

# The Ship's Company of Penetanguishene



**Crew Training Manual**  
*for achieving the rank of*  
**ABLE SEAMAN**  
*aboard H.M.S. Badger*

## ABLE SEAMAN LEVEL

*(Note: a pre-requisite is the successful completion of the Seaman Level)*

### Introduction

Once you have achieved the rank of Seaman, we encourage you to work towards the next level of training, which is **Able Seaman**.

Like the Seaman Level Training Manual, the Able Seaman Level Training Manual is broken up into various Learning Modules. There are 9 Modules in total.

Please note that the testing for the Able Seaman Level can also be done in sections if you find that method more suitable to your learning. We can also assist you with one-on-one and/or small group training sessions prior to testing if desired.

If at any time during your study you have additional questions, feel free to ask an existing Coxswain. We're here to help!

### MODULES 1, 2, 3, AND 4

#### SETTING (RAISING) AND LOWERING THE FOUR KEY SAILS OF H.M.S. *Badger*

The goal of Modules 1 through 4 is to solidify your skills in setting (raising) and lowering the four key sails of H.M.S. *Badger*. This directly builds on Module 6 from the Seaman Manual in which you learned about key lines involved with these actions. Although overall direction for raising and setting sails will still come from the Coxswain, as an Able Seaman, you must be able to efficiently respond to the commands with confidence. When you are tested, **you should also be able to verbally outline the general sequences involved in setting (raising) and lowering these sails.**

The four key sails are the **Mainsail**, the **Staysail**, the **Jib**, and the **Main Topsail**. These specific actions can be learned while taking part in regular sailing outings aboard the vessel. **The more you participate in these actions, the more familiar they will become.**

For reference, Modules 1, 2, 3, and 4 outline the general steps and sequences involved in setting (raising) and lowering each of these sails.

**TIP:** You may want to review Module 6, and the corresponding Pin Diagram in Module 6, from the **Seaman Level Training Manual** to refresh your knowledge of key running rigging locations.

## Module 1: Responding to commands to Set (raise) and lower the Mainsail

### *Setting (raising) the Mainsail:*

- Working with other available Crew, remove the Mainsail Cover by undoing its slippery hitches and store the cover in the forward Port compartment
- carefully remove the Main Topsail from the Main Boom by undoing lanyards. Store the Main Topsail on top of the Centerboard trunk. Store the lanyards in the forward Starboard compartment.
- remove the Gasket from the Mainsail and store in the forward Starboard compartment
- if not already done, raise the **Topping Lift** and secure it to its cleat on the lower Port side of the Mainmast
- temporarily remove/loosen the Main Topsail Sheet from its cleat on the Main Boom (**Forward Starboard Cleat on Main Boom**). A crew member should tend this line as the Mainsail is set.
- temporarily remove/loosen the Ensign Halyard from its cleat on the Main Boom (**Aft Port Cleat on Main Boom**). A crew member should also tend this line.
- temporarily remove/loosen the Main Sheet from its cleat
- one crew member will be assigned to the **Throat Halyard (PIN 4, STARBOARD SIDE)** and one crew member will be assigned to the **Peak Halyard (PIN 6, PORT SIDE)**,
- Coxswain will ask “**Ready on the Halyards?**” and, when ready, each assigned crew member above will respond i.e. “Aye, Ready on the Throat” and “Aye, Ready on the Peak”
- Coxswain will proceed to order crew to “Haul Away Together” at which time assigned crew members will haul up the Mainsail. Both crew members must pay attention and haul the Gaff up keeping it horizontal until the Throat is home. To help this effort, commands such as Ease/Hold the Peak or Ease/Hold the Throat may be given. When Coxswain is satisfied that sail is set properly, an order will be given to “Make Fast” the halyards at which time each crew member will secure their respective halyard to its appropriate pin.
- re-affix the Main Topsail Sheet back on to its cleat on the Main Boom. Leave it slack so it does not interfere with the shape of the Mainsail.
- Re-affix the Ensign Halyard back on to its cleat on the Main Boom. Leave it slack so it does not interfere with the shape of the Mainsail.
- one crew member to then ease the Topping Lift so aft end of Main Boom is gently lowered once the Mainsail is set.

**NOTES:** Once the Mainsail is raised, attention must also be given to the **Main Sheet** to control the Main Boom.

In addition, the **Running Backstays**, need to be tightened or loosened respectively, depending on which tack the vessel is on. Note that one Running Backstay must be tightened before the other is loosened.

The Running Backstays run back to cleats located on the Quarterdeck. They will be monitored by the Coxswain but may also be assigned to another Crew member.

