

# COAST GUARD AVIATION: SERVICE IN TRANSITION

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When the U.S. Coast Guard transferred from the Department of Transportation to the Department of Homeland Security in 2003, the service took on the added responsibility of maritime homeland security. All Coast Guard air stations and aircraft types are supporting the portfolio of homeland security missions with patrols offshore and in the ports and waterways across the nation, while continuing to perform core missions such as search and rescue. Coast Guard Aviation strives to meet current and future taskings through a combination of ongoing maintenance and normal life-cycle improvements of existing assets; the addition of newer, more capable systems; and new practices and initiatives being implemented throughout the organization's multiple platforms.

## HH-60J Jayhawk

The Coast Guard's operational fleet of 42 HH-60J Jayhawk medium-range recovery helicopters will soon undergo its first major upgrades since initial acceptance



in 1990. Funds have been allocated for an avionics upgrade to begin in late FY 05 and end in FY 09 during the HH-60J's third post-depot maintenance (PDM) cycle. The new avionics suite and cockpit are based on the U.S. Army MH-60K special operations common avionics architecture system cockpit. Other improvements will include a new forward-looking infrared (FLIR) sensor and radar replacement. In



**Above, an HH-60J Jayhawk from San Diego, Calif., deploys a rescue swimmer in the Pacific Ocean. Facing page, clockwise from top: an HC-130J Super Hercules banks over water. The aviation gunner on board an MH-68A Stingray participates in a training exercise. The HU-25 Guardian will receive an upgraded avionics package beginning this year.**

addition, the aviation service life extension should extend the fleet to the year 2020.

## **HH-65 Dolphin**

The HH-65A Dolphin fleet comprises 84 operational aircraft located at 17 air stations throughout the United States. It is a very versatile aviation asset that conducts essentially every mission for which the Coast Guard is responsible, from homeland security to polar operations.

The Dolphin's ongoing upgrades have converted the aircraft to full night-vision goggles cockpit operation, which includes hoisting, rescue swimmer operations and

ship/helo operations. The HH-65Bs, with a new computer display unit, have been coming off the PDM line since March 2001 and are operating with rave reviews from the fleet. Fleetwide implementation should be completed by January 2005. Aviation Training Center Mobile, Ala., has updated the transition course syllabus and is now only producing HH-65B pilots for the fleet.

An initiative to re-engine the HH-65 is underway, which will resolve current safety and reliability issues and allow necessary operational restrictions to be lifted. New engines would enhance the Dolphin's power, providing improved range and endurance and bringing the helo back to its original short-range recovery

requirements and beyond. Additional power would also enable the installation of FLIR, satellite communications and an improved radar system.

## HU-25 Guardian

Rockwell Collins will begin installation of an upgraded avionics package on the fleet of HU-25 Guardians commencing this year. Currently, the HU-25 avionics system includes many single-vendor components, several of which are classified as obsolete and nonprocurable. The upgrade is a precursor to the system currently implemented in the HH-65 fleet by Rockwell Collins. It will include replacement of the navigation computer and flight data units and a horizontal situation indicator. The project will increase the HU-25's availability and may extend the aircraft's service life well beyond 2010.

## HC-130H Hercules

Coast Guard HC-130H Hercules aircraft remain fully engaged worldwide in support of traditional Coast Guard missions, as well as new missions associated with homeland security. The Hercules fleet comprises 22 operational aircraft stationed at Elizabeth City, N.C.; Clearwater, Fla.; Sacramento, Calif.; Kodiak, Alaska; and Barbers Point, Hawaii. Modifications are ongoing to standardize the myriad cockpit configurations and to install a gearbox chip detector system and up-to-date avionics.

## C-130J/HC-130J

On 31 October 2003, Lockheed Martin formally delivered the C-130J Super Hercules airlifter to the Coast Guard in a ceremony at the Coast Guard Support Center in Elizabeth City. The joint ceremony marked the formal delivery of the aircraft and the establishment of the C-130J Aircraft Project Office (APO) with its first commanding officer, Commander John Hardin. The APO in Elizabeth City will conduct initial aircrew and maintenance training and develop a support and operations concept for the aircraft. There are currently 44 people assigned to the APO and 21 more will arrive in summer 2004.

On 9 December 2003, the last of six C-130Js purchased was transferred to the Coast Guard. Initially, the C-130J fleet will be operated by the APO as baseline airlifters. These aircraft will provide support to the sensor-equipped HC-130H fleet by relieving them of airlift support missions and allowing operational commanders to use more of the HC-130H flight hours directly on law enforcement and homeland security patrols.



