# Shipwreck Mapping
## Pre-Activity
## Captain's Notes

## Overview

*This exercise is meant to serve as a pre-activity for the Shipwreck Mapping Activity. In this activity, students will prepare themselves for the tasks of the Shipwreck Mapping Activity by practicing on a smaller scale version of a drawn shipwreck. Students will need to practice recording important observations, noticing key features of a shipwreck, and taking accurate right angle measurements in order to successfully create a scaled drawing of a shipwreck.*

## Difficulty/Grade Level

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

## Suggested Group Size

*This activity can be done individually or in pairs*

## Time

*30 Minutes*

## Objectives

*Understand the basic principles underlying shipwreck mapping techniques in order to prepare for the Shipwreck Mapping Activity.*

## Skills and Strategies

- *Using right angle measurements along a baseline to determine precise locations of points along a shipwreck.*
- *Using mathematical and graphing skills to recreate a scaled drawing of a shipwreck*
- *Time management*

## Materials

- *Ruler(1 per student)*
- *Log Sheet (1 per student)*
- *Shipwreck Layout Diagram*
- *Great Lakes Schooner Site Plan*
- *Sanctuary Vocabulary*
- *Shipwreck Layout Graph Paper*
- *Site Plan vs. Photo Mosaic sheet*
- *Shipwreck Layout Diagram Answer Key*

## Procedures

1. *Give students approximately 10 minutes to measure the points on their Shipwreck Layout Diagram and fill in the details of their Log Sheet.*
2. *Take the Shipwreck Layout Diagrams away from the students, leaving them with only their Log Sheets and their Shipwreck Layout Graph Paper.*
3. *Give students another 20 minutes to recreate a scaled drawing of the shipwreck.*

# Shipwreck Mapping

## Pre-Activity

### Arti-FACTS

***There are two different types of suits SCUBA divers wear, wetsuits and drysuits. Wetsuits keep an insulated layer of water between your body and the suit. Drysuits, just like their name, they keep divers dry. Body heat heats up the layer of air between the diver and the suit keeping the diver nice and warm in the cold waters of Thunder Bay.***

## Activity

*In this activity, you will prepare yourself to map a shipwreck like a real underwater archaeologist by practicing on a smaller scale version of a shipwreck first. You will need to practice recording important observations, noticing key features of a shipwreck, and taking accurate right angle measurements in order to successfully create a scaled drawing of a shipwreck.*

## Materials

- *Ruler*
- *Log Sheet*
- *Shipwreck Layout Diagram*
- *Shipwreck Layout Graph Paper*
- *Great Lakes Schooner Site Plan*
- *Sanctuary Vocabulary*

## Crew Commands

1. *First, take a look at the overall appearance of the Shipwreck Layout Diagram. Sketch the outline of the shipwreck and the key features you notice on board the shipwreck onto your Log Sheet. Mark anything that will help you remember what the wreck looks like, as you will be graphing the wreck later without the use of the Shipwreck Layout Diagram.*
2. *Using a ruler, take measurements along the baseline of the Shipwreck Layout Diagram (the line running down the middle with the letters). At each letter along the baseline, measure the distance to the number that is at a right angle directly above or below the letter along the outer hull.*
3. *Fill in the information on your Log Sheet with your measurements. (Example: Baseline Mark=A1, Measurement=0 inches, Ship Part= Bow)*
   - *Look over your Great Lakes Schooner Site Plan and your Sanctuary Vocabulary to help you with parts of the ship.*
4. *Once you have finished taking your measurements, recording observations, and sketching the shipwreck, turn your Shipwreck Layout Diagram in to your teacher.*
5. *Now, looking only at your Log Sheet for your information, recreate a scaled drawing of the shipwreck on your graph paper. Plot points for the measurements you took and then just connect the dots! You may work individually or with a partner. Be sure to include the key features of the shipwreck as well as the shape of the outer hull.*

## 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.

## CONGRATULATIONS!

**You have now completed mapping your very first shipwreck and drawn a site plan! Now that you are real maritime archaeologists, it is time to solve the mystery of an unidentified shipwreck that was found in Thunder Bay National Marine Sanctuary. Put on your SCUBA gear and dive into adventure with the Shipwreck Mapping Activity!**

# 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*** |
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***Observations:*** _____

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# 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.