### **Lowering the Mainsail:**

- re-attach Gasket to Main Boom (attaches back to second starboard cleat on aft end of Main Boom, then run forward to go around Mast and secure back to second port cleat on Main Boom)
- temporarily remove/loosen the Main Topsail Sheet and the Ensign Halyard
- one crew member to then raise the Topping Lift and secure it to its port cleat on the Mainmast
- one crew member will once again be assigned to the Throat Halyard, and one crew member will be assigned to the Peak Halyard. Upon command, halyards will be loosened and the sail will be lowered in a controlled manner. All available crew will assist with neatly flaking the sail on the boom as it is lowered.
- Use slippery hitches to refasten gasket around the Mainsail.
- store the Main Topsail and its Yard back onto the Main Boom using lanyards with slippery hitches
- re-attach the Topsail Sheet to the forward Starboard cleat on the Main Boom.
- re-attach the Ensign Halyard to the aft Port cleat on the Main Boom
- tighten the Mainsail sheet once the Mainsail is lowered and secured
- Re-install the Mainsail cover. Slippery hitches will be used to fasten it over the sail and boom.

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE MAINSAIL
<b>MAINSAIL GASKET:</b> Removed prior to raising the sail or installed prior to lowering the sail
<b>TOPPING LIFT:</b> Raises or lowers the main boom. Raised and secured prior to setting the Mainsail, and lowered once the sail is set. Also raised and secured prior to lowering the Mainsail.
<b>MAIN TOPSAIL SHEET:</b> Temporarily removed from its cleat when raising or lowering the Mainsail. Once the Mainsail is set, the Main Topsail Sheet can be loosely put back on its cleat.

<b>MAIN ENSIGN HALYARD:</b> Temporarily removed/loosened from its cleat when raising the Mainsail.
<b>MAIN SHEET:</b> Temporarily removed/loosened from its cleat when raising the Mainsail. Tightened when lowering the Mainsail.
<b>MAIN THROAT HALYARD:</b> Hauled on to raise the Main Throat when raising the Mainsail. Released, in a controlled manner, when lowering the Mainsail.
<b>MAIN PEAK HALYARD:</b> Hauled on to raise the Peak when raising the Mainsail. Released, in a controlled manner, when lowering the Mainsail.
<b>RUNNING BACKSTAYS:</b> One side must be tightened and the other side loosened once the Mainsail has been raised, to support the Mainmast. (NOTE: One side must be tightened <b>before</b> the other side is loosened.)

	<i>Achieved?</i>
Demonstrated competency in setting (raising) the Mainsail, under the command of the Coxswain	
Demonstrated competency in lowering and putting away the Mainsail, under the command of the Coxswain	

## Module 2: Responding to commands to Set (raise) and lower the Staysail

### ***Setting (raising) the Staysail:***

- remove the gasket from the Staysail Cover. Gasket is permanently attached at its forward end and is stored on the foredeck.
- remove the Staysail Cover. Store cover in forward port compartment.
- loosen the **Staysail Halyard (PIN 4, PORT SIDE)** and have someone tend the Staysail sheet. Indicate that you are “Ready on the Staysail”
- upon command, haul on the Staysail Halyard to raise the Staysail
- when Staysail is set, secure Staysail Halyard back on to Pin 4, Port Side.
- attach the Staysail Sheet to its cleat (cleat is on the **forward portion of the Main Mast**)

### ***Lowering the Staysail:***

- release the Staysail Halyard (**PIN 4, PORT SIDE**) and lower the Staysail
- release the Staysail Sheet from the cleat on the forward portion of the Main Mast
- when sail is lowered, secure the Staysail Halyard to Pin 4, Port Side.
- attach the Staysail Cover to the Staysail
- working in the direction from the bow heading aft, attach the Staysail gasket with a chain hitch around the Staysail cover. **Note that the first loop of your chain hitch should go over the Staysail halyard to prevent the Staysail from being raised.** Finish by wrapping the last portion of the gasket around the port thole pin, and secure back to the sail cover or the thole pin with some half hitches

<b>SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE STAYSAIL</b>	
<b>STAYSAIL GASKET:</b>	Removed prior to raising the sail or installed (over sail cover) after lowering the sail
<b>STAYSAIL SHEET:</b>	One end is permanently attached to the Staysail. Attached to forward cleat on Main Mast once the Staysail is raised.
<b>STAYSAIL HALYARD:</b>	Raises or lowers the Staysail ( <b>PIN 4, PORT SIDE</b> )

	<i>Achieved?</i>
Demonstrated competency in setting the Staysail, under the command of the Coxswain	
Demonstrated competency in lowering and putting away the Staysail, under the command of the Coxswain	

### **Module 3: Responding to commands to Set (raise) and lower the Jib**

**NOTE:** *The Jib is always set on the **Starboard** side of H.M.S Badger, while she is on a **Port Tack**. See the Tack Diagram at the end of the Main Topsail section below for reference.*

### ***Setting (raising) the Jib:***

Upon the command to “Ready the Jib”, you must respond by removing the Jib from its sail bag which is stored in the Forepeak, and eventually attaching the **Jib Outhaul** and the **Jib Halyard** to the sail to make it ready to set i.e.

