Shipwreck Mapping

Captain's Notes

Overview

In this activity, students will act as maritime archaeologists and will be able to experience what it is like for real archaeologists to study and record shipwrecks underwater. Using right angle measurements, teams of students will measure the dimensions and features of a mock shipwreck, simulating real dive conditions and limitations that maritime archaeologists must face. They will make observations and collect data in order to form hypotheses about the ship and its identity. The students will learn how to map a shipwreck and how to collect both historical and archaeological data to form conclusions about that ship.

Difficulty/Grade Level

Difficult/Grades 4-12 (the activity can be modified for a particular age group)

Suggested Group Size

3 students per group (based on a class size of 24)

Time

Between 1.5-2 hours (although the activity can be modified to fit a particular situation)

Skills and Strategies

- *Gathering physical clues to make inferences about a wreck*
- *Learning to form a hypothesis based on observed data*
- *Mapping an archaeological site using math skills and graphing*
- *Overcoming challenges archaeologists face while mapping underwater*
- *Interpreting mathematical and historical data*
- *Time Management*

Materials

- *Mock Shipwreck (outlined either on tarp or with masking tape)*
- *Measuring tape (running the length of the mock shipwreck as the baseline)*
- *String (3 pieces, used as grid lines to separate the wreck into 8 sections)*
- *Measuring tape (1 per group)*
- *Clipboard (1 per group)*
- *Ruler (1 per student)*
- *Graph Paper (1 page per student)*
- *Graph Paper (11"x 17")*
- *Log Sheet (1-2 per group)*
- *Information Packet: Parts of a Ship Diagram, Sanctuary Vocabulary, Site Plans and Photo Mosaics handout, Shipwreck Data Sheet, Thunder Bay Tribune, Thunder Bay Shipwreck Map, Dive Signals Reference Sheet*

Helpful Hints

This activity may become confusing with two groups completing two different tasks. Make sure to have 1 or 2 helping hands when facilitating this activity.

Always have the students measure from the baseline and use right angle measurements when mapping their section.

WWW.THUNDERBAY.NOAA.GOV

Preperation

1. *The mock shipwreck should be set up before the students arrive to begin the activity. Lay down the tarp or tape the outline of the wreck to the floor (the shipwreck should be at least 10-15 feet long, though a length of 16 feet works best). Refer to the Mock Shipwreck Layout to create the mock shipwreck.*
2. *Tape the 3 pieces of string in increments along the baseline to form 8 equal sections of the shipwreck, 4 on the port side and 4 on the starboard side.*
3. *Make copies of each of the handouts for the students.*

Procedures

1. *Introduce the students to what maritime archaeology is and the importance of Thunder Bay National Marine Sanctuary (refer to the activity introduction). Tell the students that they are going to pretend to be underwater archaeologists and that they are about to make a dive on a recently discovered shipwreck. During the dive they will have to take measurements of the shipwreck and record what they find. They will also have to use historical research to help identify what shipwreck they might have discovered.*

Procedures (cont.)

2. *Describe some of the terms on the vocabulary list that the students will need to know for the exercise, such as port, starboard, bow, stern, baseline, site plan, etc.*
3. *Separate the class into two teams, Dive Team A and Dive Team B. Separate each of the Dive Teams into smaller groups of three or four students (there should be a total of 8 small groups).*
4. *Pass out materials listed for students to each group.*
5. *Explain that students will be using right angle measurements in this activity. Explain how students will measure from a location on the baseline to a point on the mock wreck. They will use that measurement and their following measurements of their section to create a scaled drawing on graph paper. Stress that each measurement will be taken from the baseline.*
6. *Tell the students that they only have 20 minutes to complete their dive. They will need to judge what features are the most important parts of the wreck and map those parts first.*
7. *There will be four small groups mapping the wreck at a time. Dive Team A will map first, occupying staggered sections of the shipwreck so that the teams will have plenty of room to work.*
8. *After 20 minutes, change the groups so that the four other small groups can begin their observations. While one Dive Team is mapping the wreck, the other will be doing historical research on four vessels that might give clues about the shipwreck they will be mapping.*
9. *Have the Dive Team conducting historical research fill in their Shipwreck Data Sheets by finding information in the Thunder Bay Tribune.*
10. *When both Dive Teams have had the chance to make their observations during a dive on the shipwreck and have collected data from historical research, allow all the students to discuss their observations and research with their groups.*
11. *Using the information they have collected, have the students make a scaled drawing of the shipwreck on their graph paper. Give the students about 30 minutes to graph the shipwreck.*
12. *When all the groups are finished mapping and making their scaled drawings, collect the drawings from each group and bring them together to assemble a mosaic of the entire wreck site.*
13. *Gather the students in their groups for a class discussion. Ask the students about what they learned while mapping and graphing.*

Shipwreck Challenge

To add another challenge level, the students could pretend to be on a real dive where they cannot talk to each other and so they must find another way to communicate underwater. (See Dive Signals Reference Sheet)

Transfer your class's mosaic site plan onto an 11"x 17" piece of graph paper to create a real site plan of the whole wreck. Send the site plan to Thunder Bay National Marine Sanctuary to be put on display.

Discussion

- ***How did they decide what was important to map and what wasn't?***
  Students might say they chose the most obvious points, such as the hull and section outline, or straight lines that would be useful in drawing later on.

- ***What could they have done to be more efficient while mapping?***
  Students might say they could have planned ahead, known what to measure, listened to one person, studied the Parts of a Ship handout first, or made a sketch of the section first.

- ***What would have been some helpful tools they could have used while mapping or graphing?***
  Students might say they could have used a small ruler, a camera, an ROV, or video equipment.

- ***Did the mosaic come out accurately or were their differences between sections? Why might that have been?***
  Students may have taken inaccurate measurements or missed certain important measurements.

Reeling It In

Review the importance of mapping a wreck accurately. Discuss the difficulties of mapping a wreck underwater. Talk about how archaeologists identify shipwrecks and the importance of both historical documents and archaeological research. Archaeologists must rely on both of these forms of information to properly understand and interpret shipwreck siteS. Remind the students that shipwreck sites are like underwater museums and we must all work together to preserve, protect, and build appreciation for these amazing underwater treasures.

Extension

- *A writing assignment may be added to the activity to stimulate further critical thinking. Please review the Research Log post-activity.*
- *Visit www.thunderbay.noaa.gov for information about the shipwrecks of Thunder Bay and further education.*
- *Visit www.sanctuaries.noaa.gov for information about the Maritime Heritage Program and other national marine sanctuaries.*

Resources

1. *Thompson, Kate. Mock Shipwreck: An Exercise in Maritime Archaeology. NOAA National Marine Sanctuary Program. Wisconsin Historical Society, Office of School Services. 2001.*
2. *Hanner, Roxanne; Slayden, Beverly; Butler, Jennifer; Thompson, Paula. Shipwrecks of Thunder Bay: Thematic Unit for Fourth Grade. Alcona Community Schools. Alpena Public Schools.*
3. *Jason 2006 Shipwreck Activity*
4. *Working with Water: Wisconsin Waterways Teacher's Guide and Student Materials. Wisconsin Historical Society Press. Madison, WI.*
5. *Thunder Bay National Marine Sanctuary. www.thunderbay.noaa.gov*
6. *National Marine Sanctuary Program. www.sanctuaries.noaa.gov/education.*

Figure It Out

What kinds of obstacles might underwater archaeologists face while mapping a shipwreck site?

One challenge might be that they could not talk to each other. Archaeologists would also have to stay in one place above the wreck to be able to map it. If there was a current, it might be difficult to stay in one spot. Another obstacle might be that the visibility is low, so archaeologists could only see one very small section at a time. It can take a long time to map a wreck site. Archaeologists have to decide what is really important to map so that they can finish mapping before they run out of air.

