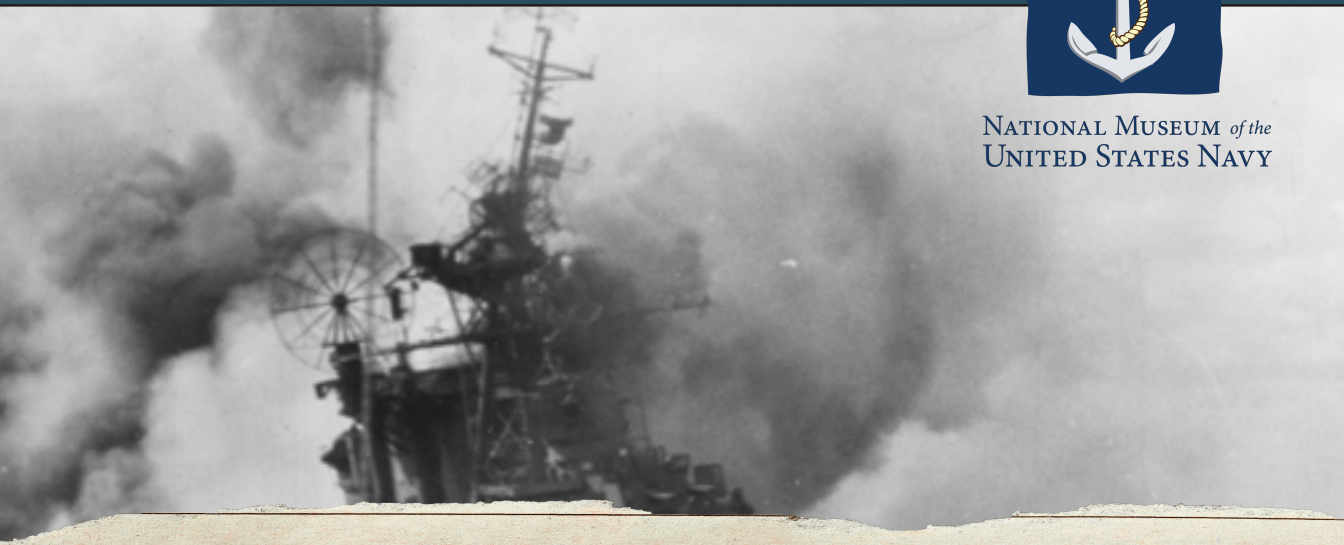
Student Guide



National Museum of the United States Navy

Damage Control (Blue Navy):

A Study Based on the Battle of Okinawa

Junior Sailor

DECLASSIFIED

Damage Control Mission Brief:

A Study Based on the Battle of Okinawa (April – 22 June, 1945):

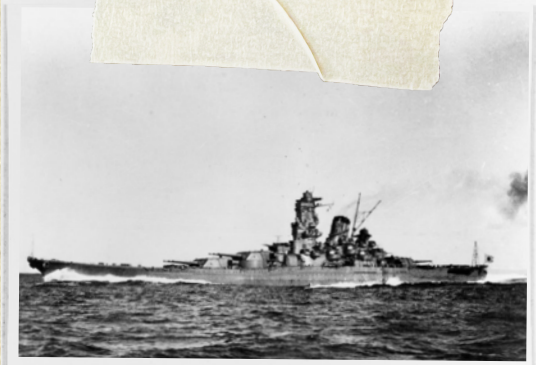
One major characteristic of battles and combat is that it causes damage to people, equipment, and even the landscape. There are many different ways to limit the amount of damage. For the purpose of this lesson, you will learn about training used to prevent damage from occurring, training to control damage while it is occurring, and restoration after the damage has occurred. You will also learn about sailors whose entire job is to deal with damage to people, equipment and landscape. As with everything in the National Museum of the United States Navy, history will be your guide. Examples from the Battle of Okinawa are used because the Battle of Okinawa was the bloodiest battle in the Pacific Theater.

In order to complete your mission it is critical that you read all information labeled with a blue stripe

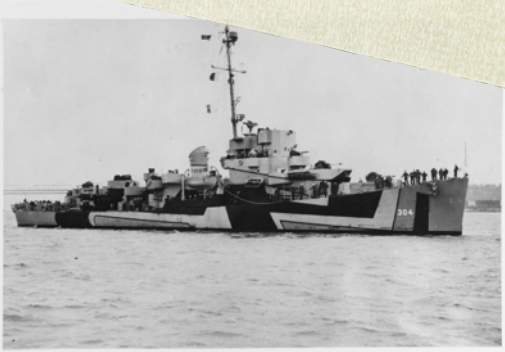
The Battle of Okinawa at Sea

Like any military operation involving an island, The U.S. Navy played an important role in delivering troops to the island and safeguarding the seas surrounding the island. By the time of the battle, there was still some threat from Japanese naval and air forces. During the battle of Okinawa, the Japanese air forces increased the number of *Kamikaze [ka-mi-ka-ze]* attacks (aircraft flown into ships or other large targets.) The *Kamikaze* threat mixed with traditional air and sea attacks created an especially dangerous environment for U.S. Navy sailors.