- attach the Jib Outhaul (**PIN 1, STARBOARD SIDE**) to the Jib, at the point on the sail marked with a broad arrow. Use a bowline.

- attach the Jib Halyard (**PIN 2, STARBOARD SIDE**), to the Jib. Use a bowline.

- when the Outhaul and the Halyard are attached, indicate this to the Coxswain and the crew member who is located on the Port side of the vessel by stating “**Outhaul and Halyard are made fast**”.

- run the Starboard sheet outside of the shroud and to its pin, and have someone tend it

- crew member on the Port side of the vessel will do the hauling of both the Jib Outhaul and the Jib Halyard. They will announce that they are “ready on the Jib: and wait for the command to “set the jib”. **Begin first with the Halyard to raise UP the sail, and finish with the Outhaul to bring the sail OUT** to the end of the bowsprit. **TIP:** Think “UP and OUT” to remember this sequence.

- care must be taken to bring the Starboard and Port jib sheets around the outside of the shrouds, and then around the immediate thole pin and back down to its nearby cleat. The sheets will then be controlled from these starboard and port positions.

### ***Lowering the Jib:***

To lower the Jib, essentially reverse the above steps i.e.

- when lowering the Jib, the Jib must first be brought over to the Starboard side of the vessel, either by backing it, or changing the vessel to a port tack (i.e. wind is coming from the Port side of the vessel)

- upon the order to “Stand By to Lower the Jib”, the crew member on the port side of the vessel will release the Outhaul and the Halyard from their pins (**PIN 1 PORT SIDE** and **PIN 2 PORT SIDE**), and then lower the halyard and bring in the outhaul from his position. **Bring IN the Outhaul first, then proceed by lowering DOWN the Halyard.** **TIP:** Think “IN and DOWN” to remember this sequence.

-crew member on the Starboard side will bring the starboard Jib sheet around the outside the starboard shroud and bring inboard. The port Jib sheet will also need to be brought outside the port shroud and brought inboard.

-crew member on the Starboard side to then unfasten the Jib Outhaul and the Jib Halyard from the Jib. Secure both back to their respective pins on the Starboard side. When this is complete, alert the Coxswain and the crew member who is located on the Port side of the vessel by stating **"Outhaul and Halyard are secure"**.

-crew member on the Port side will then snug up and re-attach his ends of the Outhaul and Halyard to **PIN 1 PORT SIDE and PIN 2 PORT SIDE** respectively.

The jib is then put back in its sail bag, and stored in the Forepeak.

*Note: Take care when lowering the jib to not let the sail go out of control or dip into the water. If it does, it will need to be dried out before it is returned to the sail bag.*

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE JIB	
<b>JIB OUTHAUL:</b>	One end ( <b>Starboard side</b> ) attaches to Jib in the hole marked with a Broad Arrow. Hauls OUT the Jib to the end of the bowsprit when setting the sail. Hauls IN the Jib back to the deck when taking down the Jib Sail
<b>JIB HALYARD:</b>	One end ( <b>Starboard side</b> ) attaches to Jib. Hauls UP the Jib when setting the sail. Lowers the Jib when bringing it down.
<b>JIB SHEETS:</b>	Two sheets. One end of each sheet is permanently attached to the Jib. The other ends are brought outside of the shrouds and run back to cleats once the sail is set. Controls the bottom (trim) of the Jib.

