Be A Shipwreck Detective!

"Great acts of courage,
senseless tragedy,
the heroism of a captain,
the greed of a stingy shipowner,
the stupidity of a watchman
all find their ways into the history of shipwrecks."

~ from the Channel Islands National Marine Sanctuary Shipwreck Database Web site

Shipwrecks are an important part of our nautical heritage. Some of our nation's most interesting shipwrecks are found in NOAA's National Marine Sanctuaries, including the remains of the Civil War ironclad, U.S.S. Monitor. Some shipwrecks are hazardous to other vessels. Nautical charts produced by NOAA's Office of Coast Survey show the location of known shipwrecks and other hazards to navigation.

In September 2003, NOAA's Ocean Exploration Program visited a newly discovered shipwreck in the Stellwagen Bank National Marine Sanctuary on the coast of Massachusetts. Underwater archaeologists studied the wreck to learn more about what happened to cause the ship to sink. Now it's your turn to be a Wreck Detective!

Storm, shipwreck, and sea monster. Archival Photograph by Mr. Sean Linehan, NOS, NGS

What You Will Do

Examine information about items found in and around the Stellwagen Bank shipwreck, and draw conclusions about the ship, who was aboard, and why the ship sank

What You Will Need

- ❒ "Grid Reference System for Unidentified Shipwreck Q11WRK5" and "List of Artifacts Retrieved from Unidentified Shipwreck Q11WRK5"
- ❒ Imagination

How to Do It

1. Your first task is to organize information about where the artifacts were found on the shipwreck. The "List of Artifacts" gives a grid location for each item and how deeply artifacts were buried (so "22 inches from surface" means the object was buried 22 inches into the sea bottom). Archaeologists often use a grid system to precisely record the exact location of artifacts and their relationship to each other. You have already used grids to express location if you have ever played Battleship, or even Bingo.

2. As you look at the description of each artifact, think about how deep the artifact was below the surface, and what other artifacts were found nearby. Then consider what the artifacts may suggest about
   - the specific identity of the ship that sank;
   - age of the vessel;
   - the vessel's purpose;
   - who was aboard; and
   - why the vessel sank.

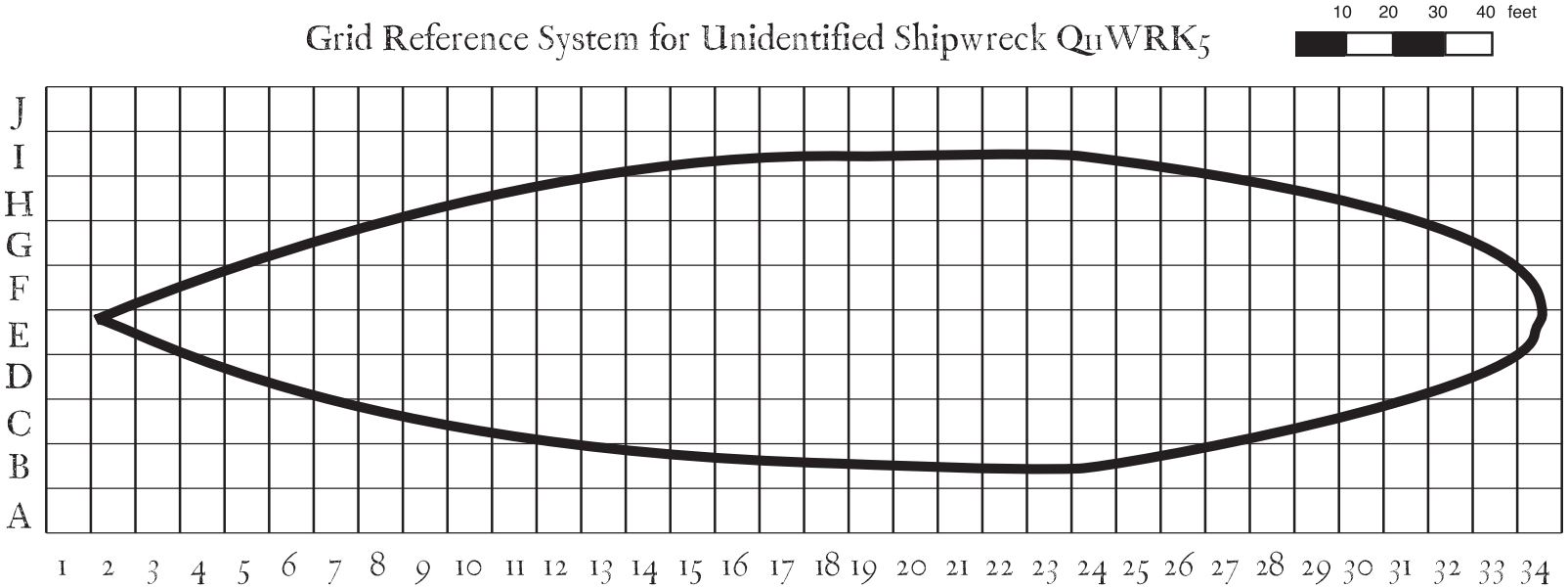
3. Write your conclusions on a piece of paper. Then read "The Story of the Steamship Portland" on Page 50.

