



Ottawa's Waterfront Sports Centre

2025 Sailing Theory

Martin Rhéaume

communications@sailonec.com

2025-06-24

Agenda

- Training Area
- Weather
- Boat parts
- Rigging
- Points of Sails
- Right of Way
- Capsized
- Seamanship

Training Area



From the first upriver “No wake buoy” to the tip of Kettle Island.

We keep the training area small so it is easier for the rescue boats to provide help as required and for instructors in power boats to go to each individual boats to provide instructions as required.

You need to factor the current ! Stay upriver from the docks as much as possible.

Weather

Where to find wind: flag, smoke, other sails boats and ripple on the water

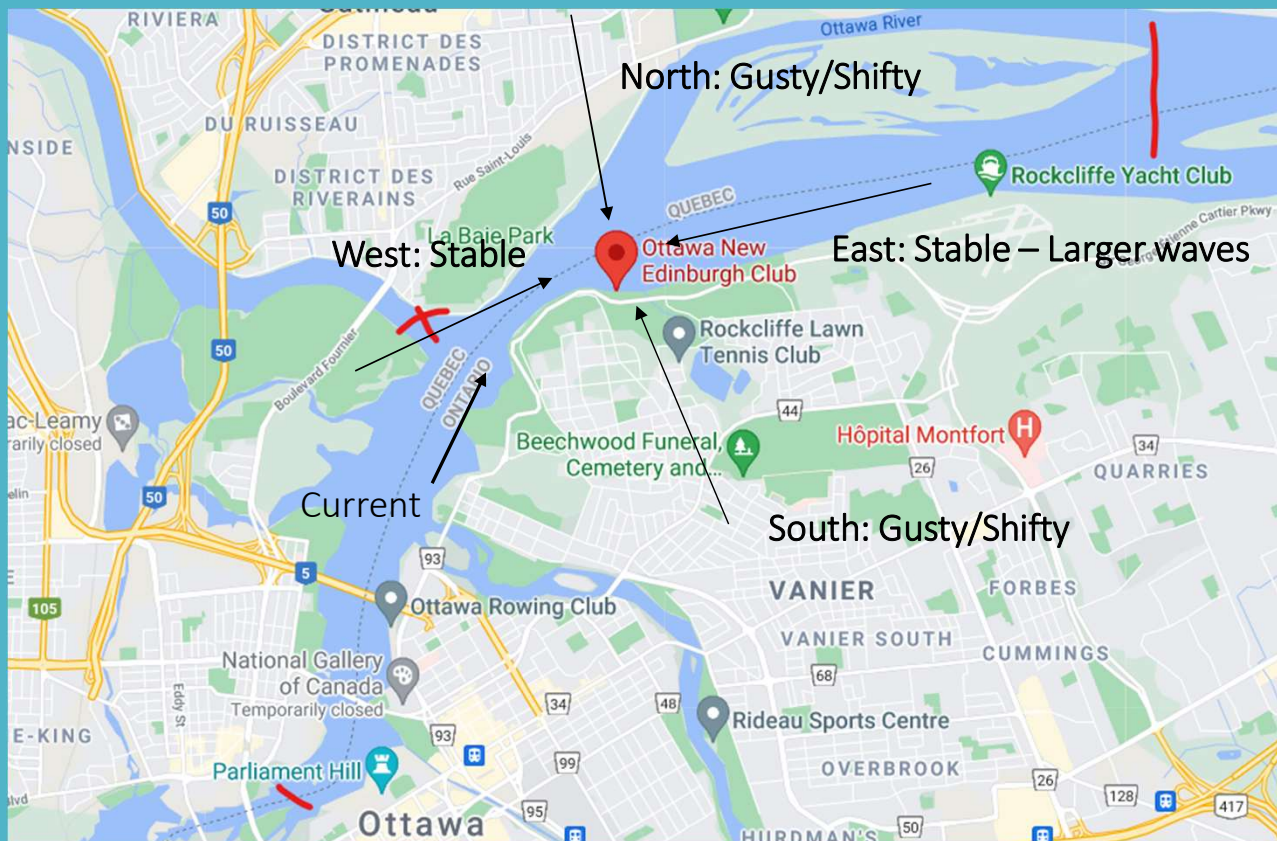


← and on water surface →



Weather

All weather conditions are not equal



- Wind Direction
- Wind Speed (Steady/gust)
- Time wind has been blowing
- Distance wind has been blowing
- Geography
- Current – Direction & speed
- Air Temperature
- Water Temperature

Considerations

- Is there whitecap on the water ?
- Does my crew and I have the skills level necessary ?
- Does my crew and I have the necessary weight to balance the boat ?
- Does my crew and I wear appropriate clothing ?
- Can the club boat, in its current condition, handle the conditions ?