Using the historic examples of the American destroyer escort USS *Rall* and the Japanese battleship *Yamato* this packet will look at damage control measures taken before, during and after one significant event in each ships lifespan that happened during the battle of Okinawa.



Japanese battleship IJN YAMATO



USS RALL (DE-304)

1 Prevent Damage

Preventative measures are equipment and training (underlined below) that are in place before an emergency happens. Think about fire alarms or fire drills at your school, house or even the National Museum of the United States Navy.

Navy ships are designed with damage in mind. For example, just like in public buildings, there is a sprinkler system to help contain fires. Unlike most public buildings there are additional measures such as water-tight compartments meant to stop flooding from a hole in the hull. The Japanese ship *Yamato* had over 1,150 of those compartments! Fire hoses and water pumps are located throughout the ship and normally are the same measures are repeated in a few different places just in case one set is damaged too badly to work. Those are examples of the mechanical measures built into the ship. Most of the mechanical measures require well-trained sailors to work them. First aid kits are located throughout ships and radar is used to help give early warning to sailors so they could get ready to do their jobs.

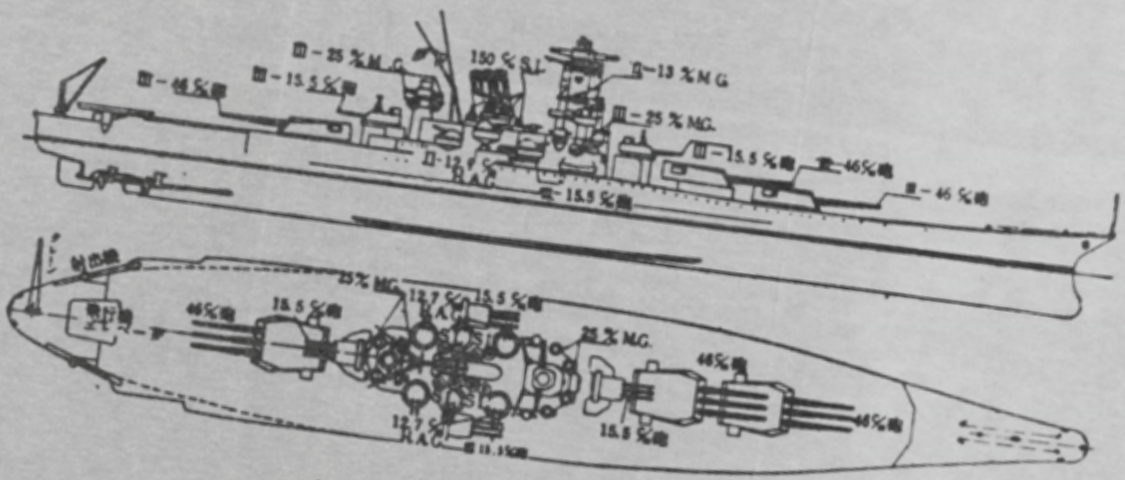
Sailors are trained since their first introduction to the navy how to use damage control systems. Once sailors receive their warning, they are ordered to battle stations. Among these different stations are the ships weapons including both the large artillery pieces and the smaller anti-aircraft guns. Repair teams also ready their equipment in case of emergency.

Question 1: What are two emergency measures or trainings that you can think of that might be used at large artillery pieces or smaller anti-aircraft guns?

Question 2: Emergency measures are effective in locations in the United States or other countries where emergency services are a phone call away to come and put out the fire or help the injured person. What happens when the emergency is out to sea away from traditional emergency services?

Question 3: Identify some possible emergencies that could happen on a ship during a battle.

The battleship YAMATO preventative measures included many water-tight compartments.