Want to Do More?

1. Visit *http://oceanexplorer.noaa.gov/explorations/03portland/welcome.html* the Web site for the Steamship Portland expedition.
2. For another shipwreck activity see "Lost at Sea: Sunken Slave Ship" activity from Newton's Apple episode 1502. You can access this activity from *http://www.ktca.org/newtons/15/sunken.html*
3. Read "The Portland Gale" from *http://www.hazegray.org* for more information on the *Portland* and the monster storm of 1898.

This activity is adapted from "Wreck Detectives," a lesson from the Ocean Explorer Steamship Portland *Expedition (http://oceanexplorer.noaa.gov/explorations/03portland/background/edu/media/portlandwreckdetec.pdf); by Mel Goodwin, The Harmony Project, Charleston, SC.*

Grid Reference System for Unidentified Shipwreck Q11WRK5



List of Artifacts Retrieved from Unidentified Shipwreck 21WRK5

Grid Reference	Description
E19–E23 & F19-F23	Heavy metal structure, diamond shaped, partially buried
D10	Gentleman's gold ring, 22 inches from surface
E14	Heavy mahogany chair, velvet upholstery, 40 inches from surface
D10	China plate, 100 inches from surface
G10	China chamber pot, 20 inches from surface
D13	Silver flatware, engraved letter "P," 100 inches from surface
F14	China cup, 100 inches from surface
D10	Brandy flask, 20 inches from surface
F14	Domed skylight, 16 inches from surface
D13	Carved mahogany headboard, 28 inches from surface
F13	Ebony piano keyboard, 22 inches from surface
C19-C24	Massive paddlewheel, partially buried
G10	Child's rocking chair, mahogany, 24 inches from surface
D13	Lady's dress shoe, 26 inches from surface
G10	Shaving straight razor, 22 inches from surface
H17	Silver buckle, 28 inches from surface

Grid Reference	Description
D13	China chamber pot, 24 inches from surface
E11	Carving knife, 92 inches from surface
D10	Man's leather dress shoe, 24 inches from surface
B13	Carved wooden plank, letters "RTLAND;" left side broken
E11	Silver serving platter, 92 inches from surface
E5	Rusted iron mass, possibly chain
F21	Heavily rusted iron mass, possibly tools, 100 inches from surface
E11	Ship's wheel, 12 inches from surface
D10	Small mahogany chest of drawers, 28 inches from surface
E33	Rudder, partially buried
G19-G24	Massive paddlewheel, partially buried
E17 & F17	Smokestacks

NOTE: Extensive debris around main wreck, mostly large timbers and pieces of heavy equipment; several lifeboat remnants outside main wreck. Less obvious structural debris in quadrats numbered 25 and higher; these quadrats contain mostly silt down to the apparent hull of the vessel at approximately 140 inches.

