



**Gundalow
COMPANY**

Protecting the Piscataqua region's
maritime heritage and environment
through education and action

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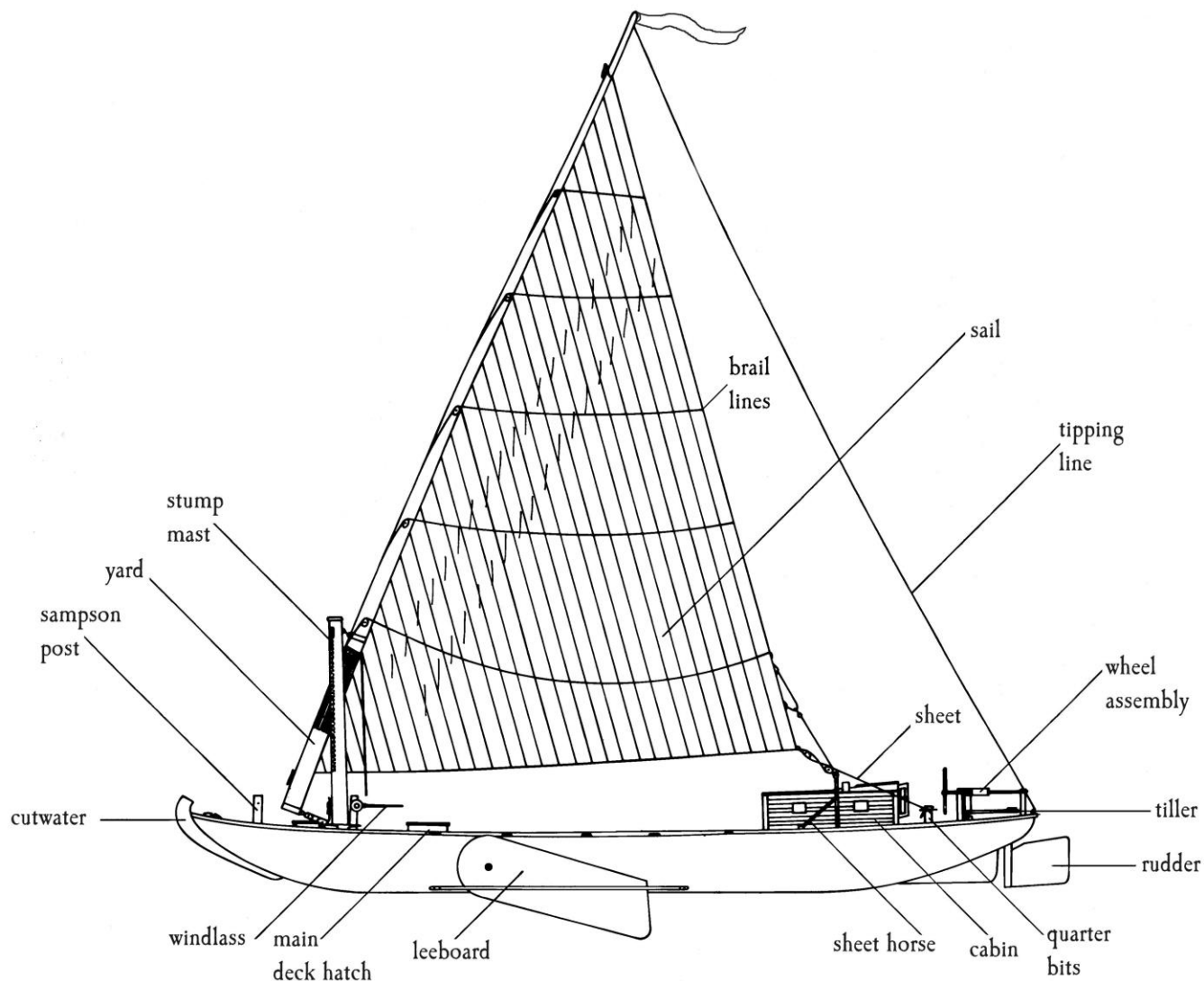
Bridge History and Build Your Own Bridge Activity

Instructions:

Read the information below about the history of bridges and gundalows in the region.