第 18 図　戦艦大和の外見見取図

主要々目

長	244.0m	排水量(公試)	69,100t(実績)
長	263.0m	〃(満載試験)	72,800t(実績)
幅	256.0m		

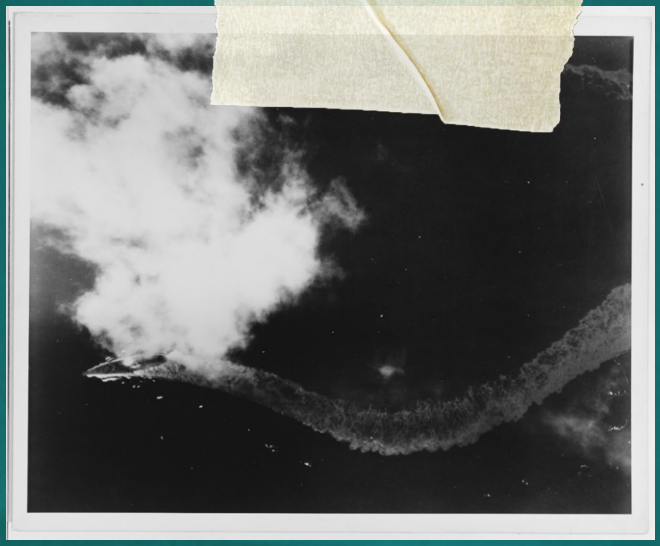
機関要目

2 Damage Control in Combat

Once training has ended, and ships are out to sea the real work for a sailor begins. On April 1,1945 American soldiers, sailors and marines were landed on the beaches of Okinawa, which was considered by the Japanese as home territory.

To help secure Okinawa, the Japanese sent their last major threat, the *Yamato*, to the U.S. Navy on a mission to beach herself and use her large 18.1-inch guns to shell American troops on Okinawa. The *Yamato* with 9 other smaller Japanese ships set out to sea on April 6. The Japanese force was spotted by American submarines shortly after they left Japan. American submarines and aircraft followed the Japanese group until on April 7, 1945 American aircraft carriers launch approximately 400 planes to attack the *Yamato* and her task force. How did the Japanese respond? They knew the airplanes were coming early because of radar. Once they knew American planes were incoming, they sent their crew to their battle stations. Americans sent torpedo planes and dive bombers in so the *Yamato* made themselves a harder target by moving around (some call this evasive maneuvers.) When a bomb or torpedo hit, they sent out crew members to repair the damage.

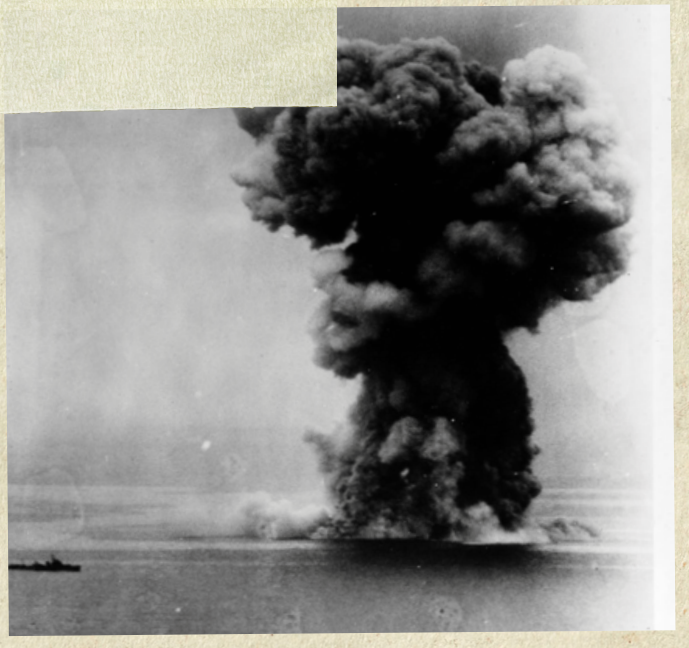
Emergency systems were used to try to save the *Yamato*, however, at least 11 American torpedoes and multiple bombs hit the *Yamato*. She began to tilt (known as listing) towards her left (port) side where most of the flooding occurred. *Yamato* eventually capsized and one of her ammunition storage magazines exploded sending her to the bottom quickly. Over 3000 Japanese sailors were lost. Sometimes, the damage is too great.



Evasive maneuvers are one form of damage control used by battleship YAMATO. Notice the wake behind the ship which shows how they turned to avoid torpedoes.

Another example of damage control, this image shows the crew of the USS FRANKLIN CV-13 fighting fires March 19, 1945

2 Damage Control in Combat



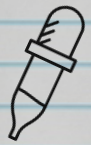
Explosion of the Explosion of the YAMATO.

Extreme damage requires extreme measures. The top goal is to keep water out of a ship. When that goal fails, the crew attempts to plug holes with wooden wedges and pump the water out. If the damage is too bad for that to make a difference, there are other options. The next activity will help explain one of those options.