Shipwreck Mapping

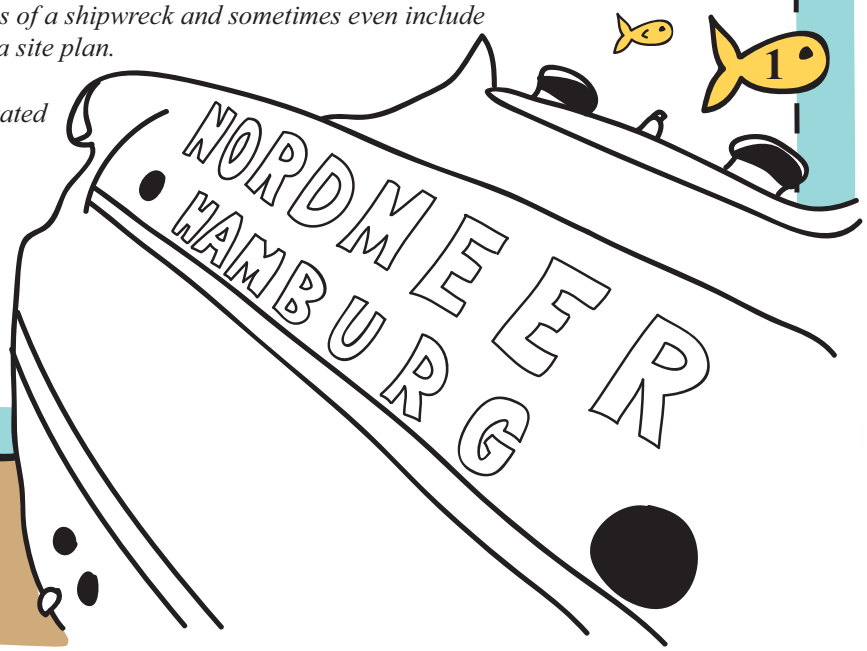
Archaeologists seek to understand past cultures by scientifically analyzing the material remains, such as sites and artifacts, left behind by human activities. Underwater archaeology is the study of any material remains that are found underwater. One particular aspect of underwater archaeology is maritime archaeology. ***Maritime archaeologists*** *study the history of human interaction with seas, lakes, and rivers through the investigation of the remains of vessels, shore side facilities, cargoes, and artifacts.*

Thunder Bay National Marine Sanctuary is an important location for maritime archaeologists. Approximately 200 shipwrecks have been found in and around the sanctuary, representing at least one example of every type of vessel that sailed on the Great Lakes during the "Shipwreck Century" from 1825-1925.

One of the main techniques used by maritime archaeologists to record and learn about shipwrecks is a ***site plan****. In order to create a site plan that is scaled accurately, archaeologists first set up datum points and a* ***baseline*** *to measure all other features from. These stationary points provide a solid reference to locate not only the artifacts and features of the shipwreck in relation to one another, but also to determine the precise location of the shipwreck within the lake. By creating an accurate drawing of a shipwreck and its artifacts, archaeologists and historians are often able to identify the shipwreck. Site plans also allow researchers to get detailed measurements of the ship, learn about the construction techniques that were used to build different kinds of vessels, and monitor the ways in which the condition of the shipwreck changes over time.*

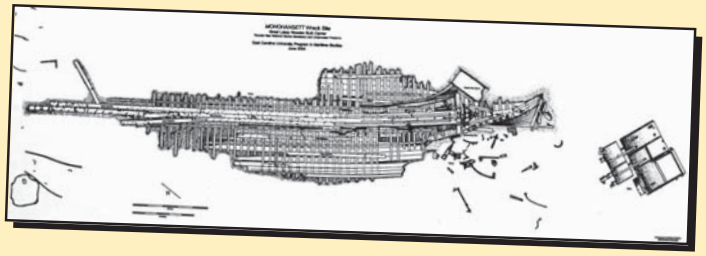
Though site plans are extremely useful to archaeologists, creating a site plan is a difficult and time-consuming process that often requires many divers due to the large sizes of some Great Lakes vessels. In some cases, archaeologists turn to other techniques to gather information about a shipwreck. One of these techniques is the use of a ***photo mosaic****. Archaeologists can make photo mosaics faster than they can draw up site plans, but photo mosaics still provide detailed images of a shipwreck and sometimes even include features that would not be represented on a site plan.*

Archaeologists can also use remotely operated vehicles, or ROVs, to take a closer look at a shipwreck. ROVs are extremely useful archaeological tools. Unlike a SCUBA diver, an ROV can spend an unlimited amount of time on a shipwreck. ROVs can also reach shipwrecks that are too deep for maritime archaeologists to dive on.



Arti-FACTS

This is the site plan of the Monohansett, *a wooden bulk freighter that burned in 1907. The site plan was created by students from East Carolina University in North Carolina. It took the students around three weeks to complete the site plan.*



Activity

In this activity, you are going to experience what it is like for real archaeologists to study and record shipwrecks underwater. A shipwreck has recently been discovered in Thunder Bay, and you will need to do a SCUBA dive on the shipwreck. You will need to make observations and collect data about the shipwreck, as well as record its measurements. You will then need to use that information and historical research to make hypotheses about the shipwreck and try to discover its identity.

Materials

- *Measuring tape (1 per group)*
- *Clipboard (1 per group)*
- *Ruler (1 per student)*
- *Graph Paper (1 per group)*
- *Log Sheet (1 per student)*
- *Pencil*
- *Information Packet: Parts of a Ship Diagram, Vocabulary List, Site Plans and Photo Mosaics handout, Shipwreck Data Sheet, Thunder Bay Tribune, Thunder Bay Wreck Map, Dive Signals Reference Sheet(optional)*

Vessel Vocab

Baseline – The main line used as a base of measurement, from which a site's features are measured in an archaeological site plan.
Maritime Archaeology – A discipline that studies human interaction with the sea, lakes and rivers through the study of vessels, shore side facilities, cargoes, and human remains.
Photo Mosaic – A composite image formed from many small pictures taken of a vessel, which are then stitched together using a computer to create one large picture.
Site Plan – A scaled drawing of a shipwreck and its artifacts as it lays on the bottom of the sea or lake.

Crew Commands

1. *For safety, divers never dive alone. Work with a group of 2 or 3 other students as your dive buddies.*

2. *Within your group, each member will be primarily responsible for a certain task. Choose one student as your Dive Leader. The Dive Leader will be responsible for coordinating the group and monitoring the time spent "underwater" while working on the wreck site. Choose one or two students as Recorders. The Recorders will be in charge of writing down the observations made and the measurements taken by the group. Choose one student as the Artist, who will be responsible for sketching the group's section of the wreck site. Remember that you must all work together to accurately map the wreck site.*

3. *If you are in Dive Team A, begin with the "Underwater Archaeology Procedures". If you are in Dive Team B, follow the "Historical Research Procedures" on the next page. When you have completed those procedures, switch to the opposite procedures*

4. *After you have done both historical and archaeological research, discuss your observations from both components with your group. Use your graph paper to create a scaled drawing of your section of the shipwreck and try to determine what wreck you think you might have found.*

5. *When you and the other groups have finished mapping your sections of the shipwreck, combine your drawings to make a mosaic of the entire wreck. If you were unsure of what wreck you might have found, see if looking at the map of the entire wreck helps you.*

Underwater Archaeology Procedures

1. *If your group is part of Dive Team A, you will be following these procedures first. If your group is part of Dive Team B, look ahead to the Historical Research Procedures. You will be following those first and returning to these later in the activity*

