minimal in-house radiation expertise, no established contracts for decontamination, and civilian crews forbidden from conducting emergency decontamination on ship while underway. This was entirely new territory for the command.<sup>441</sup>

It is a testament to the perseverance and hard work of the MSCFE staff in Singapore, SSU Japan, and Commodore Denman’s fly away team that a plan was developed and implemented quickly, using a very able Japanese contractor. If the contamination of CTF-73 units had been more widespread, the situation would have quickly overwhelmed the limited contractor support available and compelled MSC to either transit the ships back to the United States for decontamination (a tough proposition given the issues with the CIVMAR [Civil Service Mariner] crew and the Nuclear Regulatory Commission) or send large numbers of U.S.-based contractors to Sasebo to do the job. Either of those



alternatives would have been complex and very expensive. They also would have been much slower. With only four fast replenishment ships available at the time, Admiral Buzby was determined to get *Bridge* decontaminated expediently and back to sea. Taking the ship off the line for a long period of time would have negatively impacted carrier deployment schedules for many months, if not longer.<sup>442</sup>

The difficult and largely unforeseen issues with *Bridge* should not diminish the otherwise sterling work of MSC during Tomodachi. For over a month, more than 700 MSC civil service mariners and 80 Navy sailors worked around the clock in difficult weather to replenish the fleet and provide Japan with much needed HADR supplies. In addition to *Bridge*, numerous other MSC ships were heavily involved in the effort. For example, *Pecos* completed nine underway replenishments (UNREPs) and delivered more than 2.3 million gallons of fuel to the fleet. USNS *Carl Brashear* delivered 800 pallets of HADR supplies to the *Ronald Reagan* CSG, made 17 UNREPs, and pumped more the 1 million gallons of fuel to Navy ships. USNS *Matthew Perry* delivered relief supplies to ships of the *Essex* ARG and spent 21 days supporting Tomodachi, completing 17 UNREPs and pumping 1.5 million gallons of fuel. In one instance, helicopters from the ARG were landing on *Perry* to pick up relief cargo while the ship simultaneously UNREPed two warships. Other workhorse ships included USNS *Richard E. Byrd*, and USNS *Rappahannock*—both of whom conducted over 10 UNREPs each, delivered hundreds of thousands of gallons of fuel, and hundreds of pallets of relief supplies. *Safeguard*, part of the MSC fleet, served as the afloat base for Navy salvage and survey operations during Tomodachi, and *Westpac Express* moved over 450 tons of cargo, including 7-ton trucks, fuel tankers, and generators from Okinawa to Iwakuni, Japan.<sup>443</sup>

Cumulatively, the work of MSC and CTF-73 was just as vital to the success of Tomodachi as that of the *Ronald Reagan* CSG and the *Essex* ARG. To quote Captain Garside, “I would characterize the whole effort as a success story for MSC. It was arguably the most challenging disaster relief operation ever because it was not just an earthquake and tsunami that devastated Japan, but a nuclear power plant that was spewing out radioactive fallout over a wide swath of land and sea.” That plume not only contaminated *Bridge* but rendered one of MSC’s key supply ports, Yokosuka, unusable for much of the operation, and compelled MSC to plan for a seaborne evacuation of thousands of Americans from Honshu. Through it all, “MSC mariners operated and performed just flawlessly. They were awesome.”<sup>444</sup>

## Conclusion

On 4 April, Tomodachi began to wind down. On this day, Admiral Walsh released the *Ronald Reagan* carrier strike group and other ships from JSF-519 duties.<sup>445</sup> The following day, 5 April, *Ronald Reagan*, *Chancellorsville*, *Preble*, *Shiloh*, *Curtis Wilbur* (DDG-54), *Harpers Ferry*, *Germantown*, and *Gunston Hall* (LSD-44), departed the Tohoku region for other missions and activities.<sup>446</sup> On 7 April, the *Essex* Amphibious Ready Group (and the

31st MEU) formally concluded its participation in Tomodachi, and JSF-519 established a consequence management support force to maintain radiological tactical-level monitoring, decontamination, and consequence management response capability for units that had participated in Tomodachi.<sup>447</sup> On 8 April, the JSF released the last seven Navy and MSC ships involved in Tomodachi, including *Blue Ridge* and *Tortuga*.<sup>448</sup> The next day, the NRC representatives in Japan indicated that the threat of a “major event” at Fukushima was “real, but relatively small.”<sup>449</sup> Admiral Walsh departed Japan on 11 April and turned over the JSF-519 command to Lieutenant General Field, who would continue to oversee a staggered JSF withdrawal until Tomodachi formally concluded on 1 June. From 11 April until the beginning of June, JSF-519 mainly focused on monitoring radiation, overseeing the decontamination of U.S. forces in Japan, and maintaining command, control, and situational awareness over the augmented forces still operating in the Tohoku region.<sup>450</sup>

The success of Tomodachi was best measured by how well it fulfilled the goals initially established by Field and later adopted by Walsh. These were: (1) to alleviate Japanese civilian suffering, (2) to allow the JSDF to perform the lead role in the operation, and (3) to strengthen the U.S. alliance with Japan.<sup>451</sup>

In terms of direct humanitarian relief for the Japanese, Operation Tomodachi delivered over 260 tons of supplies to the Japanese populace, including 189 tons of food, 2 million gallons of water, and ample supplies of medicine (mainly Tamiflu and Imodium). It provided the JSDF with over 11,960 gallons of fuel, 31,000 radiation detectors, 19 short tons of boron, two water barges, 10 industrial pumps, and 5,000 feet of hose. At the operation’s peak, over 24,000 U.S. service personnel, 24 ships, and 189 aircraft were participating in the operation. Navy missions included search and rescue/recovery, delivery of supplies to isolated civilians, ocean and port surveys, salvage operations, and infrastructure restoration efforts ashore—especially at Oshima Island and the Sendai airport.<sup>452</sup>

The critical capabilities of the U.S. military contributed to the effort included nuclear power expertise, air and sealift, and ISR. CTF-74 and Naval Reactors leveraged the knowledge of dozens of Nuclear Power School trained personnel in the theater as well as the nuclear response command center at Yokosuka. The Air Force’s Air Mobility Command flew 127 sorties, carried 6,213 passengers (mostly American evacuees), and transported 816 tons of cargo.<sup>453</sup> In addition to transporting tons of HADR supplies for distribution ashore, the CLF ships of the MSC supplied the Navy’s vast fleet and the JMSDF ships during the operation. Air Force Global Hawk unmanned aerial vehicles (UAVs), Navy P-3s, and other ISR assets conducted more than 160 aerial reconnaissance flights, and intelligence staff reviewed thousands of overhead images to search for survivors and help inform Japanese relief and recovery efforts.<sup>454</sup>

Collectively, Tomodachi represented one of the largest Navy and Marine Corps humanitarian relief efforts in history. “They did all of this,” wrote Vice Admiral Van Buskirk in a Seventh Fleet press release, “while contending with the challenges of radiological contamination from the Fukushima nuclear plant, and with the angst for their loved ones

back in Yokosuka and Atsugi.<sup>455</sup> The nuclear disaster separates Tomodachi from all other disaster responses and makes it far and away the most complex—one that involved both consequence management (i.e., managing operations in a radiologically contaminated environment) and a military assisted departure of DoD dependents. “The ability to pivot from the humanitarian assistance [mission] to the consequence management piece,” noted Admiral Walsh, “is an important element of an agile organization.”<sup>456</sup> In many respects, Tomodachi was a live fire exercise for future nuclear power plant accidents, terrorist dirty bombs, or worse. It is also an example of how natural disasters can precipitate other tragedies such as industrial accidents, fires, disease outbreaks, famine, civil unrest, and even war.

As much as the U.S. military did for the Japanese people, its efforts paled in comparison to the JSDF’s response. The JSDF responded swiftly and decisively to the triple disaster, ultimately deploying over 100,000 personnel, 500 fixed- and rotary-wing aircraft, and 60 ships to the affected area.<sup>457</sup> Just eight days after the earthquake on 19 March, the JSDF could boast of rescuing 19,300 people, supplying 30,000 on an ongoing basis, and responding to the nuclear disaster at Fukushima.<sup>458</sup> It was the largest operation in the SDF’s history; its first large-scale joint services effort; and the first time in the SDF’s history that it led a major coalition operation. The image of JSDF soldiers, sailors, and airmen hard at work for weeks on end saving lives, feeding people, and clearing roads, ports, and other vital infrastructure in snowy weather made an indelible impression on a Japanese populace historically critical and distrustful of its defense forces. No actions of the JSDF symbolized their role as saviors of the nation more than the iconic images of JGSDF helicopters dropping water on Reactor 3 at Fukushima. Despite the ineffectiveness of these missions, they revealed the genuine heroism of the JSDF and the absolute willingness of these brave men and women to sacrifice their lives for Japan. As Yoichi Funabashi reiterated throughout his book, they really were Japan’s last bastion and a pillar of hope that shored up TEPCO and others to fight and win the battle to bring Fukushima under control.<sup>459</sup>

That is not to say that JSDF performance during this HADR was flawless. The event revealed a variety of capability and organization deficiencies within the organization. Weaknesses in the JSDF command, control, communications, and intelligence gathering systems compelled it to rely on the private sector to meet its emergency communications needs and on the United States for ISR—especially UAV overhead surveillance of Fukushima and radiological sensor technology. As a defense force with no nuclear weapons or propulsion systems, it had to lean heavily on the United States for assistance and guidance in handling Fukushima. The GEJE response also revealed some of the logistical shortcomings of the force, especially in terms of air- and sealift but even overland logistics. In all three areas, the JSDF required support from private sector and the MSC, Air Mobility Command, and in a few instances, the Marine Corps for overland transportation assistance. Early in the operation, the Western Army asked for U.S. Marine Corps’ help in

transporting a part of the unit that was ordered to deploy to a disaster-hit area, and the Northern Army turned to the MSC to move forces from Hokkaido to Honshu.<sup>460</sup>

Just as the First Gulf War tested the U.S. military's joint-command structure established by the Goldwater-Nichols Act and revealed problems with it, JTF-Tohoku tested the JSDF's new joint structure and also showed some teething issues. It was often easier for the various branches of the JSDF to work with the U.S. military than their own sister services. Arguably, General Kimizuka could more easily task the U.S. Navy to perform a task than the JMSDF. Throughout the combined operation, the U.S. armed forces offered the JSDF an example of how services can work together to perform a common mission. The work of the Air Force and Marine Corps and Seabees at Sendai was one example as was Kimizuka's firsthand experience seeing the Marine Corps and Navy working together on *Essex*. That latter event made the JGSDF general a lifelong proponent for developing greater expeditionary capability for the JSDF—an initiative beginning to pay significant dividends today. The significance of the lessons learned from the JTF-Tohoku experience is that the JSDF truly learned and applied these lessons over the next decade. It has acquired newer and more advanced aircraft and ships, including F-35 capable aircraft carriers, and improved its C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) systems and logistical tail. Today, it is arguably America's most powerful and capable ally.<sup>461</sup> The fact that Field and Walsh were comfortable with the JSDF running such a massive and complex mission speaks volumes about the leadership of these two officers. It allowed the JSDF to fledge into the mighty force it is today and helped it build confidence and institutional know-how to lead similar or even more complex operations in the future.

The third measure of success for Field was the operation's impact on the alliance. No event symbolized how the alliance had been strengthened more than Defense Minister Kitazawa's visit to *Ronald Reagan* on 4 April. It was one of the very few instances in modern Japanese history when a sitting defense minister visited a nuclear-powered U.S. aircraft carrier—the very symbol of America's military might in the region. For this minister in particular, the visit and gratitude he showed to U.S. forces represented a complete about-face for a politician who had been critical of Japan's military alliance with the United States for much of his career, beginning with his opposition to the 1960 Treaty of Mutual Cooperation and Security as a student.

Flanked by Ambassador Roos and Vice Admiral Van Buskirk, Kitazawa told the assemblage of sailors that “at no time like the present have I felt the United States, our ally, as a reliable partner, and have I felt so proud of our alliance with the United States.”<sup>462</sup> A few weeks later, he told a *Wall Street Journal* reporter, “We have never appreciated the value and the significance of our alliance with the U.S. as much as we do today. We are seeing the fruit of the efforts made over a half century to deepen the alliance, through untiring joint exercises and sharing of bases between the U.S. military and our Self-Defense Forces.” He then mentioned that going forward, the JSDF will continue to refocus





Japan Defense Minister Toshimi Kitazawa receives honors from sailors upon his arrival aboard the aircraft carrier *Ronald Reagan* on 4 April 2011. Kitazawa visited the ship to personally thank the crew for its humanitarian assistance to Japan during Operation Tomodachi. (Petty Officer Third Class Shawn J. Stewart, USN; DVIDS, 386021)

military capability towards the ocean and skies south “in response to China’s rapid military buildup.”<sup>463</sup>

There were still stumbling blocks in the relationship that would need to be overcome going forward, but Tomodachi unquestionably strengthened and solidified the U.S.-Japan military relationship in a way that no treaty or accord could accomplish. It is a relationship built upon the mutual respect forged by Operation Tomodachi. “Yesterday I stood in the hangar bay of *Ronald Reagan* watching as Defense Minister Toshimi Kitazawa delivered an emotional thank you to the United States for coming to Japan’s assistance in its hour of need,” wrote Van Buskirk. “But the fact is, as an American, I have never been more proud of the fact that Japan is our ally. As the Self-Defense Forces have operated under intense physical and emotional stress, they’d been at their best, never wavering in their focus, in their devotion to the mission, and in their sense of duty to the nation they serve.”<sup>464</sup> Tomodachi, more than anything else, demonstrated just how fortunate America was to have an ally as tough, capable, and professional as the JSDF. The potential Admiral Arleigh Burke saw in the JSDF in the 1950s, especially its maritime component, came to full fruition during Operation Tomodachi.



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## CONCLUSION

The U.S. Navy's successful response to the natural disasters and humanitarian crises in Indonesia, New Orleans, and Japan highlighted the sea service's unique and extraordinary ability to carry out such operations in the twenty-first century. Operations Unified Assistance and Tomodachi along with the Navy's participation in JTF-Katrina saved countless lives and alleviated mass human suffering. They restored vital infrastructure in disaster-affected regions. They mitigated negative consequences of these disasters, showcased unique naval capabilities, and underscored the value of the sea services for citizens, policymakers, and foreign partners. For the Navy itself, they raised morale throughout the ranks and provided invaluable training in a range of military related missions and skillsets.

Quantifying the impact of HADR operations in terms of lives saved and suffering alleviated is complex. Statistics are readily available regarding the tonnage of supplies delivered and medical patients treated but proving that these actions saved lives or directly alleviated suffering can be challenging. In the case of OUA, it is clear that the arrival of the *Abraham Lincoln* CSG and CLF ships just five days after the earthquake and tsunamis had a profound impact on the situation in Sumatra. Before the arrival of these units and their 58 helicopters, local authorities and NGOs had few means of delivering lifesaving and sustaining aid to isolated communities. Without the food, water, medicine, and medical evacuation capability provided by Navy helicopters during the early aftermath of that event, large numbers of additional people certainly would have perished—either from thirst, exposure, hunger, medical neglect, or illness. Community health, preventive medicine, and behavioral medicine measures implemented by medical staff on *Mercy* and NEPMU saved additional lives and undoubtedly alleviated human suffering.

During Katrina, most roof rescues were performed by Coast Guard and National Guard units, but Navy and Marine helicopters did perform over 1,500 lifesaving rescues during the early days of the operation. Helicopters from *Harry S. Truman* alone rescued over 700 people. Navy and Marine rotary-wing aircraft also transported tons of HADR supplies and evacuated over eight thousand citizens from dangerous conditions at the convention center and other locales. Marine ground units from 24th MEU rescued 138 people with ground vehicles and delivered thousands of pounds of supplies. The initial

helicopter rescue operations by the Coast Guard and National Guard would have been greatly hindered without the Naval Air Station at Belle Chasse and its fuel supplies. Navy ships fed and berthed large numbers of local, state, and federal first responders. They also served as air bases for rescue and supply helicopters. *Pollux* provided more than 220,000 gallons of diesel fuel for National Guard trucks. USNS *Comfort* supported NGO shore details that treated over seven thousand patients.

Of all the victims examined in this book, the Japanese were the most prepared for natural disasters. They had pre-prepared shelters stocked with water and supplies in most towns. Nevertheless, certain supplies and medicines were still needed to alleviate suffering. Navy helicopters from the *Ronald Reagan* CSG, HSL-51, and HS-14 helped fill these gaps early in the operation when they were needed most. The joint services effort to reopen the Sendai airport created a vital hub from which more supplies could be airlifted and trucked into the region. Finally, the work of Navy salvors in getting gas flowing again into Hachinohe was vital in restoring heat, fuel for gas fired power plants, and cooking gas for a large region of northern Japan during a cold winter period. The Sendai effort as well as the Navy salvage and survey response during Tomodachi highlight the contributions of the Navy and Marines towards restoring vital infrastructure after disasters.

The Navy—along with the Coast Guard, the Army Corps of Engineers, civilian salvage companies, and Canadian forces—participated in an even larger survey and salvage effort in Katrina's wake. They surveyed thousands of miles of waterways to allow deep draft vessels to operate again in a region that supplies much of the United States with fuel and other goods. Katrina also showcased the talents of the Seabees. This elite naval construction force did everything from clearing debris from roads and building tent cities for first responders to helping utility companies restore power to over 250,000 people.

During OUA, two major infrastructure restoration efforts involving the U.S. military stand out: Banda Aceh airport, where U.S. and Australian forces helped restore proper air traffic control and also organize the mountains of HADR material being flown in; and the Abidin Hospital, where Navy medical personnel helped repair equipment, restock supplies, and train staff. However, much of the reconstruction of towns and villages in the affected areas was performed by NGOs and international organizations in partnership with the Indonesian government after the U.S. Navy and Marine Corps left. In short duration missions such as OUA, military engineers must focus their efforts on the most vital infrastructure such as airfields, ports, major hospitals, and key bridges. Rebuilding schools and housing often must be relegated to NGOs and other follow-on humanitarian providers.

The WHO end of mission report for OUA emphasized that the American military intervention spared Sumatra from secondary disasters. These consequences of the primary disaster included starvation, thirst, medical neglect, and disease. The intervention of all three sea services during Katrina unquestionably spared the New Orleans area from similar consequences as well as prevented the rest of the country from suffering a supply



chain and energy crisis of epic proportions by opening critical port and waterway infrastructure in the region. However, it was Tomodachi more than any other recent natural disaster that underscored how an adverse natural event can quickly precipitate other—potentially more consequential—disasters, in this case, a series of incidents at a nuclear power plant that threatened to render much of Honshu uninhabitable for decades. The Navy, with its vast knowledge of nuclear reactors, was able to immediately supply technical expertise to the Japanese government and the JSDF as well as pumps and water barges that eventually helped JSDF and other Japanese responders cool the reactors and contain the situation.

Tomodachi also solidified the U.S. military's relationship with its most important ally. While the U.S. Navy had participated in numerous exercises and a select number of overseas operations with the JMSDF prior to Tomodachi, the willingness of the Navy to immediately deploy a CSG—one not even homeported in Japan—to assist Japan in its darkest recent crisis revealed the depth of the friendship between the two nations' armed forces. That U.S. Forces Japan and PACOM supported the JSDF's lead role in the operation, despite its size and complexity, further strengthening the bonds between the two militaries. U.S. Navy personnel were willing to go even a step further by risking their health and potentially their lives to cool the reactors at Fukushima, but the JSDF, to its credit, refused to allow such direct intervention. In the long run, it was better for the JSDF to be seen by the Japanese people as acting alone at Fukushima, without direct U.S. help.

OUA has been the most crucial recent operation in developing a new strategic partnership in the Pacific. That operation transformed an estranged relationship with the military of the world's most populous Muslim country into a budding partnership. While the Navy did not completely subordinate itself to the TNI to the same degree it did to the JSDF in Tomodachi, it did rely on the TNI for most taskings, heeded all guidance proffered by the TNI leadership, and sent liaison officers to participate in daily HADR planning meetings ashore. Through these efforts, trust was built with a military highly suspicious of American intentions. Sea basing helped quell fears that American efforts would overshadow those of the TNI in the eyes of the local populace. In the end, the military-to-military relationship forged by OUA helped pave the way towards a better working relationship with the TNI in the future with more TNI participation in U.S. exercises and foreign military exchange programs.

Even Katrina, a domestic disaster response, featured allied engagement with four allies: the Netherlands, Mexico, France, and Canada. The participation of the Dutch frigate in the operation was serendipitous and brief, but Mexico, France, and Canada made more substantial contributions. Despite various diplomatic hurdles that needed to be overcome for Mexico to deploy military forces in the United States, the goodwill that this mission created between the two militaries and the pride experienced by the Mexican forces in its successful execution paid dividends for many years afterwards. Because of its participation in NATO and the North American Aerospace Defense Command

(NORAD), the Canadian military has a longstanding relationship with its U.S. counterpart and can send forces to the United States as per a status of forces agreement dating back to 1952. The genius of Canada's deployment, however, was not the relative bureaucratic ease of its execution, but the fact that Canada sent forces in high demand for the operation: divers for surveys, an aids-to-navigation vessel, and helicopters to patrol a U.S. Coast Guard sector lacking coverage during a busy holiday weekend. Canada's Katrina deployment, in total, undoubtedly smoothed some ruffled feathers caused by its refusal to participate in the 2003 Iraq War. France, similarly, sent much-needed military divers to the region and deployed this detachment for extended period of time.

In terms of unique naval capabilities, the following are the ones that stand out in the operations analyzed:

- aircraft carriers, amphibious assault ships (LHAs/LHDs), and any other ship with a flight deck
- amphibious readiness
- survey and salvage
- intelligence
- seaborne logistics

During the immediate period following a disaster, supplies (especially water, food, and medicine) and evacuation services are the most in-demand needs. The Navy, Marine Corps, and Coast Guard possess large numbers of rotary-wing aircraft capable of flying in supplies and evacuating people when required. The Navy's aircraft carriers and large deck amphibious assault vessels provide ready-made, floating air bases for these aircraft, thus allowing Navy and Marine Corps helicopters to operate in areas lacking dryland airfields and ramps. Landing decks on guided missile destroyers, smaller deck amphibious vessels, and CLF ships extend the range of naval aviation by offering floating gas stations.

Amphibious readiness vessels not only carry aircraft but also ground vehicles and engineering equipment that can be rapidly moved ashore via LCUs and LCACs. For a variety of reasons (mostly legal, bureaucratic, and diplomatic), none of the operations in this book fully utilized the Navy-Marine Corps team's ability transport a large landing force overseas, land that force in areas lacking port facilities (or other infrastructure), and sustain that force ashore for long periods of time—i.e., overland projection capability. Nevertheless, it had a powerful impact on the affected communities when it was used. During OUA, Marine and Navy ground elements palletized supplies at Medan airport and moved mountains of material from ships to shore in LCACs and LCUs at Meulaboh. During Katrina, Marine ground vehicles delivered supplies and performed a small number of rescues as well. When the 31st MEU finally reached the east coast of Honshu and was allowed to go ashore at Oshima Island, they (along with their sailor compatriots)

had a profound impact on the island's recovery by opening roads for electrical repair crews and clearing debris from towns. Marines also were instrumental in helping restore service to Sendai airport.

For Katrina and Tomodachi, restoring port service was crucial, not just for affected port towns but huge regions of both countries dependent on fuel and supplies flowing through key harbors closed by the disasters. In both cases, the Navy's ability to rapidly survey miles of waterways and remove items blocking them (or mark those items for others to remove) spared those regions from prolonged shortage of fuel and the resulting consequences.

When an area is initially struck by a disaster, there is very little information available about scale and scope of the impact. The Navy's tremendous aerial surveillance capability was crucial in all three operations, but especially in OUA and Tomodachi in helping policymakers and military leaders determine the impact of the disasters and what areas were most in need of help. For tsunamis, maritime surveillance aircraft proved especially useful in surveying vast expanses of sea for survivors and dead. And it was not simply the Navy's ability to collect information but its ability to disseminate it via robust classified networks. These classified networks often made it difficult to share unclassified information with allies, NGOs, and the media, but workarounds were quickly developed in many cases.

The final capability that shone bright in this book were the auxiliaries of the MSC. Except for amphibious readiness vessels, warships typically do not carry much in the way of HADR supplies. The ability of MSC and CTF-73 to supply such goods in short order during OUA and Tomodachi is a feat no other nation's seaborne logistics force can match. Warships and aircraft performing HADR-type missions need prodigious amounts of fuel—another commodity MSC ships were able to deliver in a timely and efficient manner. The ships of MSC also played other roles in the drama such as serving as an aircraft hangar and second flight deck for *Mercy* in OUA. That a CLF ship received the most contamination of any U.S. ship participating in Tomodachi underscores the risks and sacrifices that MSC ships and the civilian mariner workforce take on a daily basis to keep the fleet forward deployed.

In human terms, the participation by sailors and marines in HADRs was a real morale booster. A common refrain heard in the many interviews I conducted was the sense of satisfaction and pure joy that sailors experienced performing HADR operations. "This was the most significant mission in my naval career," stated one officer. "This is why I joined the Navy," said a sailor. Flying HADR missions "was the best gig in helicopter aviation," one pilot attested, "it was an honor to do it." Helping people in distress represented the highest form of service for many sailors involved in these operations. These particular humanitarian operations also shined a spotlight on naval personnel who rarely receive much attention in combat operations. These include survey, salvage, logistics, rotary-wing aviation, maritime surveillance, engineering and construction, airborne command and control, medicine, landing craft operations, aircraft maintenance, the deck force, and

culinary specialties. Furthermore, HADR operations highlighted the work of many junior enlisted sailors who performed unglamorous but necessary work such as moving supplies (“kicking boxes” in sailor parlance), working in the mess decks, berthing areas, and laundry facilities. It should be noted that only a select number of sailors participated in shore operations—sea basing required most of the crew to perform their work on ship. This meant few directly witnessed the fruits of their labors. They instead drew satisfaction from hearing stories told to them by aircrews and shore parties. Finally, even though HADR operations severely interrupted planned liberties and deployment schedules, not once did anyone interviewed complain about such disruptions. Instead, many officers expressed amazement over the willingness of sailors to cut short their leave or time with their families to participate in a HADR mission.

A common criticism of humanitarian operations in defense circles is that they detract from the fundamental warfighting purpose of the Navy and Marine Corps. Yet, many of the themes I found in these operations can be directly applied to combat operations. These include:

- Forward presence
- Sea basing
- Information operations and public affairs
- Fog of war
- Working with coalitions

HADR, in short, can be as useful for training purposes as traditional fleet exercises. Arguably, Tomodachi represented the most significant training the Navy has ever received for a potential nuclear war.

One of the chief reasons that Navy assets are deployed in foreign disaster response is the Navy’s strategy of forward presence. The fact that the Navy often has ships within a few days’ steaming distance of many areas of the world that are highly prone to natural disasters makes these ships an obvious disaster response force for U.S. policymakers looking to assist an ally, friend, or potential friend in need of help. Because of the sudden and unpredictable character of natural disasters, it is often difficult for the Navy to respond to a natural disaster with the most appropriate mixture of assets. As former Secretary of Defense Donald Rumsfeld once remarked, “You go to war with what you have.” The same truism applies to HADR. If the closest asset is a CVN, that’s what will be sent. Since a forward-deployed, nuclear-powered aircraft carrier is a strategic asset with many other commitments, its time on scene at a disaster will be brief. The same is true with a MEU.

Sea basing is a constant theme in this narrative. It provides responders (not just from the armed services but civilian responders as well) with places to sleep, shower, eat, and receive medical attention in areas lacking infrastructure. It also offers a plethora of other services such as floating airports, garages for vehicles, supply depots, and machine shops.



Politically and diplomatically, sea basing reduces the U.S. military ground footprint in politically or culturally sensitive regions or regions where other dangers may exist, including insurgency, disease, or as Tomodachi illustrated, radiation contamination.

Navy and Marine Corps public relations teams proved of considerable value during these HADR. Information vacuums and natural disasters generally go hand in hand. After a hurricane or an earthquake, the media often cannot access a disaster-affected region. Even if they can, communications technology does not exist to transmit video and imagery about a disaster around the world. Often, the first information generated about a disaster comes from military photographers and surveillance aircraft. This information can be instrumental in helping government policymakers and international aid organizations determine the extent of their response, but it is the media who play the most significant role in getting out information and publicizing disasters. In all three operations, Navy and Marine Corps public affairs personnel served an invaluable role in providing the media with still pictures and videos of disaster areas shortly after the event. They also made arrangements for food and berthing for media and facilitated the transportation of media to disaster areas and the transmission of media-generated information stateside. As OUA illustrated, these efforts can help convince policymakers and aid organizations to provide more resources to a hard-hit area. Clearly, a major goal of public affairs in disaster responses examined was to make the world aware of the contributions of U.S. military forces in these operations, but they also strove to cover the efforts of allies and other partners. In the cases of OUA and Tomodachi, it was very important for local populations to understand that their own armed forces were playing the lead role in relief operations. To its credit, the Navy's public affairs organization made sure this message was conveyed daily in its reporting and information dissemination.

Natural disasters typically occur suddenly, with little or no warning. In most cases, there is paucity of information about the true nature of a disaster during the initial days after an event. The resulting "fog of war" creates tremendous challenges for planners and can lead to mistakes and false starts. The decisions to send *Comfort* to the Gulf Coast during Katrina or the *Essex* ARG to the west coast of Japan represent two such errors. Despite the fact that its aircrews did engage in a significant number of rescues, the deployment of *Harry S. Truman* to Katrina is another decision that could be questioned in hindsight, given the difficulties of moving a ship of that size close enough to New Orleans for its rotary-wing aircraft to operate efficiently. The complex chains of command in disaster operations tend to exacerbate rather than resolve these "fog of war" situations. Fortunately, the immense talents of individual commanders such as Rear Admiral Doug Crowder in OUA, Vice Admiral Thad Allen in Katrina, and Lieutenant General Burt Field and Admiral Pat Walsh in Tomodachi helped the Navy and other participating armed services overcome some of the initial confusion and bureaucratic complexity of these operations. In OUA and Tomodachi in particular, they were instrumental in ironing out the many additional intricacies inherent in coalition operations with international

partners. Officers further down the chain of command such as Commander Ted Williams, Captain Michelle Howard, and Colonel Thomas Greenwood in OUA; and Rear Admiral “Scott” Jones and Colonel Andrew MacMannis in Tomodachi also proved helpful in this regard.

Another group of individuals whose efforts served to streamline and improve these operations were State Department diplomats and officials from other U.S. government agencies. People such as Michael Bäk and Ambassador Lynn Pascoe in Indonesia; and Chief of Mission James P. Zumwalt in Japan drew on their vast experience and their contacts to facilitate complex U.S. military HADRs. Even when there is a well-established SOFA agreement, engaging in a HADR in foreign lands is always complex. It is vital for the Navy and Marine Corps to lean heavily on its State Department and USAID partners (the lead agencies in any such operation) for assistance in coordinating their efforts with the host nation. Effective U.S. military leaders such as Crowder, Field, and Walsh understood this principle implicitly and never tried to be “the lead sled dog.”

It is unlikely that the United States will go to war in the future alone. Allies are fundamental to the current U.S. defense strategy. HADRs represent one of the most useful operations short of combat to improve ties between U.S. forces and allies, and thereby enhance interoperability. In Tomodachi, Japanese and U.S. personnel served together at nearly all levels of activity. JSDF aircrews served on U.S. aircraft and vice versa, and units from both sides landed and took off from each other’s ships. While such exchanges occur in peacetime settings, Tomodachi provided a real-world operational stress test for them. It also gave the JSDF forces experience in leading a large combined operation. Similarly, OUA represented an opportunity for U.S. officers to work on TNI staffs and develop an understanding of how this unfamiliar force made decisions and functioned. Allied engagement even occurred during Katrina between U.S. forces and their Canadian, Dutch, French, and Mexican counterparts.

A related theme is engagement with international organizations and NGOs—groups often present on or near most modern battlefields. In a major disaster in a remote region, neither the UN nor private NGOs have the logistical means to rapidly deliver water, food, and emergency medicine to affected areas. A partnership must therefore be formed with the U.S. military for logistics and other purposes. In most other situations, these organizations strive to maintain their neutrality by keeping at arm’s length from uniformed military services. HADRs represent one of the few opportunities for the Navy and Marine Corps to engage with these entities and forge relationships. As the OUA example illustrated, NGOs can be a very important source of information and insight about a disaster area or zone of conflict (a factor in northern Sumatra given the GAM insurgency). They were also critical for the U.S. military’s exit strategy in OUA. The Project Hope experience in both Katrina and OUA demonstrated that the Navy can form strategic partnerships with NGOs that go well beyond informal cooperation. NGOs can be extremely effective in augmenting Navy medical staff and in the future might play a role in other missions such

as feeding and housing displaced persons, assisting in non-combat evacuation operations, and migrant search and rescue at sea. As Nelson Chang learned when he was transported by a helicopter flown by a Russian crew, NGOs occasionally make for strange bedfellows, but they have capabilities and capacities often lacking on U.S. warships along with vast experience working in the developing world.

Despite the success of the Project Hope integration on hospital ships utilized both in Indonesia and in Katrina, these “Great White Ships” did not prove as suitable as some policymakers may have hoped during the operations examined in this book. While their civilian mariner crews worked heroically to get the hospital ships underway in short order, their slow cruising speed meant that they did not arrive in affected areas until long after the acute phase of the disaster had occurred. Designed to handle trauma cases flown onto the ship during war, these vessels and their medical treatment facilities had difficulties receiving patients pier side or from motor launches. These same design features made it difficult to transfer MTF personnel ashore to treat patients. Security concerns during OUA and medical licensing issues for Navy medical personnel during Katrina compounded the logistical problems related to shore operations. The main value of these ships during the HADRs examined was in the strategic message their presence conveyed to distressed local populaces, and that some of their personnel (Project Hope staff in particular) were able to treat a significant number of patients ashore at local hospitals or field hospitals.

A final theme to consider is the fact that in many disasters, the Navy and Marine Corps are both victims and first responders. Katrina damaged numerous naval facilities along the Gulf Coast, and the GEJE caused extensive damage at Misawa. Units stationed in those areas had to assess and repair damage at their own facilities while at the same time performing HADR operations. Navy dependents added another dimension to the problem. There were so many Navy victims in the Gulf Coast region after Katrina that the Navy had to stand up a new organization, Task Force Navy Family, to care for their needs. Similarly in Tomodachi, radiation leaks from Fukushima precipitated the largest military assisted departure of dependents since the eruption of Mount Pinatubo in the Philippines in 1991. Caring for dependents in both Katrina and Tomodachi put a strain on military resources and created significant stress for military members whose dependents were affected by the disasters. It is telling that Commander Perrella had to devote nearly as much time to dependent issues as running his squadron. In both Tomodachi and Katrina, numerous military spouses volunteered to assist local commanders with dependent-related issues (evacuation, aid, and travel-related issues), thereby easing the burden for military first responders. The spouses who volunteered, especially officers’ spouses, also had a tremendous calming and reassuring effect on DoD victims of these disasters. In the future, the Navy and Marine Corps may wish to train volunteer spouses ahead of time to serve as a reserve pool of labor in the event of a natural disaster.