Weather Various

Sailors like to use “knots” - 1 knots approx. 2 km/h

True wind (fixed objects on land) vs apparent wind (moving objects)

For training, wind speed “should” not be more than 10-13 Kts unless you are with an experience skipper

Wind pick-up in the afternoon

Storm in Ottawa usually ends around 1700-1800



Parts of the boat

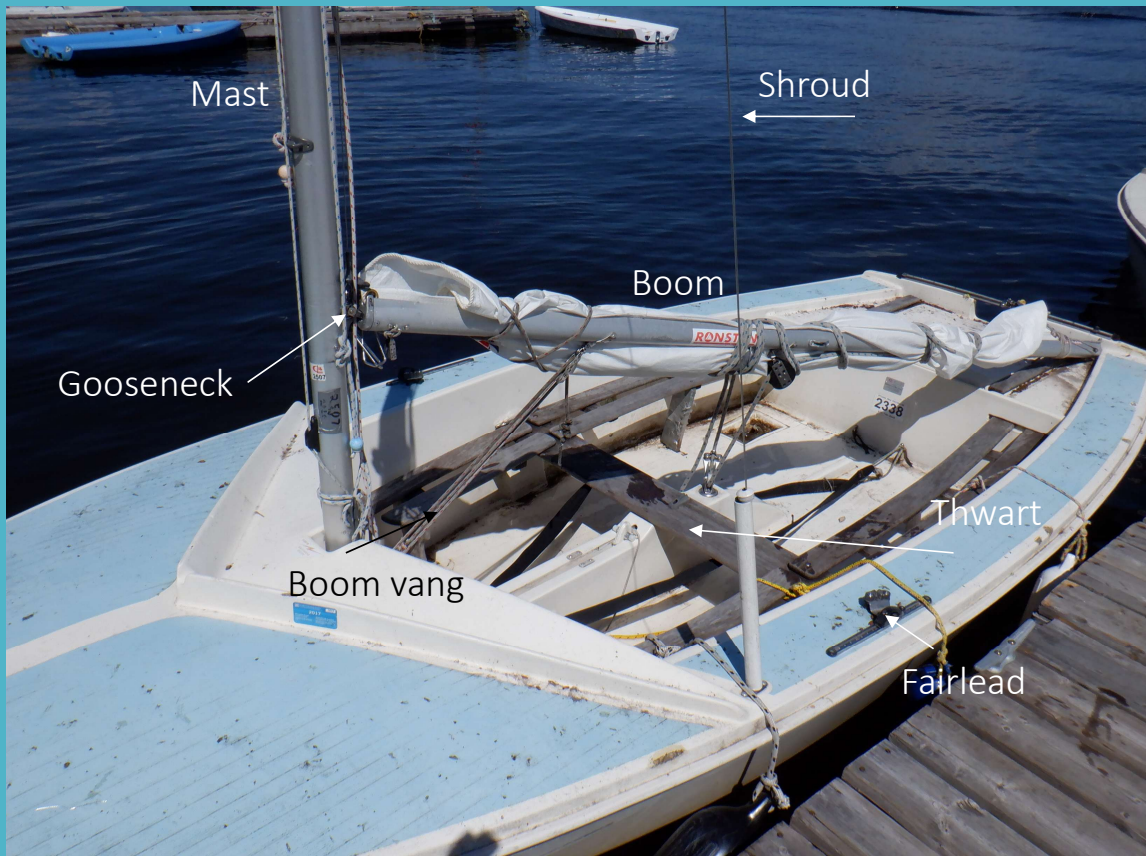


Why know them ?