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Above, Coast Guard C-130 pilots from CGAS Sacramento, Calif., fly over the waters off San Francisco Bay during a routine homeland security patrol. Left, the C-130J Hercules, the Coast Guard's newest aircraft, flies over the Wright brothers memorial at Kitty Hawk, N.C. Facing page: top, an HU-25C Guardian medium-range utility/surveillance aircraft accompanies an HH-65A Dolphin short-range recovery helicopter; bottom, an aviation survival technician student comes up for air during training at ATTC Elizabeth City, N.C. Among other duties, ASTs function as helicopter rescue swimmers and emergency medical technicians.



The Coast Guard is currently seeking the Department of Homeland Security's approval of long-range maritime patrol modifications for the C-130J, and intends to contract for the first modified HC-130J in FY 04. Additional funding is required for modification of five more aircraft.

## Helicopter Rescue Swimmer Program

From a congressional mandate in 1984, to a group of five individuals in 1985, to more than 240 operational swimmers in 2003, the Coast Guard's Helicopter Rescue Swimmer Program has been constantly growing and improving. The program evolved from the Navy's rescue swimmer program and has become world renowned in its own right. In 1997, the Coast Guard opened its own school as the mission scope grew beyond the rescue of downed military aviators to include different scenarios dealing with the



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public. The Coast Guard intensified its training by offering personnel with field experience the chance to attend Advanced Rescue Swimmer School at Cape Disappointment, Wash. This additional training provides insight on heavy surf, sea cave, cliff and high-seas rescues. The school began classes in 1995 and is now a highly sought training opportunity by not only Coast Guard rescue swimmers, but also Navy, Air Force and international students.

Since 1985, Coast Guard helicopter rescue swimmers have saved more than 5,700 lives. No rescue swimmer has been lost during a rescue, although two have died as a result of aircraft crashes. This outstanding safety record can be attributed to high standards, quality training and the team concept within Coast Guard aircrews. As the need for rescue swimmers increases, the Coast Guard is looking at building a new aquatic training facility at Aviation Technical Training Center Elizabeth

City. The current facility is more than 50 years old.

## Airborne Use of Force

Airborne use of force (AUF) is expanding beyond its current application by Helicopter Interdiction Tactical Squadron Jacksonville, Fla., helicopters in counterdrug operations. In the near future, other platforms will be able to employ AUF in maritime homeland security roles.

Coast Guard Air Station (CGAS) Cape Cod, Mass., conducted AUF proof of concept exercises with four HH-60J Jayhawk helicopters modified with an airframe-mounted area-fire weapon, shoulder-mounted weapon, upgraded radios, upgraded FLIR, head-up display, cabin floor armor, and pilot and copilot seat armor. A core group of pilots and flight mechanics were trained in day and night tactics and aerial gunnery. Lessons learned from this initiative may serve as a blueprint for arming other HH-60J and HH-65 units. Coast Guard Headquarters' Office of Aviation Forces is seeking funding to eventually employ AUF operationally at CGAS Cape Cod, and build the capability at other air stations across the nation.

In addition, training in vertical insertion (fast roping) from HH-60Js is almost completed. Vertical insertion provides the capability to rapidly deliver boarding teams to a vessel when environmental conditions or noncooperation from the boarded vessel make waterborne delivery impractical. Air stations with HH-60J helicopters are developing partnerships with their local Coast Guard Tactical Law Enforcement Teams and Maritime Safety and Security Teams to develop this capability. In January 2003, both HH-60J Jayhawks and HH-65 Dolphins were certified by the Naval Air Systems Command to fire the M-240 machine gun.

## Aviation Chemical/Biological Defense

Since becoming part of the Department of Homeland Security, the Coast Guard's requirements are changing to include defensive capabilities. In light of growing terrorist threats and possible scenarios involving weapons of mass destruction, the Coast Guard identified a lack of chemical/biological equipment within its aviation forces. The Naval Air Systems Command gave approval to the Coast Guard to purchase a limited supply of in-flight chemical/biological respirator ensembles, which are being integrated into the aviation fleet. Although the need for this capability is not expected to be frequent, the threat is real, and preparation will enhance the Coast



**Top, AMT2 Jordan Gorchow mans his station in an MH-68A Stingray. Above, a go-fast vessel is caught in the sights of the helo's machine gun. Above right, after being directed to halt, the go-fast speeds up in an attempt to escape, and receives warning shots across the bow.**

Guard's ability to be able to respond to homeland security needs.