## Conclusion

Given the acceleration of climate change and its various effects and consequences, there is a 100 percent likelihood that the Navy and Marine Corps will be called upon to perform numerous humanitarian and disaster relief operations in the future. As the Marine Corps' *Force Design 2030* so eloquently puts it, the Navy and Marine Corps must stand ready to respond to these events but at the same time, avoid procuring specialized HADR platforms or devoting too much time or money training personnel in HADR operations. HADRs, in other words, cannot be allowed to undermine the fleet's ability to conduct combat operations against a peer or near-peer competitor or diminish the fleet's lethality. Rather, they should be treated as a normal fleet activity—similar to a fleet exercise, a non-combat evacuation, or peacekeeping mission. The fleet should perceive HADRs as an opportunity to engage allies, show the flag, and bolster its image and value in the eyes of U.S. citizens and foreign populaces alike by saving lives and alleviating human suffering—in short, by doing good deeds and building goodwill. HADRs, as *Force Design 2030* explains, are the day-to-day consequence of being the forward deployed force-in-readiness. The Navy and Marine Corps should embrace this mission and exploit it to achieve strategic ends—whether convincing a skeptical American public of the value of the U.S. Navy or strengthening bonds with important allies. The Navy does not need to constantly tout itself as a “global force for good,” but it must be prepared to do good things from time to time when necessary. It is a balancing act for sure, but one that the Navy will inevitably have to perform as it steams into the future.



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## ACKNOWLEDGMENTS

I have contemplated writing a book on humanitarian operations for many years. The initial inspiration came out of my research on the U.S. Navy in Vietnam. During that war, the Navy and its sister sea services conducted numerous humanitarian operations ranging from providing medical support for civilians to massive non-combat evacuation operations. My interest in the subject grew in 2015 after modern humanitarian operations were highlighted as a “gap” in the literature of modern naval history in a study commissioned by Greg Martin, the director of the Histories and Archives Division of the Naval History and Heritage Command (NHHC) at the time. A final driver behind my decision to embark on this project was the unclassified nature of the main sources of the book: oral histories (conducted mainly by reservists and myself), studies of humanitarian operations authored by the staff of the Center for Naval Analyses, and operational documents held by NHHC. In contrast to many other potential topics in modern naval history, a book on humanitarian operations would not involve a lengthy and complex declassification effort. I credit my supervisor in 2016, Lance Eldridge, for steering me away from topics based heavily on classified information.

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One will note from the bibliography that I did not conduct many Katrina interviews. I was very fortunate that Navy Combat Documentation Unit and Detachment 206 sent a team to New Orleans shortly after the storm to document the Navy, Coast Guard, and Marine response. These reservists, along with similar teams from other services, went all out to interview nearly all the key figures involved in the effort, as well as many junior

personnel with interesting stories to tell. The Navy Katrina deployment included: Charlie Beckum, Edward L. Cook, Bill Engvall, Gary N. Hall, Harold Katz, John Lackie, Craig Mackey, Michael McDaniel, Greg Neuschafer, and Woodrow “Woody” Shields. Additionally, reservist Harold Katz conducted some superb interviews of MSC personnel involved in Tomodachi. Robert Eldridge, a former civilian Marine Corps employee, conducted a number of Marine interviews on Tomodachi that are cited in this volume. He also connected me to several key marines whom I interviewed directly.

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I would be remiss without thanking my wife. Finally, thank you to everyone who participated in the three operations examined: members of the U.S. armed forces, allied and partner nation militaries, NGOs, and other relief workers and responders. I dedicate this book to you. Thank you for your service. Thank you for being a global force for good!





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## GLOSSARY

ABRI: Angkatan Bersenjata Republic Indonesia, the Indonesian armed forces, 1962–1999

ACE: Aviation Combat Element in a Marine Expeditionary Unit

AEGIS: Advanced Electronic Guidance and Instrumentation System

AFS: Combat Store Ship

AH-1W: Bell Super Cobra attack helicopter

ALCSG: *Abraham Lincoln* Carrier Strike Group

AR: Archives Branch

ARG: Amphibious Ready Group

ARS: Salvage Ship

AST: Aviation Survival Technician

ATO: Air Tasking Order

B2C: Bravo to Sea; an experimental Navy program that sought to better integrate helicopters into big deck carrier operations

BOL: Bureau of Personnel Online

BUMED: Bureau of Medicine and Surgery

C-12 Huron: A twin-engine turboprop aircraft used by the U.S. armed forces for a variety of purposes, including passenger and cargo transport

C-130: A four-engine, turboprop military cargo aircraft

C-17 Globemaster III: A large, four-engine jet transport aircraft

C3I: Command, Control, Communications, and Intelligence

## *Glossary*

C-5 Galaxy: A large, four-engine jet transport aircraft capable of carrying outsized and oversized loads. This is the largest transport aircraft in the U.S. armed forces inventory.

CAG: Carrier Air Group; Carrier Air Group Commander

CAOC: Combined Air Operations Center

CARAT: Cooperation Afloat Readiness And Training, a series of annual exercises conducted by the U.S. Pacific Fleet and various member states of the Association of Southeast Asian Nations

CAT: Crisis Action Team

CBR: Chemical-Biological-Radiological

CCF-1: Communications Commander Force One, a Japan Self-Defense Forces unit

CE: Command Element in a Marine Expeditionary Unit

CFACC: Combined Forces Air Component Commander

CFAY: Commander Fleet Activities Yokosuka

CFJTG: Canadian Forces Joint Task Group

CH: Cargo Helicopter

CH-46: Tandem-rotor cargo helicopter known as the Sea Knight

CH-47: Tandem-rotor cargo helicopter; Army version of the CH-46 Sea Knight

CH-53: Heavy-lift cargo helicopter

Charlie: Second to highest force protection level for the U.S. armed forces (Normal, Alpha, Bravo, Charlie, and Delta)

CIRCLE WILLIAM: Prepare for a nuclear, chemical, or biological attack; A ship material condition status for Navy ships

CIVMAR: Civil Service Mariner, a civilian employed by the Navy to crew Military Sealift ships

CLF: Combat Logistics Force, part of the Military Sealift Command

CNA: Center for Naval Analyses

CNBC: Central Nuclear Biological Chemical Weapon Defense Unit, part of the Japan Self-Defense Forces

CNIC: Commander, Navy Installations Command

COA: Course of Action

Commodore: In the U.S. Navy, an honorary title for an officer in command of more than one ship such as a flotilla or a squadron. No longer an official rank in the U.S. Navy, commodores are often admirals but can also be captains in certain cases.

COMPHIBRON: Commander Amphibious Squadron

CONOPS: Concept of Operations

COR: Command Operations Report

CPS: Collective Protective System

CRA: Crisis Response Activities

CRED: Centre for Research on Epidemiology of Disasters

CRF: Central Readiness Force, part of the Japan Self-Defense Forces

CRRC: Combat Rubber Raiding Craft

CS21: Cooperative Strategy for 21st Century Seapower

CSC: Community Support Center

CSF: Combined Support Force

CSF-536: Combined Support Force 536

CSG: Carrier Strike Group

CSG-I: Combined Support Group Indonesia, a part of Combined Support Force 536

CSG-SL: Combined Support Group Sri Lanka, a part of Combined Support Force 536

CSG-T: Combined Support Group Thailand, a part of Combined Support Force 536

CTF-70: Commander, Theater Strike Warfare and Theater Air and Missile Defense Seventh Fleet. CTF-70 has operational control of all carrier strike groups and independently deployed cruisers and destroyers in the Seventh Fleet area of operations

CTF-72: Commander, Patrol and Reconnaissance Wing One. CTF-72 leads patrol, reconnaissance and surveillance forces in support of the Seventh Fleet

CTF-73: Commander, Logistics Group Western Pacific

CTF-74: Commander, Submarine Group Seven. CTF-74 directs submarine activities throughout the Western Pacific

## *Glossary*

CTF-76: Commander, Amphibious Force Seventh Fleet

CVN: Multi-Purpose Aircraft Carrier (Nuclear-Powered)

DART: (1) Disaster Assistance Response Team, United States Agency for International Development; (2) Disaster Assistance Response Team, United States Coast Guard

DCO: Defense Coordinating Officer assigned to the Federal Emergency Management Joint Field Office to work with federal and state authorities to align DoD capabilities with disaster response needs

DCSM: Dislocated Civilian Support Missions

DDFP: Diesel Driven Fire Pump

DDG: Guided Missile Destroyer

DDH: Helicopter Destroyer

DEPSECDEF: Deputy Secretary of Defense

DIREX: Disaster Response Exercise

DMAT: Disaster Medical Assistance Team (a civilian volunteer medical unit funded by the Department of Health and Human Services)

DoD: Department of Defense

DoN: Department of the Navy

DoS: Department of State

DPJ: Democratic Party of Japan

DRAT: Disaster Relief Assessment Team, a part of Combined Support Force 536

DRAT-I: Disaster Relief Assessment Team Indonesia

EDG: Emergency diesel generator

ELT: Engineering Laboratory Technician

EMAC: Emergency Management Assistance Compact, a state-to-state mutual aid compact for sharing National Guard and other resources across state lines during times of emergency or disaster.

EMEDS: Expeditionary Medical Support System (a modular, mobile field hospital)

EOD: Explosive Ordnance Disposal

EODMU: Explosive Ordnance Disposal Mobile Unit

ERC: Emergency Response Center

ESF: Emergency Support Functions outlined by the Department of Homeland Security's National Response Plan

ESG: Expeditionary Strike Group

FARP: Forward Aerial Refueling Point

FCO: Federal Coordinating Officer, the Federal Emergency Management Agency official charged with coordinating federal relief at the state level

FFG: Guided Missile Frigate

FFSC: Fleet and Family Support Center

GAM: Geurakan Acèh Meurdèka, the Free Aceh movement insurgent group

GCE: Ground Combat Element in a Marine Expeditionary Unit

GE: General Electric

GEJE: Great East Japan Earthquake

GOI: Government of Indonesia

H-3: A twin-engine anti-submarine helicopter

H-53 Sea Stallion: A family of heavy-lift transport helicopters used by the U.S. armed services

HH-60J Jayhawk: Coast Guard version of the HH-60.

HADR: Humanitarian and Disaster Relief

HAST: Humanitarian Assistance Survey Team

HC: Helicopter Combat Support Squadron

HEPA: High-Efficiency Particulate Air filter

HH-60H Rescue Hawk: A version of the H-60 helicopter optimized for personnel recovery and combat search and rescue; see also SH-60

HM: Helicopter Mine Countermeasures Squadron

HMCS: Her Majesty's Canadian Ship

HMLA: Marine Light Attack Helicopter Squadron

HMM: Marine Medium Helicopter Squadron



## *Glossary*

HMMWV: High Mobility Multipurpose Wheeled Vehicle

HMX-1: The Marine helicopter squadron that supports the President

HS: Helicopter Anti-Submarine Squadron

HSC: Helicopter Sea Combat Squadron

HSL: Helicopter Anti-Submarine Squadron Light

HSV: High Speed Vessel

Humvee: See HMMWV

IAEA: International Atomic Energy Agency, part of the United Nations

IAT: Interagency Assessment Team

IDP: Internally Displaced Person

IMET: International Military Education and Training

IOM: International Organization for Migration, part of the United Nations

ISR: Intelligence, Surveillance, Reconnaissance

JASDF: Japan Air Self-Defense Force

JGSDF: Japan Ground Self-Defense Force

JFACC: Joint Force Air Component Command

JFLCC: Joint Force Land Component Command

JFMCC: Joint Force Maritime Component Command

JFO: Joint Field Office established by the Federal Emergency Management Agency in a disaster-affected area

JMSDF: Japan Maritime Self-Defense Force

JRB: Joint Reserve Base

JSDF: Japan Self-Defense Forces. Note: some Japanese refer to it as simply the Self-Defense Forces or SDF.

JSF-519: Joint Support Force established to manage Operation Tomodachi

JTF: Joint Task Force

JTF-505: Joint Task Force established to manage the military assisted departure during Operation Tomodachi

JTF-519: See JSF-519

JTF-536: Joint Task Force established to manage Operation Unified Assistance

KC-135 Stratotanker: A four-engine jet refueling aircraft based on the Boeing 767-80 airframe

Kodam: Indonesian Regional Military Command

LCAC: Landing Craft Air Cushion

LCE: Logistics Combat Element in a Marine Expeditionary Unit

LCU: Landing Craft Utility

LDP: Liberal Democratic Party

LHA: Amphibious Assault Ship (General Purpose)

LHD: Amphibious Assault Ship (Multi-Purpose)

LPD: Amphibious Transport Dock

LSD: Dock Landing Ship (an amphibious warfare ship with a well dock)

LST: Tank Landing Ship

MAD: Military Assisted Departure

MC-130: A special mission aircraft operated by the United States Air Force Special Operations Command often used to transport special operations forces to remote, unimproved airstrips lacking infrastructure. See also C-130

MCM: Mine Countermeasures Ship

MDSU: Mobile Diving and Salvage Unit

MEDCAP: Medical Civic Action Program

MEF: Marine Expeditionary Force (anywhere from 20,000 to 90,000 Marines)

MEU: Marine Expeditionary Unit (approximately 2,200 Marines)

MH: Multi-mission helicopter

MH-53: Mine-countermeasures version of the H-53 helicopter known as the Sea Dragon; See also H-53 and CH-53

MH-60: Navy multi-mission helicopter

## *Glossary*

Millirem: A unit of energy or radiation. Radiation units in the United States are typically defined in units of millirem (mrem). Internationally, radiation units are defined as units of millisieverts (mSv) (1 rem = 1,000 mrem; 1 Sv = 1,000 mSv; 1 Sv = 100 rem).

MOOTW: Military Operations Other Than War

MPa: Megapascal, a metric unit of pressure

MS: Minesweeper

MSC: Military Sealift Command

MSCFE: Military Sealift Command Far East

MSS: Mobile Security Squadron, U.S. Navy

MST: U.S. Air Force Mission Support Team

MTF: Medical Treatment Facility

MUSE: Navy Mobile Utilities Support Equipment

MV: Motor Vessel

N3/N5: The Deputy Chief of Naval Operations for Operations, Plans and Strategy

N3: Operations directorate of a Navy staff

NAF: Naval Air Facility

NAS JRB: Naval Air Station Joint Reserve Base

NAS: Naval Air Station

NAVFOR: Naval Force

NAVSEA: Naval Sea Systems Command

NCBC: Naval Construction Battalion Center

NEO: Non-combat Evacuation Operation

NEPMU: Navy Environmental and Preventative Medicine Unit

NGA: National Geospatial-Intelligence Agency

NHC: National Hurricane Center, a part of the National Weather Service

NHHC: Naval History and Heritage Command

NISA: Nuclear and Industrial Safety Agency of Japan

NMCB: Naval Mobile Construction Battalion

NOLA: New Orleans, Louisiana

NOPD: New Orleans Police Department

NORTHCOM: U.S. Northern Command

NRP: National Response Plan for catastrophic events prepared by the Department of Homeland Security

NSA: Naval Support Activity

OEF: Operation Enduring Freedom

OUA: Operation Unified Assistance

P-3: A four-engine, turboprop Navy anti-submarine warfare and maritime surveillance aircraft

PACAF: Pacific Air Forces

PACFLT: U.S. Pacific Fleet

PACOM: U.S. Pacific Command

PACU: Post-anesthesia Care Unit

PCO: Peacetime Contingency Operation

PCV: Primary Containment Vessel for a nuclear reactor

PFO: Principal Federal Official, the primary representative in the field for the Secretary of Homeland Security

PHIBRON: Amphibious Squadron

PKI: Partai Komunis Indonesia, Indonesian Communist Party

Posse Comitatus Act: The United States law, part of Title 18, limiting the power of the federal government to use the U.S. armed forces to enforce domestic policies

QDR: Quadrennial Defense Review

R2P2: Rapid Response Planning Process

RADIAC: Radiation, Detection, Indication and Computation

RCC: Rescue Coordination Center

ROTC: Reserve Officers' Training Corps

## Glossary

ROV: Remotely Operated Vehicle

RPV: Reactor Pressure Vessel

S3: Operations officer on a Marine Corps, or Army staff

SCRAM: Emergency shutdown system at the Fukushima nuclear power plant

SDF: Self-Defense Forces; see also JSDF

Seabee: A member of a United States Naval Construction Battalion

SH: Anti-Submarine Helicopter

SH-60 Seahawk: A maritime version of the Army's UH-60 with the main changes being more powerful engines, corrosion protection, and landing gear configured for shipboard landings on small platforms

SH-60B Seahawk: A U.S. Navy anti-submarine helicopter based on the H-60 airframe

SH-60F Oceanhawk: A U.S. Navy anti-submarine warfare helicopter based on the H-60 airframe

SIPRNET: Secret Internet Protocol Router Network

SOFA: Status of Forces Agreement

SOG: Special Operations Group

Spark: A U.S. Navy team consisting of electronics and communications specialists led by an intelligence officer during Operation Unified Assistance

SPMAGTF: Special Purpose Marine Air Ground Task Force

SSS: Side-scan Sonar

SSTR: Stability, Security, Transition, and Reconstruction

SSU: Ship Support Unit

Stafford Act: Robert T. Stafford Disaster and Emergency Relief Act, PL 100-707. The act constitutes the statutory authority for most federal disaster response activities

T-AH: *Mercy*-class Hospital Ship

T-AK: Cargo Ship

T-AKE: Dry Cargo and Ammunition Ship

T-AKR: Vehicle Cargo Ship

TALCE: U.S. Air Force Tanker Airlift Control Element



T-AO: Fleet Replenishment Oiler

T-AOE: Fast Combat Support Ship

TEPCO: Tokyo Electric Power Company

TFNF: Task Force Navy Family

T-HSV: High Speed Vessel

Title 10: The section of the U.S. Code covering the U.S. armed forces

Title 32: The section of the U.S. Code covering the U.S. National Guard

TNI: Tentara Nasional Indonesia, the Indonesian Armed Forces, 1999–present

TSCP: Theater Security Cooperation Program

Tyvek: Lightweight, durable nonwoven cloth (used for hazardous material outfits)

UCT: Underwater Construction Team

UH-1N: Bell Twin Huey: A medium military helicopter

UNJLC: United Nations Joint Logistics Centre

UNREP: Underway Replenishment

UPHS: Uniformed Public Health Service

USAID: U.S. Agency for International Development

USFJ: United States Forces Japan

VAQ: Tactical Electronic Warfare Squadron

VAW: Carrier Airborne Early Warning Squadron

VP: Patrol Squadron

VR: Logistics Support Squadron

VX: Air Test and Evaluation Squadron

WFP: World Food Programme, part of the United Nations

XO: Executive Officer, typically the second in command of a Navy unit



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## NOTES

### Introduction

- 1 Note: I am excluding the 1948 Turkmenistan earthquake in Central Asia, which killed 110,000. Also note: I have drawn historical data about natural disasters from the International Disaster Database developed by the Centre for Research on the Epidemiology of Disasters (CRED). This continually updated database is the primary source of comparative disaster data used by the United Nations (UN), the U.S. Agency for International Development (USAID), and the International Federation of the Red Cross and Red Crescent. CRED was established in 1973 and is located within the School of Public Health of the Université Catholique de Louvain (UCL) in Brussels. CRED became a World Health Organization collaborating center in 1980 and also has formal ties with the UN, the European Union, the Red Cross, and various U.S. government agencies, including USAID's Office of Foreign Disaster Assistance. See CRED, "Disaster 1907-0007," EM-DAT: The International Disaster Database, accessed 1 December 2022, <https://emdat.be>. For more on the history of the Messina Earthquake of 1908, see Adolfo Santini and Nicola Moraci, eds., *2008 Seismic Engineering Conference: Commemorating the 1908 Messina Reggio Calabria Earthquake* (New York: American Institute of Physics, 2008).
- 2 James R. Reckner, *Teddy Roosevelt's Great White Fleet* (Annapolis, MD: Naval Institute Press, 2001), 147–49; Reginald Rowan Belknap, *American House Building in Messina and Reggio; an Account of the American Naval and Red Cross Combined Expedition to Provide Shelter for the Survivors of the Great Earthquake of December 28, 1908* (New York: G. P. Putnam's Sons, 1910).
- 3 These conclusions were derived from CRED, EM-DAT, accessed 1 December 2022.
- 4 These conclusions were derived from CRED, EM-DAT, accessed 1 December 2022.
- 5 United Nations Office for the Coordination of Humanitarian Affairs (OCHA), *Oslo Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief*, Revision 1.1 (Geneva, Switzerland: United Nations Publishing Service, November 2007), <https://www.unocha.org/sites/unocha/files/OSLO%20Guidelines%20Rev%201.1%20-%20Nov%2007.pdf>.

- 6 Joint Chiefs of Staff (JCS), *DOD Dictionary of Military and Associated Terms* (Washington, DC: Government Printing Office [GPO], November 2021), 86.
- 7 OCHA, *Oslo Guidelines*.
- 8 Adam B. Siegel, *A Sampling of U.S. Naval Humanitarian Operations* (Arlington, VA: Center for Naval Analyses [CNA], 2003), <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/s/sampling-of-us-naval-humanitarian-operations.html>.
- 9 This definition is adapted from one used by Larissa Forster, *Influence Without Boots on the Ground: Seaborne Crisis Response*, Newport Papers 39 (Newport, RI: Naval War College Press, 2013), 9.
- 10 For more on crisis response, see Forster, *Influence Without Boots on the Ground: Seaborne Crisis Response*.
- 11 Headquarters, Department of the Army and the Air Force, *Army Field Manual 100-20/AFP 3-20* (Washington, DC: GPO, 1990).
- 12 Jeffrey A. Larson, “Conclusion,” in James J. Wirtz and Jeffrey A. Larsen, eds., *Naval Peacekeeping and Humanitarian Operations: Stability from the Sea* (New York: Routledge, 2009), 173–74.
- 13 JCS, *Foreign Humanitarian Assistance: Joint Publication 3-29* (Washington, DC: JCS, 2019), I-7–I-8, [https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3\\_29.pdf](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_29.pdf).
- 14 JCS, *Joint Publication 3-29*, I-7-I-8.
- 15 Julia F. Irwin, “The Origins of U.S. Foreign Disaster Assistance,” *American Historian* 15 (February 2018), 43–9, <https://www.oah.org/tah/issues/2018/february/the-origins-of-u.s-foreign-disaster-assistance/#fn4>.
- 16 Department of Defense (DoD), *Department of Defense Support to Foreign Disaster Relief: Handbook for Responding Forces* (Washington, DC: DoD, 2021), 1-2.
- 17 DoD, *Department of Defense Support to Foreign Disaster Relief*, 2-1; JCS, *Joint Publication 3-29*, vii, II-20, III-29.
- 18 See DoD, *DoD Directive 5100.46: Foreign Disaster Relief* (Washington, DC: Washington Headquarters Services, 4 December 1975), [https://biotech.law.lsu.edu/blaw/dodd/corres/pdf/d510046\\_120475/d510046p.pdf](https://biotech.law.lsu.edu/blaw/dodd/corres/pdf/d510046_120475/d510046p.pdf).
- 19 DoD, *DoD Directive 5100.46: Foreign Disaster Relief* (Washington, DC: Washington Headquarters Services, 6 July 2012 incorporating Change 1, 28 July 2017), <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/510046p.pdf?ver=2019-02-04-123653-663>.
- 20 DoD, *Department of Defense Support to Foreign Disaster Relief*, 2-1.

- 21 Bruce Elleman as cited in Larissa Forster, *Influence Without Boots on the Ground: Seaborne Crisis Response*, Newport Papers 39 (Newport, RI: Naval War College Press, 2013), 61.
- 22 For more on the Navy's humanitarian efforts during the Vietnam War, see Jan K. Herman, *Navy Medicine in Vietnam: Passage to Freedom to Fall of Saigon* (Washington, DC: Naval History and Heritage Command [NHHC], 2010); Edward J. Marolda, *By Sea, Air, and Land: An Illustrated History of the U.S. Navy and the War in Southeast Asia* (Washington, DC: Naval Historical Center, 1994); John Darrell Sherwood, *War in the Shallows: U.S. Navy Coastal and Riverine Warfare in Vietnam, 1965–1968* (Washington, DC: NHHC, 2015); Robert J. Wilensky, "The Medical Civic Action Program in Vietnam: Success or Failure," *Military Medicine* 166, no. 9 (September 2001): 815–19.
- 23 For more on Project 60, see "Document 1: Project 60" in John B. Hattendorff, ed., *U.S. Naval Strategy in the 1970s: Selected Documents*, Newport Papers 30 (Newport, RI: Naval War College Press, 2007) 1–31.
- 24 Peter Swartz, William Rosenau, and Hannah Kates, *The Origins and Development of a Cooperative Strategy for 21st Century Seapower (2015)* (Arlington, VA: CNA, September 2017), 9.
- 25 Dr. Peter Haynes, Captain, USN (Ret.), the former deputy director of the director's action group at the Naval History and Heritage Command, previously held a number of significant strategy-making positions, including Deputy Director (Strategy and Concepts), Strategy, Plans, and Policy Directorate (J5), U.S. Special Operations Command; Director, Strategy and Plans Directorate (J5), Combined Joint Task Force—Horn of Africa; Chief, Advanced Concepts Branch, Office of the Chief of Naval Operations (OPNAV) N511, Operations, Plans, and Strategy Directorate (N3/N5), OPNAV; Chief, Strategy and Concepts Branch, OPNAV N513, Operations, Plans, and Strategy Directorate (N3/N5), OPNAV; and a Russia Desk Officer and the Ukraine Desk Officer, Strategic Plans and Policy Directorate (J5), Joint Staff. Dr. Peter Haynes, email to John Sherwood, 23 May 2022.
- 26 Peter D. Haynes, *Toward a New Maritime Strategy: American Naval Thinking in the Post-Cold War Era* (Annapolis, MD: Naval Institute Press, 2015), 73.
- 27 In these types of situations, even the lowest level commanders, which he calls "strategic corporals," will need to be able to think independently and make crucial decisions. See Haynes, *Toward a New Maritime Strategy*, 128–29.
- 28 Department of the Navy (DoN), *Naval Doctrine Publication 1: Naval Warfare* (Washington, DC: Office of the Chief of Naval Operations, 28 March 1994), 29.
- 29 DoN, *Naval Doctrine Publication 1*, 28 March 1994, 15.
- 30 Haynes, *Toward a New Maritime Strategy*, 187.
- 31 Haynes, *Toward a New Maritime Strategy*, 175.



- 32 Haynes, *Toward a New Maritime Strategy*, 192.
- 33 A prime example is France's *Mistral*-class amphibious assault ship, which can add 50 beds to its medical facility for humanitarian missions. See Naval Technology, "Mistral Class—Amphibious Assault Ships," 2 February 2017, <https://www.naval-technology.com/projects/mistral/>.
- 34 Swartz et al., *The Origins and Development of a Cooperative Strategy for 21st Century Seapower* (2015), 10.
- 35 U.S. Marine Corps (USMC), U.S. Navy, and U.S. Coast Guard, *A Cooperative Strategy for 21st Century Seapower* (Washington, DC: Defense Media Activity, October 2007), 12–14.
- 36 USMC et al., *A Cooperative Strategy for 21st Century Seapower*, 7.
- 37 DoD, *Quadrennial Defense Review Report* (Washington: DC: Office of the Secretary of Defense, February 2010), 20, <https://history.defense.gov/Historical-Sources/Quadrennial-Defense-Review/>.
- 38 DoD, *Quadrennial Defense Review Report*, February 2010, 59–61, 66, 68–69, 85.
- 39 DoD, *Quadrennial Defense Review 2014* (Washington, DC: Office of the Secretary of Defense, 2014), 22, 60–61, [https://www.acq.osd.mil/ncbdp/docs/2014\\_Quadrennial\\_Defense\\_Review.pdf](https://www.acq.osd.mil/ncbdp/docs/2014_Quadrennial_Defense_Review.pdf).
- 40 Swartz et al., *The Origins and Development of a Cooperative Strategy for 21st Century Seapower* (2015), 10.
- 41 USMC et al., *A Cooperative Strategy for 21st Century Seapower*, 19.
- 42 USMC et al., *A Cooperative Strategy for 21st Century Seapower*, 33–36.
- 43 Swartz et al., *The Origins and Development of a Cooperative Strategy for 21st Century Seapower* (2015), 48.
- 44 U.S. Marine Corps, U.S. Navy, and U.S. Coast Guard, *Advantage from the Sea: Prevailing with Integrated All-Domain Naval Power* (Washington, DC: Defense Media Activity, 2020), <https://media.defense.gov/2020/Dec/16/2002553074/-1/-1/0/TRISERVICESTRATEGY.PDF>.
- 45 David H. Berger, *Force Design 2030* (Washington, DC: Headquarters, U.S. Marine Corps, March 2020), <https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460>.
- 46 White House, *Interim National Security Strategic Guidance*, 3 March 2021, <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.
- 47 Edward N. Luttwak, *Pentagon and the Art of War* (New York: Simon & Schuster, 1984), 263.

- 48 National Museum of the United States Navy, *The United States Navy's Response to the 1923 Kanto Earthquake in Japan* (Washington, DC: NHHC, 2021), [https://www.history.navy.mil/content/dam/museums/nmusn/Pamphlets/1923-Kanto-Earthquake/NMUSN\\_United%20States%20Navy%20Response%20to%20the%201923%20Kanto%20Earthquake.pdf](https://www.history.navy.mil/content/dam/museums/nmusn/Pamphlets/1923-Kanto-Earthquake/NMUSN_United%20States%20Navy%20Response%20to%20the%201923%20Kanto%20Earthquake.pdf).
- 49 For more on that storm, see Samuel J. Cox, "H-039-2: Typhoon Cobra—The Worst Natural Disaster in U.S. Navy History, 14–19 December 1944," December 2019, <https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-039/h-039-2.html>.
- 50 For more on this operation, see Douglas MacArthur, *Reports of General MacArthur: MacArthur in Japan: The Occupation: Military Phase*, Vol. 1 Supplement (Washington, DC: U.S. Army Center of Military History, 1994), 90–117, <https://history.army.mil/books/wwii/MacArthur%20Reports/MacArthur%20V1%20Sup/index.htm#cont>, accessed 14 December 2021.
- 51 *Reports of General MacArthur: MacArthur in Japan: The Occupation*, Vol. 1 Supplement, 150–91.
- 52 Jeffrey G. Barlow, "The U.S. Navy's Participation in the Berlin Airlift," 13 December 2018, <https://www.history.navy.mil/research/histories/naval-aviation-history/involvement-by-conflict/cold-war/naval-aviation-s-involvement-in-the-berlin-airlift/us-navys-participation-in-the-berlin-airlift.html>.
- 53 Edward J. Marolda, *The Approaching Storm: Conflict in Asia, 1945–1965* (Washington, DC: NHHC, 2009), 19.
- 54 For more on this operation, see Ronald B. Frankum, Jr., *Operation Passage to Freedom: The United States Navy in Vietnam, 1954–1955* (Lubbock, TX: Texas Tech University Press, 2007).
- 55 Malcolm Muir, *End of the Saga: The Maritime Evacuation of South Vietnam and Cambodia* (Washington, DC: NHHC, 2017), 26–34.
- 56 United Nations International Children's Emergency Fund (UNICEF), now officially United Nations Children's Fund, "What We Do: Emergencies," accessed 16 December 2021, <https://www.unicef.org/eap/what-we-do/emergencies>.
- 57 The Navy also responded to a natural disaster in Vietnam. After floods devastated Phan Rang in 1964, Seabees provided humanitarian relief supplies and rebuilt destroyed infrastructure. For more on this operation, see Edward J. Marolda, *The United States Navy and the Vietnam Conflict*, vol. 2, *From Military Assistance to Combat, 1959–65* (Washington, DC: Naval Historical Center, 1986), 353.
- 58 Siegel, *A Sampling of U.S. Naval Humanitarian Operations*.
- 59 Clarence R. Anderegg, *The Ash Warriors* (Hickam Air Force Base, HI: Pacific Air Forces (PACAF) History Office, 2000), 67–72.

- 60 The naval force included *Tarawa*, *Vancouver* (LPD-2), *Juneau* (LPD-10), *Anchorage* (LSD-36), *Mount Vernon* (LSD-39), *Frederick* (LST-1184), *Barbour County* (LST-1195), and *Passumpsic* (T-AO-107). See Charles R. Smith, *Angels from the Sea: Relief Operations in Bangladesh, 1991: U.S. Marines in Humanitarian Operations* (Washington, DC: Histories and Museums Division, Headquarters United States Marine Corps, 2013), 41.
- 61 Smith, *Angels from the Sea*, 108.
- 62 Gary Cecchine et al., *The U.S. Military Response to the 2010 Haiti Earthquake* (Santa Monica, CA: RAND, 2013); David Broyles, *Operation Unified Response U.S. Navy Response to Disaster-Relief Efforts in Haiti: A Reconstruction and Analysis*, CRMD0025956.A1/Final (Arlington, VA: CNA, October 2011).
- 63 Jennifer D. P. Moroney, Stephanie Pezard, Laurel E. Miller, Jeffrey Engstrom, and Abby Doll, *Department of Defense Disaster Relief Efforts in the Asia-Pacific Region* (Santa Monica, CA: RAND, 2013), 1.
- 64 Nicholas E. Reynolds, *A Skillful Show of Strength: U.S. Marines in the Caribbean, 1991–6* (Washington, D.C.: History and Museums Division, Headquarters U.S. Marine Corps, 2003); David Bently, “Operation Sea Signal: U.S. Military Support for Caribbean Migration Emergencies, May 1994 to February 1996,” *Strategic Forum* 73 (May 1996): 1–5, <https://apps.dtic.mil/sti/pdfs/ADA394323.pdf>.
- 65 FRONTEX European Border and Coast Guard Agency, *General Report for 2015* (Warsaw, Poland: FRONTEX, 2016), 52–53, <https://op.europa.eu/en/publication-detail/-/publication/474bb018-b537-11e6-9e3c-01aa75ed71a1>.
- 66 FRONTEX European Border and Coast Guard Agency, *Risk Analysis for 2020* (Warsaw, Poland: March 2020), <https://euagenda.eu/upload/publications/untitled-301445-ea.pdf>.
- 67 See John Sherwood, “Lower End of Maritime Operations: European Union Migrant and Border Control Operations in the Central Mediterranean,” in Julian Pawlak and Johannes Peters, eds., *From the North Atlantic to the South China Sea: Allied Maritime Strategy in the 21st Century* (Baden-Baden, Germany: NOMOS, 2021), 143–63, <http://www.nomos-elibrary.de/agb>.
- 68 Sixty-four individuals died as a direct result of the hurricane, and an estimated 2,910 died of indirect causes. See Eric V. Larson et al., *U.S. Army North in the Hurricane Maria Response* (Santa Monica, CA: RAND, 2020), 14; CRED, “Disaster 2017-0383,” EM-DAT, 1 December 2021.
- 69 Amelia Cheatham and Diana Roy, *Puerto Rico: A U.S. Territory in Crisis* (Washington, DC: Council of Foreign Relations, 29 September 2022), <https://www.cfr.org/background/puerto-rico-us-territory-crisis>; U.S. Census Bureau, “Quick Facts: Puerto Rico,” accessed 17 January 2023, <https://www.census.gov/quickfacts/fact/table/PR/PST045222>.

- 70 For more on the DoD response to Katrina, see Eric V. Larson et al., *U.S. Army North in the Hurricane Maria Response* (Santa Monica, CA: RAND, 2020); Elesia Patten, “Hurricane Maria Hits Home; Nimitz Sailor Worries for his Family,” *All Hands*, 20 October 2017, <https://allhands.navy.mil/Stories/Display-Story/Article/1840431/hurricane-maria-hits-home/>; Stephane Belcher, “USNS *Comfort* Restocks to Continue Post-Hurricane Care,” *Defense Department News*, 8 November 2017, <https://www.defense.gov/News/News-Stories/Article/Article/1367372/usns-comfort-restocks-to-continue-post-hurricane-care/>.
- 71 OCHA, *Oslo Guidelines*.
- 72 OCHA, *Oslo Guidelines*.
- 73 Vice Admiral Douglas William Crowder, USN (Ret.), interview by author, Skype, 12 June 2020.