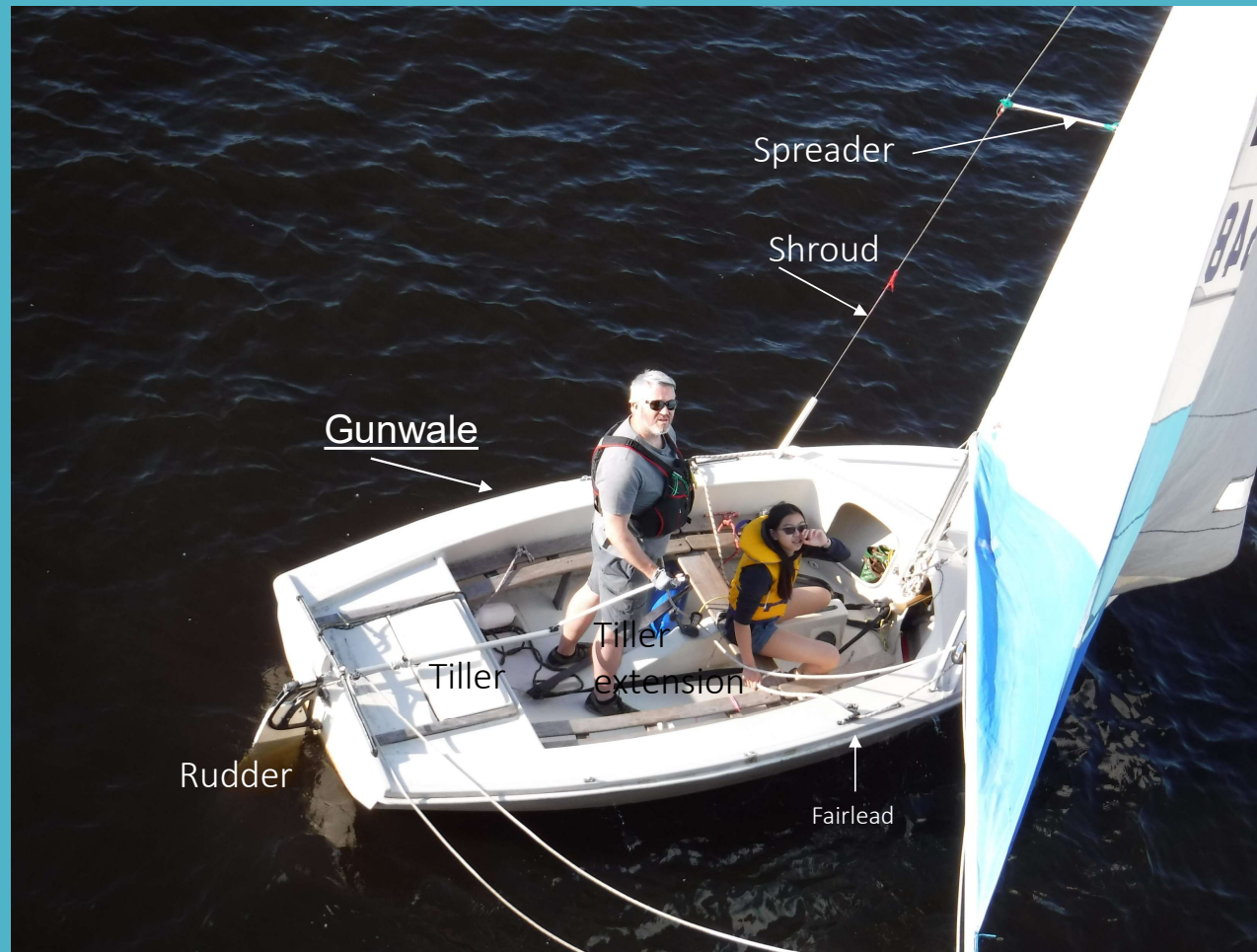
- Safety
- Efficiency



Parts of the boat II

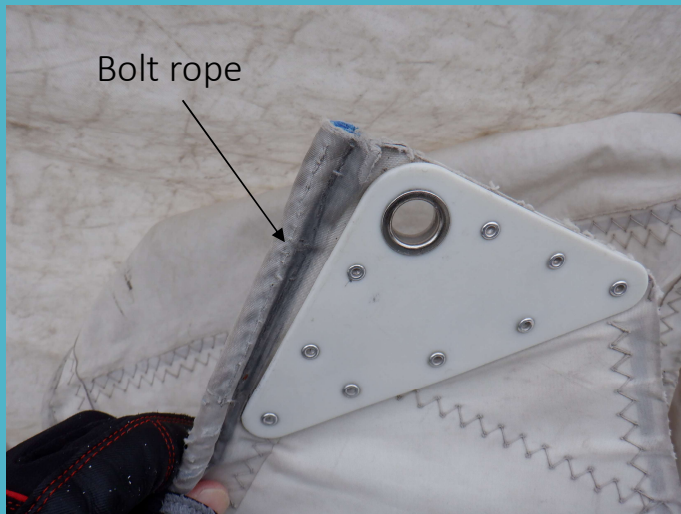


Parts of Boat III



Parts of Boat IV

Luff of the mainsail/ Boltrope



Bolt rope slide into groove of the mast



Gooseneck

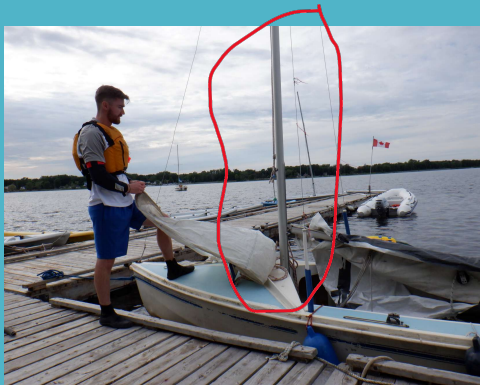


Butterfly nut: Adjust height of the boom

Parts of the boat

Halyards and Sheets

Raised the jib and main sails: Halyard



Control/trim the jib and main: jib sheets (x2) and mainsheet (x1)



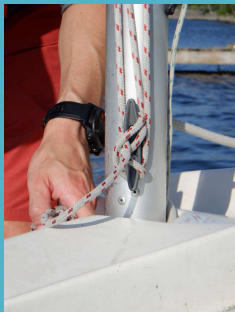
Parts of Boat - Cleats

In nautical contexts, a cleat is a device for securing a rope.