## Unmanned Aerial Vehicles

The Coast Guard has demonstrated leadership and vision in unmanned aerial vehicle (UAV) technology. The vertical takeoff and landing HV-911 Eagle Eye tilt-rotor UAV is expected to deploy aboard Coast Guard cutters as early as 2007. Its 220-knot speed and ability to loiter over a target 100 miles away for 4 hours brings a formidable capability and presence to the maritime domain filled with terrorists, narcotics traffickers and other seaborne threats. Images captured by Eagle Eye's state-of-the-art sensor systems will be sent back in real time, vastly expanding the ship's footprint and giving commanders a bird's-eye view of the tactical picture.

High-altitude long-endurance (HALE) and medium-altitude long-endurance (MALE) UAVs have captured the Coast Guard's attention. In November 2003, the Coast Guard conducted a demonstration with two General Atomics Predator A systems in King Salmon,



**A rescue swimmer from CGAS Elizabeth City, N.C., deploys to the Panamanian passenger vessel *Sea Breeze I*. Two HH-60Js and two HC-130s rescued 34 crew members after the ship took on water off Cape Charles, Va., on 17 December 2003.**

Alaska, to evaluate the viability of the HALE/MALE UAV for high-endurance maritime patrol in harsh conditions. Real-time video captured from the Predators' sensor systems was viewed by the commandant and members of his staff in Washington, D.C. In addition, the Predators served as radio relay platforms, enabling voice communication between a ground station and a distant cutter over basic line-of-sight radio networks at a distance of 75 miles.

The next step is a follow-on Predator demonstration planned for July 2004, also in Alaska. This time, the

Coast Guard will be flying the Predator B, a turboprop-powered aircraft with significantly better altitude, speed and endurance capability. Operating over the horizon in Alaska's harsh maritime environment, the Predator B will put a state-of-the-art sensor package, optimized for maritime patrol, through its paces. These exercises are critical steps in defining the future of UAV systems in the Coast Guard inventory. Clearly destined to make a significant contribution to the persistent presence necessary to secure the nation's maritime domain, UAVs are also showing great promise for traditional missions, such as fisheries enforcement.

Research also continues in potential Coast Guard applications for a new generation of smaller unmanned aerial vehicles, some weighing in at a diminutive 40 pounds. These "UAV Lites" could provide an agile and economic source of organic air surveillance capability to units responding to the service's expanding role in homeland security.

As the Coast Guard's mission continues to evolve, its aviation arm will retain its cultural and historic roots in the traditional mission areas, such as search and rescue and maritime law enforcement. Solidly placed in an extremely visible department, Coast Guard Aviation will continue to provide the very best in capability and efficiency, as well as examining and expanding its capabilities to meet the service's strategic objectives. ✈

## Homeland Security Mission

The United States Coast Guard transferred from the Department of Transportation into the newly created Department of Homeland Security in March 2003. For a service that traditionally considered search and rescue its primary mission, this move was more than the physical shifting of departments. It required a shift of many age-old paradigms about Coast Guard missions, as well as the way the service conducts its day-to-day business.

To prepare for this move, the Coast Guard released *Maritime Strategy for Homeland Security* in December 2002, which included the service's top-level Maritime Homeland Security mission statement: "Protect the U.S. Maritime Domain and the U.S. Marine Transportation System and deny their use and exploitation by terrorists as a means for attacks on U.S. territory, population, and critical infrastructure. Prepare for and, in the event of attack, conduct emergency response operations. When directed, as the supported or supporting commander, conduct military homeland defense operations."

The service's strategic objectives in support of the Maritime Homeland Security mission are:

- Prevent terrorist attacks within, and terrorist exploitation of, the U.S. Maritime Domain.
- Reduce America's vulnerability to terrorism within the U.S. Maritime Domain.
- Protect U.S. population centers, critical infrastructure, maritime borders, ports, coastal approaches, and the boundaries and seams among them.
- Protect the U.S. Marine Transportation System while preserving the freedom of the U.S. Maritime Domain for legitimate pursuits.
- Minimize the damage and assist in recovery from attacks that may occur within the U.S. Maritime Domain as either the lead federal agency or a supporting agency.