## Part I: Operation Unified Assistance

- 1 Combined Support Force 536 (CSF-536), Time Line – Indian Ocean Tsunami Disaster 2004: Civil/Military Issues and Integration, CSF-536 files, Marine Corps History Division, Quantico, VA; Sunoy N. Banerjee and Robert C. Benbow, *Operation Unified Assistance: Tsunami Relief Operations by Naval Forces*, CRM D001 2645.A1 /Final (Arlington, VA: CNA, November 2006), 6; Eric J. Shaw, *Operation Unified Assistance: 2004 Sumatran Earthquake and Tsunami Humanitarian Relief*, *CNC&S/NSC 2013 Contemporary Operations Examination Case Study* (Newport, RI: Naval War College, Joint Military Operations Department, May 2013), 1–4.
- 2 Mercy Corps, “The facts: Indonesia earthquakes, tsunamis, and other natural disasters,” 4 September 2020, <https://www.mercycorps.org/blog/quick-facts-indonesia-disasters>.
- 3 *Abraham Lincoln* Carrier Strike Group (ALCSG), Command Chronology for Operation Unified Assistance, AR/585-3-6, Content Manager, Archives Branch (AR), NHHHC, Washington, DC.
- 4 Shaw, *Operation Unified Assistance*, 26–27.
- 5 Helicopter Anti-Submarine Squadron 2 (HS-2), Operation Unified Assistance Briefing, 16 April 2016, HS-2 Command Operations Report files, AR, NHHHC; CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 6 David A. Deptula, interview by John Sherwood, John Vassiliou, and Sabrina Rusch, Microsoft Teams, 25 September 2020, *A Global Force for Good* author files, AR, NHHHC.
- 7 USAID Indonesia, *Emergency Response and Reconstruction in Aceh Province (2004–9)* (Washington, DC: USAID Press and Outreach, November 2014), [https://www.usaid.gov/sites/default/files/documents/1861/EmergencyResponseReconstruction\\_Aceh.pdf](https://www.usaid.gov/sites/default/files/documents/1861/EmergencyResponseReconstruction_Aceh.pdf).

- 8 Trevor Rowe as cited in Eric J. Shaw, *Operation Unified Assistance*, 32.
- 9 Douglas William Crowder, interview by John Sherwood, 12 June 2020, Skype, *A Global Force for Good* author files, AR, NHHC.
- 10 Shaw, *Operation Unified Assistance*, 28.
- 11 World Health Organization (WHO), “Inter-agency Rapid Health Assessment End of Mission Report, from the offshore platform - USS *Abraham Lincoln*,” (report, West Aceh, Indonesia, 13–19 January 2005), AR/585-2-23-265, Content Manager, AR, NHHC.
- 12 Adrian Vickers, *A History of Modern Indonesia*, 2nd ed. (Cambridge, England: Cambridge University Press, 2013), 95–106; William H. Frederick and Robert L. Worden, *Indonesia: A Country Study* (Washington, DC: Federal Research Division, Library of Congress, 2011), 42–47.
- 13 Vickers, *A History of Modern Indonesia*, 95–106; Frederick and Worden, *Indonesia*, 42–47.
- 14 The extent to which the U.S. supported Suharto and his purge is still a matter of debate in certain scholarly circles. Some argue that the CIA provided Suharto with lists of PKI members to be arrested. Documents recently published by the Office of the Historian at the Department of State in its Foreign Relations of the United States series tell a different story. “It came as a surprise,” wrote Richard Cabot Howland, a foreign service officer attached to the embassy at the time who later conducted extensive research on the issue. Far from being a systematic massacre conducted with bureaucratic efficiency by the Indonesian government, the embassy attributed many of the murders to the “tradition of family blood feuds” and suggested that “many of the killings that are taking place under a political cover are actually motivated by personal and clan vendettas.” The U.S. seemed prepared to support Sukarno if he came out on top after the bloodletting, but did express concern about his moves to the left and his deteriorating health. The main concern of the embassy was to make sure the PKI did not take over the country, but there is no evidence it supported the massacre of PKI cadres seen in the 1965 purge. See Edward C. Keefer and David S. Patterson, eds., *Indonesia; Malaysia-Singapore; Philippines*, vol. 26, *Foreign Relations of the United States, 1964–1968* (Washington, DC: Department of State, 2000), Document 162, <https://history.state.gov/historicaldocuments/frus1964-68v26/d162>; *Foreign Relations of the United States 1964–1968*, vol. 26, Document 149, <https://history.state.gov/historicaldocuments/frus1964-68v26/d149>; Richard Cabot Howland, “The Lessons of the September 30 Affair,” *Studies in Intelligence* 14 (Fall 1970): 13–28, <https://www.cia.gov/library/readingroom/>.
- 15 Vickers, *A History of Modern Indonesia*, 4.
- 16 Vickers, *A History of Modern Indonesia*, 161–63.



- 17 See Angel Rabasa and John Haseman, *The Military and Democracy in Indonesia: Challenges, Politics, and Power* (Santa Monica, CA: RAND, 2002). 36.
- 18 Frederick and Worden, *Indonesia*, 303, 348.
- 19 Frederick and Worden, *Indonesia*, 32; David Stevens, “The Combined Naval Role in East Timor,” in Gary E. Weir and Sandra J. Doyle, eds., *You Cannot Surge Trust: Combined Naval Operations of the Royal Australian Navy, Canadian Navy, Royal Navy, and United States Navy, 1991–2003* (Washington, DC: NHHHC, 2013), 103–4.
- 20 Rabasa and Haseman, *The Military and Democracy in Indonesia*, 113–14; Frederick and Worden, *Indonesia*, 322; Ann Miller and David Strauss, *Operation Unified Assistance: How Conditions and Relationships Affected the Response*, CRM D0012643.A2/ Final (Arlington, VA: CNA, November 2006), 32–33.
- 21 The U.S. Navy ships in the International Force in East Timor (INTERFET) included *Mobile Bay* (CG-53), *Belleau Wood*, *Peleliu* (LHA-5), *Juneau*, and three Military Sealift Command (MSC) ships, *San Jose*, *Tippecanoe*, and *Kilauea* (T-AE-26). See Stevens, “The Combined Naval Role in East Timor,” 115.
- 22 Vickers, *A History of Modern Indonesia*, 218–19; Frederick and Worden, *Indonesia*, 322–23.
- 23 The bill was a reaction to atrocities committed by the Indonesian Special Forces in East Timor and the Indonesian police in Banda Aceh. See John Barone, “A Proposal for the Revision of the Leahy Laws to Align Human Rights and Security Cooperation Policies with National Strategy,” (master’s thesis, Johns Hopkins University, 2022), 8–9. For more about the bill itself, see U.S. Department of State, Bureau of Democracy, Human Rights, and Labor, “Fact Sheet: About the Leahy Law,” 20 January 2021, <https://www.state.gov/key-topics-bureau-of-democracy-human-rights-and-labor/human-rights/leahy-law-fact-sheet/>.
- 24 Nelson Chang, interview by John Sherwood and Ashley Castell, 1 July 2020, Skype, *A Global Force for Good* author files, AR, NHHHC.
- 25 Rabasa and Haseman, *The Military and Democracy in Indonesia*, 113–14.
- 26 Miller and Strauss, *Operation Unified Assistance*, 32–33.
- 27 Frederick and Worden, *Indonesia*, 323.
- 28 Frederick and Worden, *Indonesia*, 323; Miller and Strauss, *Operation Unified Assistance*, 28–30; Barbara Harvey, *The Future of Indonesia as a Unitary State: Separatism and Decentralization*, CRM D0006867.A1/ Final (Arlington, VA: CNA, September 2002), 5.
- 29 Jose C. Borrero, *Field Survey Northern Sumatra and Banda Aceh, Indonesia after the Tsunami and Earthquake of 26 December 2004* (Los Angeles, CA: University of Southern California Department of Engineering, 9 February 2005), 5, [https://www.eeri.org/lfe/clearinghouse/sumatra\\_tsunami/reports/EERI\\_report\\_indonesia\\_jcb\\_2-11-05.pdf](https://www.eeri.org/lfe/clearinghouse/sumatra_tsunami/reports/EERI_report_indonesia_jcb_2-11-05.pdf); Shaw, *Operation Unified Assistance*, 1–4; Bruce A.

- Elleman, *Waves of Hope: The U.S. Navy's Response to the Tsunami in Northern Indonesia* (Newport, RI: Naval War College Press, 2007), 3.
- 30 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004; Elleman, *Waves of Hope*, 7.
- 31 Borrero, *Field Survey Northern Sumatra and Banda Aceh, Indonesia*, 6–7.
- 32 Elleman, *Waves of Hope*, 7.
- 33 Nick Cummings-Bruce Br [sic.] and Campbell Robertson, “Most Powerful Quake in 40 Years Triggers Death and Destruction,” *New York Times*, 26 December 2004, <https://www.nytimes.com/2004/12/26/international/asia/most-powerful-quake-in-40-years-triggers-death-and.html?searchResultPosition=2>; Elleman, *Waves of Hope*, 15–17; Shaw, *Operation Unified Assistance*, 1–4.
- 34 Amy Waldman, “Thousands Die as Quake-Spawned Waves Crash Onto Coastlines Across Southern Asia,” *New York Times*, 27 December 2005, <https://www.nytimes.com/2004/12/27/world/asia/thousands-die-as-quake-spawned-waves-crash-onto-coastlines-across.html?searchResultPosition=8>; Banerjee and Benbow, *Operation Unified Assistance*, 7.
- 35 PACOM is now called the U.S. Indo-Pacific Command.
- 36 Shaw, *Operation Unified Assistance*, 9–10.
- 37 Shaw, *Operation Unified Assistance*, 25–26.
- 38 Elleman, *Waves of Hope*, 101.
- 39 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004; Banerjee and Benbow, *Operation Unified Assistance*, 7; Shaw, *Operation Unified Assistance*, 25–26; Elleman, *Waves of Hope*, 8; David A. Deptula and JFACC [Joint Force Air Component Commander]/COMAFFOR [Commander Air Force Forces] Lessons Collection Team, *Operation Unified Assistance (OUA): CSF-536 Joint Force Air Component Commander: (JFACC)/Air Force Forces Commander (AFFOR): Lessons and Observations* (Washington, DC: Office of Air Force Lessons Learned, 15 May 2005), 46.
- 40 Deptula et al., *Operation Unified Assistance*, 47.
- 41 Shaw, *Operation Unified Assistance*, 13.
- 42 Banerjee and Benbow, *Operation Unified Assistance*, 12.
- 43 Shaw, *Operation Unified Assistance*, 9–10.
- 44 David J. Dorsett, “Tsunami! Information Sharing,” *Joint Force Quarterly* 39 (2005): 12–18.
- 45 Unlike the U.S. Army and Marine Corps, which are expeditionary in nature, the TNI functions more like a National Guard—its focus is inward on internal threats to sovereignty. Its forte is counter-insurgency and counter-terrorism. See Barbara

- Harvey, *The Future of Indonesia as a Unitary State: Separatism and Decentralization*, CNA, CRM D0006867.A1/ Final (Arlington, VA: CNA, September 2002), 11; Rabasa and Haseman, *The Military and Democracy in Indonesia*, 223; Crowder interview, 12 June 2020.
- 46 Part of Operation Marathon Pacific. The refugees were intercepted on *Jung Sheng 8* and had been duped by the Chinese mafia into investing \$30,000 each for passage to the United States. The 147 refugees and 11 crew were held on Wake Island from 21 July to 10 August 1995 until they could be flown to China by the Air Force. For more on this operation, see Ronald E. Ellyson, Charles Callahan, and Yeo-Tsu Margaret Lee, “Medical Care of Illegal Migrants Intercepted on the High Sea (Operation Prompt Return),” *Military Medicine* 161, no. 10 (October 1996): 616–19.
- 47 Nelson Chang, interview by John Sherwood, 26 June 2020, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC; ALCSG, Command Chronology for Operation Unified Assistance.
- 48 Chang interview, 26 June 2020; ALCSG, Command Chronology for Operation Unified Assistance.
- 49 Chang interview, 26 June 2020; ALCSG, Command Chronology for Operation Unified Assistance.
- 50 Chang interview, 26 June 2020; ALCSG, Command Chronology for Operation Unified Assistance.
- 51 HS-2, Operation Unified Assistance Briefing; Banerjee and Benbow, *Operation Unified Assistance*, 14–15; Shaw, *Operation Unified Assistance*, 26–7; Elleman, *Waves of Hope*, 55.
- 52 Ted Williams, interview by John Sherwood, 17 June 2020, Skype, *A Global Force for Good* author files, AR, NHHC.
- 53 Michael Hsu, interview by John Sherwood, 17 July 2020, Skype, *A Global Force for Good* author files, AR, NHHC.
- 54 Kevin Kennedy, interview by John Sherwood, 7 July 2020, Skype, *A Global Force for Good* author files, AR, NHHC.
- 55 Vice Admiral Crowder later wrote in his memoirs that he had “never heard the term “mosey down” in a nautical sense” in his 30 years as a commissioned naval officer but “chuckled at the appropriateness” of the phrase in this context. See Doug Crowder, *Sea Stories: Humor & Life Lessons from a 40-Year Navy Journey* (Annapolis, MD: Douglas William Crowder, 2020), 148.
- 56 Crowder interview, 12 June 2020.
- 57 Williams interview, 17 June 2020.
- 58 Crowder interview, 12 June 2020; Crowder, *Sea Stories*, 9.

- 59 Muir, *End of the Saga*, 42; Crowder interview, 12 June 2020.
- 60 Crowder interview, 12 June 2020; Crowder, *Sea Stories*, 64.
- 61 Crowder interview, 12 June 2020.
- 62 ALCSG, Command Chronology for Operation Unified Assistance.
- 63 Note: CAG is an honorific. The term CAG harkens back to when the carrier air wing was called the carrier air group
- 64 Crowder interview, 12 June 2020.
- 65 Williams interview, 17 June 2020.
- 66 Crowder interview, 12 June 2020.
- 67 Chang interview, 26 June 2020.
- 68 Williams interview, 17 June 2020.
- 69 Crowder interview, 12 June 2020.
- 70 Crowder interview, 12 June 2020; Dan Boyles, interview by John Lackie, 18 February 2005, on board *Abraham Lincoln*, AR/585-1-5, Content Manager, AR, NHHC.
- 71 According to the CNA, “US helicopters would typically complete all of the US lines on the ATO well before the end of the fly day. The ATO was written from the perspective of what a TNI helicopter could execute—not what a US helicopter was capable of executing.” See Banerjee and Benbow, *Operation Unified Assistance*, 39–40.
- 72 Crowder interview, 12 June 2020.
- 73 Chang interview, 8 July 2020.
- 74 Banerjee and Benbow, *Operation Unified Assistance*, 52.
- 75 Crowder interview, 12 June 2020. “Hierarchy of Force Protection” is an allusion to philosopher Abraham Maslow’s hierarchy of needs. At the bottom of the hierarchy you have basic physical needs such as food, water, shelter, and safety. Psychological needs come next and self-fulfillment is at the top of the pyramid. Abraham Maslow, *A Theory of Human Motivation* (1943, reprint, New York: Martino Fine Books, 2013).
- 76 Chang interview, 8 July 2020; Crowder interview, 12 June 2020.
- 77 Shaw, *Operation Unified Assistance*, 23-4; Elleman, *Waves of Hope*, 47, 49; Crowder interview, 12 June 2020.
- 78 *Abraham Lincoln* Carrier Strike Group (ALCSG), Humanitarian and Disaster Response (HADR) Relief Summary, 8 January 2005, AR/585-2-23, Content Manager, AR, NHHC.
- 79 ALCSG, HADR Relief Summary, 11 January 2005.

- 80 ALCSG, HADR Relief Summary, 31 January 2005.
- 81 ALCSG, HADR Relief Summary, 8 January 2005.
- 82 ALCSG, HADR Relief Summary, 9 January 2005.
- 83 Kevin Kennedy interview, 7 July 2020.
- 84 Williams interview, 17 June 2020.
- 85 Crowder, *Sea Stories*, 150–51.
- 86 Kevin Kennedy interview, 7 July 2020; Dave Poe, “Lincoln Sailor Takes Father’s Giving Nature to Banda Aceh,” *Abraham Lincoln* press release, 8 February 2005, AR/585-2-34, Content Manager, AR, NHHC.
- 87 Kevin Kennedy interview, 7 July 2020.
- 88 Elleman, *Waves of Hope*, 47, 49.
- 89 Chris Crisler, interview by John Sherwood, 25 June 2020, FaceTime, *A Global Force for Good* author files, AR, NHHC.
- 90 Deptula et al., *Operation Unified Assistance*, 59.
- 91 Helicopter Anti-Submarine Squadron 2 (HS-2), Commander’s Assessment for 2005, HS-2 2005 COR, AR, NHHC; Helicopter Anti-Submarine Squadron Light 47 (HSL-47) 2005 COR, AR, NHHC.
- 92 Scott Wickland, interview by John Lackie, 18 February 2005, on board *Abraham Lincoln*, AR/585-1-16, Content Manager, AR, NHHC.
- 93 Williams interview, 17 June 2020.
- 94 Wickland interview, 18 February 2005.
- 95 Chang interview, 8 July 2020.
- 96 Kevin Kennedy interview, 7 July 2020.
- 97 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 98 Deptula et al., *Operation Unified Assistance*, 10.
- 99 Banerjee and Benbow, *Operation Unified Assistance*, 35–6.
- 100 Boyles interview, 18 February 2005.
- 101 Kevin Kennedy interview, 7 July 2020; Banerjee and Benbow, *Operation Unified Assistance*, 37–38.
- 102 Kevin Kennedy interview, 7 July 2020; “Powell, in Indonesia, Describes Scenes of Devastation,” *New York Times*, 5 January 2005, <https://www.nytimes.com/2005/01/05/international/worldspecial4/powell-in-indonesia-describes-scenes-of.html>.
- 103 Kevin Kennedy interview, 7 July 2020.



- 104 Bureau of Aircraft Accidents Archives, “Crash of a Boeing 737-2A9C in Banda Aceh,” 4 January 2005, <https://www.baaa-acro.com/zone/aceh>; Hsu interview, 17 July 2020; Elleman, *Waves of Hope*, 51; Matthew Klunder, interview by John Lackie, 17 February 2005, on board *Abraham Lincoln*, AR/585-2-1, Content Manager, AR, NHHC.
- 105 Elleman, *Waves of Hope*, 64, 67.
- 106 Kevin Kennedy, email to John Sherwood, 29 October 2020; The executive officer of *Bonhomme Richard*, Stephen Greene, was also an SH-60 pilot, and he confirmed that phase maintenance for most SH-60s during this period was every 150 hours. See Jeffery “Scott” Jones and Stephen Greene, interview by John Sherwood and John Vassiliou, 30 October 2020, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 107 Ron Martin, interview by Ashley Castell and John Sherwood, 30 June 2020, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 108 Kevin Kennedy interview, 7 July 2020.
- 109 A retaining chain theoretically prevents it from doing what happened, but that chain had somehow broken off. Kevin Kennedy interview, 7 July 2020.
- 110 Martin interview, 30 June 2020.
- 111 Kevin Kennedy interview, 7 July 2020; Martin interview, 30 June 2020.
- 112 Today, MSTs are called mission sustainment teams, but in 2005 Air Force documents referred to them as mission support teams.
- 113 Deptula et al., *Operation Unified Assistance*, 8.
- 114 Deptula interview, 25 September 2020.
- 115 Deptula et al., *Operation Unified Assistance*, 33–34.
- 116 David Satchell, interview by John Sherwood, 24 July 2020, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 117 Air Mobility Command, Fact Sheet: Phoenix Raven, accessed 1 November 2020, <https://www.amc.af.mil/About-Us/Fact-Sheets/Display/Article/144021/phoenix-raven/>; Satchell interview, 24 July 2020.
- 118 Deptula interview, 25 September 2020.
- 119 Deptula et al., *Operation Unified Assistance*, 41–42.
- 120 Shaw, *Operation Unified Assistance*, 21–22.
- 121 Deptula interview, 25 September 2020.
- 122 Major Chang slept under an Antonov one night during the early days of the operations. “I was lucky I was not crushed,” he said. “It was crazy.” Chang interview, 26 June 2020.

- 123 Satchell interview, 24 July 2020.
- 124 Satchell interview, 24 July 2020.
- 125 Satchell interview, 24 July 2020.
- 126 Deptula et al., *Operation Unified Assistance*, 46.
- 127 Deptula interview, 25 September 2020.
- 128 Kimberly Spinner, "ATO 101: What Every Airman Should Know About an Air Tasking Order," *PACAF News*, 25 August 2011, <https://www.pacaf.af.mil/News/Article-Display/Article/593899/ato-101-what-every-airman-should-know-about-an-air-tasking-order/>.
- 129 Benjamin S. Lambeth, "Air Force-Navy Integration in Strike Warfare," *Naval War College Review* 61, no. 1 (Winter 2008), <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1752&context=nwc-review>; Edward J. Marolda and Robert J. Schneller, *Shield and Sword: The United States Navy and the Persian Gulf War* (Washington, DC: Naval Historical Center, 1998), 183–96.
- 130 Lambeth, "Air Force-Navy Integration in Strike Warfare."
- 131 Deptula interview, 25 September 2020; David A. Deptula, U.S. Air Force Biography, accessed 7 July 2022, <https://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=858&Article=104634>.
- 132 Crowder was briefing Admiral Vern Clark, the CNO, and a group of other admirals in the CNO's office about the situation in New York when the third airliner hit the Pentagon. All the officers in the meeting that day, including Admiral Michael Mullen, the future JCS Chairman, escaped unharmed. See Crowder interview, 12 June 2020; Crowder, *Sea Stories*, 134.
- 133 Deptula interview, 25 September 2020.
- 134 Crowder interview, 12 June 2020.
- 135 Vice Admiral Douglas Crowder, note to author in manuscript review, 24 September 2021.
- 136 Deptula interview, 25 September 2020.
- 137 Elleman, *Waves of Hope*, 13.
- 138 Crowder interview, 12 June 2020.
- 139 Crowder interview, 12 June 2020.
- 140 Lt. Steve Curry from Naval Air Station Sigonella replaced Bernard three weeks into the mission. See John "Jack" Daniels, interview by John Lackie, Det. 206, 15 February 2005, on board *Abraham Lincoln*, AR/585-1-10, Content Manager, AR, NHHC.

- 141 Banerjee and Benbow, *Operation Unified Assistance*, 83; Daniels interview, 15 February 2005.
- 142 Jones and Greene interview, 30 October 2020.
- 143 Crowder interview, 12 June 2020.
- 144 Elleman, Waves of Hope, 23; USAID Indonesia, *Emergency Response and Reconstruction in Aceh Province (2004–2009)*.
- 145 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 146 Lena Kay, “Indonesian Public Perceptions of the U.S. and their Implications for U.S. Foreign Policy,” *Issues and Insights* 5, no. 4 (August 2005): 29–30, [http://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy\\_files/files/media/csis/pubs/issuesinsights\\_v05n04.pdf](http://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/media/csis/pubs/issuesinsights_v05n04.pdf).
- 147 Crowder interview, 12 June 2020.
- 148 Crowder interview, 12 June 2020.
- 149 Shaw, *Operation Unified Assistance*, 12–14.
- 150 Chang interview, 26 June 2020.
- 151 Banerjee and Benbow, *Operation Unified Assistance*, 86.
- 152 The same memorandum also authorized it to transport media and foreign military. See Deptula et al., *Operation Unified Assistance*, 54.
- 153 Crowder interview, 12 June 2020.
- 154 Hsu interview, 17 July 2020.
- 155 Matthew R. Grund, *Operation Unified Assistance: Perspectives on the Interagency Rapid Health Assessments*, CNA, CRM D0012644.A2/Final (Arlington, VA: CNA, November 2006), 5–6.
- 156 Shaw, *Operation Unified Assistance*, 19–20.
- 157 CSF-536, Operation Unified Assistance Briefing: Observations of HADR Operations, CSF-536 files, Marine Corps History Division, Quantico, VA.
- 158 Dorsett, “Tsunami! Information Sharing,” 12–18.
- 159 Shaw, *Operation Unified Assistance*, 19–20.
- 160 Shaw, *Operation Unified Assistance*, 19–20.
- 161 Banerjee and Benbow, *Operation Unified Assistance*, 59; Shaw, *Operation Unified Assistance*, 18, 59.
- 162 Shaw, *Operation Unified Assistance*, 26.
- 163 Shaw, *Operation Unified Assistance*, 26–7.

- 164 Thomas C. Greenwood, Operation Unified Assistance: Tsunami Relief in SE Asia, 26 December 2004–19 January 2005, Briefing for I Marine Expeditionary Force, courtesy of Thomas C. Greenwood.
- 165 Shaw, *Operation Unified Assistance*, 10–11.
- 166 Dewey G. Jordan, “Operation Unified Assistance,” *Marine Corps Gazette* 90, no. 5 (May 2006): 57–58.
- 167 Banerjee and Benbow, *Operation Unified Assistance*, 83.
- 168 Crowder interview, 12 June 2020.
- 169 Chang interview, 26 June 2020.
- 170 Dorsett, “Tsunami! Information Sharing,” 12–18.
- 171 Banerjee and Benbow, *Operation Unified Assistance*, 83.
- 172 Deptula et al., *Operation Unified Assistance*, 15–16.
- 173 Shaw, *Operation Unified Assistance*, 19–20.
- 174 Crowder interview, 12 June 2020.
- 175 Jordan, “Operation Unified Assistance,” 57.
- 176 Banerjee and Benbow, *Operation Unified Assistance*, 79.
- 177 Elleman, *Waves of Hope*, 33.
- 178 Greenwood, Operation Unified Assistance briefing.
- 179 For a complete list of mission sets, see U.S. Marine Corps, *Amphibious Ready Group and Marine Expeditionary Unit: Overview*, accessed 25 May 2022, <https://www.marines.mil/Portals/1/Amphibious%20Ready%20Group%20And%20Marine%20Expeditionary%20Unit%20Overview.pdf>. For a description of the MEU’s HADR capabilities, see Robert D. Eldridge, *Operation Tomodachi: The Incredible Story of the United States Marine Corps’ Response to the Great East Japan Earthquake of 2011 and the Relationship It Built with Oshima, the Island It Helped Save* (Osaka, Japan: Reed International, 2018), 60.
- 180 Greenwood, Operation Unified Assistance briefing.
- 181 Office of the Assistant Secretary of Defense (Public Affairs), *Bonhomme Richard* (LHD-6), Commissioning Document, AR/142-0018-001-0001-0010-0065, Content Manager, AR, NHHC.
- 182 Dan Baum, “Mission to Sumatra: the Marines of Expeditionary Strike Group Five Take on the Tsunami,” 31 January 2005,” *New Yorker*, 7 February 2005, <https://www.newyorker.com/magazine/2005/02/07/mission-to-sumatra>.
- 183 Rear Admiral Christopher C. Ames, Officer Bio, Officer BIO Files, AR, NHHC.

- 184 Thomas C. Greenwood, interview by John Sherwood, 23 October 2020, interview 1, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 185 Michelle Howard, U.S. Navy Biography, Officer Bio Files, AR, NHHC; U.S. Navy, “Adm. Michelle Howard,” 8 March 2022, <https://www.navy.mil/Women-In-the-Navy/Past/Display-Past-Woman-Bio/Article/2958922/adm-michelle-howard/>; Michelle Howard, interview at the Paul Simon Public Policy Institute, Southern Illinois University Carbondale, 1 September 2020, <https://www.youtube.com/watch?v=a-Rh9vvFOQs>.
- 186 Banerjee and Benbow, *Operation Unified Assistance*, 21-2; Thomas C. Greenwood, interview by John Sherwood and John Vassiliou, 23 October 2020, interview 2, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 187 Greenwood interview 1, 23 October 2020.
- 188 Jones and Greene interview, 30 October 2020.
- 189 Howard interview, 26 November 2020.
- 190 Jones and Greene interview, 30 October 2020.
- 191 Michelle Howard as cited in Baum, “Mission to Sumatra.”
- 192 Jones and Greene interview, 30 October 2020.
- 193 *Duluth* 2005 COR, AR, NHHC.
- 194 Greenwood interview 2, 23 October 2020; Greenwood, Operation Unified Assistance briefing.
- 195 Greenwood, Operation Unified Assistance briefing.
- 196 Banerjee and Benbow, *Operation Unified Assistance*, 40–42.
- 197 Greenwood interview 2, 23 October 2020.
- 198 Greenwood interview 2, 23 October 2020.
- 199 Banerjee and Benbow, *Operation Unified Assistance*, 25–26.
- 200 Greenwood interview 2, 23 October 2020.
- 201 Greenwood interview 2, 23 October 2020.
- 202 Greenwood, Operation Unified Assistance briefing.
- 203 Marine Medium Helicopter Squadron 165 (HMM-165), Command Chronology for the Period 1 January 2005 to 30 June 2005, Marine Corps History Division, Quantico, VA.
- 204 Banerjee and Benbow, *Operation Unified Assistance*, 75, 79.
- 205 Greenwood as quoted in Dan Baum, “Mission to Sumatra.”
- 206 Greenwood interview 2, 23 October 2020.



- 207 Scott MacLeod, “Key Marine Sentry Says Gun was Unloaded when Beirut Bomb Truck Came,” *United Press International (UPI)*, 27 October 1983, <https://www.upi.com/Archives/1983/10/27/Key-Marine-sentry-says-gun-was-unloaded-when-Beirut-bomb-truck-came/7116187972421/>.
- 208 Greenwood interview 2, 23 October 2020. Crew-served weapons include machine guns, automatic grenade launchers, and sniper rifles that require a crew of more than two people.
- 209 Greenwood interview 2, 23 October 2020.
- 210 Banerjee and Benbow, *Operation Unified Assistance*, 76.
- 211 Banerjee and Benbow, *Operation Unified Assistance*, 76.
- 212 Banerjee and Benbow, *Operation Unified Assistance*, 45–46, 79; Shaw, *Operation Unified Assistance*, 29; ALCSG, Command Chronology for Operation Unified Assistance.
- 213 Jones and Greene interview, 30 October 2020.
- 214 Greenwood interview 2, 23 October 2020.
- 215 Ann Miller and David Strauss, *Operation Unified Assistance: How Conditions and Relationships Affected the Response*, CRM D0012643.A2/Final (Arlington, VA: CNA, November 2006), 45–47.
- 216 *Duluth* 2005 COR.
- 217 Greenwood, Operation Unified Assistance briefing.
- 218 HMM-165, Command Chronology for the Period 1 January 2005 to 30 June 2005.
- 219 Miller and Strauss, *Operation Unified Assistance*, 45–47.
- 220 Greenwood, Operation Unified Assistance briefing.
- 221 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 222 There was one blemish on the otherwise spotless record of *Bonhomme Richard* ESG. An HMM-165 AV-8B experienced a mechanical mishap while practicing carrier qualifications in international waters on 13 January. “We had to maintain flight proficiency for the Harrier pilots because we’re still going into the Gulf, so they needed to fly,” explained Jones. “So we would go out away from the coast so they [TNI] wouldn’t see us, and we would fly.” On the 13th, one pilot experienced a mechanical issue related to the aircraft’s fuel system and had to eject. The pilot survived without serious injuries, but the \$30 million dollar aircraft was lost. Jones wanted to try and salvage the aircraft, which remained floating on the sea for a while, but was overruled by Admiral Ames. Jones wanted to use inflatable bladders to keep the plane floating and then have *Bonhomme Richard* crane it back to the deck. “I thought it was a brilliant idea but [Rear Admiral] Chris [Ames] overruled me, pointing out numerous things that might go wrong so we just watched it sink.

- I was livid.” A fleet tug later salvaged the aircraft at considerable expense. Greenwood was less bothered. “You can always get another jet, I’m not worried about another Harrier, but you can’t replace that pilot.” See Greenwood interview 2, 23 October 2020; HMM-165, Command Chronology for the Period 1 January 2005 to 30 June 2005; Jones and Greene interview, 30 October 2020.
- 223 Robert R. Blackman, email to CSF-536 staff, 17 January 2005, CSF-536 files, Marine Corps History Division, Quantico, VA.
- 224 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 225 Kim Deal, *Operation Unified Assistance: Disaster Relief from the Sea*, CRM D0012642.A2/Final (Arlington, VA: CNA, March 2006), 20; Banerjee and Benbow, *Operation Unified Assistance*, 23.
- 226 Blackman email to CSF-536 staff, 17 January 2005.
- 227 Deptula et al., *Operation Unified Assistance*, 60.
- 228 Most of the heavy lift helicopters came from Marine Medium Helicopter Squadron 262 (HMM-262). During the period 14 January to 9 February, this unit delivered over 493,755 pounds of relief supplies to Sumatra. See Marine Medium Helicopter Squadron 262 (HMM-262), “HMM-262 History,” accessed 14 April 2022, <https://1stmaw.marines.mil>.
- 229 Banerjee and Benbow, *Operation Unified Assistance*, 76.
- 230 Banerjee and Benbow, *Operation Unified Assistance*, 47–48.
- 231 Crowder interview, 12 June 2020.
- 232 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 233 Robert Blackman, speech to WHO Conference, 4 May 2005, Phuket, Thailand, Robert Blackman files, Marine Corps History Division, Quantico, VA.
- 234 Hsu interview, 17 July 2020.
- 235 CSF-536, Operation Unified Assistance Briefing.
- 236 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.
- 237 David Kaatrud, chief of United Nations Joint Logistics Centre (UNJLC) for Indian Ocean Tsunami, email to Robert R. Blackman, 28 January 2005, CSF-536 files, Marine Corps History Division, Quantico, VA.
- 238 Banerjee and Benbow, *Operation Unified Assistance*, 33.
- 239 ALCSG, Command Chronology for Operation Unified Assistance.
- 240 CSF-536, Operation Unified Assistance Briefing.
- 241 Banerjee and Benbow, *Operation Unified Assistance*, 60.
- 242 CSF-536, Time Line – Indian Ocean Tsunami Disaster 2004.

- 243 Kaatrud email to Blackman, 28 January 2005.
- 244 Robert R. Blackman, email to Gary Roughead, 18 January 2005, CSF-536 files, Marine Corps History Division, Quantico, VA.
- 245 Crowder interview, 12 June 2020.
- 246 Fritz McDonald, "The Determination of Nursing Manpower Requirements in Humanitarian Assistance Missions for Hospital Ships," (master's thesis, Naval Postgraduate School, June 2007), 11.
- 247 Military Sea Lift Command, Welcome Aboard USNS *Comfort* pamphlet, April 1988, *Comfort* COR files, AR, NHHHC; Michael G. Fitzsimons, J. William Sparks, Sheri F. Jones, Judith M. Crowley, Akshay Dalal, and Neelakantan Sunder, "Anesthesia Services during Operation Unified Assistance, Aboard USNS *Mercy*, after the Tsunami in Southeast Asia," *Military Medicine* 172, no. 3 (March 2007): 227–31.
- 248 Nathan Smith, interview by Bill Engvall, 6 June 2005, on board *Mercy*, AR/585-6-2, Content Manager, AR, NHHHC; McDonald, "The Determination of Nursing Manpower Requirements in Humanitarian Assistance Missions for Hospital Ships," 10.
- 249 E.D. McGrady, *USNS Mercy Deployment Operation Unified Assistance: Implications for Afloat Disaster Response*, CRM D001 2636.A2/Final (Arlington, VA: CNA, November 2006), 12.
- 250 Robert Morrow and E.D. McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, CRM D0012639.A1/Final (Arlington, VA: CNA, November 2006), 19–20.
- 251 *Concord* (T-AFS-5) also participated. See Tim McCully, interview by Bill Engvall and Charlie Beckum, 7 June 2005, on board *Mercy*, AR/585-5-2, Content Manager, AR, NHHHC.
- 252 McGrady, *USNS Mercy Deployment Operation Unified Assistance*, 36.
- 253 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 1–3, 19, 28.
- 254 Jean Comlish, interview by Bill Engvall and Charlie Beckum, 3 June 2005, on board *Mercy*, AR/585-4-4, Content Manager, AR, NHHHC.
- 255 Comlish interview, 3 June 2005.
- 256 McGrady, *USNS Mercy Deployment Operation Unified Assistance*, 12; David Llewelyn, interview by Bill Engvall and Charlie Beckum, 2 June 2005, on board *Mercy*, AR/585-5-1, Content Manager, AR, NHHHC.
- 257 McGrady, *USNS Mercy Deployment Operation Unified Assistance: Implications for Afloat Disaster Response*, 35.