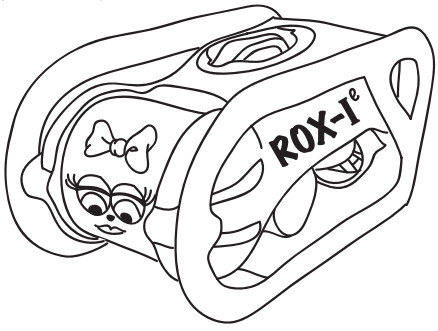
**Steamer**- A ship propelled by a steam engine.

**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.

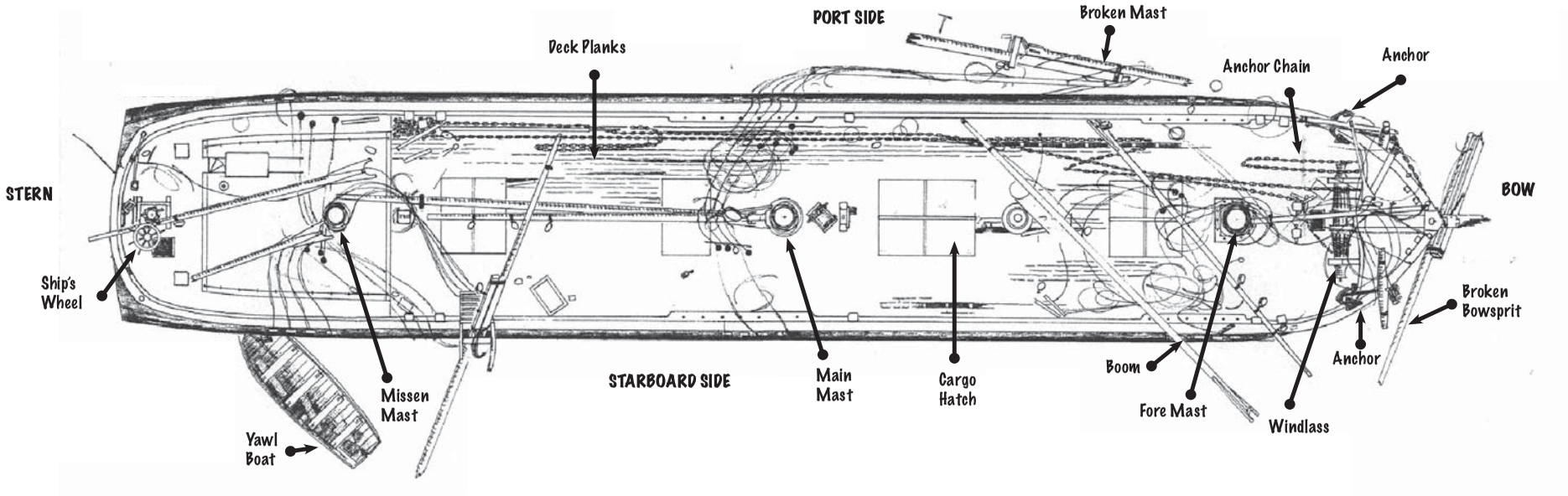
**Vessel**- A craft designed for water transportation.