Horn cleat



jib and main halyards



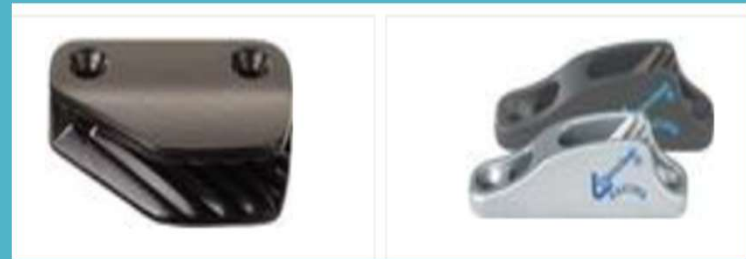
Cam cleat



Jib sheets and mainsheet



Clam cleat

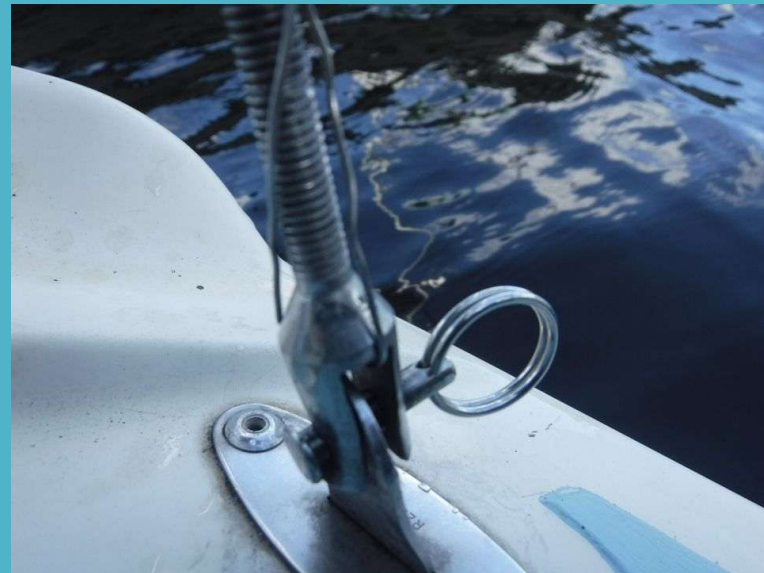


Boom vang
Rudder line



Parts of Boat – Split rings

You need to care about split rings.... This small piece of metal, not worth more than \$1, is an item of everyday life..... Almost anyone has at least one on their person holding their keys.... On a CL-16, there are between 15 to 20 split rings (some of them hidden) around the boat keeping pins in place..... Most important of all, they secure the turnbuckle which in turn secure the shrouds as well as the forestay and keep the mast (worth over \$1000) upright ! So, when you rig a boat, take 2 minutes and ensure the split rings are properly installed around the boat. If you need some spares, there are plenty in the workshop.



Parts of Boat – Damage sails

If you see a tear in a sail, you need to fix it using proper sail tape (found in the workshop) and not duct tape !
Else, the damage sail will be very hard to fix in the off season.



Rigging

Where to position the boat

- You want the bow of the boat into the wind (in irons) – No wind pressure on the sails
- You want to be able to leave the docks easily – Watch out for other boats and anchor lines
- When leaving the docks, you need to think about size (footprint) of boat with the sails... not just the hull



Green: Right locations to rig a boat as the bow of the boat will be into the wind when it is from the West (Upriver)

Red: Not a good location. Wind will create pressure in the mainsail. It will be very hard to get away from the docks

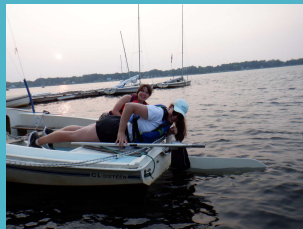
Docks: Alex Pierre

Rigging

Where to be/not to be when rigging the CL-16

When rigging the boats, you need to keep in mind:

- Our CL-16s are quite old
- There is no support under the bow and stern
- Bow and stern compartment are not very solid.
- Do not stand up... lie down on your stomach



Docks: Alex Pierre

Rigging CL-16

- Mandatory piece of equipment

- Whistle 

- PFD - 1 person and must be worn



- Paddle 

- bailer/pump

- towing rope



- From bow to stern (Jib, Main, Rudder, Tiller)

- Centerboard:

- Down: give greater stability

- Up: allow the boat to move more easily



Rigging – Bailing the boat

1) The Cockpit itself



Using bailer/pump

2) Centerboard trunk



Using pump only



3) Stern compartment (+plug)

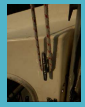
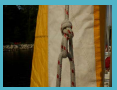


Using bailer/pump

You can open the plug to help drain the interior of the boat

Rigging – How to raised the jib (sail)

To ensure that the mast is properly supported, the jib must always be raised before the mainsail.

- 1) Attach the tack of the jib to the tack plate on the bow of the boat using a shackle. 
- 2) Fold the jib halyard and put it through the wire loop on the head of the jib 
- 3) Start raising the jib sail by pulling the halyard
- 4) As the jib sail go up, clip the hanks (clip) to the forestay 
- 5) Bring the halyard around a horn cleat 
- 6) Bring the halyard through the loop so you can have pressure when tightening the halyard 
- 7) Once the jib is full raised, secure the halyard 
- 8) Bring the jib sheets on the exterior of the shrouds, slip through the fairleads/cleats and finish with a double figure 8 knots. 

Rigging – How to raised the mainsail

To ensure that the mast is properly supported, the jib must always be raised before the mainsail.

- 1) Remove the sail cover



- 2) Unwarp the mainsheet and boom vang from the mainsail/boom



- 3) Unwarp the main sail

- 4) Attached the main halyard to the head of the main sail by folder the halyard, putting it through the cringle and tightening it all



- 5) Slide the bolt rope (on the luff of the sail) in the groove of the mast



- 6) Raise the mainsail by pulling on the end of the halyard located at the bottom of the mast

- 7) Once the main is full raised, secure the halyard to a horn cleat

Rigging

Not able to raise the mainsail

Luff (bolt rope) snag in the groove



Main sheet is cleated



Tiller over main sail



Boom vang is cleated



Main sheet is wrapped around end of boom



Wind pressure in the sail



Sail snagged in horn cleat



How to rig

Laser: <https://www.youtube.com/watch?v=aDL4JgUjCTI>

RS Feva: <https://www.youtube.com/watch?v=pGT3FeijTNE>

Rigging guide available at: <https://www.rssailing.com/project/rs-feva/>

RS Quest: <https://www.youtube.com/watch?v=1ms3XlbG8j0>

Rigging guide available at: <https://www.rssailing.com/project/rs-quest/>

RS Zest at ONEC: <https://youtu.be/hXlG-5NuCYy>

RS Zest: <https://www.youtube.com/watch?v=QRuZOobNIQg>

Rigging guide available at: <https://www.rssailing.com/project/rs-zest/>

RS Toura:

Rigging guide available at: <https://www.rssailing.com/wp-content/uploads/guides/TouraRiggingGuide.pdf>

Topper : https://www.youtube.com/watch?v=h-CMexAd_p4

Rigging Laser

When you raise the mast:

- Move it over the mast step
- Lower the mast

Do not use Laser mast step as leverage

Mast go straight in the mast step.. Harder but protect equipment



CL-16 De-rigging

Reverse of rigging: from stern to bow - Leave the boat as you would like to find it

If something broke, fix it or let someone know

Director@sailonec.com

fleetcaptain@sailonec.com



Rudder can be hard to remove, use a paddle and give a nudge



Always wrap the rudder line when you install/remove rudder



Fenders – Need to protect boat



CL-16 De-rigging (Sails care)

Jib and main sails always stay in the boat when if wet

Jib

- The jib wire must not be folder
- Coil the wire around itself
- Folder the wire within the sail
- Wrap the jib sheets around the exterior of the jib
- Put the jib underneath the bow of the boat

Main sail

- There is two ways:
 - You can either roll the main sail on itself and then secure it to the boom; or
 - You can flake the sail (make accordion folds of the sail into itself)
- Secure the main to the boom using both boom vang and mainsheet
- Put the cover around the main sail (Cover is there to protect the sail against the Sun UV rays not the rain)

YouTube has a number of videos that can help:

- https://youtu.be/NJnI4eQCz9s?si=Wurayj_ev18felIh
- https://youtu.be/9Ok7_AZaexQ?si=h-ORP_XHwG65oKhI



Laser De-Rigging Stern plug

That picture show the stern of a Laser/ILCA.

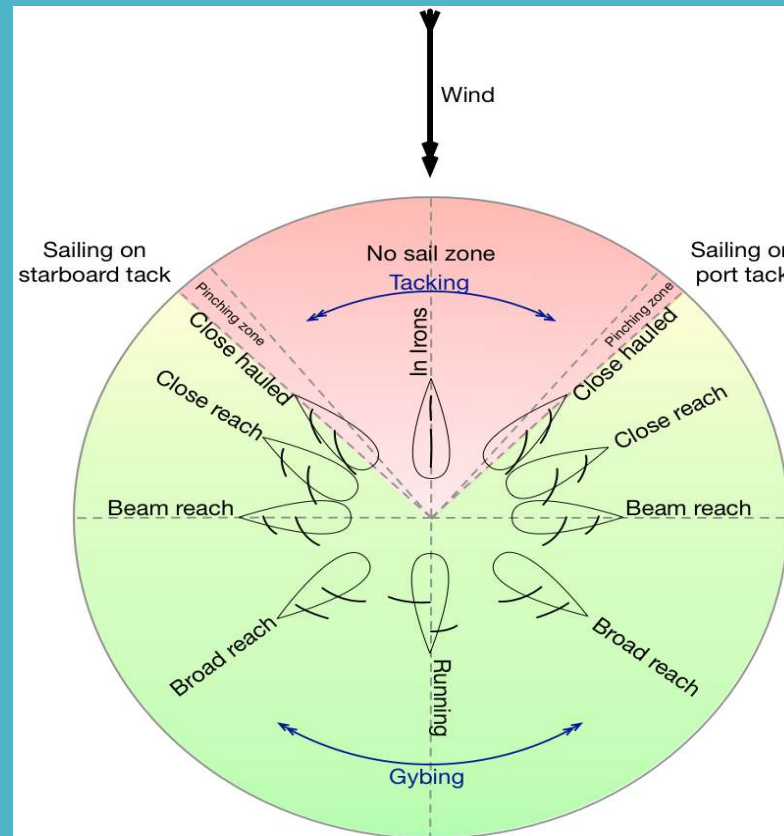
While this plug need to be lock and tight when going sailing, it is critical that when a Laser is derigged and on the docks, that the plug be left open....

1. The inside of a Laser is hollow, full of air and 100% airtight/watertight.
2. As the temperature increase, the air inside the Laser wants to expand.
3. If there is no easy way out for the air, pressure inside the hull will increase until one part of the hull give way.
4. At that phase, the Laser hull is no longer airtight/watertight.
5. Water will start to go inside the hull, increasing the weight of the hull.