The Story of the Steamship *Portland*

On Thanksgiving Saturday, November 26, 1898, the passenger steamship *Portland* left Boston Harbor with more than 190 passengers and crew bound for Portland, Maine. The *Portland* was a state-of-the-art, luxury ship with velvet carpets, mahogany furniture, and airy staterooms. By 1898, paddlewheel steamboats had revolutionized transportation in the United States. Faster and more reliable than sailing ships, paddlewheelers could also maneuver in waters that were too shallow for sailing ships. By the 1870's, many people routinely boarded steamboats to travel between port cities. But the paddle-wheelers had a serious flaw: they were built long and narrow (the *Portland* was 281 feet long and 62 feet wide), and this shape combined with a shallow draft (the *Portland's* keel was only 11 feet below the water line) made these ships extremely unstable in high seas.

When the *Portland* steamed out of Boston Harbor, she ran straight into a monster storm moving up the Atlantic coast with northeasterly winds gusting to 90 mph, dense snow, and temperatures well below freezing. Facing a roaring northeasterly wind, the captain could not turn back; to have done so would have placed the ship broadside to wind and waves that would surely have capsized her. The only choice was to continue to head northeast into the waves, and hope to ride out the storm. Four hours after her departure, a vessel believed to have been the *Portland* was seen near Thatcher Island, about 30 miles northeast of Boston. But the *Portland* was apparently unable to make much more progress against the storm.

At 5:45 a.m. on the morning of November 27, four short blasts on a ship's steam whistle told the keeper of the Race Point Life-Saving Station on Cape Cod that a vessel was in trouble. Seventeen hours later, life jackets, debris, and human bodies washed ashore near the the Race Point station, confirming that the *Portland* and everyone aboard had been lost in one of New England's worst maritime disasters. The loss of the *Portland* underscored the inherent instability of sidewheel paddleboats. Sidewheelers were gradually replaced by propeller-driven boats, which have a lower center of gravity.

For 90 years, the location of the *Portland* wreck was unknown, despite intense and continuing public interest. In April 1989, members of the Historical Maritime Group of New England found wreckage in water more than 300 feet deep that they were certain had been the *Portland*. Because of the depth, however, the discoverers were unable to obtain photographs or other evidence that could confirm their find. Thirteen years later, on August 29, 2002, the U.S. Commerce Department's National Oceanic and Atmospheric Administration (NOAA) confirmed that the wreck of the *Portland* had been found within NOAA's Stellwagen Bank National Marine Sanctuary. Using side-scan sonar and a remotely operated vehicle (ROV), scientists obtained high-quality video and side-scan images in a joint research mission of the Stellwagen Bank National Marine Sanctuary and the National Undersea Research Center at the University of Connecticut.

Massive storms during late October and November are not particularly unusual in the New England states. At this time of the year, large cold air masses from Canada cross the midwestern states on a regular basis. At the same time, the Atlantic Ocean retains its summer heat and these warm waters sometimes spawn hurricanes. When the east-moving cold air masses encounter the warm, humid oceanic air, the result is what New Englanders call "Nor'easters:" storms that are often severe, and are often the cause of maritime disasters. ❧

Clues from the "List of Artifacts Retrieved from Unidentified Shipwreck Q11WRK5:"

The large paddlewheels near the middle of the ship clearly suggest a sidewheel paddleboat. This was a large vessel for a paddlewheeler; over 280 feet. The diamond shaped metal structure is probably the remains of a walking beam engine, a common design in ships of this type. The fact that this was a large paddlewheeler narrows its probable vintage to between 1890 and 1910. Artifacts in quadrats D10, D13, and G10 suggest that men, women, and children may have been aboard, and these areas may have been staterooms. The fact that artifacts in these areas were close to the surface suggests that these staterooms were on or near the deck of the vessel. Eating utensils recovered from more than 80 inches below the surface suggest a dining area, located on a lower deck. Engraved silver flatware and the carved wooden plank are valuable clues, suggesting that the name of the vessel may have begun with the letter "P" and ended with the letters "rtland." Many of the artifacts suggest wealth and luxury. This vessel almost certainly carried some wealthy passengers.

Think about the size of the debris field. Ships that sink suddenly (such as those sunk in battle) often have a rather small debris field. Ships that sink with lots of movement, on the other hand (such as ships sunk in storms) are likely to have larger debris fields. This ship has an extensive debris field, suggesting that a lot of motion, possibly due to a storm, was involved in her sinking.