2. *Maritime archaeologists face many challenges while they are working underwater. They often encounter low visibility situations. For this reason, archaeologists often divide up a large shipwreck site into manageable sections and work on one small section at a time. Find the perimeters of the small section to which your group is assigned. Where is your section in relation to the rest of the ship? Sketch out general observations made for your section.*

3. *Archaeologists must also work within a small time window so that they do not run out of air in their SCUBA tank. Your team will have only 20 minutes to complete your measurements. This means that you must focus on only the most important parts and key features of the wreck. Identify the most essential elements in your section of the wreck site and measure and draw those areas first, before your time limit runs out.*

4. *Archaeologists often use right angle measurements to map a shipwreck accurately and measure different parts of the ship and the locations of various artifacts. In order to recreate a scaled drawing of the wreck from your right angle measurements, you will need to measure the distance from one location on the baseline. Be sure to mark on your log sheet where on the base-line you started your measurement.*

Historical Research Procedures

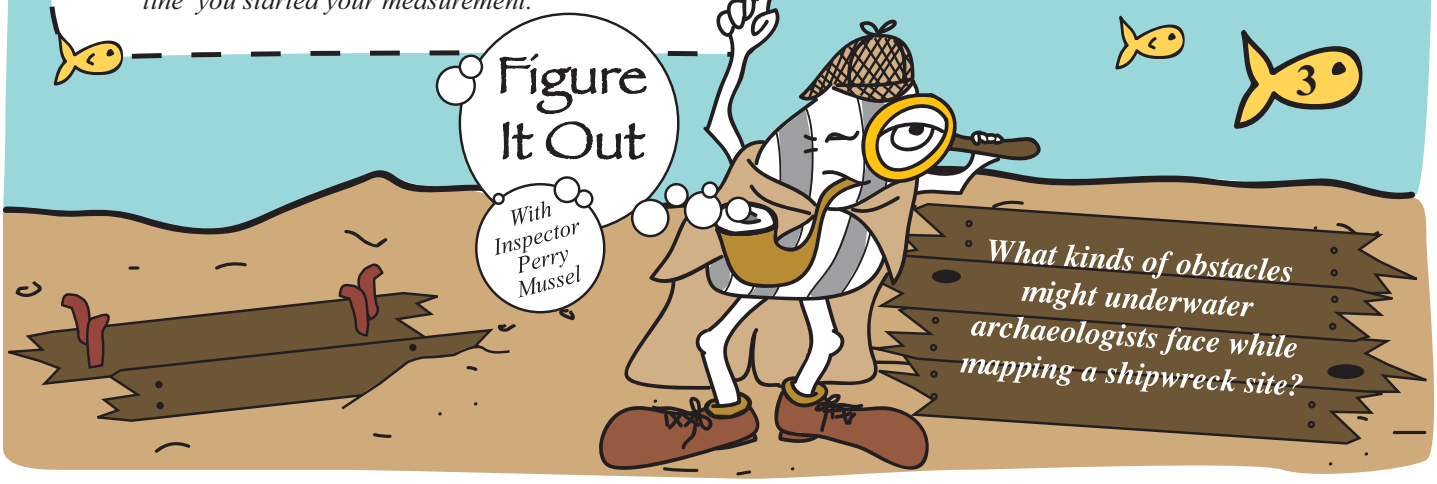
1. *If your group is part of Dive Team B, you will be following these procedures first. If your group is part of Dive Team A, go back to the Underwater Archaeology Procedures. You will be following those first and returning to these later in the activity.*

2. *Maritime archaeologists must do historical research along with archaeological research in order to be able to identify a shipwreck. Use your copies of the Ship wreck Data Sheet and the Thunder Bay Tribune to do your own historical research on the vessel you are responsible for mapping.*

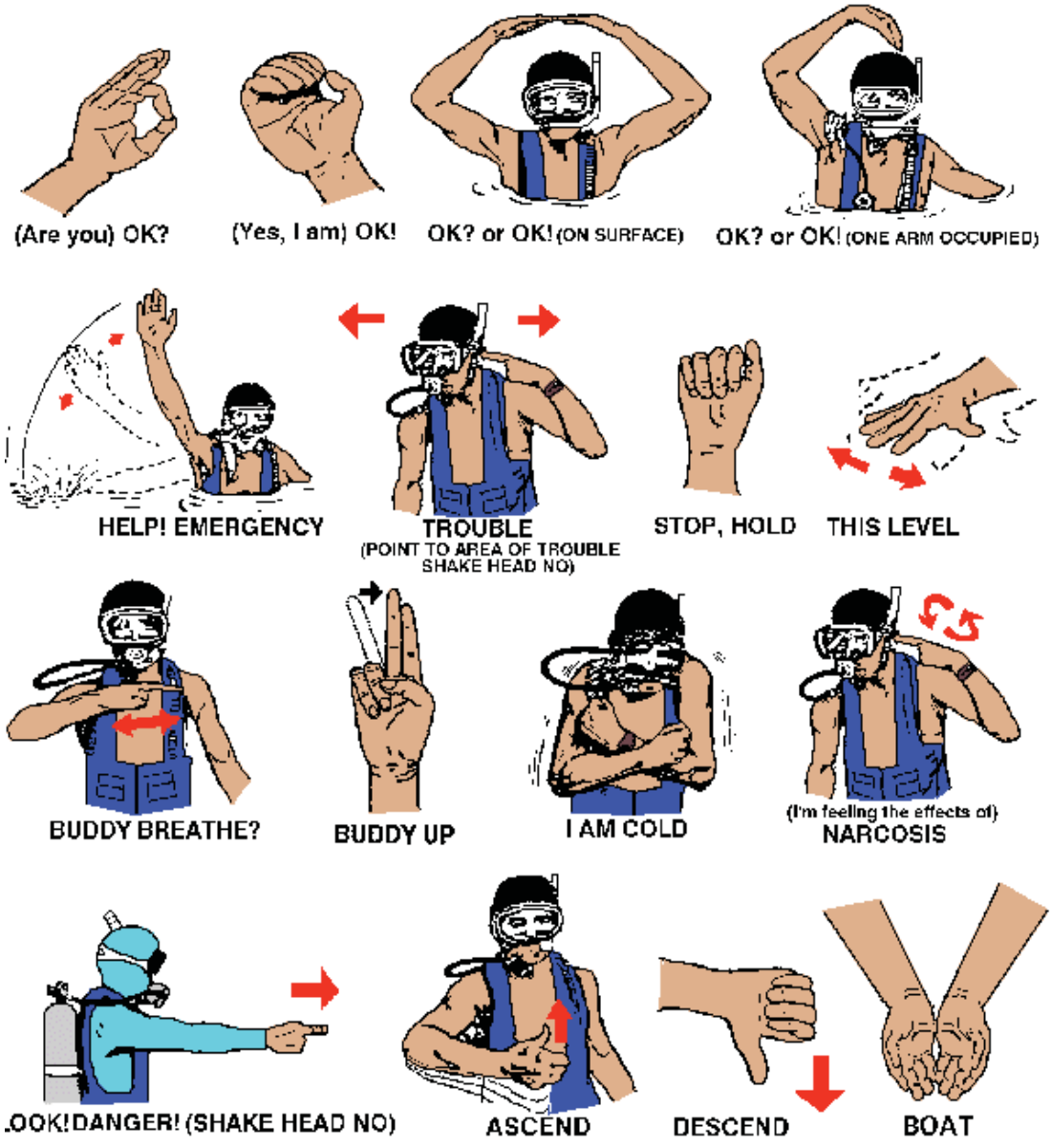
3. *Read through the stories of the shipwrecks found in Thunder Bay. Note the key features of those shipwrecks. Are any features on the wreck site identifiable characteristics of one of the vessels you have read about?*

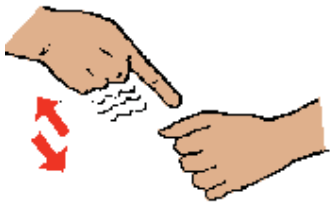
Shipwreck Challenge

Transfer your class's mosaic site plan onto an 11"x 17" piece of graph paper to create a real site plan of the whole wreck. Send the site plan to Thunder Bay National Marine Sanctuary to be put on display.