- 258 Henry Villareal, interview by Bill Engvall, 5 June 2005, on board *Mercy*, AR/585-6-6, Content Manager, AR, NHHC.
- 259 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 47–51; Project Hope, *History*, accessed 13 January 2021, <https://www.projecthope.org/about-us/history/>.
- 260 Harvard University affiliated Massachusetts General Hospital has a well-established Center for Disaster Medicine that oversees preparedness and emergency management for the hospital, which has responded to numerous disasters, including 9/11. See Massachusetts General Hospital, “About Massachusetts General Hospital,” accessed 26 January 2021, <https://www.massgeneral.org/disaster-medicine/about/>.
- 261 Other organizations that helped in the recruitment effort include the Emergency Nurses Association, the American Dental Association, Surgical Eye Expeditions International (SEE), Volunteer Optometric Services to Humanity (VOSH), World Medical Relief, Inc., and the International Eye Foundation. See Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 47–51.
- 262 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 10–13.
- 263 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 47–51; Llewelyn interview, 2 June 2005; Fitzsimons et al., “Anesthesia Services during Operation Unified Assistance,” 227.
- 264 John Parker, interview by Charlie Beckum, 5 June 2005, on board *Mercy*, AR/585-5-8, Content Manager, AR, NHHC; Comlish interview, 3 June 2005.
- 265 Comlish interview, 3 June 2005.
- 266 Llewelyn interview, 2 June 2005.
- 267 Llewelyn interview, 2 June 2005.
- 268 Comlish interview, 3 June 2005.
- 269 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 12, 51.
- 270 Villareal interview, 5 June 2005.
- 271 John Owen, interview by Bill Engvall and Charlie Beckum, 4 June 2005, on board *Mercy*, AR/585-5-7, Content Manager, AR, NHHC.
- 272 Llewelyn interview, 2 June 2005.
- 273 Villareal interview, 5 June 2005; Llewelyn interview, 2 June 2005.
- 274 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 24–25.

- 275 These include an inappropriate relationship between a member of the Navy force protection team and a volunteer, and an NGO person who was found smoking marijuana on the deck. For details, see Villareal interview, 5 June 2005.
- 276 Llewelyn interview, 2 June 2005.
- 277 Suzanne Clark, interview by Bill Engvall, 6 June 2005, on board *Mercy*, AR/585-4-3, Content Manager, AR, NHHC.
- 278 Comlish interview, 3 June 2005.
- 279 Smith interview, 6 June 2005.
- 280 The mortality rate of the staff was 10–20 percent and 40–50 percent went missing. See Fitzsimons et al., “Anesthesia Services during Operation Unified Assistance,” 227; Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 18.
- 281 Comlish interview, 3 June 2005.
- 282 David J. Strauss, *Protecting the Hospital Ship During Operation Unified Assistance: Legal, Diplomatic, and Conventional Methods*, CRM D0012635.A2/Final (Arlington, VA: CNA, November 2006), 12–13, 15.
- 283 Chang interview, 26 June 2020.
- 284 Clark interview, 6 June 2005.
- 285 Comlish interview, 3 June 2005.
- 286 Stephen Ferrara, interview by William Engvall and Charlie Beckum, 5 June 2005, on board *Mercy*, AR/585-4-6, Content Manager, AR, NHHC.
- 287 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 23–24.
- 288 Llewelyn interview, 2 June 2005.
- 289 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 24.
- 290 Shaw, *Operation Unified Assistance*, 29; Angelica L.C. Almonte, “Navy Nurses’ Experiences during Operation Unified Assistance Aboard the USNS *Mercy*: A Grounded Theory Study,” (PhD diss., University of San Diego, 2007), 10.
- 291 Ferrara interview, 5 June 2005.
- 292 Ferrara interview, 5 June 2005.
- 293 Owen interview, 4 June 2005.
- 294 Llewelyn interview, 2 June 2005.
- 295 Almonte, “Navy Nurses’ Experiences during Operation Unified Assistance Aboard the USNS *Mercy*,” 80–81.
- 296 Comlish interview, 3 June 2005.



- 297 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 28.
- 298 Almonte, "Navy Nurses' Experiences during Operation Unified Assistance Aboard the USNS *Mercy*," 98–99.
- 299 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 1–3, 28.
- 300 John T. Perez, "Operation Unified Assistance Population-based Programs of the USPHS and International Team," *Military Medicine* 171, no. 10 (October 2006): 53–8.
- 301 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 1–3, 28.
- 302 Clark interview, 6 June 2005.
- 303 Ferrara interview, 5 June 2005.
- 304 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 25, 27, 36–37.
- 305 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 27.
- 306 John Parker, interview by Charlie Beckum, 5 June 2005, on board *Mercy*, AR/585-5-8, Content Manager, AR, NHHC.
- 307 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 31.
- 308 Comlish interview, 3 June 2005.
- 309 Llewelyn interview, 2 June 2005.
- 310 Almonte, "Navy Nurses' Experiences during Operation Unified Assistance Aboard the USNS *Mercy*," 104.
- 311 Their name was changed in 1949.
- 312 Steven E. Rankin, "The Manning Requirements for the U.S. Navy's Forward Deployable Preventative Medicine Unit Detachment," (master's thesis, U.S. Army Command and General Staff College, 2001), 13–14; Navy Environmental and Preventative Medicine Unit Five (NEPMU-5), "Command History," accessed 27 January 2021, <https://www.med.navy.mil/sites/nepmu5/pages/history.aspx>; Michael D Owens, Jason Rice, David Moore, and Adrien L Adams, "A Global Health Engagement Success: Applying Evidence-Based Concepts to Create a Rapid Response Team in Angola to Combat Ebola and Other Public Health Emergencies of International Concern," *Military Medicine* 184, nos. 5/6 (May–June 2019): 113–14, <https://academic.oup.com/milmed/article/184/5-6/113/5363849>.
- 313 Gail Hathaway, Fred Landro, and Eric Kasowski, interview by Bill Engvall and Charlie Beckum, 31 May 2005, Navy Station Pearl Harbor, AR/585-4-8, Content

- Manager, AR, NHHC; Additional details received by the author from Fred Landro, 21 April 2021.
- 314 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 315 Landro, 21 April 2021.
- 316 Hathaway, Landro, and Kasowski interview, 31 May 2005; Landro, 21 April 2021.
- 317 Hathaway, Landro, and Kasowski interview, 31 May 2005; Landro, 21 April 2021.
- 318 Llewelyn interview, 2 June 2005.
- 319 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 320 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 321 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 322 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 323 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 324 Morrow and McGrady, *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*, 13–14.
- 325 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 18–20.
- 326 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 327 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 25–30.
- 328 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 329 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 330 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 331 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 332 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 333 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 18–20.
- 334 Center for Army Lessons Learned (CALL), “Theater Security Cooperation: The Military Engagement Team: Lessons and Best Practices,” *Call Handbook 17-03* (January 2017): 1, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1029177.pdf>.
- 335 US AFRICOM, “What We Do: Security Cooperation,” accessed 13 February 2021, <https://www.africom.mil/what-we-do/security-cooperation>.
- 336 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 12, 51.
- 337 Llewelyn interview, 2 June 2005.
- 338 Almonte, “Navy Nurses’ Experiences during Operation Unified Assistance Aboard the USNS *Mercy*,” 10.

- 339 Comlish interview, 3 June 2005.
- 340 McGrady, *USNS Mercy Deployment for Operation Unified Assistance*, 10.
- 341 McCully interview, 7 June 2005.
- 342 Almonte, “Navy Nurses’ Experiences during Operation Unified Assistance Aboard the USNS *Mercy*,” 92.
- 343 Hathaway, Landro, and Kasowski interview, 31 May 2005.
- 344 Chang interview, 1 July 2020.
- 345 Chang interview, 1 July 2020.
- 346 McCully interview, 7 June 2005.
- 347 Royal Australian Navy, *Nias Sea King Accident Board of Inquiry: Executive Summary* (Canberra, Australia: Commonwealth of Australia, 2007), <https://www.defence.gov.au/Publications/BOI/SeaKing/pdf/chapters/EXECUTIVE%20Summary.pdf>.
- 348 McCully interview, 7 June 2005.
- 349 McCully interview, 7 June 2005.
- 350 Banerjee and Benbow, *Operation Unified Assistance*, 69.
- 351 In medicine, the “golden hour” is the period of time after a traumatic injury when there is the highest probability that medical treatment will save the patient.
- 352 Trish Hoffman, “*Rainier* Relieves, Rescues,” *Sealift* (February 2005): 8.
- 353 Banerjee and Benbow, *Operation Unified Assistance*, 79.
- 354 Otto Kreisher, “Operation Unified Assistance,” *Air Force Magazine* (1 April 2005): 1–7, <https://www.airforcemag.com/article/0405tsunami/>.
- 355 Interestingly enough, just a few months after OUA concluded in August 2005, the Government of Indonesia and GAM signed a memorandum of understanding (MOU) that established peace in Aceh and ended the secessionist movement. However, it remains unclear as to whether there was a causal link between this peace agreement and humanitarian operations, either by the U.S. or TNI. See Shaw, *Operation Unified Assistance*, 34–35.
- 356 See Sam J. Tangredi, “Sea Basing—Concept, Issues, and Recommendations,” *Naval War College Review* 64, no. 1 (Autumn 2011): 2–4, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1552&context=nwc-review>.

357 Shaw, *Operation Unified Assistance*, 23–24.

358 Shaw, *Operation Unified Assistance*, 35.

## Part II: Hurricane Katrina

- 1 See Centre for Research on the Epidemiology of Disasters (CRED), “Disaster 2005-0467,” EM-DAT: The International Disaster Database (1 December 2021), <https://emdat.be>; U.S. Congress, Senate, *Hurricane Katrina: A Nation Still Unprepared: Special Report of the Committee on Homeland Security and Governmental Affairs United States Senate together with Additional Views*, 109 Cong., 2nd Sess., Senate Report 109-322, 2006, 2.
- 2 White House, *The Federal Response to Hurricane Katrina: Lessons Learned* (Washington, DC: GPO, 2006), 5–8.
- 3 See CRED, “Disaster 2005-0467,” EM-DAT, 1 December 2021; National Oceanic and Atmospheric Administration (NOAA), “Costliest U.S. Tropical Cyclones,” <https://www.ncdc.noaa.gov/billions/dcmi.pdf>, accessed 1 December 2021.
- 4 White House, *The Federal Response to Hurricane Katrina*, 5–8.
- 5 Hurricane Harvey’s cost impact was \$100 billion in 2020 dollars and Maria’s was \$71 billion. See CRED, “Disasters 2017-0362 and 2017-0383,” EM-DAT, 1 December 2021.
- 6 The storm also affected other services with bases and installations in the region. Significant storm damage extended from Louisiana to Florida.
- 7 United States Fleet Forces Command, “Hurricanes Katrina and Rita: Providing Rescue & Civil Support Relief from the Sea, Air and Land,” 4 October 2005 Revision, CCSG TEN TO SEN Skelton BR 4 Oct 05 rev1.ppt, *A Global Force for Good* author files, AR, NHHC, Washington, DC.
- 8 Michael H. McDaniel, “Taking Care of Our Own: Task Force Navy Family and the Hurricane Recovery Effort,” draft paper, undated, *A Global Force for Good* author files, AR, NHHC, Washington, DC.
- 9 “Ship Participants in Katrina Relief Efforts,” undated, *A Global Force for Good* author files, AR, NHHC.
- 10 Brian Walsh, *Support to the Hurricane: Katrina Response by the Joint Force Maritime Component Commander: Reconstruction and Issues*, CRM D0013414.A4 1 Rev August 2006 (Arlington, VA: CNA, September 2002), 2, 16.
- 11 William B. Boehm, Renee Hylton, and Thomas W. Mehl, *In Katrina’s Wake: The National Guard on the Gulf Coast, 2005* (Arlington, VA: National Guard Bureau, 2010), 27–28.
- 12 U.S. Congress, House, *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, 109th Cong., 2nd Sess., 2006, House Report 109–377, 220–21.

- 13 “Seabees Respond in Force to Hurricane Devastation,” *Seabee Magazine* (Winter 2006): 4.
- 14 Lynn E. Davis, Jill Rough, Gary Cecchine, Agnes Gereben Schaefer, and Laurinda L. Zeman, *Hurricane Katrina: Lessons for Army Planning and Operations* (Santa Monica, CA: RAND, 2007), 29.
- 15 Senate, *Hurricane Katrina*, 488.
- 16 Congress, *A Failure of Initiative*, 301.
- 17 Iwo Jima, “Hurricanes Katrina & Rita: Humanitarian Assistance/Disaster Relief Operations,” 10 October 2005, PowerPoint presentation, *Iwo Jima 2005*, COR, AR, NHHC.
- 18 James A. Wombwell, *Army Support during the Hurricane Katrina Disaster* (Fort Leavenworth, KS: Combat Studies Institute Press, 2009), 10.
- 19 Donald L. Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005* (Gainesville, FL: University Press of Florida, 2010), 182.
- 20 Congress, *A Failure of Initiative*, 103, 106, 109–12, 114–16, 123.
- 21 Wombwell, *Army Support during the Hurricane Katrina Disaster*, iii. Note: the only number I could find for Air Force personnel contributions was a total force contribution, which included regular Air Force, Air National Guard, and Air Force Reserve participation. That total force number was 8,000. See Daniel L. Haulman, “The US Air Force Response to Hurricane Katrina,” 17 November 2006, unpublished study, *A Global Force for Good* author files, AR, NHHC, 4; U.S. Government Accountability Office (GAO), *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, GAO-06-903 (Washington, DC: GAO, July 2006), 8, 34–35.
- 22 White House, *The Federal Response to Hurricane Katrina*, 22.
- 23 Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 24 Senate, *Hurricane Katrina*, 479; Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 25 Wombwell, *Army Support during the Hurricane Katrina Disaster*, 10.
- 26 Wombwell, *Army Support during the Hurricane Katrina Disaster*, 19–23. Note: Due in part to Katrina, the law was amended in 2006 to include natural disasters, epidemics, or other serious public health emergencies, and terrorist attacks.
- 27 Wombwell, *Army Support during the Hurricane Katrina Disaster*, 19–23.
- 28 Wombwell, *Army Support during the Hurricane Katrina Disaster*, 19–23.
- 29 Robert Duncan, interview by Peter J. Capelotti, 28 November 2005, U.S. Coast Guard History Office, Washington, DC, 10–11.



- 30 David J. Strauss, *Challenges in Domestic Operations: Legal Issues in the Navy's Response to Katrina*, CRM D0014637.A2/Final (Arlington, VA: CNA, September 2006), 20.
- 31 FEMA, "Overview of Stafford Act Support to States," accessed 5 April 2019, <https://www.fema.gov/pdf/emergency/nrf/nrf-stafford.pdf>.
- 32 Wombwell, *Army Support during the Hurricane Katrina Disaster*, 19.
- 33 U.S. Government Accountability Office (GAO), *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, GAO-06-903 (Washington, DC: GAO, July 2006), 5–6.
- 34 U.S. Department of Homeland Security (DHS), *National Response Plan* (Washington, DC, DHS, December 2004), xii.
- 35 Senate, *Hurricane Katrina*, 468–69, 474.
- 36 Walsh, *Support to the Hurricane*, 90.
- 37 House, *A Failure of Initiative*, 40.
- 38 Senate, *Hurricane Katrina*, 468–69, 26.
- 39 Eric Holdeman, "FCO and/or PFO Still an Issue," *Government Technology*, 5 May 2009, <https://www.govtech.com/em/emergency-blogs/disaster-zone/FCO-andor-PFO-Still.html>.
- 40 House, *A Failure of Initiative*, 189–90.
- 41 Duncan interview, 28 November 2005, 14.
- 42 White House, *The Federal Response to Hurricane Katrina*, 42–3.
- 43 House, *A Failure of Initiative*, 207.
- 44 Walsh, *Support to the Hurricane*, 2–3.
- 45 Walsh, *Support to the Hurricane*, 2–3, 12–14, 48.
- 46 Brandon Key, interview by Craig Mackey and Gregory Neuschafer, 01 December 2005, on board *Shreveport*, AR/581-11-6, Content Manager, AR, NHHC.
- 47 House, *A Failure of Initiative*, 189–90.
- 48 House, *A Failure of Initiative*, 190.
- 49 Commissioned in the Navy in 1979, Tyson had many firsts throughout her career: she was the first woman to command the forward-deployed Singapore-based Task Force 73; the first woman to command a battle fleet; and the first woman to serve as Commander, 3rd Fleet (Eastern Pacific). She retired from the Navy in 2017 as a vice admiral after 38 years of service. See U.S. Navy, Vice Admiral Nora Tyson Biography, 8 March 2022, <https://www.navy.mil/Women-In-the-Navy/Past/Display-Past-Woman-Bio/Article/2959185/vice-adm-nora-tyson/>.

- 50 Stephen Peranich, interview by James Pat Smith, 28 December 2007, The Mississippi Oral History Program of The University of Southern Mississippi, Hattiesburg, MS, 37–40.
- 51 Senate, *Hurricane Katrina*, 468–69, 482.
- 52 Senate, *Hurricane Katrina*, 468–69, 482.
- 53 Senate, *Hurricane Katrina*, 493.
- 54 Walsh, Support to the Hurricane, 2.
- 55 White House, *The Federal Response to Hurricane Katrina*, 22; House, *A Failure of Initiative*, 66.
- 56 For more on the Saffir-Simpson Scale, see National Hurricane Center, National Oceanographic and Atmospheric Administration, “Saffir-Simpson Hurricane Wind Scale,” accessed 24 April 2019, <https://www.nhc.noaa.gov/aboutsshws.php>.
- 57 White House, *The Federal Response to Hurricane Katrina*, 22–23.
- 58 These ships included *Altair* (AKR-291), *Algol* (AKR-287), *Bellatrix* (AKR-298), *Bob Hope* (T-AKR-300), and *Pililaau* (T-AKR-304). See Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 59 White House, *The Federal Response to Hurricane Katrina*, 24–25.
- 60 White House, *The Federal Response to Hurricane Katrina*, 24–25.
- 61 Senate, *Hurricane Katrina*, 22.
- 62 House, *A Failure of Initiative*, 103, 106, 109–12, 114–16, 123.
- 63 Senate, *Hurricane Katrina*, 68.
- 64 White House, *The Federal Response to Hurricane Katrina*, 25–28.
- 65 Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 66 Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 67 Anthony J. Rizzo, interview by Woodrow Shields, 28 September 2005, Naval Air Station and Joint Reserve Base, New Orleans, AR/581-3-11, Content Manager, AR, NHHC; Paul Prokopovich, interview by Greg Neuschafer, 13 October 2005, Naval Air Station and Joint Reserve Base New Orleans, New Orleans, LA, AR/581-3-9, Content Manager, AR, NHHC.
- 68 Senate, *Hurricane Katrina*, 58.
- 69 White House, *The Federal Response to Hurricane Katrina*, 28–31.
- 70 White House, *The Federal Response to Hurricane Katrina*, 25–28.
- 71 House, *A Failure of Initiative*, 103, 106, 109–12, 114–16, 123.
- 72 House, *A Failure of Initiative*, 64–65.

- 73 House, *A Failure of Initiative*, 117–19, 121.
- 74 House, *A Failure of Initiative*, 228.
- 75 Senate, *Hurricane Katrina*, 503–4.
- 76 Tom Quinn, interview by Bill Engvall, 27 September 2005, Norfolk Naval Air Station, AR/581-1-11, Content Manager, AR, NHHC.
- 77 White House, *The Federal Response to Hurricane Katrina*, 33–37.
- 78 House, *A Failure of Initiative*, 103, 106, 109–12, 114–16, 123.
- 79 House, *A Failure of Initiative*, 88–89, 93–95, 97.
- 80 White House, *The Federal Response to Hurricane Katrina*, 34–35.
- 81 House, *A Failure of Initiative*, 103, 106, 109–12, 114–16, 123.
- 82 House, *A Failure of Initiative*, 73–4.
- 83 House, *A Failure of Initiative*, 72–3.
- 84 Eric Odderstol, interview by Larry Weill and Doreen Fussman, 20 April 2006, Naval Mobile Construction Battalion 7 Headquarters, Gulfport, MS, AR/581-6-7, Content Manager, AR, NHHC, 4.
- 85 Michael Good, email to Paul E. Sullivan, 29 August 2005, *A Global Force for Good* author files, AR, NHHC.
- 86 House, *A Failure of Initiative*, 72–73.
- 87 House, *A Failure of Initiative*, 71–72.
- 88 Senate, *Hurricane Katrina*, 27.
- 89 William H. Thiesen, “The Long Blue Line: Coast Guard responders during record-setting Hurricane Katrina,” *Coast Guard Compass*, 25 August 2016, <http://coastguard.dodlive.mil/2016/08/the-long-blue-line-coast-guard-responders-during-record-setting-hurricane-katrina/>.
- 90 U.S. Coast Guard Atlantic Area, “Eighth Coast Guard District,” accessed 10 May 2019, <https://www.atlanticarea.uscg.mil/Our-Organization/District-8/>; GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 6–7, 8, 34–35; House, *A Failure of Initiative*, 213–14, 217; Canney, In *Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 138, 182–83.
- 91 Duncan interview, 28 November 2005, 7–9.
- 92 Daryl Schaffer, interviewer unknown, 27 October 2005, Alexandria, Louisiana, U.S. Coast Guard History Office, Washington DC; Canney, In *Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 47–48.

- 93 GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 6–7.
- 94 GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 12.
- 95 GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 6–7.
- 96 NHHC, “U.S. Navy Personnel Strength: 1775 to Present,” accessed 9 July 2022, <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/u/usn-personnel-strength.html>.
- 97 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 93.
- 98 Bruce Jones, interviewer unknown, 20 October 2005, Coast Guard Air Station New Orleans, U.S. Coast Guard History Office, Washington, DC.
- 99 GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 6.
- 100 Duncan interview, 28 November 2005, 21–28.
- 101 Rodney Gordon, interview by Susan Blake, 6 October 2005, Coast Guard Air Station New Orleans, U.S. Coast Guard History Office, Washington, DC, 1–7; Duncan interview, 28 November 2005, 7–9.
- 102 Jones interview, 20 October 2005, 13–14.
- 103 Duncan interview, 28 November 2005, 27.
- 104 Jones interview, 20 October 2005, 21–22.
- 105 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 22.
- 106 Matthew O’Dell, interview by Peter J. Capelotti, 7–8 November 2005, Coast Guard Air Station Cape Cod, U.S. Coast Guard History Office, Washington, DC, 16.
- 107 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 70.
- 108 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 70.
- 109 O’Dell interview, 7–8 November 2005, 21.
- 110 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 70.
- 111 Canney, *In Katrina’s Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 138, 182–83; GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 34–35.

- 112 Howard B. Thorsen, "U.S. Coast Guard in Review," *U.S. Naval Institute Proceedings* 132, no. 5 (May 2006): 96–98, 100, 102.
- 113 Canney, *In Katrina's Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 53, 130–32.
- 114 Shannon Gilreath, interviewer unknown, 17 October 2005, Coast Guard Sector New Orleans, U.S. Coast Guard History Office, Washington, DC, 1–5.
- 115 Canney, *In Katrina's Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 53–55.
- 116 Robert David Lewald, interviewer unknown, 17 October 2005, Gulfport, Mississippi, Coast Guard Oral History Office, Washington, DC, 6.
- 117 Canney, *In Katrina's Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 93–94.
- 118 Steven Noyes, interview by Susan Blake, 17 October 2005, Aids to Navigation Teams (ANT), Dulac, Louisiana, U.S. Coast Guard History Office, Washington, DC, 5.
- 119 Lewald interview, 17 October 2005, 6.
- 120 Lewald interview, 17 October 2005, 10.
- 121 Robert Duncan, interview by Greg Neuschafer and John Hrinko, 19 January 2006, U.S. Coast Guard Eighth District Headquarters, New Orleans, LA, AR/581-10-5, Content Manager, AR, NHHC.
- 122 Noyes interview, 17 October 2005, 6.
- 123 Duncan interview, 19 January 2006,
- 124 Canney, *In Katrina's Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*, 147, 192–83.
- 125 Senate, *Hurricane Katrina*, 27.
- 126 U.S. Coast Guard, <https://www.atlanticarea.uscg.mil/Our-Organization/District-8/>; GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 6–7; House, *A Failure of Initiative*, 217, 213–14.
- 127 Frank Paskewich, interview by Susan Blake, 18 October 2005, New Orleans, Louisiana, U.S. Coast Guard History Office, Washington, DC.
- 128 GAO, *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*, 27–28.
- 129 Paskewich interview, 18 October 2005.
- 130 For a full list, see Navy Combat Documentation Det. 206, "Ship Participants in Katrina Relief Efforts," undated, *A Global Force for Good* author files, AR, NHHC.



- 131 The Navy units based at Stennis include the Naval Meteorology and Oceanography Command, a division of the Naval Research Laboratory, the Naval Oceanographic Office, Naval Special Boat Team 22, and the Naval Small Craft Instruction and Technical Training School.
- 132 Det. 206, "Ship Participants in Katrina Relief Efforts."
- 133 Boehm, Hylton, and Mehl, *In Katrina's Wake: The National Guard on the Gulf*, 27–28.
- 134 House, *A Failure of Initiative*, 220–21.
- 135 Joanne De Vera, "Bataan Returns Home after Hurricane Relief Efforts," *Bataan Warrior* 2, no. 12 (23 September 2005), *Bataan* 2005 COR, AR, NHHC.
- 136 Nora Tyson, interview by Bill Engvall, on board *Bataan*, 29 September 2005, AR/581-18-1, Content Manager, AR, NHHC.
- 137 *Bataan* II (LHD-5) ship history draft, *Bataan* COR files, AR, NHHC.
- 138 De Vera, "Bataan Returns Home after Hurricane Relief Efforts."
- 139 De Vera, "Bataan Returns Home after Hurricane Relief Efforts."
- 140 Lieutenant Commander Mellen was the safety officer for HM-14. See Bill Mellen, interview by Bill Engvall, 28 September 2005, Naval Air Station Norfolk, Norfolk, VA, AR/581-1-9, Content Manager, AR, NHHC.
- 141 Greg Hill and Sammy Brake, interview by Gary N. Hall and Edward L. Cook, 26 April 2006, Naval Air Station Corpus Christi, Corpus Christi, TX, AR/581-9-3, Content Manager, AR, NHHC.
- 142 Robert Bennett, interview by Gary N. Hall and Edward L. Cook, 26 April 2006, Naval Air Station Corpus Christi, Corpus Christi, TX, AR/581-8-1, Content Manager, AR, NHHC.
- 143 Bennett interview, 26 April 2006.
- 144 Hill and Brake interview, 26 April 2006.
- 145 Bennett interview, 26 April 2006.
- 146 De Vera, "Bataan Returns Home after Hurricane Relief Efforts."
- 147 Hill and Brake interview, 26 April 2006.
- 148 De Vera, "Bataan Returns Home after Hurricane Relief Efforts."
- 149 De Vera, "Bataan Returns Home after Hurricane Relief Efforts."
- 150 Note: A combat load is the total number of pounds an aircraft can accommodate and still fly.
- 151 Hill and Brake interview, 26 April 2006.

- 152 Brian Anderson, "Bataan Controllers Assist with Air Traffic in New Orleans," *Bataan Warrior* 2, no. 12 (23 September 2005), *Bataan* 2005 COR.
- 153 Anderson, "Bataan Controllers Assist with Air Traffic in New Orleans."
- 154 Hill and Brake interview, 26 April 2006.
- 155 Tyson interview, 29 September 2005.
- 156 Joanne De Vera, "Alone in the Dark, Sailors Face Mississippi River," *Bataan Warrior* 2, no. 12 (23 September 2005), *Bataan* 2005 COR.
- 157 Walsh, *Support to the Hurricane*, 23–25.
- 158 Richard S. Callas, interview by John Hrinko and Gregory Neuschafer, Naval Station Norfolk, Norfolk, VA, 1 December 2005, AR/581-9-9, Content Manager, AR, NHHC.
- 159 *Iwo Jima*, "Hurricanes Katrina & Rita Humanitarian Assistance/Disaster Relief Operations," PowerPoint Briefing, 1 October 2005, Detachment 206 Katrina Collection, AR, NHHC, slide 2.
- 160 Walsh, *Support to the Hurricane*, 37.
- 161 *Iwo Jima*, "Hurricanes Katrina & Rita Humanitarian Assistance," 1 October 2005, slide 12.
- 162 Richard S. Callas, Katrina Diary, 20 September 2005 entry, Detachment 206 Katrina Collection, AR, NHHC.
- 163 Walsh, *Support to the Hurricane*, 17–18.
- 164 Lieutenant Commander Karl Schultz, the officer-in-charge of the HC-2 detachment deployed to JTF-Katrina, should not be confused with Admiral Karl Schultz, the 26th Commandant of the United States Coast Guard. See Karl Schultz, Charles "Chuck" Fields, and Greg Spickel, interview by William Engvall, 228 September 2005, Naval Air Station Norfolk, AR/581-1-15, Content Manager, AR, NHHC.
- 165 Schultz, Fields, and Spickel interview, 28 September 2005.
- 166 Schultz, Fields, and Spickel interview, 28 September 2005.
- 167 Schultz, Fields, and Spickel interview, 28 September 2005.
- 168 Schultz, Fields, and Spickel interview, 28 September 2005.
- 169 Callas, Katrina Diary, 5 September 2005 entry.
- 170 Callas, Katrina Diary, 5 September 2005 entry.
- 171 Callas, Katrina Diary, 6 September 2005 entry.
- 172 *Iwo Jima*, "Hurricanes Katrina & Rita Humanitarian Assistance," 1 October 2005, slides 11 & 24.

- 173 Callas, Katrina Diary, 9 September 2005 entry.
- 174 Callas, Katrina Diary, 6 September 2005 entry.
- 175 *Iwo Jima*, “Hurricanes Katrina & Rita Humanitarian Assistance,” slide 8.
- 176 Callas, Katrina Diary, 6 September 2005 entry.
- 177 Walsh, *Support to the Hurricane*, 30-1.
- 178 *Iwo Jima*, “Hurricanes Katrina & Rita Humanitarian Assistance,” slide 9.
- 179 Callas, Katrina Diary, 11–12 September 2005 entries.
- 180 Callas, Katrina Diary, 11–12 September 2005 entries.
- 181 Mike Jones, “USS *Iwo Jima* (LHD-7) Returns Home,” *Iwo Jima* Public Affairs press release, 1 October 2005.
- 182 *Iwo Jima*, “Hurricanes Katrina & Rita Humanitarian Assistance,” slide 14.
- 183 Walsh, *Support to the Hurricane*, 8–10, 17, 18; *Iwo Jima*, “Hurricanes Katrina & Rita Humanitarian Assistance,” slide 13.
- 184 *Iwo Jima*, “Hurricanes Katrina & Rita Humanitarian Assistance,” slide 12.
- 185 Callas, Katrina Diary, 20 September 2005 entry.
- 186 Callas, Katrina Diary, 14 September 2005 entry.
- 187 Callas, Katrina Diary, 4 September 2005 entry.
- 188 Brian P. Seymour, “*Tortuga* Continues Rescue Operations in New Orleans,” Navy NewsStand, 9 September 2005.
- 189 Matthew Clark, interview by Craig Mackey, 8 December 2005, on board *Tortuga*, AR/581-10-8, Content Manager, AR, NHHC.
- 190 Brian P. Seymour, “*Tortuga* and Army Teaming Up,” Navy NewsStand, 15 September 2005.
- 191 Jensin W. Sommer, “USS *Shreveport* assists New Orleans Harbor Police in Katrina Recovery,” *Shreveport* Public Affairs release, 8 September 2005, 47968 Harbor Police.doc, *A Global Force for Good* author files, AR, NHHC.
- 192 Jensin W. Sommer, “USS *Shreveport* crew helps New Orleans Fire Station recover from Hurricane Katrina,” *Shreveport* press release, 10 September 2005, 47970 Fire Station.doc, *A Global Force for Good* author files, AR, NHHC.
- 193 John Stevens, “*Shreveport* Sailors Restoring High School Stadium,” *Shreveport* press release, undated.
- 194 Stevens, “*Shreveport* Sailors Restoring High School Stadium.”
- 195 Walsh, *Support to the Hurricane*, 26-30; Jennifer L. Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, CRM D0014911. A1/Final (Arlington, VA: CNA, September 2006), 20.

- 196 Joseph F. Rappold, "Navy Medicine in Critical Condition," *U.S. Naval Institute Proceedings* 131, no. 12 (December 2005): 25–27.
- 197 Richard Jeffries, interview by John Sherwood, 13 August 2019, telephone, *A Global Force for Good* author files, AR, NHHHC.
- 198 Dawn Nebelkopf, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations: Medical Mission Data and Analysis*, CRM D001 4803.A1/Final CNA, (Arlington, VA: CNA, September 2006), 12–13.
- 199 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 28.
- 200 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 9–11; Jon W. Bayless, Jr., interview by Greg Neuschafer, 29 September 2005, Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA, AR/581-2-1, Content Manager, AR, NHHHC.
- 201 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 12.
- 202 Nebelkopf, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 18–19.
- 203 Douglas Birch, "Few Patients Seek Comfort," *Baltimore Sun*, 5 October 2005, <https://www.baltimoresun.com/news/bs-xpm-2005-10-05-0510050311-story.html>.
- 204 Jeffries interview, 13 August 2019.
- 205 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*.
- 206 Nebelkopf, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 40–41.
- 207 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 12.
- 208 Jeffries interview, 13 August 2019.
- 209 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 15–16.
- 210 Bayless interview, 29 September 2005.
- 211 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 17–18.
- 212 Nebelkopf, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 18–25.
- 213 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 17–18.

- 214 Nebelkopf, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 24–25.
- 215 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 35–37.
- 216 Seifert, *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*, 26.
- 217 A level III trauma center has demonstrated an ability to provide prompt assessment, resuscitation, surgery, intensive care and stabilization of injured patients and emergency operations. See American Trauma Society, “Trauma Center Levels Explained,” accessed 14 August 2019, <https://www.amtrauma.org/page/TraumaLevels>.
- 218 A level II trauma center is able to initiate definitive care for all injured patients. See American Trauma Society, “Trauma Center Levels Explained,” <https://www.amtrauma.org/page/TraumaLevels>, accessed 14 August 2019.
- 219 House, *A Failure of Initiative*, 301.
- 220 Senate, *Hurricane Katrina*, 35, 488–90.
- 221 Neil Carey, James Grefer, Robert Trost, and Robert Levy, *Future Deployable Medical Capabilities and Platforms for Navy Medicine*, CRM D0005085.A2/Final (Arlington, VA: CNA, February 2002), 46.
- 222 Thomas C. Shu, interview by Richard V.N. Ginn, 21 October 2011, Office of Medical History, U.S. Navy BUMED, Washington, DC.
- 223 Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 224 Jim Gigliotti, interview by Greg Neuschafer, 12 December 2005, on board *Harry S. Truman*, AR/581-11-1, Content Manager, AR, NHHC.
- 225 *Harry S. Truman* Public Affairs, “*Truman* wraps up Gulf Coast support mission, returns home,” press release, undated.
- 226 Fleet Forces Command, “Hurricanes Katrina and Rita.”
- 227 Gigliotti interview, 12 Dec 2005.
- 228 Katie Dunnigan “MSC call to action: Hurricane Katrina relief,” *Sealift* (September 2005).
- 229 Robert Lansden, interview by Greg Neuschafer, 12 October 2005, on board *Pollux*, AR/581-3-5, Content Manager, AR, NHHC.
- 230 Dunnigan, “MSC call to action: Hurricane Katrina relief.”
- 231 Lansden interview, 12 October 2005.
- 232 Dunnigan, “MSC call to action: Hurricane Katrina relief.”