Points of sail or Angle between the boat and the apparent wind

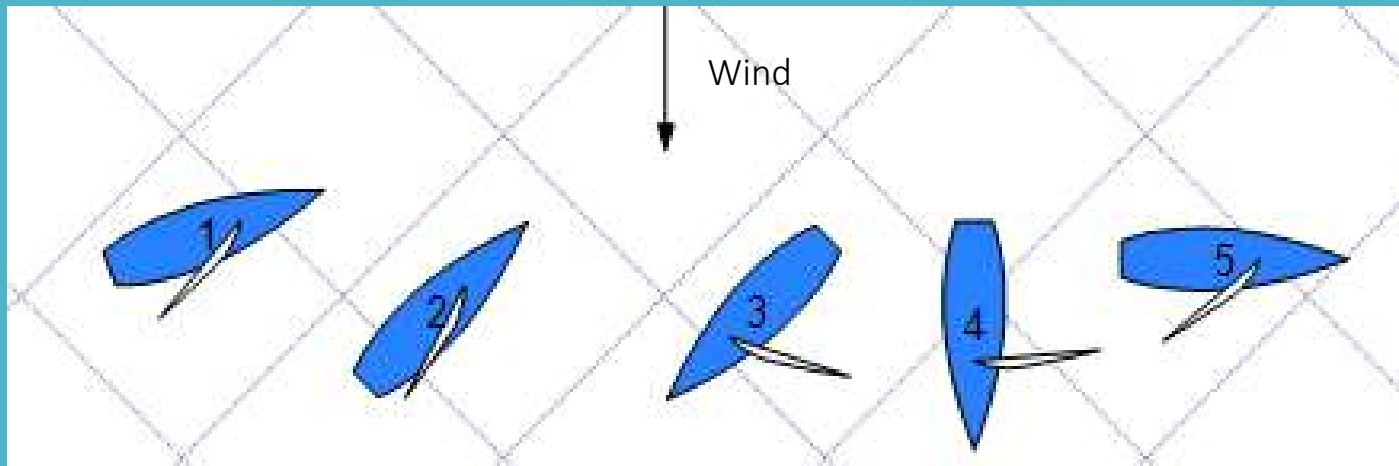
A boat is on a starboard tack when the mainsail lies on the port side of the boat.



A boat is on a port tack when the mainsail lies on the starboard side of the boat.

Points of sail

Which point of sails are the boat on ?



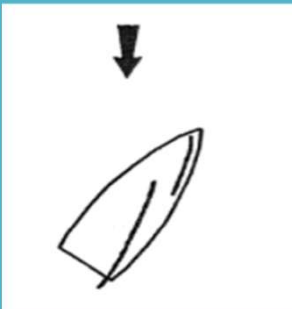
Boat	Tack	Point of Sails	Centerboard
#1	Port	Close Reach (70 degrees off the wind)	20% up
#2	Port	Close Hauled (45 degrees off the wind)	Down
#3	Starboard	Broad Reach (135 degrees off the wind)	40% up
#4	Starboard	Running (180 degrees off the wind)	60% up
#5	Port	Beam Reach (90 degrees off the wind)	80% up



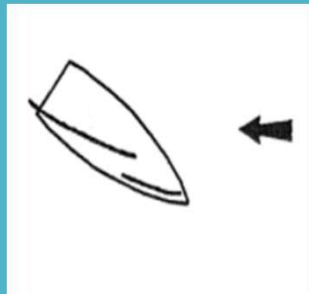
Points of sail

What point of sail ?

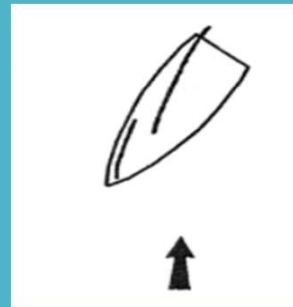
North wind



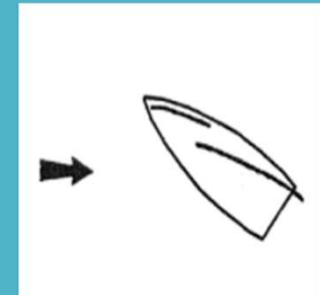
East wind



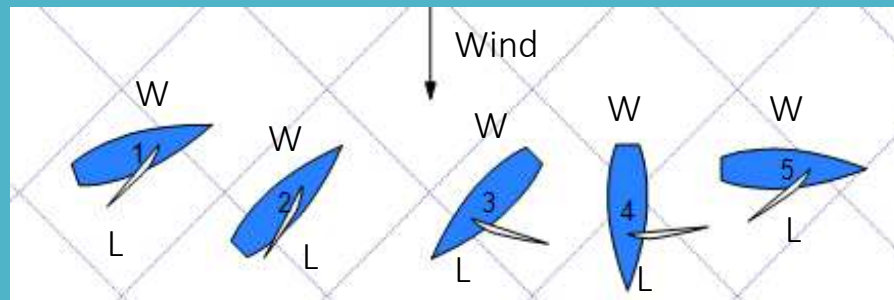
South wind



West wind



Definitions



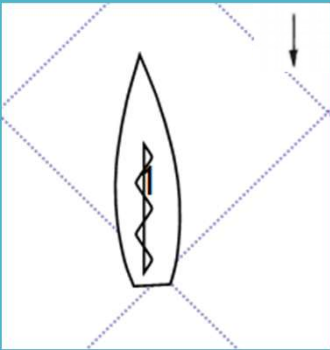
- Windward: The side of the object (boat, sail, etc...) that is closest from the wind.
- Leeward: The side of the object (boat, sail, etc...) that is further away from the wind.

Points of sail

Special sail positions

In irons

Boat is not moving



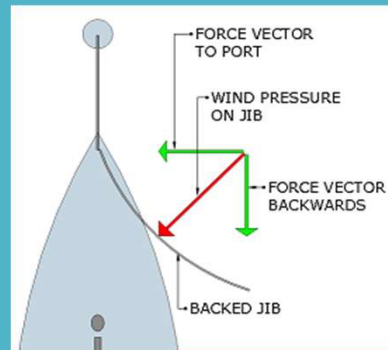
Boat moving as the wind creates no pressure on the sails on either side.