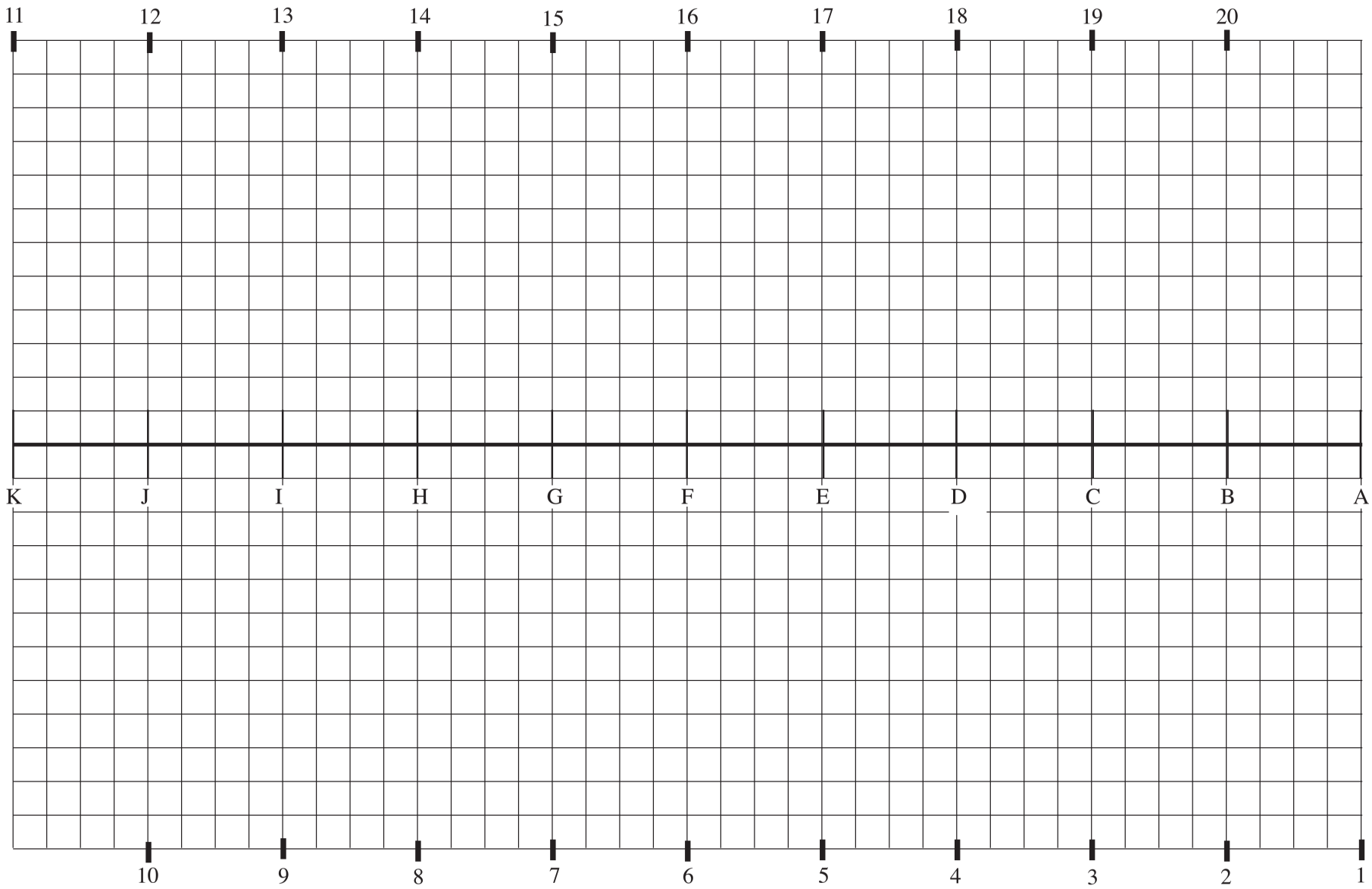
**Windlass**- Machine designed to raise and lower the anchor on a vessel.