- 233 Naval Mobile Construction Battalion 7 (NMCB-7), “Naval Mobile Construction Battalion Seven: Operation Hurricane Katrina Recovery,” Report, undated, NMCB-7 2005 COR, AR, NHHC.
- 234 Meg Reed, “Key West Seabee Maintenance Unit Repairs Armed Forces Retirement Home,” *Seabee Magazine* (Winter 2006): 6–7.
- 235 Odderstol interview, 20 April 2006.
- 236 Naval Mobile Construction Battalion 40 (NMCB-40), “Joint Task Force After Action Report for Hurricane Katrina Louisiana/Mississippi Coast,” 31 March 2006, NMCB-40 files, Seabee Museum Archives, Port Hueneme, CA.
- 237 James J. Pinsky, “Seabees Help School Recover, Prepare to Reopen,” Navy NewsStand, 30 September 2005.
- 238 Naval Mobile Construction Battalion 4, Command History, 26 February 2006, Seabee Museum archives, Port Hueneme, CA; Naval Mobile Construction Battalion 74, “Deployment Completion Report,” 2005, Seabee Museum archives, Port Hueneme, CA.
- 239 Gene Taylor, interview by Dariusz Grabka and Alanna Tobia, 21 February 2008, The Mississippi Oral History Program of The University of Southern Mississippi, Hattiesburg, MS.
- 240 Naval Facilities Engineering Systems Command (NAVFAC), “MUSE—Mobile Utilities Support Equipment,” accessed 16 July 2019, [https://www.navfac.navy.mil/navfac\\_worldwide/specialty\\_centers/exwc/products\\_and\\_services/energy\\_and\\_public\\_works/MUSE.html](https://www.navfac.navy.mil/navfac_worldwide/specialty_centers/exwc/products_and_services/energy_and_public_works/MUSE.html).
- 241 Naval Facilities Expeditionary Logistics Center (NFELC), “Report of Technical Assistance for Mobile Utilities Support Equipment (MUSE),” 10 January 2006, 11310, SER N33/0005, Seabee Museum Archives, Port Hueneme, CA.
- 242 NFELC Public Affairs, “Mobile Utilities Team Brings Power, Comfort After Hurricane Hits Land,” *Seabee Magazine* (Winter 2006): 12.
- 243 NFELC, Report of Technical Assistance for MUSE, 10 January 2006.
- 244 Paul Deckert, interview by Woodrow Shields, 4 October 2005, Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA, AR/581-2-5, Content Manager, AR, NHHC.
- 245 Deckert interview, 4 October 2005.
- 246 Deckert interview, 4 October 2005.
- 247 Deckert interview, 4 October 2005.
- 248 The team was attached to Commander Task Element 20.7.1.3, which consisted of detachments from MDSU-2, Canadian and French Navy diving detachments, and *Grapple*. See Naval Sea Systems Command (NAVSEA), *U.S. Navy Salvage Report:*

- Hurricanes Katrina and Rita, S0900-AC-RPT-010* (Washington, DC: NAVSEA, January 2007), <https://www.navsea.navy.mil/Portals/103/Documents/SUPSALV/SalvageReports/Hurricanes%20Katrina%20and%20Rita.pdf>, 1–5.
- 249 Joseph Scanlon and Elizabeth Steele with Alex Hunsberger, “By Air, Land, and Sea: Canada Responds to Hurricane Katrina,” *Canadian Military Journal* 12, no. 3 (Summer 2012): 54–62; Ruben D. Calderon, “Marines Join International Effort to Aid Victims of Katrina,” *MarineLink*, Marine Public Affairs press release 200591220210, 10 September 2005; Chris Gethings, “Gulfport Seabees Receive International Military Support During Hurricane Relief,” *Navy NewsStand*, 11 September 2005.
- 250 Stephen R. Kelly, “When Mexicans Crossed Our Border to Feed Americans in Need,” *Washington Post*, 28 August 2015, [https://www.washingtonpost.com/opinions/when-mexicans-crossed-our-border-to-feed-our-hungry/2015/08/28/347342e4-4cee-11e5-84df-923b3ef1a64b\\_story.html](https://www.washingtonpost.com/opinions/when-mexicans-crossed-our-border-to-feed-our-hungry/2015/08/28/347342e4-4cee-11e5-84df-923b3ef1a64b_story.html).
- 251 Tyson interview, 29 September 2005.
- 252 Walsh, *Support to the Hurricane*, 62.
- 253 For more on Canada’s role in NORAD, see Government of Canada, “North American Aerospace Defense Command (NORAD),” accessed 3 December 2021, <https://www.canada.ca/en/department-nationaldefence/corporate/reports-publications/transition-materials/caf-operationsactivities/2020/03/caf-ops-activities/norad.html>.
- 254 U.S. Coast Guard, “Coast Guard Commandant Thomas H. Collins Testifies on the Response to Catastrophic Events,” U.S. Coast Guard press release, 9 November 2005.
- 255 Steve Alvarez, “Mexican Forces Wind Up Humanitarian Mission,” *American Forces Press Service*, 26 September 2005.
- 256 Lynn Iron, “U.S., Mexican Navies Join Forces in School Repair,” *Navy NewsStand*, 13 September 2005; Chris Gethings, “Gulfport Seabees Receive International Military Support During Hurricane Relief,” *Navy NewsStand*, 11 September 2005.
- 257 Tyson interview, 29 September 2005.
- 258 Kelly, “When Mexicans Crossed our Border to Feed Americans in Need.”
- 259 Canada Defense Department, “Canadian Forces Support to Relief Forces in Southern United States,” Canada Defense Department press release BG-05.023a, 16 September 2005, Operation Unison files, Canada Directorate of History and Heritage (DHH), Ottawa, Canada.
- 260 Canada Defense Department, “Canadian Forces Support to Relief Forces in Southern United States.”

- 261 Canada Defense Department, “Canadian Forces Support to Relief Forces in Southern United States.”
- 262 HMCS *Toronto* (FFH-333), Annual Historical Report for 2005, ANNEX A, TOR 1325-1, March 06, Canada Directorate of History and Heritage (DHH), Ottawa, Canada.
- 263 Canada Defense Department, “Canadian Forces Support to Relief Forces in Southern United States.”
- 264 Craig Crawley, “Naval Construction Troop—Op UNISON,” *Canadian Military Engineers Association Communiqué*, 14 January 2006, Operation Unison files, Canada Directorate of History and Heritage (DHH), Ottawa, Canada.
- 265 Scanlon and Steele with Hunsberger, “By Air, Land, and Sea,” 54–62.
- 266 Canada Defense Department, “Canadian Forces Support to Relief Forces in Southern United States.”
- 267 Scanlon, and Steele, with Hunsberger, “By Air, Land, and Sea,” 54–62.
- 268 Mobile Diving and Salvage Unit 2 (MDSU-2), “Katrina/Rita After Action Report,” 14 October 2005, MDSU-2 2005 COR, AR, NHHC.
- 269 Fleet Diving Unit Atlantic, Annual Historical Report for 2005, Canada Directorate of History and Heritage (DHH), Ottawa, Canada.
- 270 Scanlon, and Steele, with Hunsberger, “By Air, Land, and Sea,” 54–62; Christopher Evanson, “Canadian Beacon,” *Coast Guard Special Edition 2005: Katrina: The Gulf Response* (2005): 86–89.
- 271 James Wilkins, interview by Greg Neuschafer, 27 January 2006, Washington Navy Yard, DC, AR/581-14-4, Content Manager, AR, NHHC. For more on the history of Navy salvage, see C. A. Bartholomew, *Mud, Muscle, and Miracles: Marine Salvage in the U.S. Navy* (Washington, DC: Naval Historical Center, 1990).
- 272 For more on MDSU-2 and its history and capabilities, please see MDSU-2, “History,” accessed 13 October 2019, <https://www.public.navy.mil/NECC/mdsu2/Pages/AboutUs.aspx>.
- 273 Mobile Diving and Salvage Unit 2 (MDSU-2), “Hurricane Katrina/Rita Relief After-Action Report,” 14 October 2005, MDSU-2 2005 COR, AR, NHHC.
- 274 MDSU-2, “Hurricane Katrina/Rita Relief After-Action Report,” 14 October 2005; NAVSEA, *U.S. Navy Salvage Report: Hurricanes Katrina and Rita*, 1–5.
- 275 Kevin M. Brand, interview by John Henrico, 30 November 2005, Joint Expeditionary Base Little Creek-Fort Story, Little Creek, VA, AR/581-9-4, Content Manager, AR, NHHC.
- 276 NAVSEA, *U.S. Navy Salvage Report: Hurricanes Katrina and Rita*, 1–4.
- 277 MDSU-2, “Hurricane Katrina/Rita Relief After-Action Report,” 14 October 2005.

- 278 MDSU-2, "Hurricane Katrina/Rita Relief After-Action Report," 14 October 2005.
- 279 NAVSEA, *U.S. Navy Salvage Report: Hurricanes Katrina and Rita*, 4–5; MDSU-2, "Hurricane Katrina/Rita Relief After-Action Report," 14 October 2005.
- 280 Katrin Albritton, "Defender Clears Way for Shipping off Gulf Coast," Navy NewsStand, 15 September 2005, *A Global Force for Good* author files, AR, NHHC.
- 281 Wilkins interview, 27 January 2006.
- 282 Boehm, Hylton, and Mehl, *In Katrina's Wake: The National Guard on the Gulf Coast*, 27–28.
- 283 House, *A Failure of Initiative*, 228.
- 284 Jay Cope, "NAS JRB New Orleans Recognizes Katrina Anniversary," DoD press release, 30 August 2006.
- 285 Naval Research Laboratory, "Naval Research Lab Stennis Space Center," accessed 8 August 2021, <https://www.nrl.navy.mil/field-sites/stennis>.
- 286 Walsh, *Support to the Hurricane*, 23–25, 45.
- 287 Douglas O'Dell, interview by Greg Neuschafer, 7 February 2006, Washington Hilton, Washington, DC, AR/581-12-7, Content Manager, AR, NHHC.
- 288 O'Dell interview, 7 February 2006.
- 289 House, *A Failure of Initiative*, 220–21.
- 290 24th Marine Expeditionary Unit (24th MEU), Command Chronology, 2005, Marine Corps History Division, Quantico, VA.
- 291 R. R. Keene, "Aftermath of Katrina," *Leatherneck* 88, no. 11 (Nov 2005): 30–33.
- 292 Marine Corps Public Affairs, "Marines Arrive in Louisiana to Aid Hurricane Relief Effort," release no. 0903-05-2059, 3 September 2005.
- 293 Gregory W. Johnson, interview by Woodrow Shields, Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA, 30 September 2005, AR/581-3-2-1, Content Manager, AR, NHHC.
- 294 O'Dell interview, 7 February 2006.
- 295 Frank G. Hoffman, "U.S. Marine Corps in Review," *U.S. Naval Institute Proceedings* 132, no. 5 (May 2006): 88–90, 92, 94–95.
- 296 O'Dell interview, 7 February 2006.
- 297 O'Dell interview, 7 February 2006.
- 298 John W. Bergman, "Protecting America's Interests," *The Officer* 81, no. 10 (Dec 2005): 41–43.
- 299 Christian Lowe, "Marines Keep Amtracs Moving in Their Search for Survivors," *Marine Corps Times*, 19 September 2005.

- 300 24th MEU, Command Chronology, 2005.
- 301 Rocco DeFilippis, "Marines Head Home After Hurricane Hitch," Marine Corps Public Affairs, release no. 200593083842, 30 September 2005.
- 302 Maya Lau, "Lessons Learned after Katrina: Animal Rescue Groups Practice Saving Pets at Disaster Boot Camp," *Baton Rouge Advocate*, 25 August 2015, [https://www.theadvocate.com/baton\\_rouge/news/crime\\_police/article\\_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html](https://www.theadvocate.com/baton_rouge/news/crime_police/article_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html).
- 303 O'Dell interview, 7 February 2006.
- 304 Dave Thompson, "'05 Relief Work Has Had Lasting Effect on Volunteers from Area: Katrina Five Years Later." 29 August 2010, [https://www.newsadvance.com/news/local/katrina-five-years-later/article\\_942bbaf3-ffb1-5813-8857-2ac42748758f.html](https://www.newsadvance.com/news/local/katrina-five-years-later/article_942bbaf3-ffb1-5813-8857-2ac42748758f.html).
- 305 O'Dell interview, 7 February 2006; Chris Michael Wallace, interview by Greg Neuschaefer, on board USNS *Pollux*, 2 October 2005, AR/581-3-16, Content Manager, AR, NHHC.
- 306 O'Dell interview, 7 February 2006; *Shreveport* 2005 COR, AR, NHHC.
- 307 Jensin W. Sommer, "Shreveport Sailors Care for New Orleans Stray Pets," Navy NewsStand, 20 September 2005.
- 308 Thompson, "'05 Relief Work Has Had Lasting Effect on Volunteers from Area: Katrina Five Years Later."
- 309 Maya Lau, "Lessons Learned after Katrina: Animal Rescue Groups Practice Saving Pets at Disaster Boot Camp," *Baton Rouge Advocate*, 25 August 2015, [https://www.theadvocate.com/baton\\_rouge/news/crime\\_police/article\\_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html](https://www.theadvocate.com/baton_rouge/news/crime_police/article_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html).
- 310 Task Force Navy Family (TFNF) 2016 COR, AR, NHHC.
- 311 McDaniel, "Taking Care of Our Own."
- 312 TFNF 2016 COR.
- 313 McDaniel, "Taking Care of Our Own."
- 314 McDaniel, "Taking Care of Our Own."
- 315 McDaniel, "Taking Care of Our Own."
- 316 Science Applications International Corporation (SAIC), "Retrospective Capture: Task Force Navy Family," 20 December 2005, A *Global Force for Good* author files, AR, NHHC.
- 317 TFNF Daily Summary, 21 October 2005, A *Global Force for Good* author files, AR, NHHC.
- 318 TFNF Daily Summary, 21 October 2005.



- 319 TFNF Daily Summary, 21 December 2005.
- 320 TFNF Daily Summary, 12 October 2005.
- 321 Margaret A. Peng, “Task Force Navy Family Helps Families Rebuild,” Navy NewsStand, 28 September 2005.
- 322 TFNF Daily Summary, 17 October 2005.
- 323 TFNF Daily Summary, 14 November 2005.
- 324 TFNF Daily Summary, 17 November 2005.
- 325 TFNF Daily Summary, 21 November 2005.
- 326 TFNF Daily Summary, 16 December 2005.
- 327 TFNF Daily Summary, 28 November 2005.
- 328 Rachael L. Leslie, “Task Force Navy Family Ensures Childcare for Hurricane Victims,” Navy NewsStand, 28 September 2005.
- 329 Enid Wilson, “Hurricane Recovery Moving Forward with Task Force Navy Family,” Navy NewsStand, 26 September 2005.
- 330 Margaret A. Peng, “Task Force Navy Family Responding to Pascagoula Family Needs,” Navy NewsStand, 24 September 2005.
- 331 Rachael L. Leslie, “Task Force Navy Family Provide Counseling, Support for Katrina Victims,” Navy NewsStand, 30 September 2005.
- 332 Anonymous Navy spouse, conversation with John Sherwood, c. 2005.
- 333 McDaniel, “Taking Care of Our Own.”

### **Part III: Operation Tomodachi**

- 1 Sean Buck, interview by John Sherwood, 26 April 2021, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 2 The largest waves of up to 40.5 meters struck Miyako in Iwate Prefecture. See Nippon Hōsō Kyōkai (NHK), “The Mystery of the 40-meter Tsunami: the Great East Japan Disaster,” 4 April 2020, <https://www3.nhk.or.jp/nhkworld/en/tv/documentary/20200405/4001352/>.
- 3 Jennifer D. P. Moroney, Stephanie Pezard, Laurel E. Miller, Jeffrey Engstrom, and Abby Doll, *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region* (Santa Monica, CA: RAND, 2013), 85–89; Ray Ortensie, *A Look Back: Operation Tomodachi, 12 March–4 May 2011, and AFMC’s Air Force Radiation Assessment Team’s Response* (Dayton, OH: Air Force Material Command, undated), 1; Brian Walsh, Matthew Grund, and Barry Howell, *Operation Tomodachi: A Reconstruction Timeline*, DRM-2012-U-000706-Final (Arlington, VA: CNA, June 2012), 53; Rockie K. Wilson, “Operation Tomodachi:

- A Model for American Disaster Response Efforts and the Collective use of Military Forces Abroad,” *Journal of Defense Management* 2, no. 3: 1–8; Yuki Tatsumi, *Great Eastern Japan Earthquake: “Lessons Learned” for Japanese Defense Policy* (Washington, DC: Stimson Center, November 2012), 9–10; World Vision, “2011 Japan Earthquake and Tsunami: Facts, FAQs, and How To Help,” accessed 1 July 2021, <https://www.worldvision.org/disaster-relief-news-stories/2011-japan-earthquake-and-tsunami-facts>.
- 4 The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (NAIIC), “Executive Summary,” in *Official Report of the Fukushima NAIIC* (Tokyo, Japan, National Diet of Japan, 5 July 2012), 29–32.
  - 5 Centre for Research on the Epidemiology of Disasters (CRED), “Disaster 2011-0082,” EM-DAT: The International Disaster Database, accessed 1 December 2022, <https://emdat.be>.
  - 6 Scott Van Buskirk, “Three Disasters in One,” Commander in Chief, Pacific Fleet (CINCPACFLT) press release, 23 March 2011, <https://www.cpf.navy.mil/news.aspx/000363>.
  - 7 Sil Perrella, interview by John Sherwood, Skype, 29 April 2021, *A Global Force for Good* author files, AR, NHHC.
  - 8 It took 700 firemen nearly two weeks to put out all the fires there. See Robert D. Eldridge, *Operation Tomodachi: The Incredible Story of the United States Marine Corps’ Response to the Great East Japan Earthquake of 2011 and the Relationship It Built with Oshima, the Island It Helped Save* (Osaka, Japan: Reed International, 2018), 23–24.
  - 9 Yoichi Funabashi, *Meltdown: Inside the Fukushima Nuclear Crisis* (Washington, DC: Brookings Institute Press, 2021), 358.
  - 10 Total authorized personnel strength for the JSDF in 2010 was 154, 000; and in 2012, 159, 238. See Japan Ministry of Defense, *Defense of Japan Digest 2012* (Tokyo, Japan: Japan Ministry of Defense, 2012), 122.
  - 11 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 89.
  - 12 Tatsumi, *Great Eastern Japan Earthquake*, 21–22.
  - 13 Eldridge, *Operation Tomodachi*, 33–34.
  - 14 Walsh, Grund, and Howell, *Operation Tomodachi*, 17.
  - 15 31st Marine Expeditionary Unit (MEU), Command Chronology, January–June 2011, Marine Corps History Division, Quantico, VA.
  - 16 Bev McClinton, “Weekly Howgoesit Reports for Tomodachi,” AR/561-2, Content Manager, AR, NHHC.
  - 17 Tatsumi, *Great Eastern Japan Earthquake*, 4.

- 18 Wilson, "Operation Tomodachi," 1–8.
- 19 China, in the end, would attempt to probe Japanese defenses near the Senkakus with surveillance aircraft, helicopters, and fisheries surveillance ships. See Masayuki Hironaka, interview by John Sherwood, 27 May 2021, Skype, *A Global Force for Good* author files, AR, NHHC; Sheila A. Smith, *Japan Rearmed: The Politics of Military Power* (Cambridge, MA: Harvard University Press, 2019), 112; Japan Ministry of Defense, *Defense of Japan Digest 2012*, 35, 37.
- 20 Funabashi, *Meltdown*, 406.
- 21 Mobile Diving and Salvage Unit 1 (MDSU-1), Tomodachi After Action Report, 2011, AR/561-2-6, Content Manager, AR, NHHC.
- 22 Naval Mobile Construction Battalion 133 (NMCB-133), Battle E Award Nomination: FY-11, 30 September 2011, FOLD/48058, SUB/3329, Content Manager, AR, NHHC.
- 23 Wilson, "Operation Tomodachi," 1-8; Shuichi Wada, "Japan Chair Platform: Operation Tomodachi in Miyagi Prefecture: Success and Homework," *CSIS Newsletter*, 21 December 2011, <https://www.csis.org/analysis/japan-chair-platform-operation-tomodachi-miyagi-prefecture-success-and-homework>.
- 24 Scott Ray Van Buskirk, interview by John Sherwood, 28 April 2021, FaceTime, *A Global Force for Good* author files, AR, NHHC.
- 25 Ryan Zielonka, revisions by Daniel Taninecz Miller and Jonathan Walton, "Chronology of Operation Tomodachi March 11–April 8, 2011," National Bureau of Asian Research, accessed 26 June 2022, <https://www.nbr.org/publication/time-line-of-operation-tomodachi/>.
- 26 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 85–87.
- 27 Funabashi, *Meltdown*, 358.
- 28 Article 9 of the Japanese Constitution as translated in Smith, *Japan Rearmed*, 6. For more on the U.S. occupation of Japan, see John Dower, *Embracing Defeat: Japan in the Wake of World War II* (New York: W. W. Norton Company, 1999).
- 29 Article 9 of the Japanese Constitution as translated in Smith, *Japan Rearmed*, 6.
- 30 See Curtis Utz, *Assault from the Sea: The Amphibious Landing at Inchon* (Washington, DC: NHHC, 2010), 22; Edward J. Marolda, "Mine Warfare," accessed 17 June 2021, <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/m/mine-warfare.html>.
- 31 Stephen Dwight Blanton, "A Study of the United States Navy's Minesweeping Efforts in the Korean War," (master's thesis, Texas Tech University, 1993), 15, 23–24, 52.
- 32 Smith, *Japan Rearmed*, 25.

- 33 Edward J. Marolda, *Ready Seapower: A History of the U.S. Seventh Fleet* (Washington, DC: NHHC, 2012), 46–48; Commander, Navy Installations Command (CNIC), “Sasebo History,” accessed 17 June 2021, [https://www.cnic.navy.mil/regions/cnrj/installations/cfa\\_sasebo/about/history.html](https://www.cnic.navy.mil/regions/cnrj/installations/cfa_sasebo/about/history.html).
- 34 An allusion to the British base that controls access to the Mediterranean. Japan’s position in East Asia allows sea and air forces there to dominate access to the Sea of Japan, the East China Sea, and to a lesser degree, the Sea of Okhotsk. See Marolda, *Ready Seapower*, 46–48; CNIC, “Sasebo History.”
- 35 Ronald E. Dolan and Robert L. Worden, eds., *Japan: A Country Study* (Washington, DC: Federal Research Division, Library of Congress, 1990), 427–47.
- 36 Hironaka interview, 27 May 2021; Smith, *Japan Rearmed*, 27; Dolan and Worden, *Japan: A Country Study*, 427–47.
- 37 Harvard Political Review Staff, “The U.S. Military in Japan: An Overview,” *Harvard Political Review*, 12 March 2013, <https://harvardpolitics.com/the-u-s-military-in-japan-an-overview/>.
- 38 Smith, *Japan Rearmed*, 181.
- 39 Sasebo also gained amphibious and mine warfare squadrons after Vietnam. See Marolda, *Ready Seapower*, 83.
- 40 Smith, *Japan Rearmed*, 129.
- 41 Smith, *Japan Rearmed*, 192.
- 42 Smith, *Japan Rearmed*, 46, 56, 58–60, 70–71.
- 43 Andrew L. Oros, *Japan’s Security Renaissance: New Policies and Politics for the Twenty-First Century* (New York: Columbia University Press, 2017), 40–43.
- 44 Japan Ministry of Defense, *Defense of Japan Digest 2012*, 126.
- 45 Japan Ministry of Defense, *Defense of Japan Digest 2012*, 121.
- 46 U.S. Government Accountability Office (GAO), *Burden Sharing: Benefits and Costs Associated with the U.S. Military Presence in Japan and South Korea*, GAO-21-270 (Washington, DC, GAO, March 2021).
- 47 Associated Press, “AP-GFK Poll: Japanese Support for US Bases Grows,” *Deseret News*, 5 September 2011, <https://www.deseret.com/2011/9/5/20213931/ap-gfk-poll-japanese-support-for-us-bases-grows>.
- 48 Perrella interview, 29 April 2021.
- 49 Geoffrey Moore, interview by John Sherwood, 14 May 2021, Building 1, Washington Navy Yard, DC, *A Global Force for Good* author files, AR, NHHC; Caleb Eames, interview by John Sherwood, 19 March 2021, Skype, *A Global Force for Good* author files, AR, NHHC.

- 50 Hiroe Saruya, “Protests and Democracy in Japan: The Development of Movement Fields and the 1960 Anpo Protests,” (PhD diss., University of Michigan, 2012), 73–78. See also Nick Kapur, *Japan at the Crossroads: Conflict and Compromise after Anpo* (Cambridge, MA: Harvard University Press, 2018).
- 51 The worst one occurred in 1959 when a U.S. Air Force F-100 crashed into a local elementary school, killing 17 people (mostly kids) and injuring 210. For more, see Town of Kadena, “Major Aircraft Incidents & Accidents,” accessed 15 March 2022, [https://www.town.kadena.okinawa.jp/kadena/P08\\_base%20digest\\_English.pdf](https://www.town.kadena.okinawa.jp/kadena/P08_base%20digest_English.pdf).
- 52 Smith, *Japan Rearmed*, 181–89; Marolda, *Ready Seapower*, 48; Jim Haw, “Okinawa and the U.S. Military, Post 1945,” *Scientific American*, 19 June 2013, <https://blogs.scientificamerican.com/expeditions/okinawa-and-the-u-s-military-post-1945/>; “The U.S. Military in Japan: An Overview,” *Harvard Political Review*, 12 March 2013, <https://harvardpolitics.com/the-u-s-military-in-japan-an-overview/>.
- 53 Kiyoshi Takenaka, “Huge Protest in Tokyo Rails against PM Abe’s Security Bills,” Reuters, 30 August 2015, <https://www.reuters.com/article/us-japan-politics-protest-idUSKCN0QZ0C320150830>; Smith, *Japan Rearmed*, 135, 151–55.
- 54 The only exception was 1993–4, when several LDP dissidents formed a government under a party called the New Party.
- 55 Oros, *Japan’s Security Renaissance*, 41.
- 56 Funabashi, *Meltdown*, 386; Smith, *Japan Rearmed*, 305.
- 57 Martin Fackler, “90,000 Protest U.S. Base on Okinawa,” *New York Times*, 25 April 2010, <https://www.nytimes.com/2010/04/26/world/asia/26okinawa.html>.
- 58 Burton “Burt” M. Field, interview by John Sherwood, 30 June 2021, Skype, A *Global Force for Good* author files, AR, NHHHC.
- 59 Edmund J. Burke, Timothy R. Heath, Jeffrey W. Hornung, Logan Ma, Lyle J. Morris, and Michael S. Chase, *China’s Military Activities in the East China Sea: Implications for Japan’s Air Self-Defense Force* (Santa Monica, CA: RAND Corporation, 2018), 6–7; Oros, *Japan’s Security Renaissance*, 101.
- 60 Oros, *Japan’s Security Renaissance*, 101.
- 61 For an example, see Japan Ministry of Defense, *Defense of Japan Digest 2012*, 8.
- 62 Tatsumi, *Great Eastern Japan Earthquake*, 9–10.
- 63 Cities heavily damaged by the tsunamis included Higashimatsushima, Ishinomaki, Kamaishi, Kesenuma, Minamisoma, Miyako, Namie, Natori, Onagawa, Otsuchi, Shichigahama, Soma, and Yamada. See World Vision, *2011 Japan Earthquake and Tsunami*; Wilson, “Operation Tomodachi,” 1–8; Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 85.
- 64 See CRED, EM-DAT, accessed 1 December 2022.



- 65 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 99–100.
- 66 Eldridge, *Operation Tomodachi*, 16–17.
- 67 Eldridge, *Operation Tomodachi*, 44.
- 68 Eldridge, *Operation Tomodachi*, 257.
- 69 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 88–9; Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 99–100.
- 70 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 88–89.
- 71 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 17.
- 72 Phillip Butterfield, “Misawa Air Base Recovering from Earthquake,” *U.S. Air Force News*, 15 March 2011, <https://www.af.mil/News/Article-Display/Article/113943/misawa-air-base-recovering-from-earthquake/>.
- 73 Patrick Dickson, “At Misawa, ‘Cold, Miserable and Scared People,’” *Stars and Stripes*, 11 March 2011, <https://www.stripes.com/news/at-misawa-cold-miserable-and-scared-people-1.137385>.
- 74 Buck interview, 26 April 2021.
- 75 Mary Robinson, interview by John Sherwood, 27 June 2021, FaceTime, *A Global Force for Good* author files, AR, NHHC.
- 76 Marcello Caceres, interview by John Sherwood, 8 July 2021, John Sherwood residence, Arlington, VA, *A Global Force for Good* author files, AR, NHHC.
- 77 Perrella interview, 29 April 2021.
- 78 Moore interview, 14 May 2021; Eames interview, 19 March 2021.
- 79 Field interview, 30 June 2021.
- 80 Janette Coleman, a language specialist with U.S. Forces Japan, was arguably the best interpreter in Japan at the time. “Even the Imperial Palace acknowledged her as the best of the best,” claimed Field. See Field interview, 30 June 2021.
- 81 Field interview, 30 June 2021.
- 82 General Electric, “GE General Electric in Tokyo, Japan ad (full)–1991,” 1991, YouTube video, 1:04, <https://youtu.be/nll4K1EGCmM>.
- 83 Wilson, “Operation Tomodachi,” 1–8.
- 84 Introduction, *The Official Report of the Fukushima NAIIC* (Tokyo, Japan, National Diet of Japan, 5 July 2012), 25.
- 85 Introduction, *The Official Report of the Fukushima NAIIC*, 25.

- 86 Ray Ortensie, *A Look Back: Operation Tomodachi*, 125.
- 87 Tokyo Electric Power Company (TEPCO), *Fukushima Nuclear Accident Analysis Report* (Tokyo, Japan: TEPCO, 20 June 2012), 1–2; Funabashi, *Meltdown*, 173.
- 88 Funabashi, *Meltdown*, 251.
- 89 Introduction, *The Official Report of the Fukushima NAIIC*, 25.
- 90 Funabashi, *Meltdown*, 53.
- 91 International Atomic Energy Agency (IAEA), *Description and Context of the Accident*, vol. 1, *The Fukushima Daiichi Accident* (Vienna, Austria: IAEA, 2015), 5.
- 92 Introduction, *The Official Report of the Fukushima NAIIC*, 23; TEPCO, *Fukushima Nuclear Accident Analysis Report*, 2–3; Funabashi, *Meltdown*, 34, 39.
- 93 Funabashi, *Meltdown*, 36.
- 94 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 5.
- 95 TEPCO, *Fukushima Nuclear Accident Analysis Report*, 2–3.
- 96 Introduction, *The Official Report of the Fukushima NAIIC*, 23.
- 97 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 5, 15.
- 98 Funabashi, *Meltdown*, 20–8, 41.
- 99 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 18.
- 100 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 16.
- 101 Introduction, *The Official Report of the Fukushima NAIIC*, 23.
- 102 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 16.
- 103 Funabashi, *Meltdown*, 116–17.
- 104 Funabashi, *Meltdown*, 121–33; IAEA, vol. 1, *The Fukushima Daiichi Accident*, 21; U.S. Nuclear Regulatory Commission, “Doses in Our Daily Lives,” accessed 12 July 2021, <https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html>.
- 105 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 20.
- 106 Funabashi, *Meltdown*, 133.
- 107 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 23.
- 108 Funabashi, *Meltdown*, 133.
- 109 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 23.
- 110 Summary to TEPCO, *Fukushima Nuclear Accident Analysis Report*, 34–35.
- 111 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 23–27.
- 112 Funabashi, *Meltdown*, 192.

- 113 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 28–29, 120–21; Funabashi, *Meltdown*, 20–8.
- 114 Funabashi, *Meltdown*, 524–25.
- 115 Funabashi, *Meltdown*, 223–24.
- 116 Eric Johnston, “25 Years After Kobe Quake, the SDF and Volunteerism Still Strong,” *Japan Times*, 16 January 2020, <https://www.japantimes.co.jp/news/2020/01/16/national/25-years-after-kobe-quake/>.
- 117 Funabashi, *Meltdown*, 319–20.
- 118 Funabashi, *Meltdown*, 319–20.
- 119 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 89.
- 120 Naval Technology, “JMSDF Hyuga Class Destroyer,” accessed 28 July 2021, <https://www.naval-technology.com/projects/hyuga-class/>.
- 121 Tatsumi, *Great Eastern Japan Earthquake*, 11–14; Funabashi, *Meltdown*, 319–20.
- 122 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 89.
- 123 Jodyn Fetter, “Restored Aircraft Signifies Recovery from Disaster,” *Pacific Air Forces News*, 24 April 2015, <https://www.pacaf.af.mil/News/Article-Display/Article/590896/restored-aircraft-signifies-recovery-from-disaster/>; Field interview, 30 June 2021.
- 124 The Joint Staff Office replaced the Joint Staff Council. It was headed by a Chief of Staff designated as the “force user” and placed in charge of all JSDF operations.
- 125 Tatsumi, *Great Eastern Japan Earthquake*, 319–20.
- 126 Field interview, 30 June 2021.
- 127 Tatsumi, *Great Eastern Japan Earthquake*, 11–14; Funabashi, *Meltdown*, 322.
- 128 Tatsumi, *Great Eastern Japan Earthquake*, 11–14
- 129 Funabashi, *Meltdown*, 424.
- 130 Tatsumi, *Great Eastern Japan Earthquake*, 4, 35.
- 131 Tatsumi, *Great Eastern Japan Earthquake*, 322–23.
- 132 Hidefumi Nogami, “Prometheus Trap/Shadow units: CRF units aligned against common enemy, the crippled nuclear plant,” *Asahi Shimbun*, 13 March 2013, as reprinted by [www.simplyinfo.org](http://www.simplyinfo.org), [http://www.simplyinfo.org/wp-content/uploads/2012/10/Shadow-units-5\\_-CRF-units-aligned-against-common-enemy-the-crippled-nuclear-plant-AJW-by-The-Asahi-Shimbun.pdf](http://www.simplyinfo.org/wp-content/uploads/2012/10/Shadow-units-5_-CRF-units-aligned-against-common-enemy-the-crippled-nuclear-plant-AJW-by-The-Asahi-Shimbun.pdf); *Mainichi Daily News* staff, “GSDF commander says he thought Japan done for as he faced Fukushima nuke crisis,” *Mainichi Daily News*, 31 December 2011, as reprinted by [crofsblogs](http://crofsblogs.com).