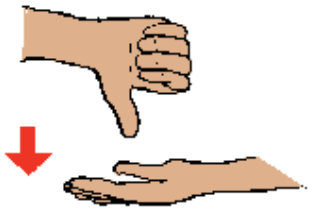
International Dive Signals Reference Sheet



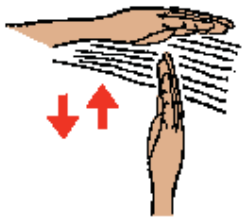


AIR SUPPLY?

(Present) DEPTH?



(What is your)
GREATEST DEPTH?



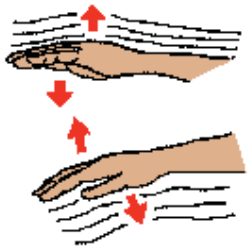
BOTTOM TIME

NO, NEGATIVE

ME or I

FOLLOW ME

GO THIS WAY

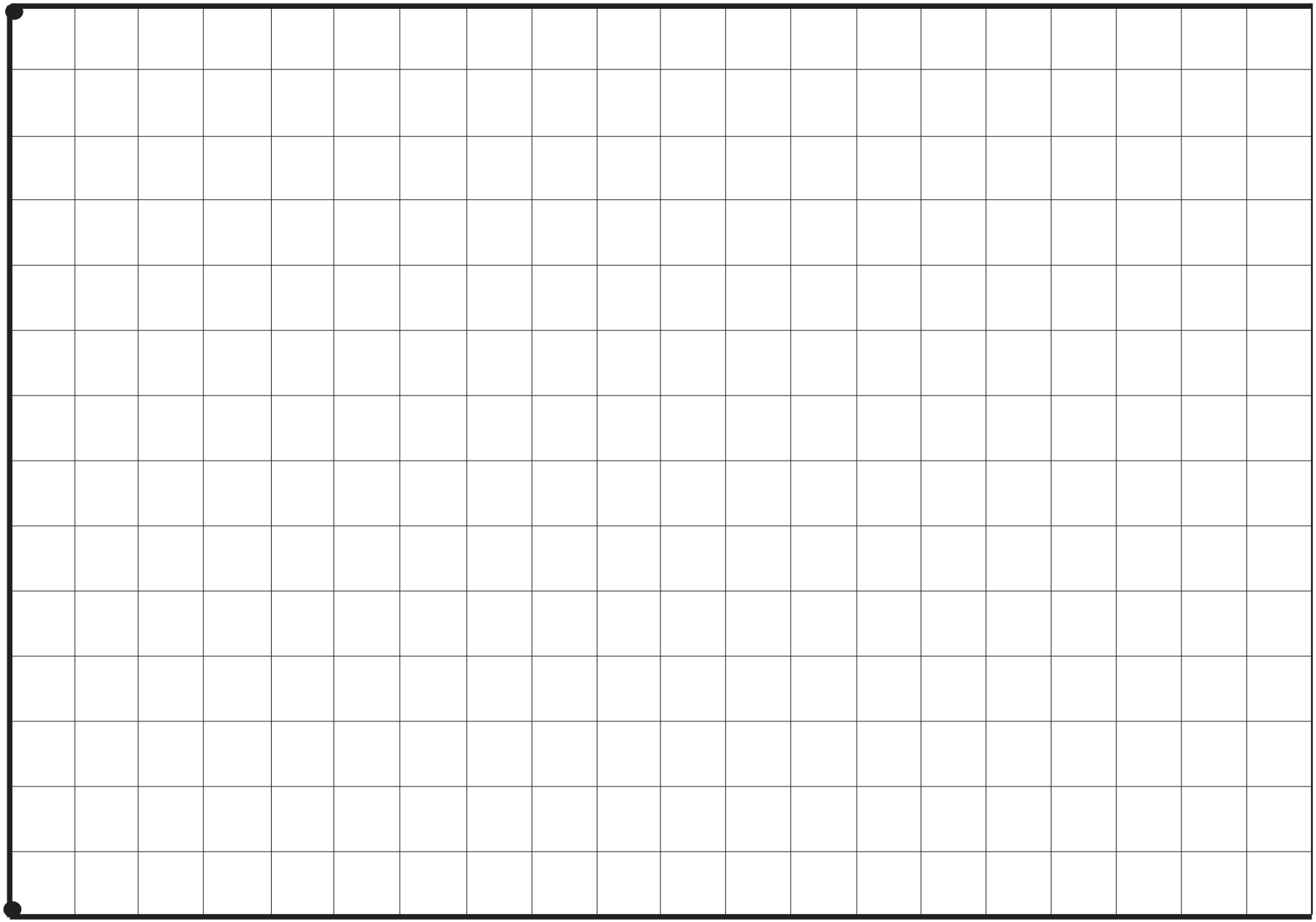


CAUTION! YOU ARE SILTING!

1 block = 6 inches, 2 blocks = 1 foot

Dive Team _____ Divers _____

Starboard Start



Port Start

1 block = 4 inch, 3 blocks = 1 foot

Log Sheet

Dive Team: _____ _____

_____ _____

Date: _____

Archaeologists map shipwrecks by carefully measuring and drawing parts on the wreck and its artifacts. They also make many observations about the wreck like what the vessel is made of and what condition the wreck is in on the bottom. Record your dive team's measurements and observations below. Make sure to draw a picture of your section and take all your measurements from the baseline.