	<i>Achieved?</i>
Demonstrated competency in setting (raising) the Jib, under the command of the Coxswain	
Demonstrated competency in lowering and putting away the Jib, under the command of the Coxswain	



## Module 4: Responding to commands to Set (raise) and lower the Main Topsail

- unravel the chain hitch around the Main Topsail (Note: the chain hitch is actually the **Main Topsail Tack Line** when the sail is in use)
- remove the black **Topmast Running Backstays** from their storage position on **PIN 8 STARBOARD SIDE** and **PIN 8 PORT SIDE** and run them back through the aft fairlead, and then up to the cleat forward of the mainsheet cleat. (These backstays will be subsequently adjusted depending on what tack the vessel is on.)
- release the **Main Topsail Sheet** from its storage position, located on the **forward Starboard cleat** on the Main Boom
- using a bowline, attach the aft portion of the Main Topsail Sheet to the Topsail
- using a **Clove Hitch followed by two half-hitches**, attach the aft portion of the Main Topsail Halyard (**PIN 6, STARBOARD**) to the Main Topsail Yard. (Note: there is a marking on the Yard to indicate the correct attachment location).
- upon command from the Coxswain, carefully haul up the Topsail. During this process, another crew member needs to manage the Tack Line and keep some tension on the sail aft to keep it from capsizing. An additional crew member also should take up the Topsail Sheet in a controlled manner. **Care must also be taken to thread the Topsail up through the Running Backstays and other rigging, ensuring that it does not become entangled on the way up.**
- once the Coxswain is satisfied that the Main Topsail is correctly set, loosely re-attach the Main Topsail Sheet to its storage position on the **forward Starboard cleat** on the Main Boom.
- attach the Tack Line to the **lower Starboard cleat** on the Main Mast.
- tension on the Topsail Sheet and also the Tackline should be adjusted to remove any wrinkles from the Topsail.

**NOTE:** *Once the Main Topsail is raised, attention must also be given to the **Topmast Running Backstays** as they need to be tightened or loosened respectively, depending on which tack the vessel is on. They will be monitored by the Coxswain but may also be assigned to a Crew member.*

### **Lowering the Main Topsail:**

Essentially reverse the above steps, being careful to lower the sail slowly and in a controlled manner to avoid it capsizing or becoming entangled in the rigging.

Once the Main Topsail is successfully lowered, the Topmast Running Backstays should be returned to their “at rest” positions on **PIN 8 STARBOARD SIDE** and **PIN 8 PORT SIDE**.



#### NOTES:

The above diagram shows the position of a vessel on a **Starboard Tack** (i.e. the wind is coming from the Starboard side) and also on a **Port Tack** (i.e. the wind is coming from the Port Side). When setting (raising) or lowering the Main Topsail, it is recommended that this is done while H.M.S. *Badger* is on a **Starboard Tack**. This makes it somewhat easier to view the Topsail as it is being hauled up or lowered, since the majority of this activity takes place on the Starboard side of the vessel.

The Jib is **always** set (raised) when H.M.S. *Badger* is on a **Port Tack**. It is also recommended that the Jib be lowered when on a Port Tack. If this is not possible, the Jib should be backed and then lowered.

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE MAIN TOPSAIL
<p><b>TACK LINE:</b> When the sail is stored, this line serves as a gasket that is wrapped around the sail to store it on its yard. When the sail is raised or lowered, the Tack Line controls (trims) the forward portion of the sail. One end is attached to the sail, and the other end is attached to a starboard cleat at the bottom of the Mainmast.</p>
<p><b>TOPMAST RUNNING BACKSTAYS:</b> Two Running Backstays, black. Prior to raising the Main Topsail, these stays are run back to the quarterdeck and attached to their respective cleats. One side must be tightened and the other side loosened to support the Topmast once the Main Topsail is set.</p>

<b>MAIN TOPSAIL SHEET:</b> One sheet. Aft end attaches to the Main Topsail. Forward end re-attaches to its Starboard cleat on the Main Boom after setting (raising) the Main Topsail.
<b>MAIN TOPSAIL HALYARD:</b> Aft end attaches to Main Topsail. Hauls up and lowers the Main Topsail. <b>(PIN 6, STARBOARD SIDE)</b>

	<i>Achieved?</i>
Demonstrated competency in setting (raising) the Main Topsail, under the command of the Coxswain	
Demonstrated competency in lowering and putting away the Main Topsail, under the command of the Coxswain	

## Module 5: Serving as Bow Watch

Per the Coxswain's discretion, you may be asked to serve as Bow Watch on a specific outing. As an Able Seaman, it would then be your responsibility to position yourself in the Bow area with a clear view of your surroundings, and to alert the Helmsman and Coxswain of any approaching vessels or hazards while underway, including vessels approaching from any direction. **Clear, accurate notifications must be given and proper directional terminology must be used.**

Some examples are as follows:

**"Power vessel (or sailing vessel) approaching off the Starboard bow"**

**"Power vessel (or sailing vessel) approaching from the Stern, Port Side"**

**"Large Power vessel (or sailing vessel) approaching off the Port bow"**

**"Sailing vessel approaching under power, off the Starboard bow"**

**"Green buoy/marker coming up on the Starboard side"**

**"Approaching a sandbar on the Starboard side"**

**"Water depth appears to be getting shallow"**

**"Mind the wake"** (alerts crew to unusual wave action approaching, typically caused by power vessels.)

There are many other variations of above. The key point is to give the alerts clearly and well in advance, and use proper Naval terminology when doing so.

