



## Sail Nauticus Skipper's Test Study Guide

### Written Exam Standards | October 2022

This Study Guide presents information which you will encounter on the Skipper's Written Exam. The guide is written to supplement training in the boat with an Instructor or Mentor. **It is specific to our Harbor 20 fleet in the designated sailing area on the Elizabeth River.** This document expands on the outline version of the Skipper's Written Exam Study Guide on the member Sail Nauticus webpage under "Resources". The current written exam has 35 questions and requires a minimum passing score of 75%.

#### Chart Reading

"Red Right Returning" locally means keep Red markers on Starboard side when heading inland from open water (e.g. Southbound on the Elizabeth River and when heading Away from the river on the tributaries. (Scott Creek, Western Branch, Lafayette River))

Know that the water gets shallow in the Anchorages of Crawford Bay (north of the Portsmouth marina and south of Hospital Point) and Scott Creek in the area immediately North of Hospital Point. Local Chart has Depths in FEET.

**Aids to Navigation (ATONs)** - Know the difference between Daymarks (fixed) and Buoys (anchored which can drag in a storm). Daymarks use Triangle shapes as equivalent for Red Nun buoys and Square shapes for Green Can buoys. Red marks have Even numbers and Green have Odd numbers.

Be familiar with various chart notations and what they mean:

Know the Chart Abbreviations for ATONs in our sailing area and what they actually look like on the river.

Charted depths and heights

Colors: Land is yellow and deeper water is white, shallower water is blue, and green is a tidal area (it is covered with water at high tide; land is exposed at low tide).

The Sail Nauticus **Administrative Boundaries** are marked with **Magenta** markers on the charts located in the Orange Box on the boats. Do not sail under ANY bridges and no further North than the South end of **Craney Island**. East of Craney Island, Do Not Pass the Channel entrance to the Lafayette River. The Chart depths will make it obvious why.

### **How Sails Affect Steering of the Boat**

When sailing upwind: Trimming the Jib pulls bow Downwind - Trimming Mainsail turns boat Upwind

The sail's pressure must be balanced to reduce excessive force on Tiller and sail a straight course.

When Close Hauled in heavy wind, you **Cannot** turn downwind UNTIL you Ease the Mainsail.

When sailing with wind behind you or on the beam, Tighten the mainsheet to center the boom and **reduce speed**. This initially seems counter-intuitive but it works.

Between Close Reach to Close Hauled, Luff the Mainsail as required to reduce boat speed and heel.

### **Sloop Depowering / Reefing Schedule**

There will be multiple questions about "Depowering" the sails / boat. The assumption is that Reefing is the Final step after adjusting the sail trim controls. When you encounter the first question of this type, read all of them before answering. You may find that an answer presents itself.

When sailing in gusty conditions, keep a hand on the mainsheet (even if it is in the cleat), and be ready to quickly ease the mainsheet to depower the sail and keep the boat under control when hit by a gust. Tighten the Cunningham, Outhaul, and Backstay to Flatten the sail and Depower. Moving the Mainsheet Traveler downwind will keep the Mainsail shape but spill wind off the sail and reduce the boat heeling angle.

**In heavy conditions or squalls:** To keep the boat upright, you can partially Reef the Jib or Furl it completely. If the wind is behind you, lowering the Main and sailing with the Jib alone may provide better boat control.

If you are Motoring and cannot make progress against the wind or current, the boat will move faster with both sails up if the wind is strong. This may require Reefing the Mainsail.

In Heavy Weather – If the motor fails and your sails are damaged, drop the Anchor as soon as you get to the shallows. We have 100 ft. of anchor rode attached to a Danforth-style anchor stored under the Forward, Port seat. You should check that an anchor and line are aboard your boat before leaving the dock.

### **Currents/Tides**

The local tides fluctuate up to 3 feet, about every 6 hours. We get a tidal Current in the River which can be the controlling Force on the boat in light winds. Know your High and Low tide times so you can predict Flood (rising tide with flow from the Chesapeake Bay) and Ebb (lowering tide with flow toward the Bay).

Online Tide Tables are included in **Sailflow.com** and **Windfinder.com** (refer to Gathering Weather Information below) or paper versions are available at many marinas, bait shops or at the local West Marine store.

The *Sail Nauticus Resources* page has a link to the NOAA tide data at the Portsmouth Shipyard.

### **ColRegs (Collision Regulations) Navigational Rules pertaining to navigating the Elizabeth River**

\*\*\*\*\* Sail Nauticus Directive #1 - **Give Commercial traffic the Right of Way**\*\*\*\*\* You do not want to end up in front of a Tug because he is a powered vessel and Should give way to a sailing vessel per the ColRegs. They are Working for a living and we are sailing for fun.

*More formally:* A Tug pushing or pulling a Barge(s) is “Encumbered” or “Restricted in Maneuvering” and **MUST** be given the Right of Way.

**Stay at least 100 yards away from any Navy vessel.** If they are nervous, they will Hail you on VHF radio channel 16 and ask your intentions.

Commercial Fishing vessels are also considered “Restricted” when using nets or Locally, when dropping or recovering crab traps. Give them a wide berth.

A Tug without a barge is just a Powered Vessel BUT see Directive # 1 above for local guidance.

General Info: The Tugs alone frequently travel outside the channel close to Nauticus. Be cautious when leaving the Sail Nauticus docks and basin.

The tourist boat “Victory Rover” (gray hulled power boat) will often make a pass by the Port side of the Battleship and can present a collision hazard if you are not alert. Look both ways when exiting the Basin. In the boating season, recreational boats present the same problem.