Sketch

Baseline Mark	***Measurement***	***Ship Part***

Observations: _____

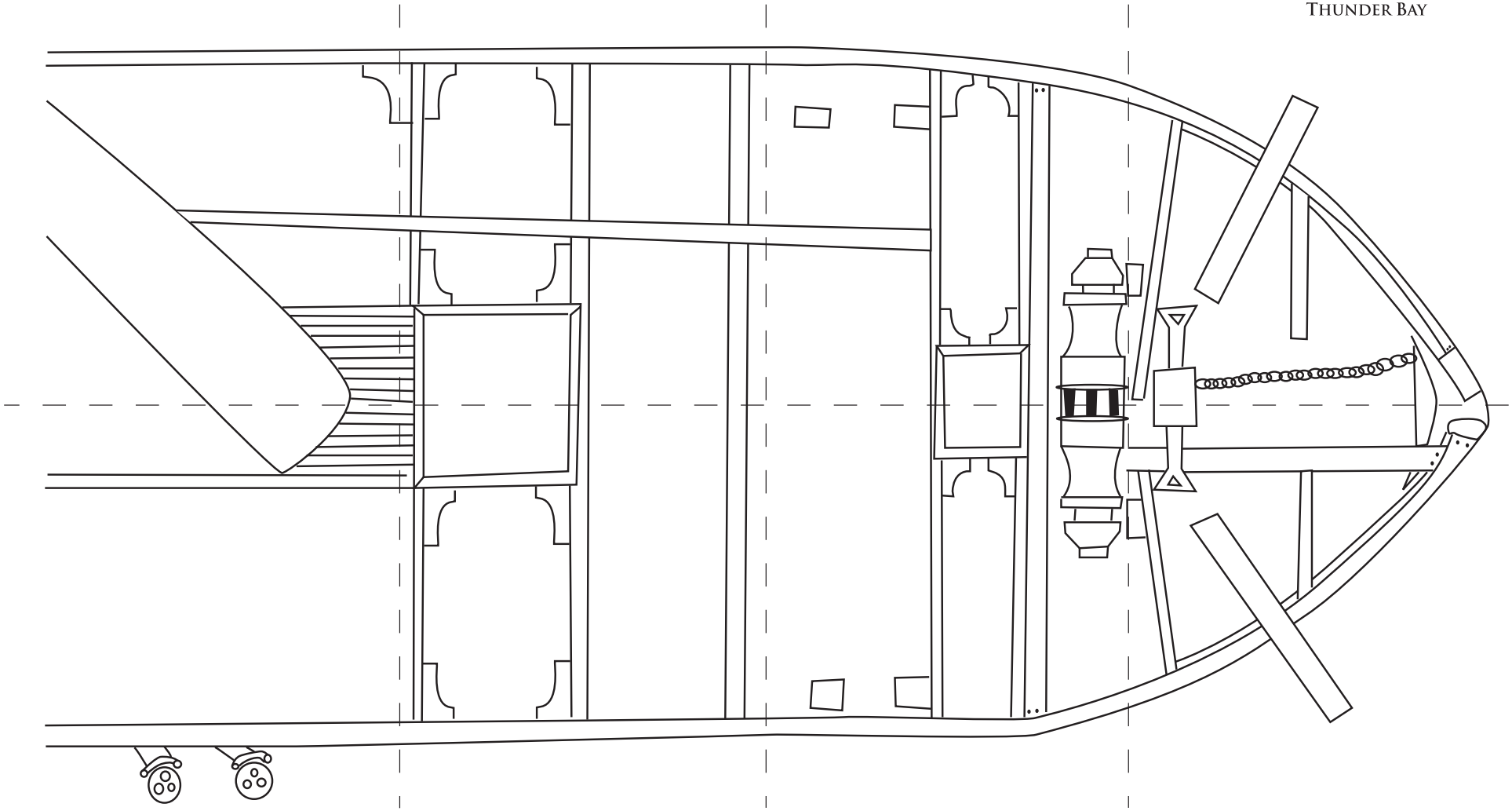
_____

_____

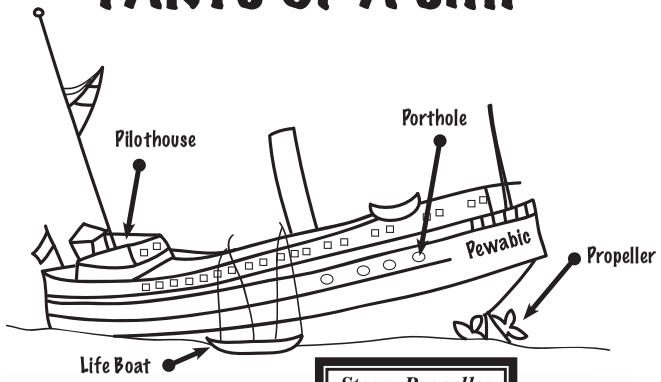
_____

Mock Shipwreck Layout

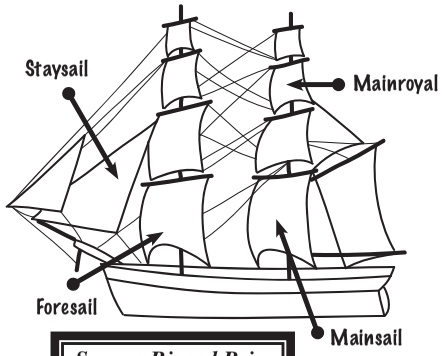
National Marine Sanctuaries
Thunder Bay



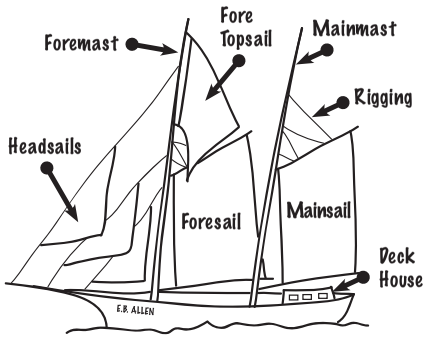
PARTS OF A SHIP



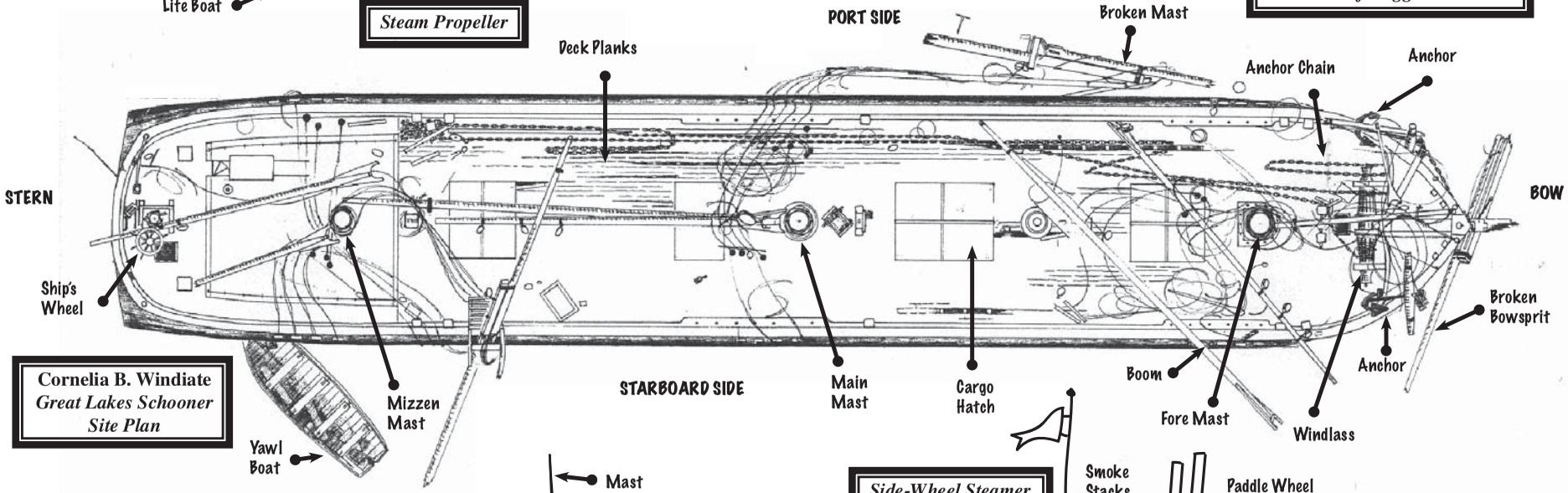
Steam Propeller



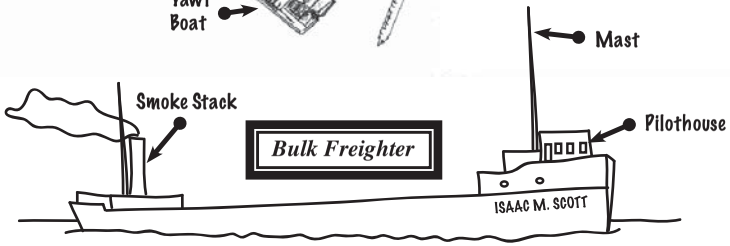
Square-Rigged Brig



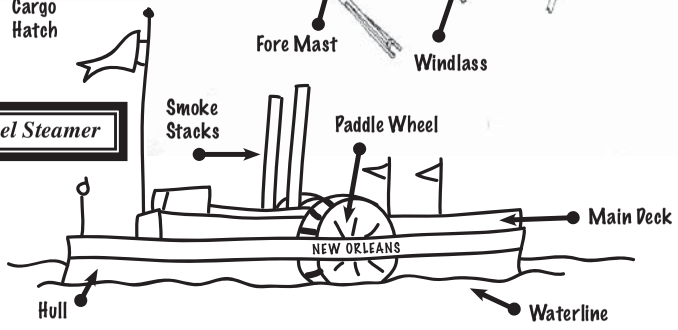
Fore and Aft Rigged Schooner



Cornelia B. Windiate
Great Lakes Schooner
Site Plan



Bulk Freighter



Side-Wheel Steamer

SANCTUARY VOCABULARY

Anchor- A heavy device attached to a vessel that when thrown overboard, holds the vessel in place.