Damage Control Activity

What you need:
1. A bucket or other container filled with water
2. An ice cube tray small enough to fit in your water container
3. A bottle of water
4. Pipettes

Step 1: Place your empty ice cube train in the container of water so that it floats
Step 2: Fill one of your pipettes with water from the water bottle
Step 3: With the pipette, fill one or two compartments on one side of the ice cube tray



Question: What happens to the tray?

If you fill compartments on the exact opposite side of the ice cube tray, what do you think will happen to the tray?

Fill those compartments and observe.

This is called counter flooding and is a measure that can be taken by a ship that has been struck.

The USS Rall Activity

The Destroyer Escort USS *Rall* DE-304, was just one of a massive fleet of U.S. Navy ships which were positioned off the shores of Okinawa to protect the American forces on shore from air or sea attacks. To counter the American screen, the Japanese sent out waves of *Kamikaze* aircraft to destroy American ships and cause casualties.

This activity is based on the *Kamikaze* attack on the USS *Rall* on April 12, 1945. You have seen what the *Yamato* crew did in an effort to save their ship, using that knowledge and a briefing here you will make decisions on how to keep the *Rall* afloat.

First is a list of equipment and emergency procedures that you can choose from for each event. Remember, U.S. Navy ships have multiple sets of each equipment piece.

Equipment:

1. Water Pumps (Drain water from the ship.)
2. Fire Hose
3. Sprinkler system (You do need to start the system manually.)
4. Wooden wedges (Can be used to plug holes temporarily.)
5. Wooden braces (Large beams that can be used keep pressure on a damaged part of the ship)

Actions

1. Evasive maneuvers (Dodge the best you can.)
2. Battle stations (Send your sailors to defend their ship.)
3. Abandon ship (The last resort.)
4. Move wounded to safety
5. Repair
6. Fight Fire
7. Seal water-tight compartment, allowing section to flood
8. Counter-flood

Sailors Available

1. Repair teams 1, 2, and 3
2. Ship's crew (The crew not attached to medical or repair teams that can operate anti-aircraft guns.)
3. Navy Corpsmen (Medical specialist to help wounded sailors.)

Remember these are sailors with lives and families so it is your job to keep the ship and sailors as safe as possible. For each scenario choose one of your teams, their equipment and an action (listed on previous page).

Scenario 1:

Radar and lookouts report that five Japanese aircraft are heading towards the Rall's station. It is known that many Japanese aircraft are being used in Kamikaze attacks on U.S. Navy ships.

Team:_____ Equipment:_____

Action:_____

Anti-Aircraft guns on USS MISSOURI BB-63 fighting Kamikaze.

Crews fight a fire caused by a Kamikaze on the USS ENTERPRISE CV-6 on May 14, 1945

Scenario 2:

Some Japanese planes are damaged or turning away, one Japanese bomber is still heading straight for your ship on the aft (rear) starboard (right) side of your ship.

Team:_____ Equipment:_____

Action:_____

Scenario 3:

The plane strikes your ship, cutting nearly halfway through when its bomb detonates. The damage is one large hole above the waterline and 300 smaller holes scattered throughout. There are 21 dead sailors and 36 wounded. A fire has started in the area that must be controlled before it spreads to your ammunition storage magazine.

Team:_____ Equipment:_____

Action:_____

Restoration follows the withdraw of forces from immediate danger. These are steps that would be too dangerous or time consuming to complete during a battle. The USS *Rall*, for example, welded plates on some of the larger holes with the help and a support ship. That measure ensured that she could make the journey to a repair facility on a nearby island. That facility did more major repairs to the hull to ensure the *Rall* could make the journey back to the United States for final repair and refitting. It is an elaborate system where multiple teams have a hand in making a U.S. Navy ship combat ready again after major damage.

Damage Control Today

Lessons learned from World War II and other wars and emergencies helped to establish training and procedures for the United States Navy today. Sailors learn how to fix damage to ships in simulated ship compartments under a lot of pressure. All sailors are trained in ways to help if any part of their ship is in danger. Emergency plans and training are the key to survival in case of an emergency.

In this photo a U.S. Navy damage controlman practice pipe repair.

Be sure to ask about the emergency plans and procedures at your home or school. If there isn't one, help create one. **By learning lessons from those sailors, soldiers and marines that fought and in many cases died at the bloody battle of Okinawa, we honor their memory and sacrifice.**

National Museum *of the*
United States Navy

Contact the National Museum of the U.S. Navy for
Field Trip and School Visit opportunities!

Visit the museum webpage at
www.history.navy.mil