- typepad.com, <https://crofsblogs.typepad.com/h5n1/2011/12/gsd-f-commander-says-he-thought-japan-done-for-as-he-faced-fukushima-nuke-crisis.html>; Tatsumi, *Great Eastern Japan Earthquake*, 14–16; Funabashi, *Meltdown*, 322–23.
- 133 Funabashi, *Meltdown*, 327–28; IAEA, vol. 1, *The Fukushima Daiichi Accident*, 324–26.
- 134 For a full translation of the SDF Oath of Duty, see Robert D. Eldridge, “Organization and Structure of the Contemporary Ground Self-Defense Force,” in *The Japanese Self-Defense Force” Search for Legitimacy*, eds. Paul Midford and Robert D. Eldridge (New York: Palgrave Macmillan, 2017), 43.
- 135 Funabashi, *Meltdown*, 327–28; IAEA, vol. 1, *The Fukushima Daiichi Accident*, 324–26.
- 136 Funabashi, *Meltdown*, 327–28; IAEA, vol. 1, *The Fukushima Daiichi Accident*, 26–7.
- 137 Thom Burke, interview by John Sherwood, 18 March 2021, Skype, *A Global Force for Good* author files, AR, NHHC.
- 138 Burke interview, 18 March 2021.
- 139 NAVSEA, “Nuclear Power School,” accessed 12 May 2022, <https://www.navsea.navy.mil/Home/NNPTC/powerschool.aspx>.
- 140 Robert Aguilar, interview by John Sherwood, 24 May 2021, Skype, *A Global Force for Good* author files, AR, NHHC.
- 141 Robert L. Thomas, interview by John Sherwood, 26 July 2021, Skype, *A Global Force for Good* author files, AR, NHHC.
- 142 Dan Cloyd, interview by John Sherwood, 5 April 2021, Skype, *A Global Force for Good* author files, AR, NHHC.
- 143 NAVSEA, “Nuclear Power School,” accessed 12 May 2022, <https://www.navsea.navy.mil/Home/NNPTC/powerschool.aspx>.
- 144 Van Buskirk interview, 28 April 2021.
- 145 Burke interview, 18 March 2021.
- 146 Burke interview, 18 March 2021.
- 147 James J. Elias, interview by John Sherwood, 14 June 2021, Skype, *A Global Force for Good* author files, AR, NHHC.
- 148 Aguilar interview, 24 May 2021.
- 149 Burke interview, 18 March 2021.
- 150 Office of the Assistant Secretary of Defense for Health Affairs, “Final Report to the Congressional Defense Committees in Response to the Joint Explanatory

- Statement Accompanying the Department of Defense Appropriations Act, 2014, page 90, ‘Radiation Exposure,’” 14 June 2014, <https://www.health.mil/Reference-Center/Reports/2014/06/19/Radiation-Exposure-Report>, B-1; Van Buskirk interview, 28 April 2021.
- 151 Robert Girrier, interview by John Sherwood, Skype, 27 May 2021, *A Global Force for Good* author files, AR, NHHC.
- 152 Office of the Assistant Secretary of Defense for Health Affairs, “Radiation Exposure,” B-1.
- 153 Kathleen Ward and E.D. McGrady, *Operation Tomodachi: Radiological Contamination Analysis*, DAB-2013-U-004051-1Rev (Arlington, VA: CNA, March 2013), 9. When interior spaces were secured and it was deemed safe, Burke eventually employed a countermeasures wash to clean exterior parts of the ship. See Burke interview, 18 March 2021; Office of the Assistant Secretary of Defense for Health Affairs, “Radiation Exposure,” B-1.
- 154 Burke interview, 18 March 2021.
- 155 Ward and McGrady, *Operation Tomodachi: Radiological Contamination Analysis*, 19–20.
- 156 Burke interview, 18 March 2021.
- 157 ELT as cited in Girrier interview, 27 May 2021.
- 158 Girrier interview, 27 May 2021.
- 159 Aguilar interview, 24 May 2021.
- 160 Ward and McGrady, *Operation Tomodachi: Radiological Contamination Analysis*, 9.
- 161 Mary Robinson interview, 27 June 2021.
- 162 Aaron Robinson, interview by John Sherwood, FaceTime, 29 June 2021, *A Global Force for Good* author files, AR, NHHC.
- 163 Aguilar interview, 24 May 2021.
- 164 Burke interview, 18 March 2021.
- 165 Ward and McGrady, *Operation Tomodachi: Radiological Contamination Analysis*, 9.
- 166 Aguilar interview, 24 May 2021.
- 167 Girrier interview, 27 May 2021.
- 168 Girrier interview, 27 May 2021.
- 169 Aguilar interview, 24 May 2021.
- 170 Aguilar interview, 24 May 2021.



- 171 Office of the Assistant Secretary of Defense for Health Affairs, “Radiation Exposure,” B-1.
- 172 Office of the Assistant Secretary of Defense for Health Affairs, “Radiation Exposure,” B-1; U.S. Environmental Protection Agency (EPA), “Calculate Your Radiation Dose,” accessed 18 November 2021, <https://www.epa.gov/radiation/calculate-your-radiation-dose>.
- 173 Girrier interview, 27 May 2021.
- 174 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi”; Aguilar interview, 24 May 2021; Perrella interview, 29 April 2021; Moore interview, 14 May 2021; Helicopter Anti-Submarine Squadron 14 (HS-14) 2011 COR, AR, NHHC; Helicopter Anti-Submarine Squadron 4 (HS-4) 2011 COR, AR, NHHC; Helicopter Anti-Submarine Squadron Light 51 (HSL-51) 2005 COR, AR, NHHC; Anna Barcus and Katherine O’Donnell, “USS *Preble* Contributes to Humanitarian Efforts in Japan,” Navy NewsStand, 15 March 2011.
- 175 National Naval Aviation Museum, “SH-60B Seahawk,” accessed 26 August 2021, <https://www.history.navy.mil/content/history/museums/nnam/explore/collections/aircraft/s/sh-60b-seahawk.html>.
- 176 HS-14 2011 COR; HS-4 2011 COR; Aaron Robinson interview, 29 June 2021.
- 177 Aaron Robinson interview, 29 June 2021.
- 178 Aaron Robinson interview, 29 June 2021.
- 179 Aaron Robinson interview, 29 June 2021.
- 180 Moore interview, 14 May 2021.
- 181 Aaron Robinson interview, 29 June 2021.
- 182 Aguilar interview, 24 May 2021.
- 183 Mary Robinson interview, 27 June 2021.
- 184 Moore interview, 14 May 2021.
- 185 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 186 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 187 Moore interview, 14 May 2021.
- 188 Perrella interview, 29 April 2021.
- 189 Perrella interview, 29 April 2021.
- 190 Mary Robinson interview, 27 June 2021.
- 191 Girrier interview, 27 May 2021.
- 192 Perrella interview, 29 April 2021.

- 193 Mary Robinson interview, 27 June 2021.
- 194 Aguilar interview, 24 May 2021.
- 195 Moore interview, 14 May 2021.
- 196 Burke interview, 18 March 2021.
- 197 Girrier interview, 27 May 2021.
- 198 Mary Robinson interview, 27 June 2021.
- 199 Aaron Robinson interview, 29 June 2021.
- 200 Zielonka, Miller, and Walton, "Chronology of Operation Tomodachi."
- 201 HS-4 2011 COR.
- 202 Jose Lopez, "HSL-51 Transitions from Operation Tomodachi Support to Pacific Deployment Preparations," Navy NewsStand, 4 May 2011.
- 203 Mary Robinson interview, 27 June 2021.
- 204 Scott T. Sturkol, "One Year Later: Response by Airmen for Operation Tomodachi 'Unprecedented,'" Air Mobility Command Public Affairs, 19 March 2012, <https://www.jbmdl.jb.mil/News/Article-Display/Article/244034/one-year-later-response-by-airmen-for-operation-tomodachi-unprecedented/>; Kerry Jackson, "Guard Part of Total Force Team Supporting Operation Tomodachi," *National Guard News*, 28 March 2011, <https://www.nationalguard.mil/News/Article/600684/guard-part-of-total-force-team-supporting-operation-tomodachi/>.
- 205 Zielonka, Miller, and Walton, "Chronology of Operation Tomodachi"; Wilson, "Operation Tomodachi," 1–8.
- 206 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 45–7; Buck interview, 26 April 2021.
- 207 For more on the P-3C Orion, see NAVAIR, "P-3C Orion," accessed 3 November 2022, <https://www.navair.navy.mil/product/P-3C-Orion>; Naval Technology, "P-3C Orion Maritime Patrol Aircraft," 24 December 2020, <https://www.naval-technology.com/projects/p3-orion/>.
- 208 Jose Lopez, "VP-4 in Tomodachi," undated draft, Naval Air Facility Misawa Public Affairs, *A Global Force for Good* author files, AR, NHHC; U.S. Naval Academy, "P-3C Orion," accessed 31 August 2021, [https://www.usna.edu/NavalAviation/FixedWingAircraft/P3C\\_Orion.php](https://www.usna.edu/NavalAviation/FixedWingAircraft/P3C_Orion.php).
- 209 Buck interview, 26 April 2021.
- 210 Commander Seventh Fleet, Daily Update, 25 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 211 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 108.

- 212 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 45–47.
- 213 Steve White, “VP-4 Conducts SAR Missions in Support of Operation Tomodachi,” Fleet Activities Okinawa Public Affairs, 16 March 2011.
- 214 Buck interview, 26 April 2021.
- 215 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 216 Patrol Squadron 4 (VP-4), Battle E Citation, 2011, *A Global Force for Good* author files, AR, NHHC; Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 217 Buck interview, 26 April 2021.
- 218 U.S. Navy, “E-2C Hawkeye Fact Sheet,” accessed 2 September 2021, <https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2382134/e-2-hawkeye-airborne-command-and-control-aircraft/>; James J. Elias, e-mail to author, 15 June 2021, *A Global Force for Good* author files, AR, NHHC; Elias interview, 14 June 2021.
- 219 Elias e-mail, 15 June 2021; Elias interview, 14 June 2021.
- 220 Caceres interview, 8 July 2021.
- 221 Aguilar interview, 24 May 2021.
- 222 Elias interview, 14 June 2021.
- 223 Although the USFJ is involved in planning combined exercises and operations with the JSDF, it does not have direct control of U.S. operational units. It mainly serves a staff and policy function focused on alliance management, the SOFA agreement, and the U.S. force laydown, basing, and facilities in Japan. For more, see U.S. Forces Japan, “Guidance from the Commander,” accessed 28 June 2015, <https://www.usfj.mil/About-USFJ/>.
- 224 Field interview, 30 June 2021; Burton “Burt” M. Field, Officer Bio, 01 January 2015, <https://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=858&Article=104>.
- 225 Field interview, 30 June 2021.
- 226 A supported command is the command that receives assistance from other commands.
- 227 Field interview, 30 June 2021.
- 228 Field interview, 30 June 2021; Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 101.
- 229 Field interview, 30 June 2021.
- 230 Field interview, 30 June 2021.

- 231 Marolda, *Ready Seapower*, 46–48; CNIC, “Sasebo History.”
- 232 Van Buskirk interview, 28 April 2021.
- 233 Pacific Command (PACOM), Operations Update, Tomodachi, 27 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 234 Cloyd interview, 5 April 2021; Thomas interview, 26 July 2021; Buck interview, 26 April 2021; Richard Landolt, interview by John Sherwood, Skype, 19 March 2021, *A Global Force for Good* author files, AR, NHHC; Matthew Garside, interview by Harold Katz, 15 July 2011, Commander, Logistics Group Western Pacific (COMLOGWESTPAC) Headquarters, Singapore, AR/561-1-3, Content Manager, NHHC.
- 235 Field interview, 30 June 2021.
- 236 Thomas interview, 26 July 2021.
- 237 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 57–60; Funabashi, *Meltdown*, 426.
- 238 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 88, 117.
- 239 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 22–23.
- 240 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 22–23.
- 241 Field interview, 30 June 2021.
- 242 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 23–24.
- 243 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 24.
- 244 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 24.
- 245 Field interview, 30 June 2021.
- 246 Robert P. Toth, interview by John Sherwood, Skype, 10 August 2021, *A Global Force for Good* author files, AR, NHHC; Field interview, 30 June 2021.
- 247 In the fall of 1963, two Navy test pilots made multiple full-stop landings and takeoffs in a C-130 on the aircraft carrier *Forrestal* (CV-59)—a ship only 325 meters in length. See Mark L. Evans, “USS *Forrestal* (CV-59),” *Dictionary of American Naval Fighting Ships*, NHHC, last modified 20 August 2007, <https://www.history.navy.mil/research/histories/ship-histories/danfs/f/forrestal-cva-59.html>.
- 248 Toth interview, 10 August 2021; Field interview, 30 June 2021.

- 249 Robert Toth, "Operation Kaitakusha: 'Pathfinder,'" *Air Commando Journal* 1, no. 1 (Fall 2011): 39.
- 250 Eldridge, *Operation Tomodachi*, 34.
- 251 Toth, "Operation Kaitakusha," 41.
- 252 Toth, "Operation Kaitakusha," 41.
- 253 Toth, "Operation Kaitakusha," 41; Toth interview, 10 August 2021; Field interview, 30 June 2021.
- 254 Toth, "Operation Kaitakusha," 41; Toth interview, 10 August 2021; Field interview, 30 June 2021.
- 255 Naval Mobile Construction Battalion 133 (NMCB-133), "Operation Tomodachi: NMCB 133 After Action Report," 12 March–2 April 2011, *A Global Force for Good* author files, AR, NHHC, 3; Christopher Kurgan, interview by John Sherwood, Microsoft Teams, 14 April 2021, *A Global Force for Good* author files, AR, NHHC; NMCB-133, Operation Tomodachi Daily SITREP, 16 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 256 NMCB-133, Operation Tomodachi After Action Report, 3; Kurgan interview, 14 April 2021; NMCB-133, Operation Tomodachi Daily SITREP, 16 March 2011.
- 257 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 140–41; Toth, "Operation Kaitakusha," 42–43; Toth interview, 10 August 2021.
- 258 Toth interview, 10 August 2021.
- 259 Toth, "Operation Kaitakusha," 42.
- 260 Toth interview, 10 August 2021.
- 261 Chief of Operations and Flight Inspection Division, Air Traffic Service Department, Japan Civil Aviation Bureau, "Tohoku-Pacific Ocean Earthquake and Airport Operations," presentation, The Twenty-First Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/21), Bangkok, Thailand, 27 June 2011, <https://www.icao.int/APAC/Meetings/ATMAISSARSG21/IP03%20Tohoku-Pacific%20Ocean%20Earthquake%20and%20Airport%20Operations.pdf>; Robert P. Toth, "'Thank You' Not Necessary; U.S. Forces Honored to Help Reopen Sendai," *Air Force Special Operations Command*, 9 April 2011, <https://www.afsoc.af.mil/News/Commentaries/Display/Article/163614/thank-you-not-necessary-us-forces-honored-to-help-reopen-sendai/>.
- 262 Toth, "Operation Kaitakusha," 43.
- 263 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 193.
- 264 Japan Civil Aviation Bureau, "Tohoku-Pacific Ocean Earthquake and Airport Operations."



- 265 White House, Office of the Vice President, “Remarks by Vice President Biden at Sendai Airport,” 23 August 2011, <https://obamawhitehouse.archives.gov/the-press-office/2011/08/23/remarks-vice-president-biden-sendai-airport>.
- 266 Toth interview, 10 August 2021.
- 267 Field interview, 30 June 2021.
- 268 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 32–33.
- 269 Funabashi, *Meltdown*, 421–25.
- 270 While operating 65 miles northwest of San Diego in a training exercise on 17 May 1984, *Guitarro* experienced a fire. Officials said that the fire originated in the submarine’s battery well due to heat from electrical discharge on one of the cells. A sailor making rounds discovered heat, steam, and a glow emitting from the battery well when he opened a well hatch. The submarine headed for port, and the crew had the fire under control but still burning when the submarine arrived. “It was a pretty close call,” recalled Thomas. “I was kind of running damage control up in the control room as a lieutenant in my emergency air breathing mask. It got really hot really fast. We had to move a few people topside, up on the sail, because of the heat.” See Thomas interview, 26 July 2021; “USS *Guitarro* (SSN-665),” accessed 24 November 2021, [http://www.navy.mil/submit/display.asp?story\\_id=665](http://www.navy.mil/submit/display.asp?story_id=665).
- 271 Thomas interview, 26 July 2021.
- 272 Funabashi, *Meltdown*, 334–39.
- 273 Funabashi, *Meltdown*, 425.
- 274 Funabashi, *Meltdown*, 428.
- 275 Oriki as quoted in Funabashi, *Meltdown*, 341.
- 276 Hironaka interview, 27 May 2021; Field interview, 30 June 2021; Funabashi, *Meltdown*, 341, 515.
- 277 Funabashi, *Meltdown*, 384.
- 278 Funabashi, *Meltdown*, 340.
- 279 Funabashi, *Meltdown*, 341–45, 398.
- 280 Funabashi, *Meltdown*, 350, 398.
- 281 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 38; Funabashi, *Meltdown*, 352; IAEA, vol. 1, *The Fukushima Daiichi Accident*, 121.
- 282 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 38; Funabashi, *Meltdown*, 366–70, 388.
- 283 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 32–33.
- 284 Funabashi, *Meltdown*, 389–400, 545.

- 285 Joe Schmitt, “U.S. Navy to Provide 500,000 Gallons of Freshwater to Fukushima Power Plant,” Yokosuka Public Affairs, 25 March 2011, <https://www.cpf.navy.mil/news.aspx/000368>; Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 158–60.
- 286 IAEA, vol. 1, *The Fukushima Daiichi Accident*, 155–54, 179; Eric Talmadge and Mari Yamaguchi, “U.S. Rushes Water to Help Japan Nuclear Plant,” Associated Press, 26 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 287 TEPCO, *Fukushima Nuclear Accident Analysis Report*, 37–40; Funabashi, *Meltdown*, 654–57; Talmadge and Yamaguchi, “U.S. Rushes Water to Help Japan Nuclear Plant”; Thomas interview, 26 July 2021.
- 288 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 191.
- 289 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 55.
- 290 See C. A. Bartholomew, *Mud, Muscle, and Miracles: Marine Salvage in the United States Navy* (Washington, DC: Naval Historical Center, 1990), xxi.
- 291 Derek Peterson, interview by John Sherwood, 9 March 2021, Microsoft Teams, *A Global Force for Good* author files, AR, NHHC.
- 292 Peterson interview, 9 March 2021.
- 293 See Mike Snoderly, interview by Harold Katz, Military Sealift Command Far East (MSCFE), Singapore, 14 July 2011, AR/561-2-4, Content Manager, AR, NHHC; USNS *Safeguard* (T-ARS-50), Ship Brief, Undated, AR/561-2-6, Content Manager, AR, NHHC.
- 294 Naval Forces Japan Public Affairs, “US Navy Provides Pumps to Assist in Reactor Cooling Effort,” 18 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 295 Peterson interview, 9 March 2021.
- 296 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 114.
- 297 Funabashi, *Meltdown*, 240, 389–400.
- 298 In an SRA, ships receive necessary but often intensive, intermediate maintenance work required to sustain their material condition between overhauls.
- 299 Earlier in his career, he also had participated in very complex salvage and oil removal operations of a sunken World War II oiler, *Mississinewa* (AO-59) in the waters of Ulithi Atoll that involved the assembly of a submerged hot tapping and pumping system—an important breakthrough for the Navy in the field of submerged vessel offloading. See Master Diver Jon Klukas, interview by John Sherwood, 11 March 2021, Skype, *A Global Force for Good* author files, AR, NHHC; NAVSEA, *U.S. Navy Salvage Report USS Mississinewa Oil Removal Operations*, S0300-B6-RPT-010 (Washington, DC: NAVSEA, May 2004).

- 300 Seventh Fleet, "Operation Tomodachi update," 21 March 2011, *A Global Force for Good* author files; Gidget Fuentes, "Aircraft carrier may leave Japan for repairs, *George Washington* continuing maintenance while underway," *Navy Times*, 3 April 2011; Klukas interview, 11 March 2021.
- 301 Seventh Fleet, "Operation Tomodachi update," 21 March 2011.
- 302 Underwater Construction Team 2 (UCT-2), FRAGO 11-01, Augmentation of Forces To CTF 76 for Harbor Clearance Operations ISO Operation Tomodachi, 241527ZMAR11, AR/561-2-6, Content Manager, AR, NHHC; Devon Dow, "U.S. 7th Fleet Offers Salvage Support to Tsunami-Battered Japanese City," Naval Air Facility Misawa Public Affairs, 19 March 2011; Landolt interview, 19 March 2021; Peterson interview, 9 March 2021; Snoderly interview, 14 July 2011.
- 303 Peterson interview, 9 March 2021.
- 304 Anthony Wayne "Tony" Brinkley, interview by John Sherwood, 15 March 2021, Skype, *A Global Force for Good* author files, AR, NHHC; Peterson interview, 9 March 2021; CTG 776.36, Salvage and Recovery Force, Operation Tomodachi, CTG 776.36: Summary, 14 April 2011, AR/561-2-6, Content Manager, AR, NHHC.
- 305 MDSU-1, "Operation Tomodachi Japan After Action Report"; Zielonka, Miller, and Walton, "Chronology of Operation Tomodachi."
- 306 MDSU-1, "Operation Tomodachi Japan After Action Report"
- 307 Devon Dow, "USNS *Safeguard*, Additional Salvage Support Reaches Hachinohe," Naval Air Facility Misawa Public Affairs, 25 March 2011, *A Global Force for Good* author files, AR, NHHC; PACOM Operations Update, Tomodachi, 26 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 308 Peterson interview, 9 March 2021.
- 309 Derek Peterson and Jon Klukas, interview by Harold Katz, 11 July 2011, MSCFE, Singapore, AR/561-1-7, Content Manager, AR, NHHC.
- 310 Peterson and Klukas interview, 11 July 2011; MDSU-1, "Operation Tomodachi Japan After Action Report."
- 311 Underwater Construction Team 2, Construction Diving Detachment Charlie, After Action Report: CY11 Deployment, January 2011 to July 2011, AR/561-2-6, Content Manager, AR, NHHC, Content Manager; *Safeguard* (T-ARS-50), "Ship Brief"; CTG 76.35, Operation Tomodachi: Port of Miyako, Port Clearance, Concept of Operations, 28 March 2011, AR/561-2-6, Content Manager, AR, NHHC.
- 312 MDSU-1, "Operation Tomodachi Japan After Action Report"
- 313 MDSU-1, "Operation Tomodachi Japan After Action Report"
- 314 Perrella interview, 29 April 2021.

- 315 Mary Robinson interview, 27 June 2021.
- 316 See James P. Zumwalt, interview by Charles Stewart Kennedy, 1 February 2018, The Association for Diplomatic Studies and Training Foreign Affairs Oral History Project, <https://adst.org/OH%20TOCs/Zumwalt.James.pdf>, 185.
- 317 Funabashi, *Meltdown*, 386; Smith, *Japan Rearmed*, 448–49.
- 318 Charles A. Casto, *Station Blackout: Inside the Fukushima Nuclear Disaster and Recovery* (New York: Radius Books, 2018), 157–58.
- 319 Funabashi, *Meltdown*, 386; Smith, *Japan Rearmed*, 448–49.
- 320 Field interview, 30 June 2021.
- 321 U.S. Department of State, “Special Briefing: Under Secretary Pat Kennedy and Deputy Energy Secretary Dan Poneman on the Situation in Japan,” 16 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 322 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 21.
- 323 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 81–83, 97–98.
- 324 Charles “Chip” Denman, interview by Harold Katz, 15 July 2011, MSCFE, Singapore, AR/561-1-2, Content Manager, AR, NHHC.
- 325 U.S. Navy, “Large, Medium-speed, Roll-on/Roll-off Ships T-AKR Fact File,” 13 October 2021, <https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2226172/large-medium-speed-roll-onroll-off-ships-t-akr/>.
- 326 Snoderly interview, 14 July 2011.
- 327 Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 88–89.
- 328 U.S. Forces Japan (USFJ), “Military Assisted Departure (MAD) Information Sheet,” undated, *A Global Force for Good* author files, AR, NHHC
- 329 Field interview, 30 June 2021.
- 330 NMCB-133, Operation Tomodachi After Action Report, 2.
- 331 Jose Lopez, “Misawa Kennel Ready to Receive Voluntary Departure Pets,” Navy NewsStand, 24 March 2011.
- 332 USFJ, MAD Information Sheet.
- 333 According to Captain Bradley Lee, the commodore of Amphibious Squadron 11, a sizable number of Yokosuka dependents evacuated to Sasebo to avoid having to fly all the way back to the United States. These evacuees stayed at local hotels and also with Sasebo Navy families. See Bradley Lee, interview by John Sherwood, 11 March 2021, Skype, *A Global Force for Good* author files.
- 334 Buck interview, 26 April 2021.

- 335 Laura James, “Military Families Arrive in Seattle from Japan,” Navy NewsStand, 21 March 2011.
- 336 Melinda Larson and Olivia Giger, “Operation Pacific Passage Winds Down at Travis Air Force Base,” Navy NewsStand, NNS110328-19, 28 March 2011; Olivia Giger, “Four Branches Form One Team in Support of Operation Pacific Passage,” Navy NewsStand, 25 March 2011.
- 337 Moore interview, 14 May 2021.
- 338 Perrella interview, 29 April 2021.
- 339 Field interview, 30 June 2021.
- 340 Thomas interview, 26 July 2021.
- 341 For more details on the presentation, see Funabashi, *Meltdown*, 481–83.
- 342 Mary Robinson interview, 27 June 2021.
- 343 Naval Forces Japan Public Affairs, “Precautionary Distribution of Potassium Iodide (KI) Available for Pick-up,” release no. R-11-011, 21 March 2011; Casto, *Station Blackout*, 158; Funabashi, *Meltdown*, 452–56.
- 344 U.S. Department of State, “Fact Sheet: An Update for American Citizens in Japan,” 22 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 345 Zumwalt interview, 1 February 2018, 198; U.S. Department of State, “Warden Message: Availability of Potassium Iodide Tablets,” 28 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 346 Vivian Blakely, “Families Depart on Last MAVDD [Military Assisted Voluntary Departure of Dependents] Flight from Atsugi, Japan,” Navy NewsStand, 29 March 2011; Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 82.
- 347 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 82.
- 348 Perrella interview, 29 April 2021.
- 349 Lee interview, 11 March 2021; 31st MEU, Command Chronology, January–June 2011; Eames interview, 19 March 2021.
- 350 31st MEU, Command Chronology, January–June 2011; Eames interview, 19 March 2021.
- 351 Caleb Eames, email to author, 23 April 2021, *A Global Force for Good* author files, AR, NHHC.
- 352 Andrew MacMannis, interview by John Sherwood, Microsoft Teams, 26 March 2021; Andrew MacMannis, LinkedIn profile, accessed 31 October 2021, <https://www.linkedin.com/in/andrew-macmannis-7414093b>.



- 353 MacMannis interview, 26 March 2021; Andrew MacMannis, LinkedIn profile, accessed 31 October 2021.
- 354 Eldridge, *Operation Tomodachi*, 78–79.
- 355 MacMannis interview, 26 March 2021.
- 356 MacMannis interview, 26 March 2021; Eldridge, *Operation Tomodachi*, 68.
- 357 MacMannis interview, 26 March 2021.
- 358 MacMannis interview, 26 March 2021; Johnie Hickmon, “Essex Embarks Japanese Officer for HADR Coordination,” Navy NewsStand, 25 March 2011.
- 359 Lee interview, 11 March 2021.
- 360 Lee interview, 11 March 2021.
- 361 31st MEU, Command Chronology, January–June 2011.
- 362 Marine Medium Helicopter Squadron 262 (HMM-262), Command Chronology, 1 January–30 June 2011, Marine Corps History Division, Quantico, VA; Caleb Eames, “31st MEU Moves to the East Coast of Japan, Delivers Aid via Helo,” 21 March 2011, Item 36 in 31st MEU Command Chronology, January–June 2011.
- 363 Eldridge, *Operation Tomodachi*, 114.
- 364 Lee interview, 11 March 2021.
- 365 Mary Robinson interview, 27 June 2021.
- 366 Eldridge, *Operation Tomodachi*, 81.
- 367 Rear Admiral Landolt would continue supporting the operation as a staff officer on JTF-519 until early April. See Landolt interview, 19 March 2021.
- 368 Admiral Michael Mullen was known for being a very hard worker. See Jeffery “Scott” Jones and Stephen Greene, interview by John Sherwood and John Vassiliou, 30 October 2020, *A Global Force for Good* author files, AR, NHHC.
- 369 Jeffery “Scott” Jones, interview by John Sherwood, 22 March 2021, *A Global Force for Good* author files, AR, NHHC; Seventh Fleet Public Affairs, “An Island Isolated No More - 27 March,” Seventh Fleet Daily Update, 27 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 370 Jones interview, 22 March 2021.
- 371 MacMannis interview, 26 March 2021.
- 372 Lee interview, 11 March 2021.
- 373 Jones interview, 22 March 2021.
- 374 Eldridge, *Operation Tomodachi*, 38–44.

- 375 Reiko Kikuta, interview by John Sherwood, Skype, 28 April 2021, *A Global Force for Good* author files, AR, NHHC; Eames interview, 19 March 2021; MacMannis interview, 26 March 2021.
- 376 Seventh Fleet Public Affairs, “An Island Isolated No More - 27 March.”
- 377 Garry J. Welch, “Navy-Marine Corps Team Brings Crucial Disaster Relief to Isolated Island,” 22 March 2011, Item 41 in 31st MEU Command Chronology, January to June 2011, Marine Corps History Division, Quantico, VA.
- 378 Eldridge, *Operation Tomodachi*, 96–97.
- 379 Seventh Fleet Public Affairs, “An Island Isolated No More - 27 March.”
- 380 Jones interview, 22 March 2021.
- 381 Eames interview, 19 March 2021.
- 382 MacMannis interview, 26 March 2021.
- 383 Eldridge, *Operation Tomodachi*, 100
- 384 Both of Japan’s major religions feature purification rituals that include bathing.
- 385 Garry J. Welch, “31st MEU Conducts Operation ‘Field Day,’” 7 April 2011, Item 46 in 31st MEU Command Chronology, January–June 2011.
- 386 Michael A. Bianco, “Maritime Contingency Force Proves Ready for All Missions,” 8 April 2011, Item 47 in 31st MEU Command Chronology, January–June 2011, Marine Corps History Division, Quantico, VA.
- 387 Eames interview, 19 March 2021; Eldridge, *Operation Tomodachi*, 86.
- 388 Jones interview, 22 March 2021.
- 389 U.S.-Japan Bilateral Coordination Action Team was a team of Japanese and American officers who coordinated and integrated US military efforts into the Japan-lead response, JTF-Tohoku. See Stephen Browne, “Insights from Operation Tomodachi Bilateral Coordination Action Team (BCAT) – Sendai,” accessed 7 March 2022, [https://community.apan.org/cfs-file/\\_\\_key/docpreview-s/00-00-13-06-16/207-The-Multinational-Partner-during-Post\\_2D00\\_Disaster-HADR\\_2D00\\_-\\_Insights-from-Operation-Tomodachi-COL-Browne.pdf](https://community.apan.org/cfs-file/__key/docpreview-s/00-00-13-06-16/207-The-Multinational-Partner-during-Post_2D00_Disaster-HADR_2D00_-_Insights-from-Operation-Tomodachi-COL-Browne.pdf).
- 390 Eldridge, *Operation Tomodachi*, 74–76.
- 391 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 112; Lee interview, 11 March 2021.
- 392 MacMannis interview, 26 March 2021.
- 393 Jones interview, 22 March 2021.
- 394 31st MEU, Command Chronology, January to June 2011.
- 395 Eames interview, 19 March 2021.

- 396 MacMannis interview, 26 March 2021.
- 397 HMM-262, Command Chronology, 1 January–30 June 2011.
- 398 HMM-262, Command Chronology, 1 January–30 June 2011.
- 399 MacMannis interview, 26 March 2021.
- 400 Garry J. Welch, “31st MEU Stays Safe during Relief Mission,” 22 March 2011, Item 39 in 31st MEU, Command Chronology, January–June 2011.
- 401 Eames interview, 19 March 2021.
- 402 Eldridge, *Operation Tomodachi*, 114; Welch, “31st MEU Conducts Operation ‘Field Day.’”
- 403 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 404 MacMannis interview, 26 March 2021.
- 405 Lee interview, 11 March 2021.
- 406 Eldridge, *Operation Tomodachi*, 104.
- 407 Lee interview, 11 March 2021.
- 408 *Strong Mariner*, an integrated tug and barge unit, along with the high-speed vessel, *Westpac Express* (T-HSV-4676) left Naha Port in Japan; the prepositioning ships USNS *1st Lt Harry L. Martin* (T-AK-3015), USNS *Dahl* (T-AKR-312) and USNS *Charlton* (T-AKR-314) got underway from their anchorage in Saipan; and USNS *1st Lt Jack Lummus* (T-AK-3011) with Maritime Prepositioning Ships Squadron 3 (MPSRON-3) sortied from Palau. See MSC, UNCLASS weekly “Howgoesit” reports, 11 March 2011.
- 409 Paul “Bob” Kennedy, interview by Harold Katz, COMLOGWESTPAC Headquarters, Singapore, 11 July 2011, AR/561-1-5, Content Manager, AR, NHHC.
- 410 MSC’s ship inventory includes a combat logistics force of oilers and ordnance/dry cargo ships, fleet support and special mission ships (salvage, ocean surveillance, submarine support ships, maritime prepositioning, and various other classes), and combatant command and support (sealift, dry cargo and tanker, containers, etc.). For more about MSC, see MSC, “About MSC,” accessed 29 June 2022, <https://sealiftcommand.com/about-msc>; Alec Blivas, “Can the US Save Its Sealift Fleet?” *Diplomat*, 6 August 2020, <https://thediplomat.com/2020/08/can-the-us-save-its-sealift-fleet/>; Elee Wakim, “Sealift is America’s Achilles Heel in the Age of Great Power Competition,” *War on the Rocks*, 18 January 2019, <https://warontherocks.com/2019/01/sealift-is-americas-achilles-heel-in-the-age-of-great-power-competition/>.
- 411 MSC, UNCLASS weekly “Howgoesit” reports, 25 March 2011.
- 412 Paul Kennedy interview, 11 July 2011.

- 413 Michael Rodman, interview by Harold Katz, COMLOGWESTPAC Headquarters, Singapore, 15 July 2011, AR/561-2-3, Content Manager, AR, NHHC.
- 414 Seventh Fleet, "Seventh Fleet Update: Port Clearance in Miyako - March 30 by US 7th Fleet," 30 March 2011, *A Global Force for Good* author files, AR, NHHC.
- 415 Rodman interview, 15 July 2011.
- 416 Paul Kennedy interview, 11 July 2011.
- 417 Garside interview, 15 July 2011.
- 418 N. A. Altic, *Phase II Characterization Survey of The USNS Bridge (T-AOE-10), Military Sealift Fleet Support Command, Naval Station, Norfolk, Virginia* (Oak Ridge, TN: Oak Ridge Associated Universities, August 2012), 1–2.
- 419 Edward Baxter, "Disaster! Operation Tomodachi: Friends to the Rescue," MSCFE press release, May 2011, <http://www.msc.navy.mil/sealift/2011/may/japan.htm>, accessed via the Internet Archive Wayback Machine, web.archive.org.
- 420 John McIntire, interview by Harold Katz, MSC Headquarters, Washington, DC, 11 July 2011, AR/561-12, Content Manager, AR, NHHC; Denman interview, 15 July 2011; Sam Reynolds, interview by Harold Katz, MSC Ship Support Unit, Yokohama, Japan, 14 July 2011, AR/561-2-1, Content Manager, AR, NHHC.
- 421 Michael Little, interview by Harold Katz, Ship Support Unit, MSCFE, Singapore, 14 July 2011, AR/561-1-10, Content Manager, AR, NHHC.
- 422 Little interview, 14 July 2011.
- 423 Denman interview, 15 July 2011; Snoderly interview, 14 July 2011.
- 424 Denman interview, 15 July 2011; James P. Rice, interview by Harold Katz, MSC Headquarters, Washington Navy Yard, DC, 6 July 2011, AR/561-2-2, Content Manager, AR, NHHC.
- 425 Rice interview, 6 July 2011.
- 426 Rice interview, 6 July 2011.
- 427 Garside interview, 15 July 2011.
- 428 Denman interview, 15 July 2011.
- 429 Ship Support Units provide engineering, logistics, and information technology support to MSC ships in a given area of responsibility. This includes maintaining contracts with local shipyards.
- 430 Reynolds interview, 14 July 2011.
- 431 Denman interview, 15 July 2011; MSC, "USNS *Bridge* (T-AOE-10) DECON Briefing," 24 April 2011, AR/561-2, Content Manager, AR, NHHC.
- 432 Reynolds interview, 14 July 2011.
- 433 Reynolds interview, 14 July 2011.