Artifact- Object(s) that have been modified, shaped, or used by humans.

Baseline- The main line used as a base of measurement, from which a site's features are measured in an archaeological site plan.

Beam- Width of a vessel at its widest point.

Bosun- The officer in charge of maintaining sails, rigging, anchors, cables, etc. on a vessel. Also spelled 'Boatswain.'

Bow- The front part of a vessel.

Buoy- A floating object attached to the lake bottom that marks the location of a shipwreck.

Conservation- The process of treating an artifact to prevent decay.

Data- Information collected through observation.

Datum Point- Key reference point used to measure artifacts or large features.

Document- To record or write down. In an archaeological sense, documentation is done primarily by mapping.

Freighter- Large steam ship made to carry bulk cargoes.

Hatch- A door or opening on a vessel.

Hull- The body or shell of a vessel.

Knee- Timber or metal bar made into a right angle to provide strength and support at the intersection of timbers in a wooden vessel.

Mainsail- The primary sail on a sailing ship.

Maritime Archaeology- A discipline that studies human interaction with the sea, lakes and rivers through the study of vessels, shore side facilities, cargoes, and human remains.

Mast- A long wooden or metal pole usually vertical on the deck of a vessel that supports sails.

Mylar- A special paper that archaeologists use to write on underwater.

Photo mosaic- Many small pictures are taken of a vessel then a computer is used to stitch them together to create one large picture.

Plank- A long, flat piece of timber, part of a deck on a vessel.

Port- The left side of a vessel when facing the bow.

Porthole- A window on the outside of a vessel.

Preservation- The activity of protecting something from loss and danger.

Propeller- A bladed device powered by an engine to move a vessel through the water.

Rigging- All of the ropes and chains used to support and work the sails of a vessel.

Schooner- A sailing ship with two or more masts, rigged "fore-and-aft". The most popular ship type on the Great Lakes in the 19th century.

SCUBA- Self-Contained Underwater Breathing Apparatus

Site Plan- A scaled drawing of a shipwreck and its artifacts as it lies on the bottom of the sea or lake.

Starboard- The right side of a vessel when facing the bow.

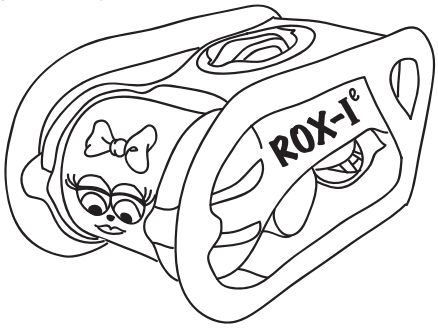
Steamer- A ship propelled by a steam engine.

Stern- The back part of a vessel.

Trilateration- A form of measurement used by archaeologists that measures from two separate points on a baseline to a datum point on the shipwreck.

Vessel- A craft designed for water transportation.

Windlass- Machine designed to raise and lower the anchor on a vessel.



Shipwreck Data Sheet- Answer Key

Fill in the data sheet by completing historical research on four shipwrecks found in Thunder Bay. This research may help you identify the wreck that you will be mapping.

Name	Vessel Type	Date Built	Date Lost	Cargo	Reason for Loss	Wreck Condition
Isaac M. Scott	*Bulk Freighter*	*1909*	*1913*	*Coal*	*Caught in the "Great Storm of 1913." A giant wave flipped the* **Scott** *over on the surface and it sank to the bottom upside-down.*	*Fully intact, but completely upside-down on the bottom of the lake. Still full of coal cargo.*

Name	Vessel Type	Date Built	Date Lost	Cargo	Reason for Loss	Wreck Condition
Pewabic	*Steam Propeller*	*1863*	*1865*	*Copper People*	*Collided with its sister ship* **Meteor** *creating a large hole in the port bow of the* **Pewabic.** *Sank in about five minutes. Went down bow first and smashed into the bottom.*	*Large hole in bow section removed by salvage of cargo. Mostly stripped of cargo. Upper deck blown off. Support arch visible down center. Rests in 165 ft of water.*

Shipwreck Data Sheet- Answer Key

Fill in the data sheet by completing historical research on four shipwrecks found in Thunder Bay. This research may help you identify the wreck that you will be mapping.

Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
E.B Allen	*Wooden Schooner*	*1864*	*1871*	*Grain*	*Caught in the fog and collided with the* **Newsboy**. *Sank in about three minutes. Air pressure popped off deck.*	*Sitting on keel. Mostly intact. Windlass and anchor chain in place. Mast broken. Deck missing. Sits in 90 ft of water.*

Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
Cornelia B. Windiate	*Wooden Schooner*	*1873*	*1875*	*Wheat*	*Caught in an ice storm. Ice built up on deck making too heavy to float. As ice melted, the* **Windiate** *sank slowly to the bottom.*	*Almost perfectly intact. Masts still standing, still has deck and hatch covers, and rigging still in place. Life boat sitting next to vessel. No great visible damage.*

Shipwreck Data Sheet

Fill in the data sheet by completing historical research on four shipwrecks found in Thunder Bay. This research may help you identify the wreck that you will be mapping.

Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
	Bulk Freighter					

Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
				Copper People		

Shipwreck Data Sheet

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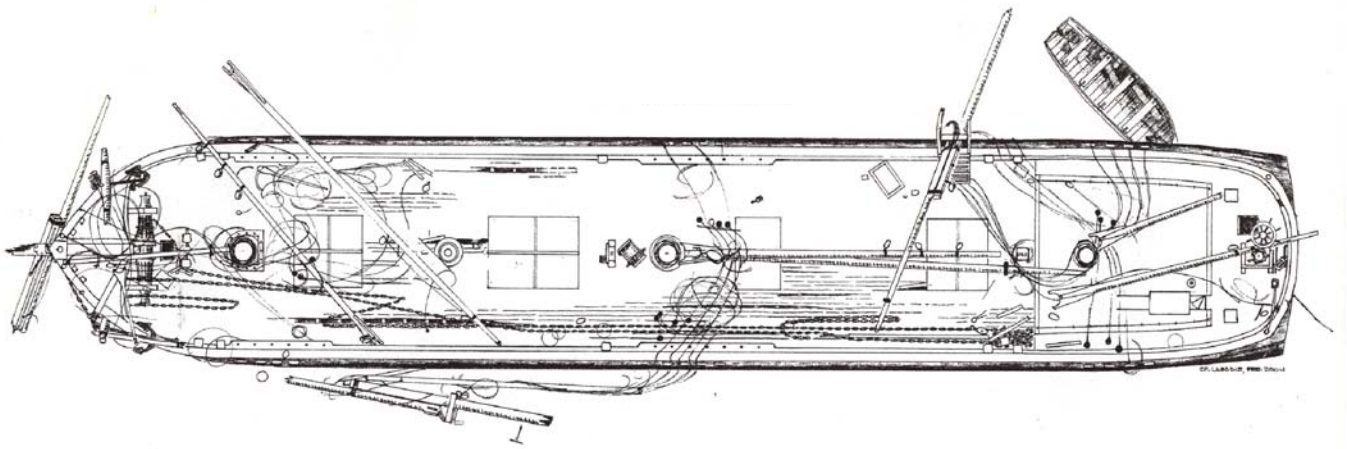
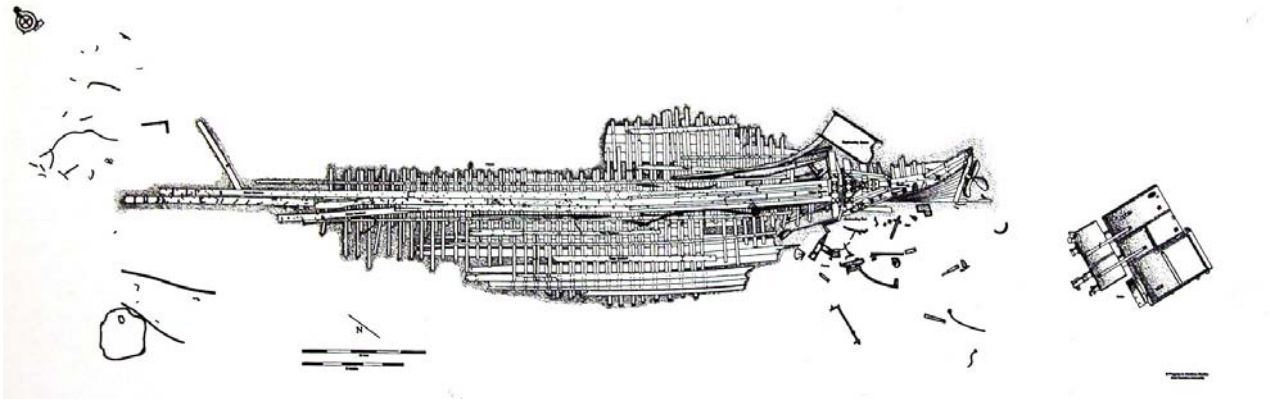
Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
					Caught in the fog and collided with the **Newsboy.** *Sank in about three minutes. Air pressure popped off deck.*	