National Marine Sanctuaries
Thunder Bay

# Great Lakes Schooner Site Plan

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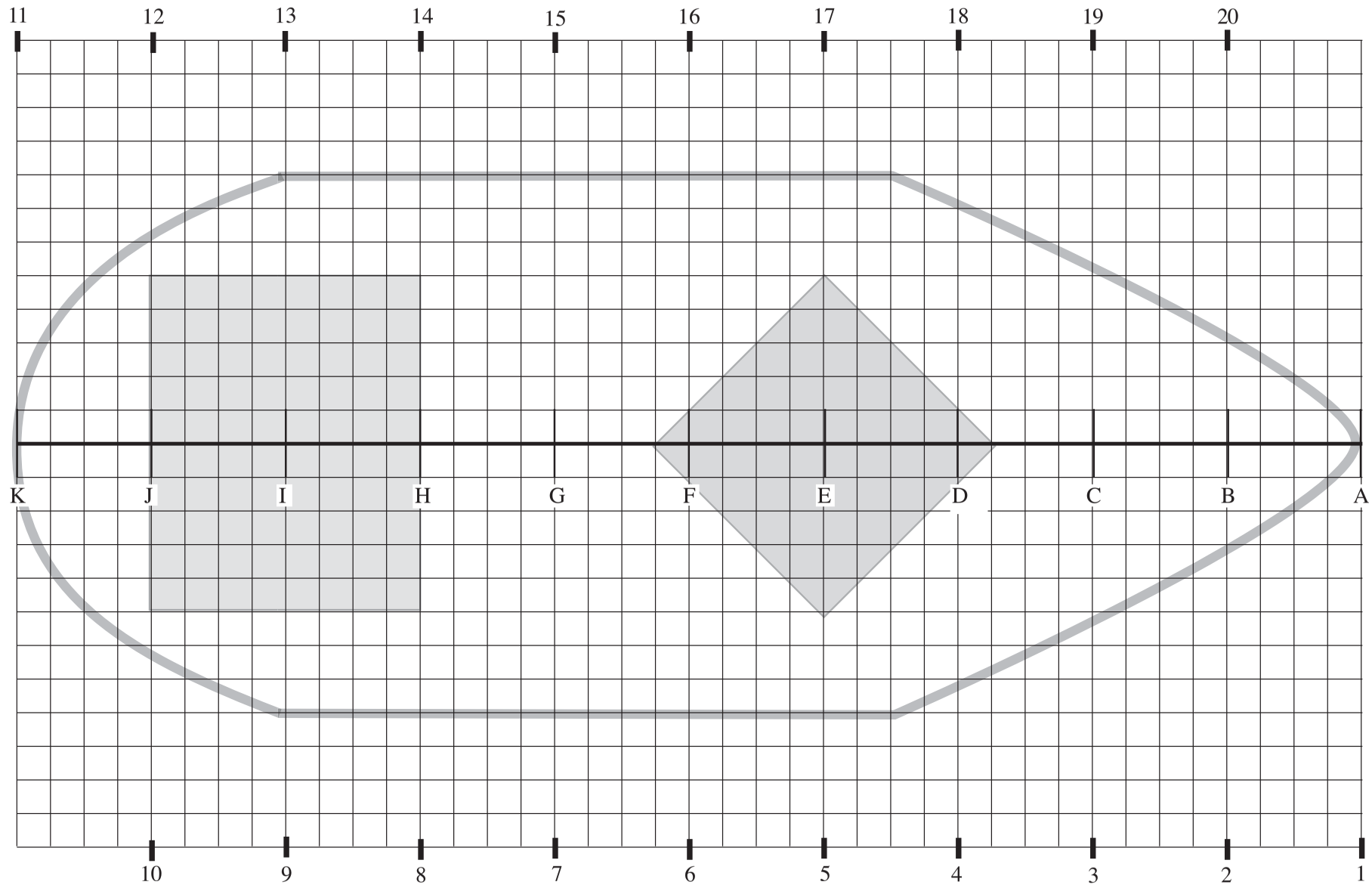
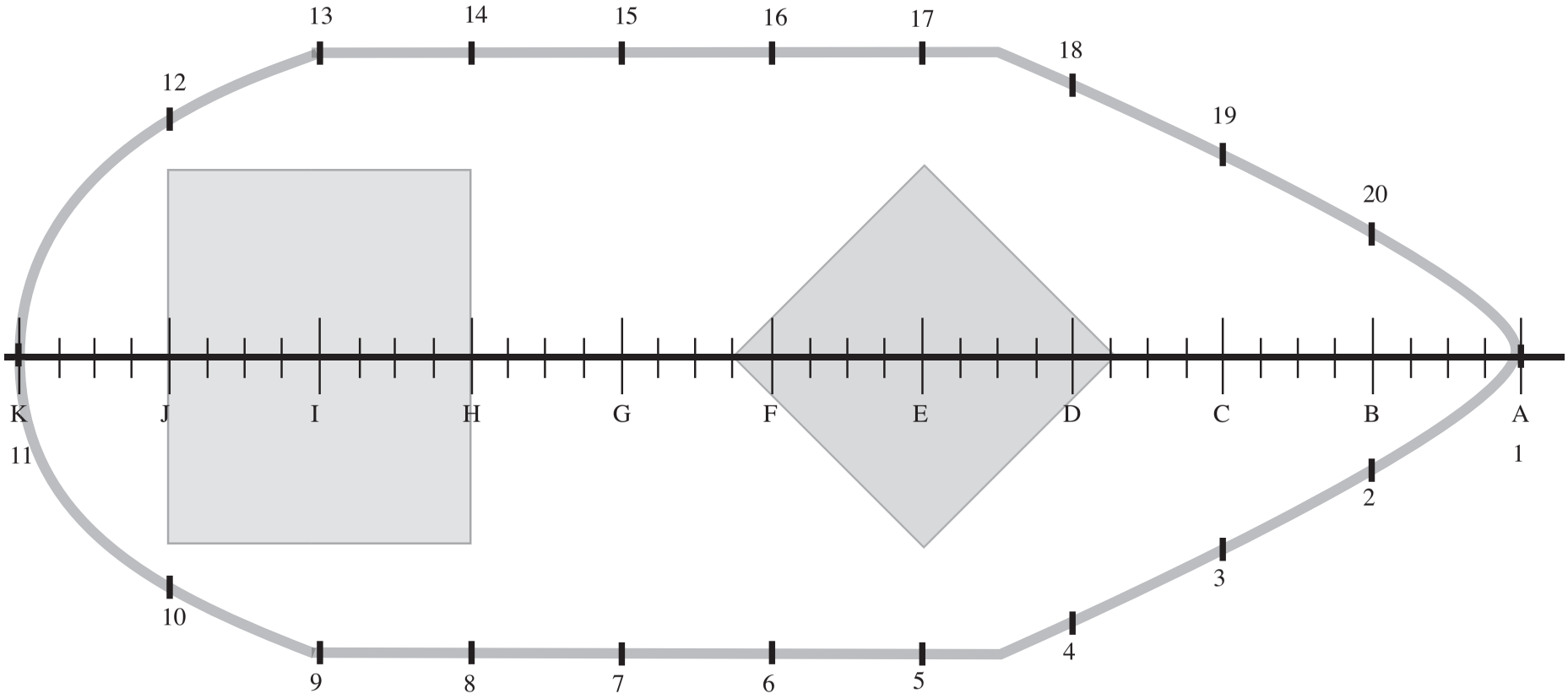