## Module 6: Serving as Helmsman

### Serving as Helmsman

Generally speaking, the Coxswain on H.M.S. *Badger* does not frequently issue formal Helm commands to the Helmsman since the vessel is relatively small. Basic direction of travel is usually just indicated to the Helmsman based on a fixed destination or route. However, there may be some occasions (including emergencies or departures) when Helm commands are formally given and as such, the Helmsman must be able to respond to them.

The following lists basic Helm commands that an Able Seaman must be able to respond to.

**NOTE:** AFTER THE COMMAND IS GIVEN AND YOU HAVE EXECUTED THE ORDER, YOU MUST “CALL BACK” THE ORDER TO THE COXSWAIN TO CONFIRM IT HAS BEEN DONE.

#### ***Basic Helm Commands:***

**HELM AMIDSHIPS** (or “**MIDSHIPS**”): You must put the tiller to its fore and aft position, (i.e. the fore and aft centerline of the vessel), which will cause the vessel to go straight.

**HELM HARD TO STARBOARD:** You must put the tiller completely over to Starboard, which will cause the vessel to steer to **Port** (*Note:* When under power, H.M.S. *Badger* tends to steer to PORT somewhat more efficiently, since wash from the engine’s propeller slams against the rudder, pushing the vessel to Port.)

**HELM HALF TO STARBOARD:** You must put the tiller approximately half-way over to Starboard.

**HELM HARD TO PORT:** You must put the tiller completely over to Port, which will cause the vessel to steer to **Starboard**.

**HELM HALF TO PORT:** You must put the tiller approximately half-way over to Port.

(In addition to the above, variations on moving the tiller to Starboard (or Port) can be commanded, such as “**HELM A TOUCH TO STARBOARD**”, or “**HELM HALF TO STARBOARD**”, etc. You must move the tiller in increments to those positions if commanded to.)

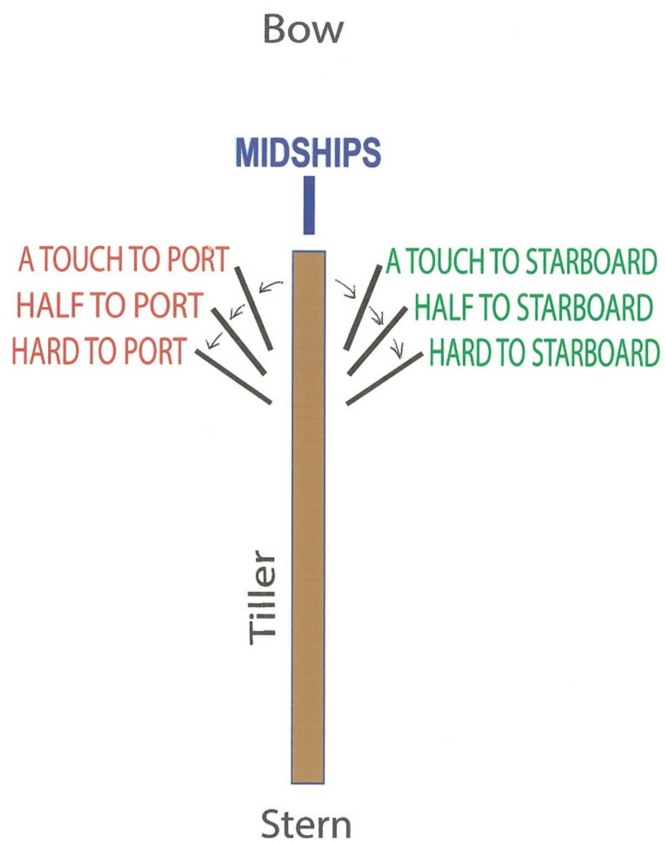
**FULL AND BY:** (Keep the sails “FULL” and sail “BY” the wind). This command indicates that the helmsman should maintain the present course, making minor adjustments as the wind shifts to keep the sails full and drawing for maximum efficiency. If unable to maintain the course without adjusting the sails, the Coxswain should be notified by the Helmsman.