Name	*Vessel Type*	*Date Built*	*Date Lost*	*Cargo*	*Reason for Loss*	*Wreck Condition*
			1875			

Site Plans vs. Photo Mosaics





A site plan is a carefully measured drawing that archaeologists make of a shipwreck and the artifacts on or around the shipwreck. Divers measure the wreck underwater and then transfer their measurements onto graph paper to create a site plan. Site plans help archaeologists see how the whole site looks. They can tell exactly where parts of the ship are in relation to other things onboard and around the site. Archaeologists can also see from site plans how the ship was built. This is sometimes hard while underwater because ships can be very large, in scattered pieces, or covered with marine life like zebra mussels.

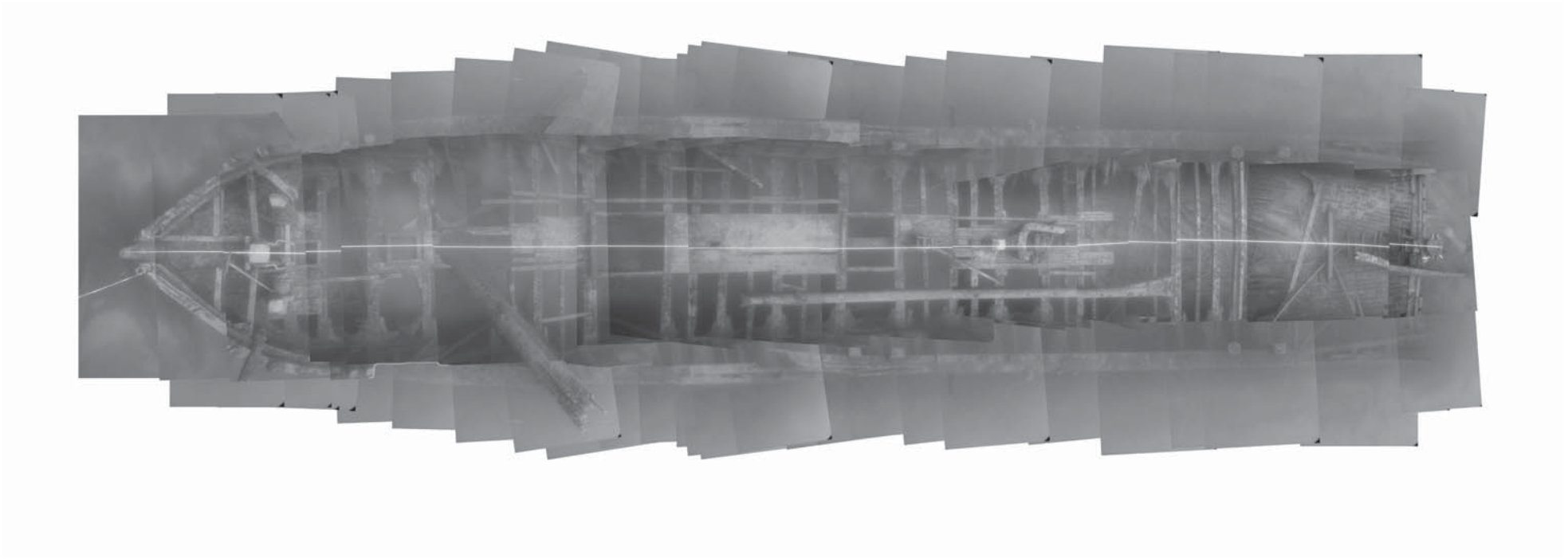
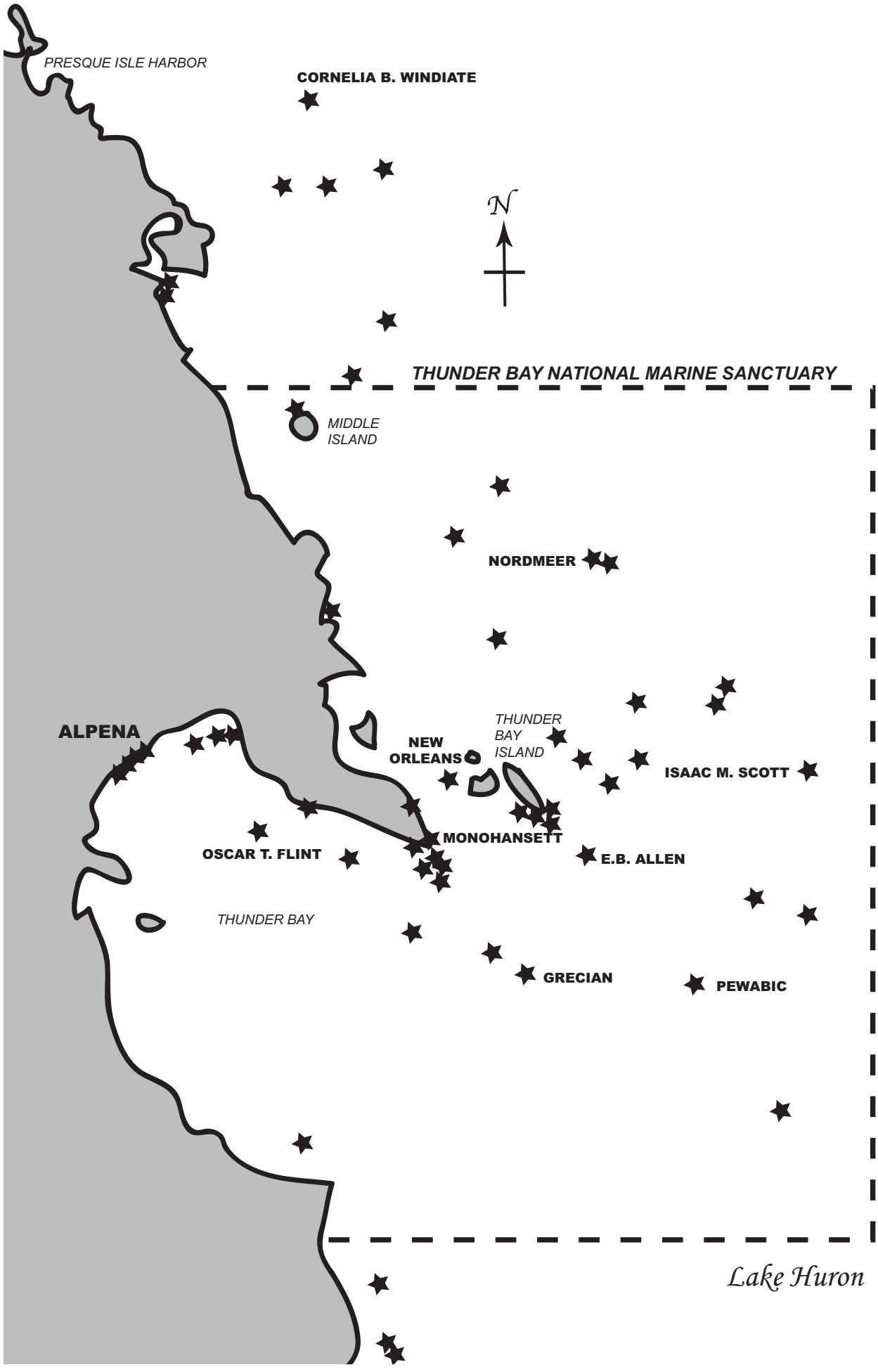