- 434 Reynolds interview, 14 July 2011.
- 435 MSC, “USNS *Bridge* (T-AOE-10) DECON Briefing,” 15, 16, and 18 April 2011 slides.
- 436 Reynolds interview, 14 July 2011.
- 437 Reynolds interview, 14 July 2011.
- 438 N. A. Altic, *Phase II Characterization Survey of The USNS Bridge (T-AOE-10)*, 21–22.
- 439 Wakim, “Sealift is America’s Achilles Heel in the Age of Great Power Competition.”
- 440 For more on the mining of USNS *Card*, see Bartholomew, *Mud, Muscle, and Miracles*, 247–50.
- 441 Denman interview, 15 July 2011.
- 442 Reynolds interview, 14 July 2011.
- 443 Baxter, “Disaster! Operation Tomodachi: Friends to the Rescue.”
- 444 Garside interview, 15 July 2011.
- 445 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 176.
- 446 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 447 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi”; Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 27.
- 448 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 188.
- 449 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 191.
- 450 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 196–97.
- 451 Field interview, 30 June 2021.
- 452 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 22; Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 85–87; Air Mobility Command Museum, “Operation Tomodachi History,” accessed on 20 May 2021, <https://amcmuseum.org/history/operation-tomodachi/>.
- 453 Sturkol, “One Year Later.”
- 454 Zielonka, Miller, and Walton, “Chronology of Operation Tomodachi.”
- 455 Scott Van Buskirk, “Tomodachi Forever,” 5 April 2011, *A Global Force for Good* author files, AR, NHHC.



- 456 Donna Miles, "Operation Tomodachi Mission Continues Strong," American Forces Press Service, 5 April 2011.
- 457 Walsh, Grund, and Howell, *Operation Tomodachi: A Reconstruction Timeline*, 19; Moroney et al., *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*, 89.
- 458 Air Mobility Command Museum, "Operation Tomodachi History."
- 459 See Funabashi, *Meltdown*, 314–55.
- 460 Tatsumi, *Great Eastern Japan Earthquake*, 4, 23–32.
- 461 Tatsumi, *Great Eastern Japan Earthquake*, 23–32.
- 462 Pacific Air Forces Public Affairs, "Japanese Defense Minister Expresses his Appreciation," press release, 7 April 2011.
- 463 Yuka Hayashi, "Japan's Defense Minister Seeks Stronger Military Ties to US," *Wall Street Journal*, 25 April 2011, <https://www.wsj.com/articles/SB10001424052748703387904576278573231022168>.
- 464 Van Buskirk, "Tomodachi Forever."



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## BIBLIOGRAPHY

### Books

- Anderegg, Clarence R. *The Ash Warriors*. Hickam Air Force Base, HI: Pacific Air Forces History Office, 2000.
- Bartholomew, C. A. *Mud, Muscle, and Miracles: Marine Salvage in the United States Navy*. Washington, DC: Naval Historical Center, 1990.
- Belknap, Reginald Rowan. *American House Building in Messina and Reggio; an Account of the American Naval and Red Cross Combined Expedition, to Provide Shelter for the Survivors of the Great Earthquake of December 28, 1908*. New York: G.P. Putnam's Sons, 1910.
- Boehm, William B., Renee Hylton, and Thomas W. Mehl. *In Katrina's Wake: The National Guard on the Gulf Coast, 2005*. Arlington, VA: National Guard Bureau, 2010.
- Canney, Donald L. *In Katrina's Wake: The U.S. Coast Guard and the Gulf Coast Hurricanes of 2005*. Gainesville: University Press of Florida, 2010.
- Casto, Charles A. *Station Blackout: Inside the Fukushima Nuclear Disaster and Recovery*. New York: Radius Books, 2018.
- Crowder, Doug. *Sea Stories: Humor & Life Lessons from a 40-Year Navy Journey*. Annapolis, MD: Douglas William Crowder, 2020.
- Dolan, Ronald E., and Robert L. Worden. *Japan: A Country Study*. Washington, DC: Federal Research Division, Library of Congress, 1990.
- Dower, John. *Embracing Defeat: Japan in the Wake of World War II*. New York: W.W. Norton Company, 1999.
- Eldridge, Robert D. *Operation Tomodachi: The Incredible Story of the United States Marine Corps' Response to the Great East Japan Earthquake of 2011 and the Relationship It Built with Oshima, the Island It Helped Save*. Osaka, Japan: Reed International, 2018.

## Bibliography

- Elleman, Bruce A. *Waves of Hope: The U.S. Navy's Response to the Tsunami in Northern Indonesia*. Newport, RI: Naval War College Press, 2007.
- Evans, Mark L. "USS *Forrestal* (CV-59)." *Dictionary of American Naval Fighting Ships*. Naval History and Heritage Command (NHHC). Last Modified 20 August 2007. <https://www.history.navy.mil/research/histories/ship-histories/danfs/f/forrestal-cva-59.html>.
- Forster, Larissa. *Influence Without Boots on the Ground: Seaborne Crisis Response*. Newport, RI: Naval War College Press, 2013.
- Frankum, Ronald Bruce. *Operation Passage to Freedom: The United States Navy in Vietnam, 1954–1955*. Lubbock, TX: Texas Tech University Press, 2007.
- Frederick, William H., and Robert L. Worden. *Indonesia: A Country Study*. Washington, DC: Federal Research Division, Library of Congress, 2011.
- Funabashi, Yōichi. *Meltdown: Inside the Fukushima Nuclear Crisis*. Washington, DC: Brookings Institute Press, 2021.
- Hattendorf, John B. *U.S. Naval Strategy in the 1970s: Selected Documents*. Newport, RI: Naval War College Press, 2007.
- Haynes, Peter D. *Toward a New Maritime Strategy: American Naval Thinking in the Post-Cold War Era*. Annapolis, MD: Naval Institute Press, 2015.
- Herman, Jan K. *Navy Medicine in Vietnam: Passage to Freedom to the Fall of Saigon*. Washington, DC: Department of the Navy, NHHC, in partnership with the Naval Historical Foundation, 2010.
- Joint Chiefs of Staff. *DOD Dictionary of Military and Associated Terms*. Washington, DC: Government Publishing Office (GPO), November 2021.
- Kapur, Nick. *Japan at the Crossroads: Conflict and Compromise after Anpo*. Cambridge, MA: Harvard University Press, 2018.
- Keefer, Edward C. and David S. Patterson, eds. *Indonesia; Malaysia-Singapore; Philippines*. Vol. 26 of *Foreign Relations of the United States, 1964–1968*. Washington, DC: GPO, 2000. <https://history.state.gov/historicaldocuments/frus1964-68v26>.
- Luttwak, Edward. *The Pentagon and the Art of War: The Question of Military Reform*. New York: Simon and Schuster, 1986.
- MacArthur, Douglas. *Reports of General MacArthur: MacArthur in Japan: The Occupation: Military Phase*. Vol. 1 Supplement. Washington, DC: U.S. Army Center of Military History, 1994. <https://history.army.mil/books/wwii/MacArthur%20Reports/MacArthur%20V1%20Sup/index.htm#cont>.

- Marolda, Edward J. *The Approaching Storm: Conflict in Asia, 1945–1965*. Washington, DC: NHHC, 2009.
- . *By Sea, Air, and Land: An Illustrated History of the U.S. Navy and the War in Southeast Asia*. Washington, DC: Naval Historical Center, 1994.
- . *Ready Seapower: A History of the U.S. Seventh Fleet*. Washington, DC: NHHC, 2012.
- . *United States Navy and the Vietnam Conflict*. Vol. 2, *From Military Assistance to Combat, 1959–1965*. Washington, DC: Naval Historical Center, 1986.
- , and Robert J. Schneller. *Shield and Sword: The United States Navy and the Persian Gulf War*. Washington, DC: Naval Historical Center, 1998.
- Maslow, Abraham. *A Theory of Human Motivation*. New York: Martino Fine Books, 2013.
- Midford, Paul, and Robert D. Eldridge. *The Japanese Self-Defense Force: Search for Legitimacy*. New York: Palgrave Macmillan, 2017.
- Muir, Malcolm. *End of the Saga: The Maritime Evacuation of South Vietnam and Cambodia*. Washington, DC: Department of the Navy, NHHC, in partnership with the Naval Historical Foundation, 2017.
- National Museum of the United States Navy. *The United States Navy’s Response to the 1923 Kanto Earthquake in Japan*. Washington, DC: NHHC, 2021. [https://www.history.navy.mil/content/dam/museums/nmusn/Pamphlets/1923-Kanto-Earthquake/NMUSN\\_United%20States%20Navy%20Response%20to%20the%201923%20Kanto%20Earthquake.pdf](https://www.history.navy.mil/content/dam/museums/nmusn/Pamphlets/1923-Kanto-Earthquake/NMUSN_United%20States%20Navy%20Response%20to%20the%201923%20Kanto%20Earthquake.pdf).
- Oros, Andrew L. *Japan’s Security Renaissance: New Policies and Politics for the Twenty-First Century*. New York: Columbia University Press, 2017.
- Reckner, James R. *Teddy Roosevelt’s Great White Fleet*. Annapolis, MD: Naval Institute Press, 2001.
- Reynolds, Nicholas E. *A Skillful Show of Strength: U.S. Marines in the Caribbean, 1991–1996*. Washington, DC: History and Museums Division, Headquarters, U.S. Marine Corps, 2003.
- Sherwood, John Darrell. “Lower End of Maritime Operations: European Union Migrant and Border Control Operations in the Central Mediterranean.” In *From the North Atlantic to the South China Sea Allied Maritime Strategy in the 21st Century*, edited by Julian Pawlak and Johannes Peters, 143–63. Baden-Baden, Germany: Nomos, 2021. <http://www.nomos-elibrary.de/agb>.



## Bibliography

- . *War in the Shallows: U.S. Navy Coastal and Riverine Warfare in Vietnam, 1965–1968*. Washington, DC: NHHC, 2015.
- Smith, Charles R. *Angels from the Sea: Relief Operations in Bangladesh, 1991: U.S. Marines in Humanitarian Operations*. Washington, DC: Histories and Museums Division, Headquarters United States Marine Corps, 1995.
- Smith, Sheila A. *Japan Rearmed: The Politics of Military Power*. Cambridge, MA: Harvard University Press, 2019.
- Stevens, David. “The Combined Naval Role in East Timor.” In *You Cannot Surge Trust: Combined Naval Operations of the Royal Australian Navy, Canadian Navy, Royal Navy, and United States Navy, 1991–2003*, edited by Gary E. Weir and Sandra J. Doyle, 101–49. Washington, DC: NHHC, 2013.
- Utz, Curtis. *Assault from the Sea: The Amphibious Landing at Inchon*. Washington, DC: Naval Historical Center, 1994.
- Vickers, Adrian. *A History of Modern Indonesia*. 2nd ed. Cambridge, England: Cambridge University Press, 2013.
- Wirtz, James J., and Jeffrey A. Larsen. *Naval Peacekeeping and Humanitarian Operations: Stability from the Sea*. New York: Routledge, 2009.
- Wombwell, James A. *Army Support during the Hurricane Katrina Disaster*. Fort Leavenworth, KS: Combat Studies Institute Press, 2009.

## Articles, News Stories, and Press Releases

- “Powell, in Indonesia, Describes Scenes of Devastation.” *New York Times*, 5 January 2005. <https://www.nytimes.com/2005/01/05/international/worldspecial4/powell-in-indonesia-describes-scenes-of.html>.
- “Seabees Respond in Force to Hurricane Devastation.” *Seabee Magazine* (Winter 2006): 4.
- Albritton, Katrin. “Defender Clears Way for Shipping off Gulf Coast.” Navy NewsStand, 15 September 2005.
- Alvarez, Steve. “Mexican Forces Wind Up Humanitarian Mission.” American Forces Press Service, 26 September 2005.
- Associated Press. “AP-GfK Poll: Japanese Support for US Bases Grows.” *Deseret News*, 5 September 2011. <https://www.deseret.com/2011/9/5/20213931/ap-gfk-poll-japanese-support-for-us-bases-grows>.

- Baum, Dan. "Mission to Sumatra: the Marines of Expeditionary Strike Group Five Take on the Tsunami." *New Yorker*, 7 February 2005. <https://www.newyorker.com/magazine/2005/02/07/mission-to-sumatra>.
- Baxter, Edward. "Disaster! Operation Tomodachi: Friends to the Rescue." Military Sealift Command Far East (MSCFE) Public Affairs, press release, May 2011. <http://www.msc.navy.mil/sealift/2011/may/japan.htm>, accessed via the Internet Archive WaybackMachine, [web.archive.org](http://web.archive.org).
- Belcher, Stephanie. "USNS *Comfort* Restocks to Continue Post-Hurricane Care." *Defense Department News*, 8 November 2017. <https://www.defense.gov/News/News-Stories/Article/Article/1367372/usns-comfort-restocks-to-continue-post-hurricane-care/>.
- Bentley, David. "Operation Sea Signal: U.S. Military Support for Caribbean Migration Emergencies, May 1994 to February 1996." *Strategic Forum* 73 (May 1996): 1–5. <https://apps.dtic.mil/sti/pdfs/ADA394323.pdf>.
- Bergman, John W. "Protecting America's Interests." *Officer* 81, no. 10 (Dec 2005): 41–43.
- Birch, Douglas. "Few Patients Seek Comfort: Sent to the Gulf After Katrina, Hospital Ship *Comfort* Was Ready for Almost Anything. What It Got Was Almost Nothing." *Baltimore Sun*, 5 October 2005. <https://www.baltimoresun.com/news/bs-xpm-2005-10-05-0510050311-story.html>.
- Blakely, Vivian. "Families Depart on Last MAVDD Flight from Atsugi, Japan." Navy NewsStand, 29 March 2011.
- Blivas, Alec. "Can the US Save Its Sealift Fleet?" *Diplomat*, 6 August 2020. <https://thediplomat.com/2020/08/can-the-us-save-its-sealift-fleet/>.
- Buskirk, Scott Van. "Three Disasters in One." Commander in Chief, Pacific Fleet (CINCPACFLT), press release, 23 March 2011. <https://www.cpf.navy.mil/news.aspx/000363>.
- Butterfield, Phillip. "Misawa Air Base Recovering from Earthquake." 35th Fighter Wing Public Affairs, 15 March 2011. <https://www.af.mil/News/Article-Display/Article/113943/misawa-air-base-recovering-from-earthquake/>.
- Calderon, Ruben D. "Marines Join International Effort to Aid Victims of Katrina." *MarineLink*, Marine Public Affairs, press release no. 200591220210, 10 September 2005.
- Cope, Jay. "NAS JRB New Orleans Recognizes Katrina Anniversary." DoD, press release, 30 August 2006.
- Cummings-Bruce Br [sic], Nick, and Campbell Robertson. "Most Powerful Quake in 40 Years Triggers Death and Destruction." *New York Times*, 26 December 2004. <https://>

## Bibliography

[www.nytimes.com/2004/12/26/international/asia/most-powerful-quake-in-40-years-triggers-death-and.html?searchResultPosition=2](http://www.nytimes.com/2004/12/26/international/asia/most-powerful-quake-in-40-years-triggers-death-and.html?searchResultPosition=2).

DeFilippis, Rocco. "Marines Head Home after Hurricane Hitch." Marine Corps Public Affairs, press release no. 200593083842, 30 September 2005.

Dickson, Patrick. "At Misawa, 'Cold, Miserable, and Scared People.'" *Stars and Stripes*, 11 March 2011. <https://www.stripes.com/news/at-misawa-cold-miserable-and-scared-people-1.137385>.

Dorsett, David J. "Tsunami! Information Sharing." *Joint Force Quarterly* 39 (4th Quarter, 2005): 12–18.

Dow, Devon. "U.S. Seventh Fleet Offers Salvage Support to Tsunami-Battered Japanese City." Naval Air Facility Misawa Public Affairs, 19 March 2011.

Dunnigan, Katie. "MSC Call to Action: Hurricane Katrina Relief." *Sealift* (September 2005).

Ellyson, Ronald E., Charles Callahan, and Yeo-Tsu Margaret Lee. "Medical Care of Illegal Migrants Intercepted on the High Sea (Operation Prompt Return)." *Military Medicine* 161, no. 10 (October 1996): 616–19.

Evanson, Christopher. "Canadian Beacon." *Coast Guard Special Edition 2005: Katrina: The Gulf Response* (2005): 86–89.

Fackler, Martin. "90,000 Protest U.S. Base on Okinawa." *New York Times*, 25 April 2010. <https://www.nytimes.com/2010/04/26/world/asia/26okinawa.html>.

Fetter, Jodyn. "Restored Aircraft Signifies Recovery from Disaster." *Pacific Air Forces News*, 24 April 2015. <https://www.pacaf.af.mil/News/Article-Display/Article/590896/restored-aircraft-signifies-recovery-from-disaster/>.

Fitzsimons, Michael G., J. William Sparks, Sheri F. Jones, Judith M. Crowley, Akshay Dalal, and Neelakantan Sunder. "Anesthesia Services during Operation Unified Assistance, aboard USNS *Mercy*, after the Tsunami in Southeast Asia." *Military Medicine* 172, no. 3 (March 2007): 227–31.

Fuentes, Gidget. "Aircraft Carrier May Leave Japan for Repairs, *George Washington* Continuing Maintenance While Underway." *Navy Times*, 3 April 2011.

Gethings, Chris. "Gulfport Seabees Receive International Military Support during Hurricane Relief." Navy NewsStand, 11 September 2005.

Giger, Olivia. "Four Branches Form One Team in Support of Operation Pacific Passage." Navy NewsStand, 25 March 2011.

"GSDF Commander Says He Thought Japan Done For as He Faced Fukushima Nuke Crisis." *Mainichi Daily News*. 31 December 2011. As reprinted by

crofsblogs.typepad.com. <https://crofsblogs.typepad.com/h5n1/2011/12/gsd-com-mand-er-says-he-thought-japan-done-for-as-he-faced-fukushima-nuke-crisis.html>.

Harry S. Truman Public Affairs. "Truman Wraps Up Gulf Coast Support Mission, Returns Home." Press release, undated.

Harvard Political Review Staff. "The U.S. Military in Japan: An Overview." *Harvard Political Review*, 12 March 2013. <https://harvardpolitics.com/the-u-s-military-in-japan-an-overview/>.

Haw, Jim. "Okinawa and the U.S. Military, Post 1945." *Scientific American*, 19 June 2013. <https://blogs.scientificamerican.com/expeditions/okinawa-and-the-u-s-military-post-1945/>.

Hayashi, Yuka. "Japan's Defense Minister Seeks Stronger Military Ties to U.S." *Wall Street Journal*, 25 April 2011. <https://www.wsj.com/articles/SB10001424052748703387904576278573231022168>.

Hickmon, Johnie. "Essex Embarks Japanese Officer for HADR Coordination." Navy NewsStand, 25 March 2011.

Hoffman, Frank G. "U.S. Marine Corps in Review." *U.S. Naval Institute Proceedings* 132, no. 5 (May 2006): 88–90, 92, 94–95.

Hoffman, Trish. "Rainier Relieves, Rescues." *Sealift* (February 2005): 8.

Holdeman, Eric. "FCO and/or PFO Still an Issue." *Government Technology*, 5 May 2009. <https://www.govtech.com/em/emergency-blogs/disaster-zone/FCO-andor-PFO-Still.html>.

Howland, Richard Cabot. "The Lessons of the September 30 Affair." *Studies in Intelligence* 14, (Fall 1970): 13–28. <https://www.cia.gov/library/readingroom/>.

Iron, Lynn. "U.S., Mexican Navies Join Forces in School Repair." Navy NewsStand, 13 September 2005.

Irwin, Julia F. "The Origins of U.S. Foreign Disaster Assistance." *American Historian* 15 (February 2018), 43–49. <https://www.oah.org/tah/issues/2018/february/the-origins-of-u.s-foreign-disaster-assistance/>.

Jackson, Kerry. "Guard Part of Total Force Team Supporting Operation Tomodachi." *National Guard News*, 28 March 2011. <https://www.nationalguard.mil/News/Article/600684/guard-part-of-total-force-team-supporting-operation-tomodachi/>.

James, Laura. "Military Families Arrive in Seattle from Japan." Navy NewsStand, 21 March 2011.

## Bibliography

- Johnston, Eric. "25 Years after Kobe Quake, the SDF and Volunteerism Still Strong." *Japan Times*, 16 January 2020. <https://www.japantimes.co.jp/news/2020/01/16/national/25-years-after-kobe-quake/>.
- Jones, Mike. "USS *Iwo Jima* (LHD-7) Returns Home." *Iwo Jima* Public Affairs, press release, 1 October 2005.
- Jordan, Dewey G. "Operation Unified Assistance." *Marine Corps Gazette* 90, no. 5 (May 2006): 57–58.
- Kay, Lena. "Indonesian Public Perceptions of the U.S. and Their Implications for U.S. Foreign Policy." *Issues and Insights* 5, no. 4 (August 2005): 29–30. [http://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy\\_files/files/media/csis/pubs/issuesinsights\\_v05n04.pdf](http://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/media/csis/pubs/issuesinsights_v05n04.pdf).
- Keene, R. R. "Aftermath of Katrina." *Leatherneck* 88, no. 11 (November 2005): 30–33.
- Kelly, Stephen R. "When Mexicans Crossed our Border to Feed Americans in Need." *Washington Post*, 28 August 2015. [https://www.washingtonpost.com/opinions/when-mexicans-crossed-our-border-to-feed-our-hungry/2015/08/28/347342e4-4cee-11e5-84df-923b3ef1a64b\\_story.html](https://www.washingtonpost.com/opinions/when-mexicans-crossed-our-border-to-feed-our-hungry/2015/08/28/347342e4-4cee-11e5-84df-923b3ef1a64b_story.html).
- Kreisher, Otto. "Operation Unified Assistance." *Air Force Magazine* (1 April 2005): 1–7. <https://www.airforcemag.com/article/0405tsunami/>.
- Lambeth, Benjamin S. "Air Force-Navy Integration in Strike Warfare." *Naval War College Review* 61, no. 1 (Winter 2008). <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1752&context=nwc-review>.
- Larson, Melinda, and Olivia Giger. "Operation Pacific Passage Winds Down at Travis Air Force Base." Navy NewsStand, 28 March 2011.
- Lau, Maya. "Lessons Learned After Katrina: Animal Rescue Groups Practice Saving Pets at Disaster Boot Camp." *Baton Rouge Advocate*, 25 August 2015. [https://www.theadvocate.com/baton\\_rouge/news/crime\\_police/article\\_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html](https://www.theadvocate.com/baton_rouge/news/crime_police/article_d84e2238-92c0-5e8a-8fa5-950f3a181e80.html).
- Leslie, Rachael L. "Task Force Navy Family Ensures Childcare for Hurricane Victims." Navy NewsStand, 28 September 2005.
- . "Task Force Navy Family Provide Counseling, Support for Katrina Victims." Navy NewsStand, 24 September 2005.
- Lopez, Jose. "HSL-51 Transitions from Operation Tomodachi Support to Pacific Deployment Preparations." Navy NewsStand, 4 May 2011.
- . "Misawa Kennel Ready to Receive Voluntary Departure Pets." Navy NewsStand, 24 March 2011.



- Lowe, Christian. "Marines Keep Amtracs Moving in their Search for Survivors." *Marine Corps Times*, 19 September 2005.
- MacLeod, Scott. "Key Marine Sentry Says Gun Was Unloaded When Beirut Bomb Truck Came." United Press International (UPI), 27 October 1983. <https://www.upi.com/Archives/1983/10/27/Key-Marine-sentry-says-gun-was-unloaded-when-Beirut-bomb-truck-came/7116187972421/>.
- Marine Corps Public Affairs. "Marines Arrive in Louisiana to Aid Hurricane Relief Effort." Press release no. 0903-05-2059, 3 September 2005.
- Miles, Donna. "Operation Tomodachi Mission Continues Strong." American Forces Press Service, 5 April 2011.
- Naval Forces Japan Public Affairs. "Precautionary Distribution of Potassium Iodide (KI) Available for Pick-up." Release No. R-11-011, 21 March 2011.
- . "US Navy Provides Pumps to Assist in Reactor Cooling Effort." 18 March 2011.
- Navy Facilities Expeditionary Logistics Center Public Affairs. "Mobile Utilities Team Brings Power, Comfort After Hurricane Hits Land." *Seabee Magazine* (Winter 2006): 12.
- Nogami, Hideo. "Prometheus Trap/Shadow units: CRF units Aligned against Common Enemy, the Crippled Nuclear Plant." *Asahi Shimbun*, 13 March 2013. [http://www.simplyinfo.org/wp-content/uploads/2012/10/Shadow-units-5\\_-CRF-units-aligned-against-common-enemy-the-crippled-nuclear-plant-AJW-by-The-Asahi-Shimbun.pdf](http://www.simplyinfo.org/wp-content/uploads/2012/10/Shadow-units-5_-CRF-units-aligned-against-common-enemy-the-crippled-nuclear-plant-AJW-by-The-Asahi-Shimbun.pdf).
- O'Donnell, Katherine. "USS *Preble* Contributes to Humanitarian Efforts in Japan." Navy NewsStand, 15 March 2011.
- Owens, Michael D., Jason Rice, David Moore, and Adrien L. Adams. "A Global Health Engagement Success: Applying Evidence-Based Concepts to Create a Rapid Response Team in Angola to Combat Ebola and Other Public Health Emergencies of International Concern." *Military Medicine* 184, nos. 5/6 (May–June 2019): 113–14. <https://academic.oup.com/milmed/article/184/5-6/113/5363849>.
- Pacific Air Forces Public Affairs. "Japanese Defense Minister Expresses his Appreciation." Press release, 7 April 2011.
- Patten, Elesia. "Hurricane Maria Hits Home; Nimitz Sailor Worries for his Family." *All Hands*, 20 October 2017. <https://allhands.navy.mil/Stories/Display-Story/Article/1840431/hurricane-maria-hits-home/>.
- Peng, Margaret A. "Task Force Navy Family Helps Families Rebuild." Navy NewsStand, 28 September 2005.

## Bibliography

- . “Task Force Navy Family Responding to Pascagoula Family Needs.” *Navy NewsStand*, 24 September 2005.
- Perez, John T. “Operation Unified Assistance Population-based Programs of the USPHS and International Team.” *Military Medicine* 171, no. 10 (October 2006): 53–58.
- Pinsky, James J. “Seabees Help School Recover, Prepare to Reopen.” *Navy NewsStand*, 30 September 2005.
- Rappold, Joseph F. “Navy Medicine in Critical Condition.” *U.S. Naval Institute Proceedings* 131, no. 12 (December 2005): 25–27.
- Reed, Meg. “Key West Seabee Maintenance Unit Repairs Armed Forces Retirement Home.” *Seabee Magazine* (Winter 2006): 6–7.
- Scanlon, Joseph, Elizabeth Steele with Alex Hunsberger. “By Air, Land, and Sea: Canada Responds to Hurricane Katrina.” *Canadian Military Journal* 12, No. 3 (Summer 2012): 54–62.
- Schmitt, Joe. “U.S. Navy to Provide 500,000 Gallons of Freshwater to Fukushima Power Plant.” *Fleet Activities Yokosuka Public Affairs*, 25 March 2011. <https://www.cpf.navy.mil/news.aspx/000368>.
- Seymour, Brian P. “*Tortuga* and Army Teaming Up.” *Navy NewsStand*, 15 September 2005.
- . “*Tortuga* Continues Rescue Operations in New Orleans.” *Navy NewsStand*, 9 September 2005.
- Sommer, Jensin W. “*Shreveport* Sailors Care for New Orleans Stray Pets.” *Navy NewsStand*, 20 September 2005.
- Spinner, Kimberly. “ATO 101: What Every Airman Should Know about an Air Tasking Order.” *PACAF News*, 11 August 2011. <https://www.pacaf.af.mil/News/Article-Display/Article/593899/ato-101-what-every-airman-should-know-about-an-air-tasking-order/>.
- Stevens, John. “*Shreveport* Sailors Restoring High School Stadium.” *Shreveport Public Affairs Release*. Undated.
- Sturkol, Scott T. “One Year Later: Response by Airmen for Operation Tomodachi ‘Unprecedented.’” *Air Mobility Command Public Affairs*, 19 March 2012. <https://www.jbmdl.jb.mil/News/Article-Display/Article/244034/one-year-later-response-by-airmen-for-operation-tomodachi-unprecedented/>.
- Takenaka, Kiyoshi. “Huge Protest in Tokyo Rails Against PM Abe’s Security Bills.” *Reuters*, 30 August 2015. <https://www.reuters.com/article/us-japan-politics-protest-idUSKCN0QZ0C320150830>.

- Talmadge, Eric, and Mari Yamaguchi. "U.S. Rushes Water to Help Japan Nuclear Plant." Associated Press, 26 March 2011.
- Tangredi, Sam J. "Sea Basing—Concept, Issues, and Recommendations." *Naval War College Review* 64, no. 1 (Autumn 2011): 1–14. <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1552&context=nwc-review>.
- Thiesen, William H. "The Long Blue Line: Coast Guard Responders during Record-Setting Hurricane Katrina." *Coast Guard Compass*, 25 August 2016. <http://coastguard.dodlive.mil/2016/08/the-long-blue-line-coast-guard-responders-during-record-setting-hurricane-katrina/>.
- Thorsen, Howard B. "U.S. Coast Guard in Review." *U.S. Naval Institute Proceedings* 132, no. 5 (May 2006): 96–102.
- Toth, Robert P. "'Thank You' Not Necessary; U.S. Forces Honored to Help Reopen Sendai." *Air Force Special Operations Command*, 9 April 2011. <https://www.afsoc.af.mil/News/Commentaries/Display/Article/163614/thank-you-not-necessary-us-forces-honored-to-help-reopen-sendai/>.
- . "Operation Kaitakusha: 'Pathfinder.'" *Air Commando Journal* 1, no. 1 (Fall 2011): 39.
- U.S. Coast Guard. "Coast Guard Commandant Thomas H. Collins Testifies on the Response to Catastrophic Events." Press release, 9 November 2005.
- Wada, Shuichi. "Japan Chair Platform: Operation Tomodachi in Miyagi Prefecture: Success and Homework." *CSIS Newsletter*, 21 December 2011. <https://www.csis.org/analysis/japan-chair-platform-operation-tomodachi-miyagi-prefecture-success-and-homework>.
- Wakim, Elee. "Sealift is America's Achilles Heel in the Age of Great Power Competition." *War on the Rocks*, 18 January 2019. <https://warontherocks.com/>.
- Waldman, Amy. "Thousands Die as Quake-Spawned Waves Crash onto Coastlines across Southern Asia." *New York Times*, 27 December 2005. <https://www.nytimes.com/2004/12/27/world/asia/thousands-die-as-quake-spawned-waves-crash-onto-coastlines-across.html?searchResultPosition=8>.
- White, Steve. "VP-4 Conducts SAR Missions in Support of Operation Tomodachi." Fleet Activities Okinawa Public Affairs, 16 March 2011.
- Wilensky, Robert J. "The Medical Civic Action Program in Vietnam: Success or Failure?" *Military Medicine* 166, no. 9 (September 2001): 815–19. <https://doi.org/10.1093/milmed/166.9.815>.
- Wilson, Enid. "Hurricane Recovery Moving Forward with Task Force Navy Family." Navy NewsStand, 26 September 2005.

## Bibliography

Wilson, Rockie K. "Operation TOMODACHI: A Model for American Disaster Response Efforts and the Collective use of Military Forces Abroad." *Journal of Defense Management* 2, no. 3: 1–8.

## Reports, Studies, and Theses

Almonte, Angelica L.C. "Navy Nurses' Experiences during Operation Unified Assistance aboard the USNS *Mercy*: A Grounded Theory Study." PhD diss., University of San Diego, 2007.

Altic, N. A. *Phase II Characterization Survey of The USNS Bridge (T-AOE-10)*. Military Sealift Fleet Support Command, Naval Station, Norfolk, Virginia. Oak Ridge, TN: Oak Ridge Associated Universities, August 2012.

Banerjee, Sunoy, and Robert C. Benbow. *Operation Unified Assistance: Tsunami Relief Operations by Naval Forces*. CRM D001 2645.A1/Final. Arlington, VA: CNA, November 2006.

Barone, John. "A Proposal for the Revision of the Leahy Laws to Align Human Rights and Security Cooperation Policies with National Strategy." Master's thesis, John Hopkins University, 2022.

Berger, David H. *Force Design 2030*. Washington, DC: Headquarters, U.S. Marine Corps, 2020. <https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf>.

Blanton, Stephen Dwight. "A Study of the United States Navy's Minesweeping Efforts in the Korean War." Master's thesis, Texas Tech University, 1993.

Borrero, Jose C. *Field Survey Northern Sumatra and Banda Aceh, Indonesia and after the Tsunami and Earthquake of 26 December 2004*. Los Angeles, CA: University of Southern California, Department of Engineering, 9 February 2005. [https://www.eeri.org/lfe/clearinghouse/sumatra\\_tsunami/reports/EERI\\_report\\_indonesia\\_jcb\\_2-11-05.pdf](https://www.eeri.org/lfe/clearinghouse/sumatra_tsunami/reports/EERI_report_indonesia_jcb_2-11-05.pdf).

Burke, Edmund J., Timothy R. Heath, Jeffrey W. Hornung, Logan Ma, Lyle J. Morris, and Michael S. Chase. *China's Military Activities in the East China Sea: Implications for Japan's Air Self-Defense Force*. Santa Monica, CA: RAND, 2018.

Carey, Neil, James Grefer, Robert Trost, and Robert Levy. *Future Deployable Medical Capabilities and Platforms for Navy Medicine*. CRM D0005085.A2/Final. Arlington, VA: CNA, February 2002.

Cecchine, Gary. *The U.S. Military Response to the 2010 Haiti Earthquake: Considerations for Army Leaders*. Santa Monica, CA: RAND, 2013.

- Center for Army Lessons Learned (CALL). "Theater Security Cooperation: The Military Engagement Team: Lessons and Best Practices." *Call Handbook* 17-03 (January 2017): 1–42. <https://apps.dtic.mil/dtic/tr/fulltext/u2/1029177.pdf>.
- Cheatham, Amelia, and Diana Roy. *Puerto Rico: A U.S. Territory in Crisis*. Washington, DC: Council of Foreign Relations, 29 September 2022. <https://www.cfr.org/backgrounder/puerto-rico-us-territory-crisis>.
- Davis, Lynn E., Jill Rough, Gary Cecchine, Agnes Gereben Schaefer, and Laurinda L. Zeman. *Hurricane Katrina: Lessons for Army Planning and Operations*. Santa Monica, CA: RAND, 2007.
- Deal, Kim. *Operation Unified Assistance: Disaster Relief from the Sea*. CRM D0012642. A2/Final. Arlington, VA: CNA, March 2006.
- Department of Defense. *Department of Defense Support to Foreign Disaster Relief: Handbook for Responding Forces*. Washington, DC: DoD, 2021.
- . *DoD Directive 5100.46: Foreign Disaster Relief*. Washington, DC: Washington Headquarters Services, 1975. [https://biotech.law.lsu.edu/blaw/dodd/corres/pdf/d510046\\_120475/d510046p.pdf](https://biotech.law.lsu.edu/blaw/dodd/corres/pdf/d510046_120475/d510046p.pdf).
- . *DoD Directive 5100.46: Foreign Disaster Relief*. Washington, DC: Washington Headquarters Services, 6 July 2012, incorporating Change 1, 28 July 2017. <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/510046p.pdf?ver=2019-02-04-123653-663>.
- . *Quadrennial Defense Review Report*. Washington, DC: Office of the Secretary of Defense, 2010. <https://history.defense.gov/Historical-Sources/Quadrennial-Defense-Review/>.
- . *Quadrennial Defense Review 2014*. Washington, DC: Office of the Secretary of Defense, 2014. [https://www.acq.osd.mil/ncbdp/docs/2014\\_Quadrennial\\_Defense\\_Review.pdf](https://www.acq.osd.mil/ncbdp/docs/2014_Quadrennial_Defense_Review.pdf).
- Department of the Navy. *Naval Doctrine Publication 1: Naval Warfare*. Washington, DC: Office of the Chief of Naval Operations, 1994.
- FRONTEX European Border and Coast Guard Agency. *General Report for 2015*. Warsaw, Poland: FRONTEX, 2016. <https://op.europa.eu/en/publication-detail/-/publication/474bb018-b537-11e6-9e3c-01aa75ed71a1>.
- . *Risk Analysis for 2020*. Warsaw, Poland: March 2020. <https://euagenda.eu/upload/publications/untitled-301445-ea.pdf>.
- Government Accountability Office (GAO). *Burden Sharing: Benefits and Costs Associated with the U.S. Military Presence in Japan and South Korea*. GAO-21-270. Washington, DC, GAO, March 2021.