To get out:

- Backwind the sails
- Push the rudder one side
- Use a paddle

Back Wind the jib/main

To get out of irons

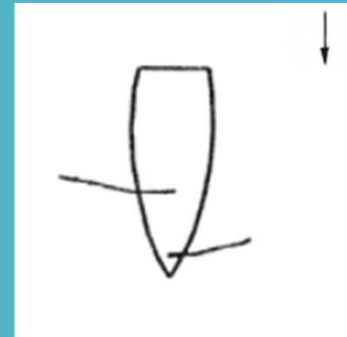


Usually, the crew grab the clew of the jib and move it against the wind. Then the boat will pivot to a close haul position.

The skipper can also push the boom of the main sail against the wind.

Wing on Wing

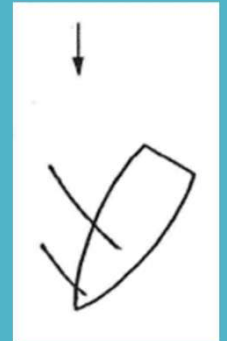
One sail on each side of the boat



Crew will grab the clew of the jib and push it on the side of the boat.
Best way to get out of Irons
Possible to backwind the main sail as well.

Sailing by the lee

Sails are on the side as the wind



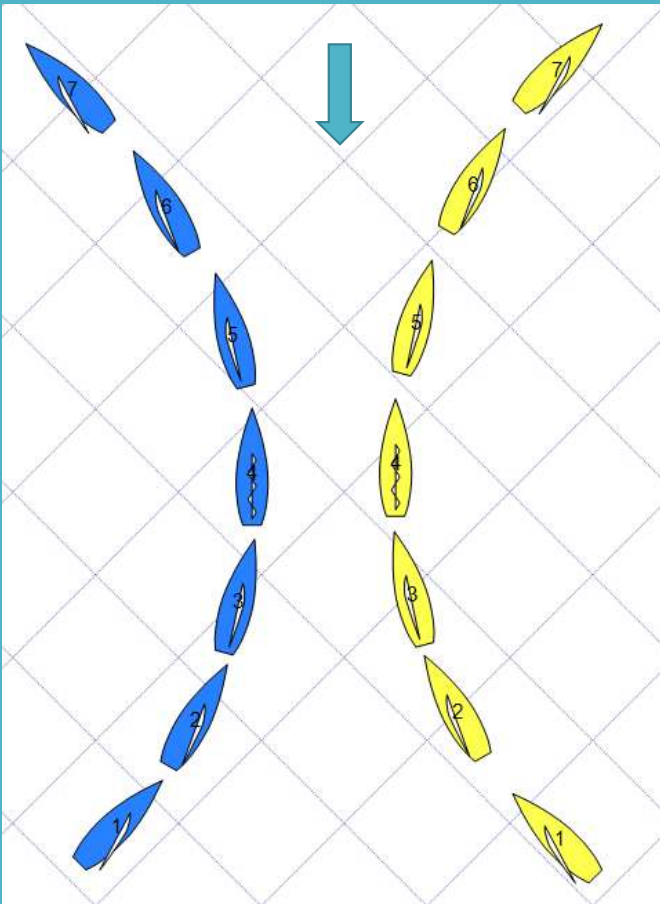
High risk of an accidental gybe
The boat above is on port tack