**STEADY UP:** Whatever course you are currently steering, keep steering it.

**HELM DOWN:** You must move the Tiller “DOWN” (AWAY) from the wind.

**HELM UP:** You must move the Tiller “UP” (TOWARDS) the wind.

The Diagram below indicates Tiller positions. Please note that with the exception of the Midships position, the other positions indicated are approximate.



	<i>Achieved?</i>
Demonstrated competency in responding to the indicated Helm commands, under the direction of the Coxswain	

## Module 7: Managing Engine Controls and Responding to Engine Commands

Like Helm orders, formal Engine Commands are not frequently given, but may be done on occasion at the Coxswain's discretion. As an Able Seaman, you must be able to operate the Engine controls, and respond to formal Engine commands if they are given.

**NOTES:** FORWARD, NEUTRAL, AND REVERSE GEAR CHANGES ARE ACCOMPLISHED BY SQUEEZING UP THE RED CONTROL ON THE UNDERSIDE OF THE ENGLINE CONTROL HANDLE AND THEN MOVING THE CONTROL HANDLE TO FORWARD, NEUTRAL, OR REVERSE POSITION IN A CRISP AND CONTROLLED MANNER.

AFTER THE COMMAND IS GIVEN AND YOU HAVE EXECUTED THE ORDER, YOU MUST "CALL BACK" THE ORDER TO THE COXSWAIN TO CONFIRM IT HAS BEEN DONE.

### *Basic Engine Commands:*

**ENGINE STOP:** Put the engine in **NEUTRAL**)

**FINISHED WITH ENGINE:** Turn off the engine by turning the key counter-clockwise, and leave the engine gearshift in neutral)

**ENGINE DEAD SLOW AHEAD:** Put the engine in **forward** gear, but with no additional acceleration

**ENGINE HALF AHEAD:** With engine in forward gear, advance the throttle to an approximate half-way position

**ENGINE FULL AHEAD:** With engine in forward gear, advance the throttle to the full open position

**SHOT AHEAD:** Put the engine in forward gear, rev up to full, and then immediately return to neutral

**ENGINE DEAD SLOW ASTERN:** Put the engine in **reverse** gear, but with no additional acceleration

**ENGINE HALF ASTERN:** Advance the throttle, in reverse, to the approximate half way position

**ENGINE FULL ASTERN:** Advance the throttle, in reverse, to the full open position

## Gearshift and Throttle Control for H.M.S. *Badger*



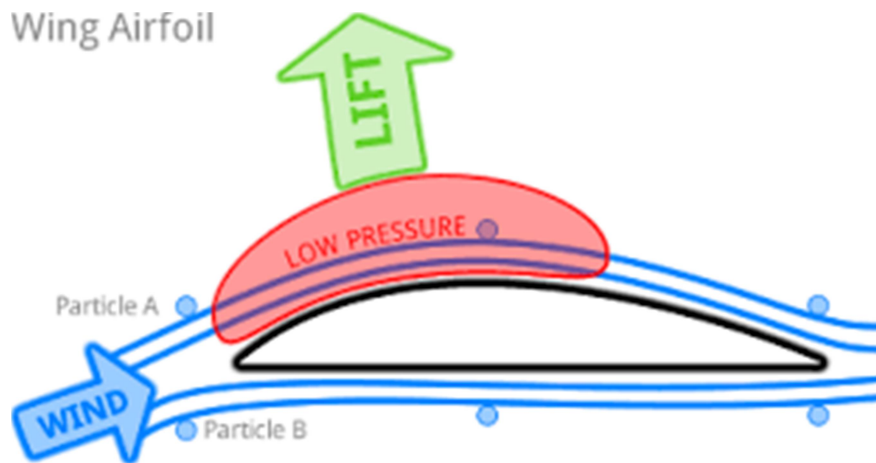
	<i>Achieved?</i>
Demonstrated competency in responding to the indicated Engine commands, under the direction of the Coxswain	

### Module 8: The Sail as a Foil and the Points of Sail

Study and have a basic understanding of sailing theory, with emphasis on how a sail works as a foil, and the “Points of Sail” which relate to a vessel’s position and how her sails should be set relative to wind direction.

## HOW A SAIL WORKS AS A FOIL:

A sail acts much in the same way as an airplane wing. Because the airplane wing has a curved surface, it creates high pressure on its bottom surface and low pressure on its top surface, and this creates “lift” at optimal speeds to raise the airplane into the air. If one imagines an airplane wing rotated on its edge vertically, that is essentially a sail, and it works the same way. High and low pressure on the opposite sides of the sail are created from the movement of the wind across its curved surface, and this creates “lift” that moves the boat forward.