## Bibliography

- . *Coast Guard: Observations on the Preparation, Response, and Recovery Missions Related to Hurricane Katrina*. GAO-06-903. Washington, DC: GAO, July 2006.
- Grund, Matthew R. *Operation Unified Assistance: Perspectives on the Interagency Rapid Health Assessments*. CNA, CRM D0012644.A2/Final. Arlington, VA: CNA, November 2006.
- Harvey, Barbara. *The Future of Indonesia as a Unitary State: Separatism and Decentralization*. CRM D0006867.A1/Final. Arlington, VA: CNA, September 2002.
- Headquarters, Department of the Army and the Air Force. *Army Field Manual 100-20 /AFP 3-20*. Washington, DC: GPO, 1990.
- International Atomic Energy Agency (IAEA). *Description and Context of the Accident. Vol. 1, The Fukushima Daiichi Accident*. Vienna, Austria: IAEA, 2015.
- Japan Ministry of Defense. *Defense of Japan Digest 2012*. Tokyo, Japan: Japan Ministry of Defense, 2012.
- Joint Chiefs of Staff (JCS). *Foreign Humanitarian Assistance: Joint Publication 3-29*. Washington, DC: JCS, 2019. [https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3\\_29.pdf](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_29.pdf).
- Larson, Eric V. *U.S. Army North in the Hurricane Maria Response*. Santa Monica, CA: RAND, 2020.
- McDonald, Fritzi. “The Determination of Nursing Manpower Requirements in Humanitarian Assistance Missions for Hospital Ships.” Master’s thesis, Naval Postgraduate School, June 2007.
- McGrady, E.D. *USNS Mercy Deployment Operation Unified Assistance: Implications for Afloat Disaster Response*. CRM D001 2636.A2/Final. Arlington, VA: CNA, November 2006.
- Miller, Ann, and David Strauss. *Operation Unified Assistance: How Conditions and Relationships Affected the Response*. CRM D0012643.A2/Final. Arlington, VA: CNA, November 2006.
- Moroney, Jennifer D. P., Stephanie Pezard, Laurel E. Miller, Jeffrey Engstrom, and Abby Doll. *Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region*. Santa Monica, CA: RAND, 2013.
- Morrow, Robert, and E.D. McGrady. *The Medical and Health Care Mission of the USNS Mercy to Banda Aceh, Indonesia*. CRM D0012639.A1/Final. Arlington, VA: CNA, November 2006.

- National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (NAIIC). "Executive Summary." In *The Official Report of the Fukushima NAIIC*. Tokyo, Japan, National Diet of Japan, 5 July 2012.
- Naval Sea Systems Command (NAVSEA). *U.S. Navy Salvage Report USS Mississinewa Oil Removal Operations*. S0300-B6-RPT-010. Washington, DC: NAVSEA, May 2004.
- . *U.S. Navy Salvage Report: Hurricanes Katrina and Rita*. S0900-AC-RPT-010. Washington, DC: NAVSEA, January 2007. <https://www.navsea.navy.mil/Portals/103/Documents/SUPSALV/SalvageReports/Hurricanes%20Katrina%20and%20Rita.pdf>.
- . *U.S. Navy Salvage Report: USS Guardian (MCM-5) Removal*. SL740-AE-RPT-010. Washington, DC: NAVSEA, March 2014.
- Nebelkopf, Dawn. *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations: Medical Mission Data and Analysis*. CRM D001 4803.A1/Final CNA, Arlington, VA: CNA, September 2006.
- Office of the Assistant Secretary of Defense for Health Affairs. "Final Report to the Congressional Defense Committees in Response to the Joint Explanatory Statement Accompanying the Department of Defense Appropriations Act, 2014, 'Radiation Exposure.'" 14 June 2014. <https://www.health.mil/Reference-Center/Reports/2014/06/19/Radiation-Exposure-Report>.
- Ortensie, Ray. *A Look Back: Operation Tomodachi, 12 March–4 May 2011, and AFMC's Air Force Radiation Assessment Team's Response*. Dayton, OH: Air Force Material Command, undated.
- Rabasa, Angel, and John Haseman. *The Military and Democracy in Indonesia: Challenges, Politics, and Power*. Santa Monica, CA: RAND, 2002.
- Rankin, Steven E. "The Manning Requirements for the U.S. Navy's Forward Deployable Preventative Medicine Unit Detachment." Master's thesis, U.S. Army Command and General Staff College, 2001.
- Royal Australian Navy. *Nias Island Sea King Accident Board of Inquiry: Executive Summary*. Canberra, Australia: Commonwealth of Australia, 2007. <https://www.defence.gov.au/Publications/BOI/SeaKing/pdf/chapters/EXECUTIVE%20Summary.pdf>.
- Saruya, Hiroe. "Protests and Democracy in Japan: The Development of Movement Fields and the 1960 Anpo Protests." PhD diss., University of Michigan, 2012.
- Seifert, Jennifer L. *USNS Comfort Deployment in Support of Hurricane Katrina Relief Operations*. CRM D0014911.A1/Final. Arlington, VA: CNA, September 2006.

## Bibliography

- Shaw, Eric J. *Operation Unified Assistance: 2004 Sumatran Earthquake and Tsunami Humanitarian Relief*. Contemporary Operations Examination Case Study CNC&S /NSC 2013. Newport, RI: Naval War College, Joint Military Operations Department, May 2013.
- Siegel, Adam B. *A Sampling of U.S. Naval Humanitarian Operations*. Arlington, VA: CNA, undated. <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/s/sampling-of-us-naval-humanitarian-operations.html>.
- Strauss, David J. *Challenges in Domestic Operations: Legal Issues in the Navy's Response to Katrina*. CRM D0014637.A2/Final. Arlington, VA: CNA, September 2006.
- . *Protecting the Hospital Ship During Operation Unified Assistance: Legal, Diplomatic, and Conventional Methods*. CRM D0012635.A2/Final. Arlington, VA: CNA, November 2006.
- Swartz, Peter M., William Rosenau, and Hannah Kates. *The Origins and Development of a Cooperative Strategy for 21st Century Seapower (2015)*. Arlington, VA: CNA, September 2017.
- Tatsumi, Yuki. *Great Eastern Japan Earthquake: "Lessons Learned" for Japanese Defense Policy*. Washington, DC: Stimson Center, November 2012.
- Tokyo Electric Power Company (TEPCO). *Fukushima Nuclear Accident Analysis Report*. Tokyo, Japan: TEPCO, 20 June 2012.
- U.S. Agency for International Development (USAID) Indonesia. *Emergency Response and Reconstruction in Aceh Province (2004–2009)*. Washington, DC: USAID Press and Outreach, November 2014. [https://www.usaid.gov/sites/default/files/documents/1861/EmergencyResponseReconstruction\\_Aceh.pdf](https://www.usaid.gov/sites/default/files/documents/1861/EmergencyResponseReconstruction_Aceh.pdf).
- U.S. Congress, House. *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*. 109th Cong., 2nd Sess., 2006. House Report 109-377.
- U.S. Congress, Senate. *Hurricane Katrina: A Nation Still Unprepared: Special Report of the Committee on Homeland Security and Governmental Affairs United States Senate together with Additional Views*. 109 Cong., 2nd Sess., 2006. Senate Report 109-322.
- U.S. Marine Corps, U.S. Navy, and U.S. Coast Guard. *Advantage from the Sea: Prevailing with Integrated All-Domain Naval Power*. Washington, DC: Defense Media Activity, 2020. <https://media.defense.gov/2020/Dec/16/2002553074/-1/-1/0/TRISERVICESTRATEGY.PDF>.
- . *Amphibious Ready Group and Marine Expeditionary Unit: Overview*. Accessed 25 May 2022. <https://www.marines.mil/Portals/1/Amphibious%20Ready%20Group%20And%20Marine%20Expeditionary%20Unit%20Overview.pdf>.

- United Nations Office for the Coordination of Humanitarian Affairs (OCHA), *Oslo Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief*. Revision 1.1. Geneva: United Nations Publishing Service, 2007. <https://www.unocha.org/sites/unocha/files/OSLO%20Guidelines%20Rev%201.1%20-%20Nov%2007.pdf>.
- Walsh, Brian, Matthew Grund, and Barry Howell, *Operation Tomodachi: A Reconstruction Timeline*. DRM-2012-U-000706-Final. Arlington, VA: CNA, June 2012.
- Walsh, Brian. *Support to the Hurricane: Katrina Response by the Joint Force Maritime Component Commander: Reconstruction and Issues*. CRM D0013414.A4 1. Alexandria, VA: CNA, 2006. [https://www.cna.org/archive/CNA\\_Files/pdf/d0013414.a4.pdf](https://www.cna.org/archive/CNA_Files/pdf/d0013414.a4.pdf).
- Ward, Kathleen and E.D. McGrady. *Operation Tomodachi: Radiological Contamination Analysis*. DAB-2013-U-004051-1Rev. Arlington, VA: CNA, March 2013.
- White House. *The Federal Response to Hurricane Katrina: Lessons Learned*. Washington, DC: GPO, 2006.
- . *Interim National Security Strategic Guidance*. 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

## Archival Material

### Author Files, AR, NHHHC

Note: some of these documents are from the NHHHC collections and some were emailed to me directly by participants in the operations. In both cases, the easiest way for a researcher to find the files is to search in the John Sherwood author files collection for *A Global Force for Good* accessioned into the personal papers collections of NHHHC.

- Buskirk, Scott Van. “Tomodachi Forever.” 5 April 2011.
- Commander 7th Fleet. Daily Update. 25 March 2011.
- Elias, James J. Email to the author. 15 June 2021.
- Good, Michael R. Email to Paul E. Sullivan. 29 August 2005.
- Haulman, Daniel L. “The US Air Force Response to Hurricane Katrina.” Unpublished Paper. 17 November 2006.
- Haynes, Peter. Email to author. 23 May 2022.

## Bibliography

- Kennedy, Kevin. Email to author. 29 October 2020.
- Lopez, Jose. "VP-4 in Tomodachi." Undated draft. Naval Air Facility Misawa Public Affairs.
- McDaniel, Michael. "Taking Care of Our Own: Task Force Navy Family and the Hurricane Recovery Effort." Draft paper, undated.
- Naval Mobile Construction Battalion 133 (NMCB-133). "Operation Tomodachi: NMCB 133 After Action Report." 12 March–2 April 2011.
- . "Operation Tomodachi Daily SITREP." 16 March 2011.
- Navy Combat Documentation Det. 206. "Ship Participants in Katrina Relief Efforts." Undated.
- Pacific Command (PACOM). Operations Update. Tomodachi. 27 March 2011
- Patrol Squadron 4 (VP-4). Battle E Citation. 2011.
- Science Applications International Corporation (SAIC). "Retrospective Capture: Task Force Navy Family." 20 December 2005.
- Seventh Fleet. "An Island Isolated No More—27 March." Seventh Fleet Daily Update. 27 March 2011.
- . "Port Clearance in Miyako—March 30 by U.S. Seventh Fleet." Seventh Fleet Update: 30 March 2011.
- Sommer, Jensin W. "USS *Shreveport* Assists New Orleans Harbor Police in Katrina Recovery." *Shreveport* Public Affairs release. 8 September 2005. 47968 Harbor Police.doc.
- . "USS *Shreveport* Crew Helps New Orleans Fire Station Recover from Hurricane Katrina." *Shreveport* Public Affairs Release. 10 September 2005. 47970 Fire Station.doc.
- Task Force Navy Family (TFNF). Daily Summaries. 2005.
- U.S. Department of State. "Fact Sheet: An Update for American Citizens in Japan." 22 March 2011
- . "Warden Message: Availability of Potassium Iodide Tablets." 28 March 2011.
- U.S. Forces Japan (USFJ). "Military Assisted Departure (MAD) Information Sheet." Undated.
- United States Fleet Forces Command. "Hurricanes Katrina and Rita: Providing Rescue & Civil Support Relief from the Sea, Air, and Land." 4 October 2005 Revision. CCSG TEN TO SEN Skelton BRF 4 Oct 05 rev1.ppt.



## **NHHC Operational Archives**

Digital Collections accessed by Content Manager database.

Detachment 206 Katrina Collection.

Command Operations Report Collection.

## **Marine Corps History Division. Quantico, VA**

Command Chronology Collection.

CSF-536 files.

Robert Blackman Papers.

## **Other Archives**

Canada Defense Department. Canada Directorate of History and Heritage (DHH).  
Ottawa, Canada. Operation Unison Collection and Command Annual Historical  
Reports Collection.

Seabee Museum Archives. Port Hueneme, CA. Unit History Collection.

## **Oral Histories**

### **Author Interviews**

Aguilar, Robert. Skype. 24 May 2021.

Brinkley, Anthony Wayne "Tony." Skype. 15 March 2021.

Buck, Sean. Microsoft Teams. 26 April 2021.

Burke, Thom. Skype. 18 March 2021.

Caceres, Marcello. Author residence. 8 July 2021.

Chang, Nelson. Interview by John Sherwood and Ashley Castell. Skype. 1 July 2020.

Chang, Nelson. Microsoft Teams. 26 June 2020.

Cloyd, Dan. Skype. 5 April 2021.

Crisler, Chris. FaceTime. 25 June 2020.

Crowder, Douglas W. Skype. 12 June 2020.

## *Bibliography*

- Deptula, David A. Interview by John Sherwood, John Vassiliou, and Sabrina Rusch. Microsoft Teams. 25 September 2020.
- Eames, Caleb. Skype. 19 March 2021.
- Elias, James J. Skype. 14 June 2021.
- Field, Burton “Burt” M. Skype. 30 June 2021.
- Greenwood, Thomas C. Interview by John Sherwood. Microsoft Teams. 23 October 2020.
- . Interview by John Sherwood and John Vassiliou. Microsoft Teams. Interview 2. 23 October 2020.
- Girrier, Robert. Skype. 27 May 2021.
- Hironaka, Masayuki. Skype. 27 May 2021.
- Hsu, Michael. Skype. 17 July 2020.
- Jeffries, Richard. Telephone. 13 August 2019.
- Jones, Jeffery “Scott,” and Stephen Greene. Interview by John Sherwood and John Vassiliou. Microsoft Teams. 30 October 2020.,
- Jones, Jeffery “Scott.” Microsoft Teams. 22 March 2021.
- Kennedy, Kevin. Skype. 7 July 2020.
- Kikuta, Reiko. Skype. 28 April 2021.
- Klukas, Jon. Skype. 11 March 2021.
- Kurgan, Christopher. Microsoft Teams. 14 April 2021.
- Landolt, Richard. Skype. 19 March 2021.
- Lee, Bradley. Skype. 11 March 2021.
- MacMannis, Andrew. Microsoft Teams. 19 March 2021.
- Martin, Ron. Interview by John Sherwood and Ashley Castell. Microsoft Teams. 30 June 2020.
- Moore, Geoffrey. Washington Navy Yard, DC. 14 May 2021.
- Perrella, Sil. Skype. 29 April 2021.
- Peterson, Derek. Microsoft Teams. 9 March 2021.
- Robinson, Aaron. FaceTime. 29 June 2021.

- Robinson, Mary. FaceTime. 27 June 2021.
- Satchell, David. Microsoft Teams. 24 July 2020.
- Thomas, Robert L. Skype. 5 April and 26 July 2021.
- Toth, Robert P. Skype. 10 August 2021.
- Van Buskirk, Scott Ray. 28 April 2021.
- Williams, Ted. Skype. 17 June 2020.

### **Navy Reserve Detachment 206 Interviews**

Note: For most entries, the record number for the interview in the NHHC digital archive, Content Manager, is included.

- Bayless, Jon W., Jr. Interview by Greg Neuschafer. Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA. 29 September 2005. AR/581-2-1.
- Bennett, Robert. Interview by Gary N. Hall and Edward L. Cook. Naval Air Station Corpus Christi, Corpus Christi, TX. 26 April 2006. AR/581-8-1.
- Boyles, Dan. Interview by John Lackie. On board *Abraham Lincoln*. 18 February 2005. AR/585-1-5.
- Brand, Kevin M. Interview by John Henrico. Joint Expeditionary Base Little Creek-Fort Story, Little Creek, VA. 30 November 2005. AR/581-9-4.
- Callas, Richard S. Interview by John Hrinko and Gregory Neuschafer. Naval Station Norfolk, Norfolk, VA. 1 December 2005. AR/581-9-9.
- Clark, Matthew. Interview by Craig Mackey. On board *Tortuga*. 8 December 2005. AR/581-10-8.
- Clark, Suzanne. Interview by Bill Engvall. On board *Mercy*. 6 June 2005. AR/585-4-3.
- Comlish, Jean. Interview by Bill Engvall and Charlie Beckum. On board *Mercy*. 3 June 2005. AR/585-4-4.
- Daniels, John "Jack." Interview by John Lackie. On board *Abraham Lincoln*. 15 February 2005. AR/585-1-10.
- Deckert, Paul. Interview by Woodrow Shields. Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA. 4 October 2005. AR/581-2-5.
- Denman, Charles. Interview by Harold Katz. MSCFE, Singapore. 15 July 2011. AR/561-1-2.

## *Bibliography*

- Duncan, Robert. Interview by Greg Neuschafer and John Hrinko. U.S. Coast Guard Eighth District, New Orleans, LA. 19 January 2006. AR/581-10-5.
- Ferrara, Stephen. Interview by Bill Engvall and Charlie Beckum. On board *Mercy*. 5 June 2005. AR/585-4-6.
- Garside, Matthew. Interview by Harold Katz. COMLOGWESTPAC Headquarters, Singapore. 15 July 2021. AR/561-1-3.
- Gigliotti, Jim. Interview by Greg Neuschafer. On board *Harry S. Truman*. 12 December 2005. AR/581-11-1.
- Greg, Hill, and Sammy Brake. Interview by Gary N. Hall and Edward L. Cook. Naval Air Station Corpus Christi, Corpus Christi, TX. 26 April 2006. AR/581-9-3.
- Hathaway, Gail, Fred Landro, and Eric Kasowski. Interview by Bill Engvall and Charlie Beckum. Naval Station Pearl Harbor, Pearl Harbor, Hawaii. 31 May 2005. AR/585-4-8.
- Johnson, Gregory W. Interview by Woodrow Shields. Naval Air Station Joint Reserve Base New Orleans, New Orleans, LA. 30 September 2005. AR/581-3-2-1.
- Kennedy, Paul “Bob.” Interview by Harold Katz. COMLOGWESTPAC Headquarters, Singapore, 11 July 2011. AR/561-1-5.
- Key, Brandon. Interview by Craig Mackey and Gregory Neuschafer. On board *Shreveport*. 1 December 2005. AR/581-11-6.
- Klunder, Matthew. Interview by John Lackie. On board *Abraham Lincoln*. 17 February 2005. AR/585-2-1.
- Lansden, Robert. Interview by Greg Neuschafer. On board *Pollux*. 12 October 2005. AR/581-3-5.
- Little, Michael. Interview by Harold Katz. Ship Support Unit, MCSFE, Singapore. 14 July 2011. AR/561-1-10.
- Llewelyn, David. Interview by Bill Engvall and Charlie Beckum. On board *Mercy*. 2 June 2005. AR/585-5-1.
- McCully, Tim. Interview by Bill Engvall. On board *Mercy*. 7 June 2005. AR/585-5-2.
- McIntire, John. Interview by Harold Katz. MSC, 918 Charles Morris Ct SE, Washington, DC. 11 July 2011. AR/561-12.
- Mellen, Bill. Interview by Bill Engvall. Naval Air Station Norfolk, Norfolk, VA. 28 September 2005. AR/581-1-9.

- O'Dell, Douglas. Interview by Greg Neuschafer. Washington, DC. 7 February 2006. AR/581-12-7.
- Odderstol, Eric. Interview by Larry Weill and Doreen Fussman. Naval Mobile Construction Battalion 7 Headquarters, Gulfport, MS. 20 April 2006. AR/581-6-7.
- Owen, John. Interview by Bill Engvall and Charlie Beckum. On board *Mercy*. 4 June 2005. AR/585-5-7.
- Parker, John. Interview by Charlie Beckum. On board *Mercy*. 3 and 5 June 2005. AR/585-5-8.
- Peterson, Derek and Jon Klukas. Interview by Harold Katz. MSCFE, Singapore. 11 July 2021. AR/561-1-7.
- Prokopovich, Paul. Interview by Greg Neuschafer. Naval Air Station and Joint Reserve Base, New Orleans, New Orleans, LA. 13 October 2005. AR/581-3-9.
- Quinn, Tom. Interview by Bill Engvall. Norfolk Naval Air Station, Norfolk, VA. 27 September 2005. AR/581-1-11.
- Reynolds, Sam. Interview by Harold Katz. MSC Ship Support Unit, Yokohama, Japan. 14 July 2011. AR/561-2-1.
- Rice, James. Interview by Harold Katz. MSC Headquarters, Washington Navy Yard, DC. 6 July 2011. AR/561-2-2.
- Rizzo, Anthony J. Interview by Woodrow Shields. Naval Support Activity, New Orleans, LA. 28 September 2005. AR/581-3-11.
- Rodman, Michael. Interview by Harold Katz. COMLOGWESTPAC Headquarters, Singapore. 15 July 2011. AR/561-2-3.
- Schultz, Karl, Charles Fields, and Greg Spickel. Interview by Bill Engvall. Naval Air Station Norfolk, Norfolk, VA. September 2005. AR/581-1-15.
- Smith, Nathan. Interview by Bill Engvall. On board *Mercy*. 6 June 2005. AR/585-6-2.
- Snoderly, Mike. Interview by Harold Katz. MSCFE, Singapore. 14 July 2011. AR/561-2-4.
- Tyson, Nora. Interview by Bill Engvall. On board *Bataan*. 29 September 2005. AR/581-18-1.
- Villareal, Henry. Interview by Bill Engvall. On board *Mercy*. 5 June 2005. AR/585-6-6.
- Wallace, Chris Michael. Interview by Greg Neuschafer. AR/581-3-16. On board *Pollux*. 2 October 2005. AR/581-3-16.



## *Bibliography*

Wickland, Scott. Interview by John Lackie. On board *Abraham Lincoln*. 18 February 2005. AR/585-1-16.

Wilkins, James. Interview by Greg Neuschafer. Washington Navy Yard, DC. 27 January 2006. AR/581-14-4.

### **U.S. Coast Guard History Office, Washington, DC**

Duncan, Robert. Interview by Peter J. Capelotti. 28 November 2005.

Gilreath, Shannon. Unknown interviewer. Coast Guard Sector New Orleans, LA. 17 October 2005.

Gordon, Rodney. Interview by Susan Blake. Coast Guard Air Station New Orleans, LA. 6 October 2005.

Jones, Bruce. Unknown interviewer. Coast Guard Air Station New Orleans, LA. 20 October 2005.

Lewald, Robert David. Unknown interviewer. Gulfport, MS. 17 October 2005.

Noyes, Steven. Interview by Susan Blake. Dulac, LA. 17 October 2005.

O'Dell, Matthew. Interview by Peter J. Capelotti. Coast Guard Air Station Cape Cod, MA. 7–8 November 2005.

Paskewich, Frank. Interview by Susan Blake. New Orleans, LA. 18 October 2005.

Schaffer, Daryl. Unknown interviewer. Alexandria, LA. 27 October 2005.

### **Other Oral Histories**

Howard, Michelle. Interview at the Paul Simon Public Policy Institute, Southern Illinois University Carbondale. 1 September 2020. <https://www.youtube.com/watch?v=a-Rh9vvFOQs>.

Peranich, Stephen. Interview by James Pat Smith. Mississippi Oral History Program, University of Southern Mississippi, Hattiesburg, MS. 28 December 2007.

Shu, Thomas C. Interview by Richard V.N. Ginn. Office of Medical History, U.S. Navy BUMED, Washington, DC. 21 October 2011.

Taylor, Gene. Interview by Dariusz Grabka and Alanna Tobia. Mississippi Oral History Program, University of Southern Mississippi, Hattiesburg, MS. 21 February 2008.

Zumwalt, James P. Interview by Charles Stewart Kennedy. Association for Diplomatic Studies and Training Foreign Affairs Oral History Project. 1 February 2018. <https://adst.org/OH%20TOCs/Zumwalt.James.pdf>.

## Internet Content

Air Mobility Command Museum. "Operation Tomodachi History." Accessed on 20 May 2021. <https://amcmuseum.org/history/operation-tomodachi/>.

Air Mobility Command. "Fact Sheet: Phoenix Raven." Accessed 1 November 2020. <https://www.amc.af.mil/About-Us/Fact-Sheets/Display/Article/144021/phoenix-raven/>.

American Trauma Society. "Trauma Center Levels Explained." Accessed 14 August 2019. <https://www.amtrauma.org/page/TraumaLevels>.

Barlow, Jeffrey G. "The U.S. Navy's Participation in the Berlin Airlift." 13 December 2018. <https://www.history.navy.mil/research/histories/naval-aviation-history/involvement-by-conflict/cold-war/naval-aviation-s-involvement-in-the-berlin-airlift/us-navys-participation-in-the-berlin-airlift.html>.

Browne, Stephen. "Insights from Operation Tomodachi Bilateral Coordination Action Team (BCAT)–Sendai." PowerPoint Presentation. Accessed 7 March 2022. [https://community.apan.org/cfs-file/\\_\\_key/docpreview-s/00-00-13-06-16/207-The-Multinational-Partner-during-Post\\_2D00\\_Disaster-HADR-\\_2D00\\_-Insights-from-Operation-Tomodachi-COL-Browne.pdf](https://community.apan.org/cfs-file/__key/docpreview-s/00-00-13-06-16/207-The-Multinational-Partner-during-Post_2D00_Disaster-HADR-_2D00_-Insights-from-Operation-Tomodachi-COL-Browne.pdf).

Bureau of Aircraft Accidents Archives. "Crash of a Boeing 737-2A9C in Banda Aceh." Aceh, Indonesia. 4 January 2005 Accident." <https://www.baaa-acro.com/zone/aceh>.

Center for Research on the Epidemiology of Disasters (CRED). EM-DAT: The International Disaster Database. Accessed 1 December 2022. <https://emdat.be>.

Chief of Operations and Flight Inspection Division, Air Traffic Service Department, Japan Civil Aviation Bureau. "Tohoku-Pacific Ocean Earthquake and Airport Operations." Presentation. The Twenty-First Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/21). Bangkok, Thailand. 27 June 2011. <https://www.icao.int/APAC/Meetings/ATMAISSARSG21/IP03%20Tohoku-Pacific%20Ocean%20Earthquake%20and%20Airport%20Operations.pdf>.

Commander, Navy Installations Command (CNIC). "Sasebo History." Accessed 17 June 2021. [https://www.cnic.navy.mil/regions/cnrj/installations/cfa\\_sasebo/about/history.html](https://www.cnic.navy.mil/regions/cnrj/installations/cfa_sasebo/about/history.html).

Cox, Samuel J. "H-039-2: Typhoon Cobra—The Worst Natural Disaster in U.S. Navy History, 14–19 December 1944." December 2019. <https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-039/h-039-2.html>.

Deptula, David A. "U.S. Air Force Biography." Accessed 7 July 2022. <https://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=858&Article=104634>.

## *Bibliography*

- Federal Emergency Management Agency (FEMA). "Overview of Stafford Act Support to States." Accessed 5 April 2019. <https://www.fema.gov/pdf/emergency/nrf/nrf-stafford.pdf>.
- Field, Burton M. "Officer Bio." 1 January 2015. <https://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=858&Article=104>.
- General Electric. "GE General Electric in Tokyo, Japan Ad (Full)–1991." 1991. YouTube video, 1:04. <https://youtu.be/nll4K1EGCmM>.
- Government of Canada. "North American Aerospace Defense Command (NORAD)." Accessed 3 December 2021. <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/transition-materials/caf-operations-activities/2020/03/caf-ops-activities/norad.html>.
- MacMannis, Andrew. LinkedIn profile. Accessed 31 October 2021. <https://www.linkedin.com/in/andrew-macmannis-7414093b>.
- Marine Medium Helicopter Squadron 262 (HMM-262). "HMM-262 History." Accessed 14 April 2022. <https://1stmaw.marines.mil>.
- Marolda, Edward J. "Mine Warfare." Accessed 17 June 2021. <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/m/mine-warfare.html>.
- Massachusetts General Hospital. "About Massachusetts General Hospital." Accessed 26 January 2021. <https://www.massgeneral.org/disaster-medicine/about/>.
- Mercy Corps. "The Facts: Indonesia Earthquakes, Tsunamis and Other Natural Disasters." Last modified 4 September 2020. <https://www.Mercycorps.org/blog/quick-facts-indonesia-disasters>.
- Mobile Diving and Salvage Unit 2 (MDSU-2). "History." Accessed 13 October 2019. <https://www.public.navy.mil/NECC/mdsu2/Pages/AboutUs.aspx>.
- National Hurricane Center, National Oceanographic and Atmospheric Administration. "Saffir-Simpson Hurricane Wind Scale." Accessed 24 April 2019. <https://www.nhc.noaa.gov/aboutsshws.php>.
- National Naval Aviation Museum. "SH-60B Seahawk." Accessed 26 August 2021. <https://www.history.navy.mil/content/history/museums/nnam/explore/collections/aircraft/s/sh-60b-seahawk.html>.
- National Oceanic and Atmospheric Administration. "Costliest U.S. Tropical Cyclones." Accessed 1 December 2021. <https://www.ncdc.noaa.gov/billions/dcmi.pdf>.
- Naval Facilities Engineering Systems Command. "MUSE—Mobile Utilities Support Equipment." Accessed 16 July 2019. [https://www.navfac.navy.mil/navfac\\_worldwide](https://www.navfac.navy.mil/navfac_worldwide)

- /specialty\_centers/exwc/products\_and\_services/energy\_and\_public\_works/MUSE.html.
- Naval History and Heritage Command. "U.S. Navy Personnel Strength: 1775 to Present." Accessed 9 July 2022. <https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/u/usn-personnel-strength.html>.
- Naval Sea Systems Command (NAVSEA). "Nuclear Power School." Accessed 12 May 2022. <https://www.navsea.navy.mil/Home/NNPTC/powerschool.aspx>.
- Naval Technology. "JMSDF *Hyuga* Class Destroyer." Accessed 28 July 2021. <https://www.naval-technology.com/projects/hyuga-class/>.
- . "Mistral Class – Amphibious Assault Ships." 2 February 2017. <https://www.naval-technology.com/projects/mistral/>.
- . "P-3C Orion Maritime Patrol Aircraft." 24 December 2020. <https://www.naval-technology.com/projects/p3-orion/>.
- NAVAIR. "P-3C Orion." Accessed 3 November 2022. <https://www.navair.navy.mil/product/P-3C-Orion>.
- Navy Environmental and Preventative Medicine Unit 5 (NEPMU-5). "Command History." Accessed 27 January 2021. <https://www.med.navy.mil/sites/nepmu5/pages/history.aspx>.
- Nippon Hōsō Kyōkai (NHK). "The Mystery of the 40-Meter Tsunami: the Great East Japan Disaster." 4 April 2020. <https://www3.nhk.or.jp/nhkworld/en/tv/documentary/20200405/4001352/>.
- Project Hope. "History." Accessed 13 January 2021. <https://www.projecthope.org/about-us/history/>.
- Thompson, Dave. "'05 Relief Work Has Had Lasting Effect on Volunteers from Area: Katrina Five Years Later." 29 August 2010. [https://www.newsadvance.com/news/local/katrina-fiveyears-later/article\\_942bbaf3-ffb1-5813-8857-2ac42748758f.html](https://www.newsadvance.com/news/local/katrina-fiveyears-later/article_942bbaf3-ffb1-5813-8857-2ac42748758f.html).
- Town of Kadena. "Major Aircraft Incidents & Accidents." Accessed 15 March 2022. [https://www.town.kadena.okinawa.jp/kadena/P08\\_base%20digest\\_English.pdf](https://www.town.kadena.okinawa.jp/kadena/P08_base%20digest_English.pdf).
- U.S. Census Bureau. "Quick Facts: Puerto Rico." Accessed 17 January 2023. <https://www.census.gov/quickfacts/fact/table/PR/PST045222>.
- U.S. Coast Guard Atlantic Area. "Eighth Coast Guard District." Accessed 10 May 2019. <https://www.atlanticaarea.uscg.mil/Our-Organization/District-8/>.
- U.S. Department of State, Bureau of Democracy, Human Rights, and Labor. "Fact Sheet: About the Leahy Law." 20 January 2021. <https://www.state.gov/key-topics-bureau-of-democracy-human-rights-and-labor/human-rights/leahy-law-fact-sheet/>.

## Bibliography

- U.S. Environmental Protection Agency (EPA). "Calculate Your Radiation Dose." Accessed 18 November 2021. <https://www.epa.gov/radiation/calculate-your-radiation-dose>.
- U.S. Forces Japan. "Guidance from the Commander." Accessed 15 March 2022. <https://www.usfj.mil/About-USFJ/>.
- U.S. Naval Academy. "P-3C Orion." Accessed 31 August 2021. [https://www.usna.edu/NavalAviation/FixedWingAircraft/P3C\\_Orion.php](https://www.usna.edu/NavalAviation/FixedWingAircraft/P3C_Orion.php).
- U.S. Naval Research Laboratory. "Naval Research Lab Stennis Space Center." Accessed 8 August 2021. <https://www.nrl.navy.mil/Our-Work/Field-Sites/NRL-South/>.
- U.S. Navy. "Adm. Michelle Howard." 8 March 2022. <https://www.navy.mil/Women-In-the-Navy/Past/Display-Past-Woman-Bio/Article/2958922/adm-michelle-howard/>.
- . "E-2C Hawkeye Airborne Command and Control Aircraft." Accessed 2 September 2021. <https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2382134/e-2-hawkeye-airborne-command-and-control-aircraft/>.
- . "Large, Medium-speed, Roll-on/Roll-off Ships T-AKR." 13 October 2021. <https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2226172/large-medium-speed-roll-onroll-off-ships-t-akr/>.
- . "Vice Adm. Nora Tyson." 8 March 2022. <https://www.navy.mil/Women-In-the-Navy/Past/Display-Past-Woman-Bio/Article/2959185/vice-adm-nora-tyson/>.
- U.S. Nuclear Regulatory Commission. "Doses in Our Daily Lives." Accessed 12 July 2021. <https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html>.
- United Nations International Children's Emergency Fund (UNICEF), now officially United Nations Children's Fund. "Emergencies." Accessed 16 December 2021. <https://www.unicef.org/eap/what-we-do/emergencies>.
- United States Africa Command. "Security Cooperation." Accessed 13 February 2021. <https://www.africom.mil/what-we-do/security-cooperation>.
- "USS *Guitarro* (SSN-665)." Accessed 24 November 2021. [http://www.navy.mil/submit/display.asp?story\\_id=10444](http://www.navy.mil/submit/display.asp?story_id=10444).
- World Vision. "2011 Japan Earthquake and Tsunami: Facts, FAQs, and How to Help." Accessed 1 July 2021. <https://www.worldvision.org/disaster-relief-news-stories/2011-japan-earthquake-and-tsunami-facts>.
- White House, Office of the Vice President. "Remarks by Vice President Biden at Sendai Airport." 23 August 2011. <https://obamawhitehouse.archives.gov/the-press-office/2011/08/23/remarks-vice-president-biden-sendai-airport>.



Zielonka, Ryan; revisions by Daniel Taninecz Miller and Jonathan Walton. "Timeline of Operation Tomodachi." National Bureau of Asian Research. 11 March 2011. <https://www.nbr.org/publication/timeline-of-operation-tomodachi/>.



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