When encountering a recreational power boat on a possible collision course while you are Sailing, hold your course (you are the “Stand On vessel”). They are obligated to turn away from you (“Give Way vessel”). **If the power boat is not turning or responding** – turn the Harbor 20 so their Bow is on your beam (perpendicular) and you are most visible and moving away from their course more rapidly. Everyone’s ultimate obligation under the ColRegs is to **Avoid Collisions** regardless of who has legal Right of Way.

Human powered vessels (Kayaks, Canoes, Paddleboards, etc.) have Right of Way over everything else **including you in a Harbor 20.**

Know the rules for navigation around channels used for commercial traffic

Sailing Vessels Meeting:

Opposite Tacks - Starboard Tack has Right Way over Port Tack

Same Tack – Leeward boat had Right of Way over Windward boat

Head On – Pass Port to Port

Overtaking on either tack - Overtaking boat must Give Way to boat being Overtaken (Stand On)

If Running Wing & Wing - Boat is on the Tack **opposite** to side the Mainsail is on. Therefore, a Running sailboat could be on either Port or Starboard Tack and must react accordingly for collision avoidance.

If a Sailboat is **Motoring** with or without sails – **It is a Power Boat** under the ColRegs.

### **Gathering Weather Information**

*NOAA Weather Radio* - Available on most VHF marine band radios. Use **Channel One (1) locally** for routine wind and wave forecasts. You can set an Alert to alarm if Hazardous weather is moving into area. This is useful when summer thunderstorms are forecast.

*Sailflow.com* has real-time buoy data from several Elizabeth River locations that are free. Closest to Nauticus is the **Craney Island** station. Wind forecasts are reasonable accurate for a few days ahead.

*Windfinder.com* - Use the **Norfolk / Portsmouth Harbor** location for best Forecasts.

*Weather Underground* and *Weather.com* give hour-by-hour forecast and radar.

### **Sail Trim**

In general, as you turn the boat into the wind, **Trim** (pull in the Sheet) the Jib and Main. As you turn downwind, **Ease** (let the Sheet out) the sails.

Jib Telltales are the most accurate way to get optimal performance - Move the sail **Toward** the fluttering Telltale by adjusting the sheets. Alternatively – Turn the boat **Away** from the fluttering Telltale. The Goal is to have both windward and leeward telltales flowing **parallel** to each other. As you move downwind from a Beam Reach, the Telltales lose their usefulness.

Adjust the Mainsail until the Luff edge behind the mast is smooth with no fluttering or flat spots. After Tacking, if the entire Jib is shaking - the boat is pointing too close to the wind. Fall Off a few degrees and watch your speed increase.

### **Emergency Procedures**

The radio distress call “Mayday” is only applicable for a **life-threatening emergency**. Learn when to use the “Pan-Pan” call and what the “Securite” broadcast means.

Review the printed Procedures in the **Orange Plastic box** in the cuddy cabin with instructions on **Whom to Notify**.

## **Safety Items**

*Where are the Shallow areas in our sailing area?* - Crawford Bay (the public anchorage area North of the Portsmouth marina); the shoreline area just North of Hospital Point in Scotts Creek.

**\*\*\*\* Always be scanning for traffic \*\*\*\***

Be aware of the Norfolk – Portsmouth **ferry routes** and don't cut across their path. Remember that they run an extra boat to Harbor Park during ballgames.

*Where are the local Anchorages?* - All are noted on the Chart but Crawford Bay, south of Hospital Point, is where the transients usually stop.

*VHF Radio Usage* – you should be scanning on 3 channels ---

**71** - Public channel that we use Locally to talk to Sail Nauticus

**13** - Used locally by the tug Captains and other commercial operators

**16** – Emergency hailing channel. Coast Guard always monitors.

Standard radio format is: "Sail Nauticus, Sail Nauticus – this is Green Boat (for radio check / returning to basin / departing with John & Sally, etc) "

## **Equipment Location**

A Danforth-type Anchor and 100 feet of Line is stored in the Forward, Port seat locker.

Check that a Fire Extinguisher is onboard and Not Expired – Located on the Port side forward of the vertical bulkhead under the foredeck.

Know contents of Orange Safety Box:

\*Emergency Procedures

\*Local Chart

\*First Aid Kit

\*Light and whistle

\*Space blanket

\*Boat registration card

Tiller Extension Handle is *supposed* to be in a bracket under the Starboard Seat Cover for the Motor Battery. Sometimes it falls into the compartment.

### **Bilge Pumps – There are either Two or Three on the Sail Nauticus Harbor 20's**

The Harbor 20 has two installed. The **Electric bilge pump (1)** sits in the sump under the forward cover on the cockpit floor and runs automatically with a float switch.

The **Manual Diaphragm pump (2)** is operated with the aluminum tube handle that SHOULD be kept in the Cooler but sometimes is lying on the floor of the under-deck storage area. Lift open the rubber cover near the floor of the aft seat under the Tiller and put the Handle over the metal rod and move Up and Down to pump. *Note that not all Harbor 20's have these.*

HOWEVER, it is NOT very effective which is why a **Manual Piston Pump (3)** is stored in the Motor locker (Lazarette). You put the bottom of the tube in the bilge and pull the handle up and down with the flexible hose hanging over the side. It is very effective but tiring if you have to empty the entire bilge after a rainstorm – have your Crew assist.

### **General Procedures**

Know how to make, cancel, and modify boat reservations. Know who to contact if there is a question or conflict with a reservation you have made. Know who to contact, and when, in the event of an accident or emergency.