The above diagram shows how the wing of an airplane works. Sails essentially work the same way, creating lift which will cause the vessel to move forward.

## THE POINTS OF SAIL

**The Points of Sail are:**

**IN IRONS:** *This is the point where the sails will not fill and will “flog” or flap around. No sailing is possible when a vessel is “in irons”. However, this can be done intentionally to slow the vessel down, or raise or lower sails. Watch out for flogging sheets in heavy winds, as they can be dangerous.*

**CLOSE HAULED:** *Wind is forward of the beam, with the bow pointing as close to the wind as possible. For H.M.S. Badger, this is approx. 50 degrees off the bow. Many modern sailboats can however, point their bows much higher than this based on design.*

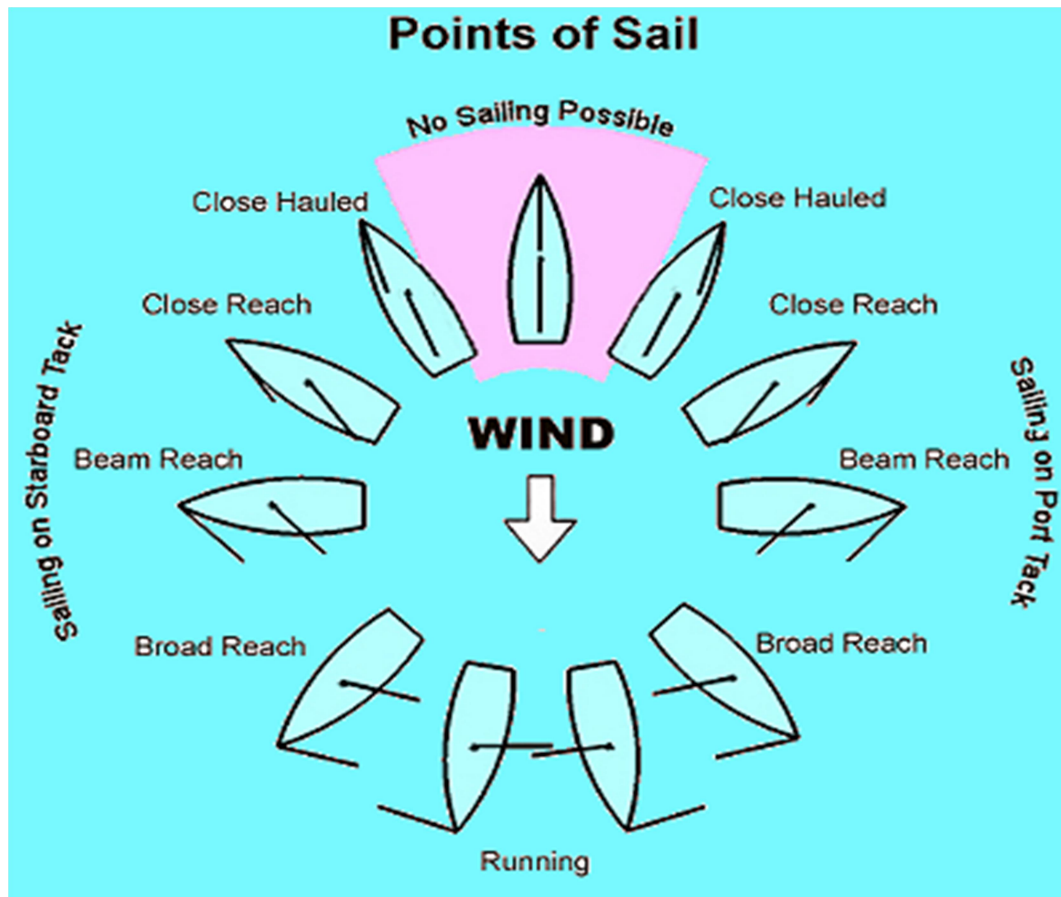
**CLOSE REACH** *Wind is forward of the beam. For H.M.S. Badger, this is approximately 60 degrees off the bow*



**BEAM REACH** *Wind is on the beam*

**BROAD REACH** *Wind is aft of the beam*

**DEAD DOWNWIND** (or “Running” or “Running with the Wind”) *Wind is from over the transom*



**TIPS:**

Study the above diagram, which shows The Points of Sail. There are also many other similar diagrams and illustrations available on line.

There are also numerous publications and videos available as well as on line materials to teach you sailing theory. Talk to and learn from other experienced sailors.

When sailing aboard H.M.S. *Badger* (or H.M.S. *Lynx*), ask the Coxswain to frequently explain specific Points of Sail while the vessel is underway to help your overall understanding. The more time you spend on the water on a sailing vessel, combined with some diligent study, the more knowledge you will gain in this important area.