Photo mosaics are another great way to look at shipwrecks. A photo mosaic is a picture that is made up of many smaller pictures of a wreck site. These smaller pictures are all pieced together to create a larger image of the whole shipwreck. This image is not measured, but gives archaeologists a look at the shipwreck just as it is underwater. Because visibility (how far you can see in water) can be very poor and wrecks are big, taking many small images of a shipwreck and piecing them together is a great way to see all the detail of the whole wreck all at once.


PRESQUE ISLE HARBOR
CORNELIA B. WINDIATE
N
THUNDER BAY NATIONAL MARINE SANCTUARY
MIDDLE ISLAND
NORDMEER
ALPENA
NEW ORLEANS
THUNDER BAY ISLAND
ISAAC M. SCOTT
MONOHANSETT
OSCAR T. FLINT
E.B. ALLEN
THUNDER BAY
GRECIAN
PEWABIC
Lake Huron

THE THUNDER BAY TRIBUNE

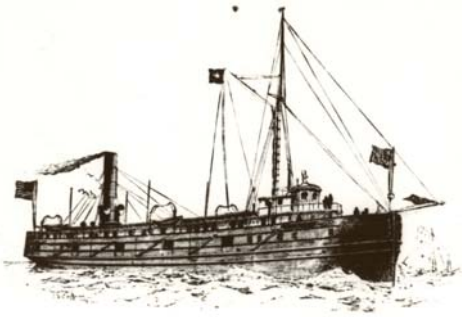
National Marine Sanctuaries
Thunder Bay

NOAA
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Thunder Bay National Marine Sanctuary - Alpena, Michigan

PEWABIC

The wooden steam powered PEWABIC was built in 1863 and was only two years old when she sank. The steam powered twin screw propellers on the stern of the PEWABIC. Most other steamers of this time had big side-wheels on either side of the ship that propelled them through the water. The PEWABIC also measured 200 feet long. This was very long for a wooden vessel. The bow and stern of a ship were very strong, but since the PEWABIC was so long it needed extra support in the middle. The PEWABIC had a 31 foot long support arch hidden in her center. The single arch made the PEWABIC lighter and also made it easier to load cargo. On the PEWABIC's last voyage, she was carrying two of the most important cargos of the time, copper and people. People realized that water was a much faster way to travel. On the evening of August 9th, 1865 the PEWABIC saw her sister ship the METEOR in the distance and prepared to pass news or mail to the other ship. Right before the two ships were to meet, the PEWABIC turned in front of the METEOR. The METEOR hit the PEWABIC in the portside bow tearing a huge hole in the side. The PEWABIC sank in about 5 minutes. Because she sank so quickly, air got trapped in the hull and as the pressure increased, the top deck and cabins were blown off the rest of the ship. The PEWABIC went down bow first and crashed into the bottom of the lake in 165 feet of water. Because she went down bow first, the front of the ship was shoved back into the hull. Divers can still see the large hole left by the METEOR that caused the PEWABIC to sink.

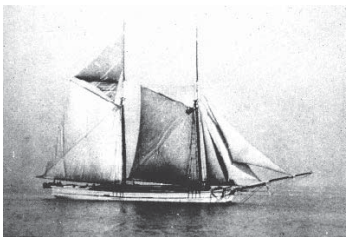


ISAAC M. SCOTT

Built in 1909, the steel bulk freighter ISAAC M. SCOTT measured 525 feet in length and was loaded down with 9,000 tons of coal when it left port from Cleveland in 1913. Headed for Milwaukee, the crew of the SCOTT had no idea they would be heading into one of the biggest storms the Great Lakes has ever seen. The "Great Storm of 1913", that lasted 3 or 4 days would take the lives of almost 250 sailors, most of them on Lake Huron. The SCOTT disappeared in the heavy snow and strong waves of Lake Huron during the storm. The location of the SCOTT was a mystery until the 1970s when divers found it about six miles off of Thunder Bay Island. The SCOTT and all its cargo rest on the bottom of the lake completely upside down. The powerful waves of that one storm were enough to flip over the large freighter filled with cargo. This shows just how powerful storms can be right here on the Great Lakes.

CORNELIA B. WINDIATE

The CORNELIA B. WINDIATE's final days on the Great Lakes began in Milwaukee on November 27, 1875 when she left port with a cargo of wheat. Shortly after leaving Milwaukee, the WINDIATE ran into a storm and vanished. No one knew what happened to the wooden schooner or where she went down. There were no reports that she passed through the Straits of Mackinaw and into Lake Huron. It wasn't until the 1990s that recreational divers discovered the 136 foot long WINDIATE about 100 miles past the Straits of Mackinaw. Resting in almost 200 feet of water, The WINDIATE appears to be fully intact. She is sitting upright with all three masts still standing and her life boat right beside her. The rigging is all still in place, the hatch covers are all still there, and the anchor chain still rests on the deck. The ship's wheel lies close to the fully intact deck house. There is no evidence of collision of any kind. The WINDIATE, built in 1875, is one of the best examples of a schooner from that time. Scientists believe that the WINDATE was caught in an ice storm and that ice covered everything on deck. With all the ice onboard, the WINDATE was too heavy to float, but because ice is buoyant (it floats in water), the ship sank very slowly to the bottom. The ice protected the deck from popping off as the pressure increased the deeper she sank.



E.B. ALLEN

The E.B. ALLEN, built in 1862, was only nine years old when it left Chicago with a cargo of wheat. As the three masted, 120 foot long wooden schooner approached Thunder Bay, a thick fog rolled in. Out of nowhere appeared another vessel, the NEWSBOY. There was no time for the E.B. ALLEN to move out of the way and the NEWSBOY rammed the port side of the ALLEN making a very large hole. Ships are strong in the bow and in the stern, but much weaker in the middle. Because the NEWSBOY hit the E.B. ALLEN with its bow, the NEWSBOY stayed afloat while the E.B. ALLEN sank quickly (in about three minutes) as water filled the cargo hold. As the ALLEN sank, air got trapped in the hull. This caused the top deck to be popped off of the ALLEN. The E.B. ALLEN now rests in 100 feet of water, but is very well preserved. The cold waters of Lake Huron protect the wrecks from falling apart. The windlass is still at the bow and one of the masts has fallen over, but is still in place. The E.B. ALLEN is sitting right side up on the bottom and the hole left by the NEWSBOY is big enough for a diver to swim through.