Answer Key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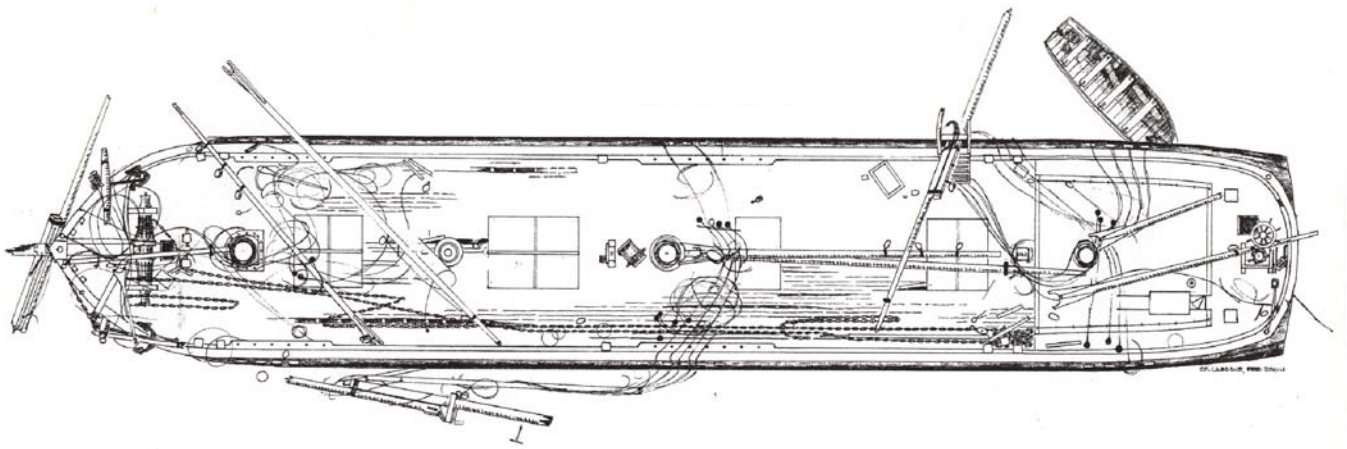
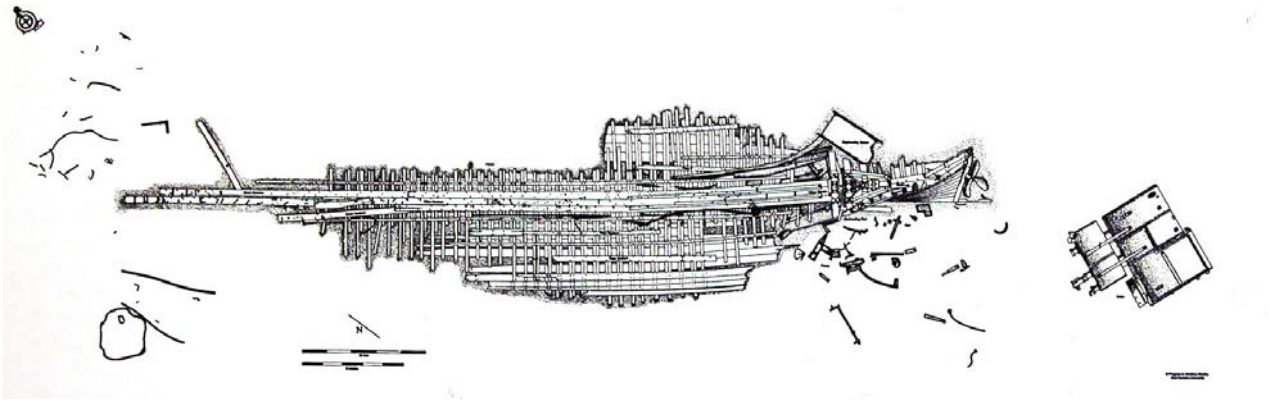
# Site Plans vs. Photo Mosaics