Then, using any materials you have at home (some ideas are listed below), you will construct your own bridge! This is an open-ended challenge, so there are no "right answers!" After the bridge construction, answer the follow up questions about what worked and what didn't.

Bonus: Name that Bridge Quiz- based on the photos below, can you name these bridges?



Bridge History from Captain Matt:

Gundalows and bridges have a long history together – gundalows often carried the construction materials, and of course their lateen rigs (the gundalow's sail combined with the stump mast and yard) were designed to be dipped just low enough to "shoot a bridge" on the tide. Our Gundalow needs clearance of 60 feet (rig up), 24 feet (yard dipped), or 8 feet (yard and mast laid on deck). Here's a review of the major Piscataqua bridges, and how they affect our plans.

1775-present: The Stratham to South Newmarket (now Newfields) bridge at the mouth of the Squamscott, a toll bridge with a swing mechanism that still allowed tall vessels to reach Exeter. The current rail bridge there has a swing which has been welded shut, leaving only 5 feet of clearance at high tide (and a significant obstacle to bringing our gundalow to Exeter).

1794-1855: The Piscataqua Bridge crossed Fox Point in Newington to Goat Island and on to Cedar Point in Durham. The south side had a great timber arch which gundalows could clear, while the north side had a draw span for tall schooners, and the island welcomed travelers at the inn.

1822-1940: The first Portsmouth Bridge, a 1600-foot wooden structure from Noble's Island to Kittery with a draw span. Ice (and perhaps contact with a few gundalows?) knocked it out of alignment, and in its last year a locomotive ran off the track and still lies at the river bottom nearby.

1919-2011: The Memorial Bridge, a modern span with 150 feet of clearance fully raised, replaced by the "new" Memorial Bridge, with the same open clearance and 21 feet closed.

1934-Present: The General Sullivan Bridge (and subsequent Little Bay/ Route 16 bridges) allow 45 feet of clearance, ending Little and Great Bay access to taller vessels.

1940-2016: The Sarah Mildred Long Bridge, another lift span with 135 feet of clearance up and just 10 feet closed.

In March of 2018 the new Sarah long opened to traffic, and planners expect 68% fewer bridge openings due to the larger closed clearance of 56 feet –at high tide – and enough for Piscataqua's full rig to sneak under without a lift when the tide is low!

Build Your Own Bridge Challenge:

Now you've learned a bit about the history and structure of bridges in the area, you get to build your own!

Get outside- after gathering materials, try doing this activity outside! You can even use sticks and other natural materials to build your bridge.

1. Think about what kind of bridge you would like to build and imagine that boats like gundalows will have to sail under it. Would you want it to open or lift like the drawbridges nearby? Or would you build it high enough that river traffic can sail under it?
2. Gather your materials. What do you have in and around your house that would help you build a mini bridge? Here are some ideas:
 - Uncooked spaghetti
 - Marshmallows
 - Tape
 - Toothpicks or skewers
 - Sticks from outside
 - String
 - Cardboard
3. Construct your bridge!
4. Added challenge: see how much weight your bridge can hold! Add small rocks, marbles, or anything you can use to carefully weigh your bridge down. How much can it hold before breaking? How else could you structurally support your bridge?

Follow Up Questions:

- How did the bridge construction go? What worked well? What would you change?
- Which materials were most useful?
- What shape of bridge did you choose?
- Would tall ships be able to sail under the bridge? Or would you need to add a lift?

Can You Name the Bridge, the Highway, and the River crossed by these Local Bridges?

(From the ME/NH border and 3 miles south into MA)











Local Bridge Quiz Answers

Highway	Bridge Name	River Crossed
1) 95	John Greenleaf Whittier	Merrimack
2) 1 Bypass	Sarah Mildred Long	Piscataqua
3) Rt 1	Gillis	Merrimack
4) Rt 1	Memorial	Piscataqua
5) Rt 4	Scammel	Bellamy
6) 95	Piscataqua River	Piscataqua
7) Rt 16	General Sullivan, Capt. John F Rowe, Ruth L Griffin or "Little Bay"	Little Bay
8)	Newburyport Chain Bridge	Merrimack