	<i>Achieved?</i>
Demonstrated competency in understanding how a sail as a foil to propel a vessel forward	
Demonstrated competency in naming and understanding the 5 Points of Sail as indicated	

## Module 9: Safety Equipment aboard H.M.S. *Badger*

Safety is always a top priority. As an Able Seaman, you must know the location and function of the following safety equipment on HMS *Badger*. Ask an existing Coxswain to go through the following list with you while aboard the vessel, and show you the proper operation of this equipment.

H.M.S. *Badger* is required by law to carry the following safety equipment:

- 1 PFD of appropriate size for every person on board
- 1 buoyant heaving line 15 m (50') in length OR a life line with the same line attached
- 1 reboarding device (if freeboard is over 0.5m)
- 1 anchor with 15m of rode OR a manual propelling device (oars)
- 1 manual bilge pump
- 1 class 10BC fire extinguisher
- 1 watertight flashlight
- 6 flares
- 1 sound signaling device
- Navigation lights (if going out at night or poor visibility)
- 1 compass (if we are going away from navigational marks. I.e.: Wasaga)

H.M.S. *Badger* also has some extra safety equipment to supplement the required items. Descriptions of **all** equipment locations and usage aboard follow:

### LOCATED IN THE FOREPEAK:

- **Lifejackets** (stored in Forepeak while at dockside, **but stored in port and starboard lockers while underway.**) There must always be one lifejacket available for each crew member stored in these lockers for all sailing outings. Lifejackets can be worn while underway by crew members if they elect to, or can also be ordered to be worn by the Coxswain if conditions demand it.)

- **Boat Numbers:** Mounted on wooden plates that are fixed to port and starboard shrouds before leaving dock
- **MOT Kit:** there is an orange bucket with a lid. It contains a waterproof flashlight, 15m of buoyant heaving line and a whistle.
- **Life Ring:** with 15m line attached.
- **Anchors:** Plough anchor with a chain and rope rode. There is also a danforth anchor with rode.
- **Bailing Bucket**
- **Boat Hook (#1)**
- **Steaming Light:** Brought out at dusk if vessel is running **under power**. Attaches to forestay. Steaming Light is lantern-style and is battery powered with its own batteries.

#### LOCATED ON THE PORT SHROUD:

- **MOB (Man Overboard) Pole.** Mounted in holders on Port Shroud. Tossed into water immediately if a crew members falls overboard. Should be tossed as close to the crew member as possible. Serves as an initial visual beacon relative to the overboard situation.

#### LOCATED ON (OUTSIDE) PORT SIDE OF VESSEL:

- **4 Oars**

#### LOCATED MIDSHIPS, PORT SIDE:

- **Boat Hook (#2)**

#### LOCATED IN THE BUSINESS BOX:

- **Flares and Flare Gun**
- **VHF Radio:** Must be charged after every sail
- **Sounding Air Horn and Whistle:** Used to alert other vessels as a warning of your presence. Can be used for collision avoidance or to get the attention of another vessel. A full list of sound signals can be found in the collision regulations. The basics are 1 short: I'm altering to starboard, 2 short; I'm altering to port, 3 short; I'm in reverse, 5 or more short; you are heading into danger!

**LOCATED UNDER AFT FLOORBOARD, STARBOARD SIDE:**

- **Electric Bilge Pump with Float Switch**

**LOCATED UNDER AFT FLOORBOARD, PORT SIDE:**

- **Battery (#1)**

**LOCATED UNDER AFT SEAT, HELM AREA:**

- **Fire Extinguisher:** ABC rated for all types of fires.
- **Navigation Lights:** Turns on stern white light and bow port (red) and starboard (green) lights. Navigation lights allow other vessels to see HMS *Badger* in evening, and also indicate to other vessels which side of HMS *Badger* is approaching. Navigation lights must be turned on at dusk or in poor visibility.
- **Manual Bilge Pump**
- **Additional Electric Bilge Pump with Hose:** Can be used as a backup if other bilge pump(s) fail. Attaches to battery with alligator clips
- **Battery (#2)**

**LOCATED IN THE BOATSHOP:**

- **Charts:** if sufficient knowledge of the area is known, charts are not required. However, when going on extended trips charts of the area must be brought.
- **Compass:** Brought to vessel for extended trips along with the required charts.

	<i>Achieved?</i>
Demonstrated knowledge regarding the location and function of the indicated safety equipment aboard H.M.S. <i>Badger</i>	