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.

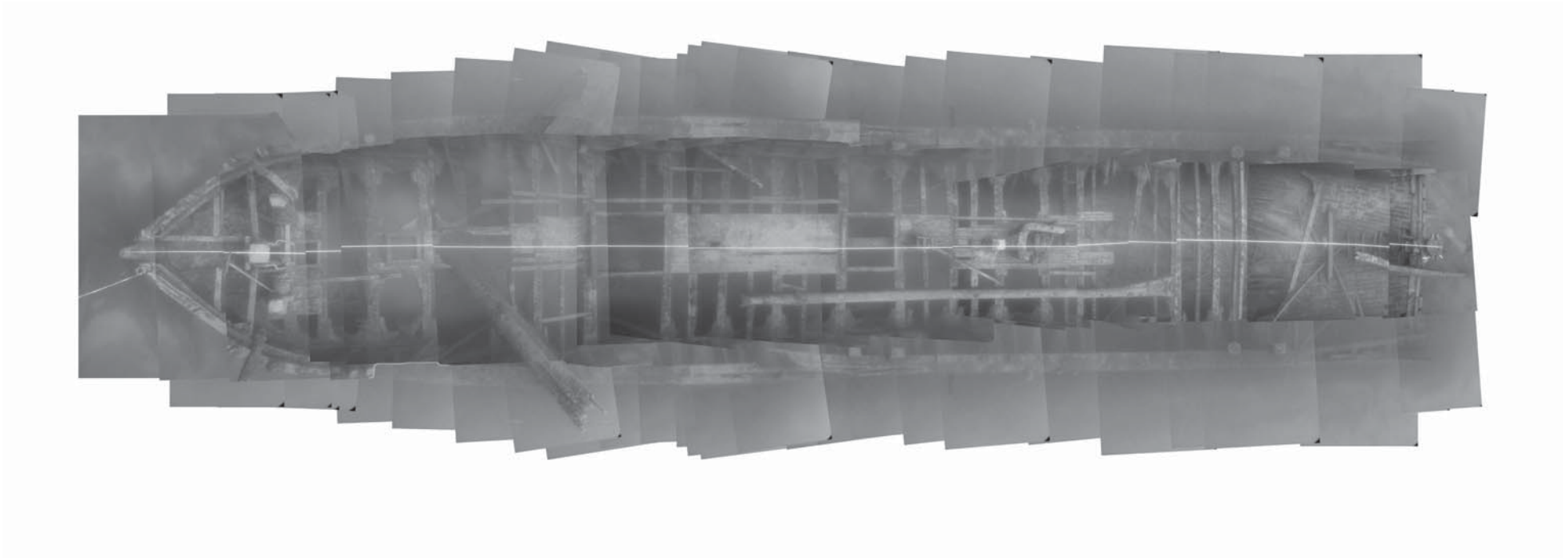


Photo mosaics are another great way to look at shipwrecks. A photo mosaic is a picture that is made up of many smaller pictures of a wreck site. These smaller pictures are all pieced together to create a larger image of the whole shipwreck. This image is not measured, but gives archaeologists a look 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.