Tacking & Gybing

Tacking

From a Closed Haul position

Mainsail/Boom travel a short distance

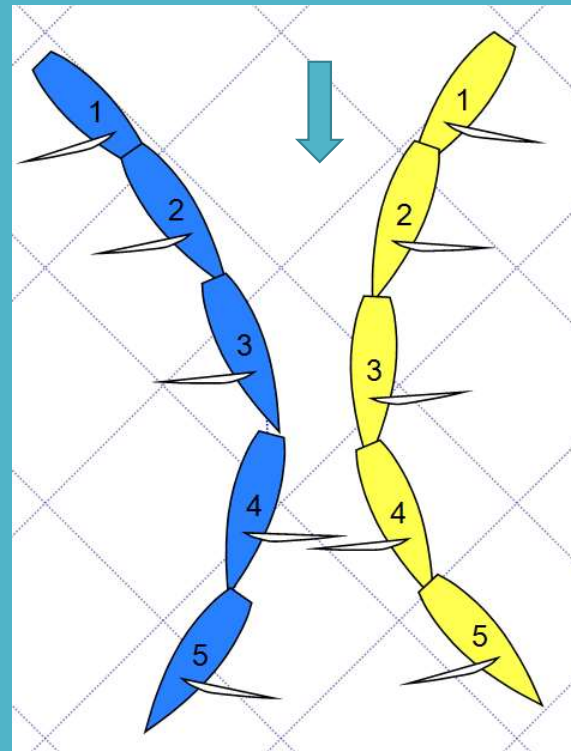


Gybing

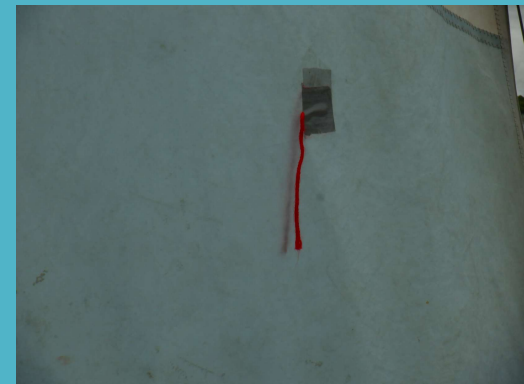
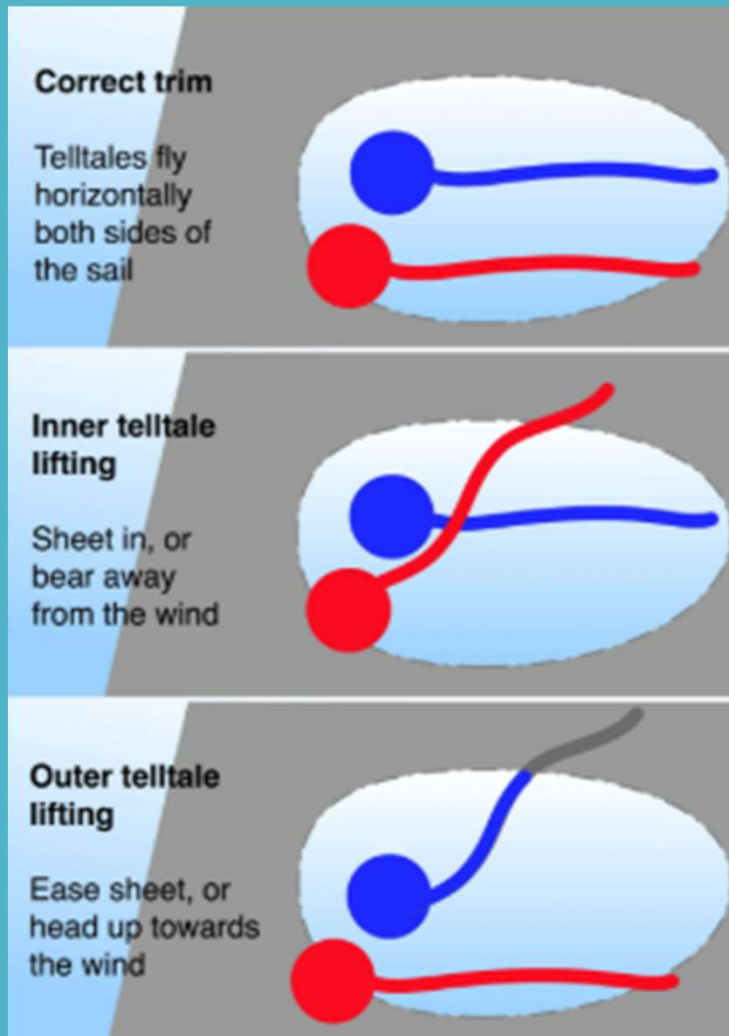
From a Broad Reach/Running position

Mainsail/Boon travel a long distance - Can have lot of force distance

Could happen accidentally if there is a shift in the wind



Seamanship – Trimming the jib sail



Right of Way

Sailboat

Vs

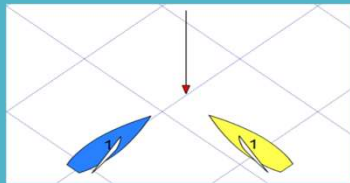
Rowboat, kayak, rowing scull (They have right of way)

Powerboats (They do not have right of way – Boat under sails have right of way)

Other Sailboats (It depends...)



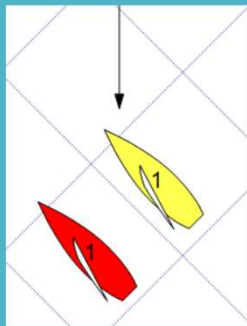
Right of Way between sailboats



Port tack

Starboard tack

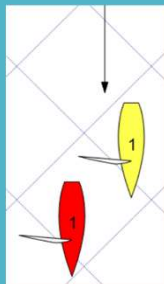
Different tack: Port tack boat must keep clear of a starboard tack boat



Leeward

Windward

Same tack, Windward/Leeward (Overlap): Windward boat (closed to the source of the wind) must keep clear of a Leeward boat (further away from the source of the wind)



Overtaking

Being overtaken

One boat faster than the other: The overtaking boat (being faster) must keep clear of the boat being overtaken (slower)

Capsized To prevent one

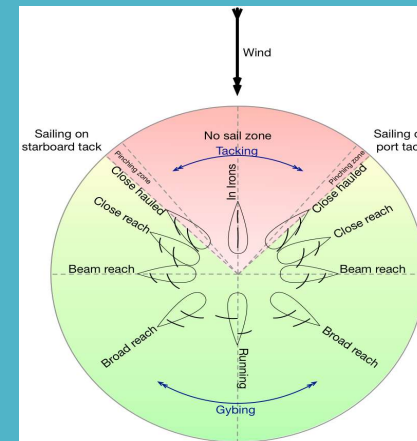


Sit on the gunwale



Let the sails out

Caution: Do not let the end of the boom/sail drag in the water. It may speed up the capsized.



Move toward the wind
(go in irons)

... and you may have to perform all three
technics at the same time !

Capsized To recover from one

Everyone ok ?
Crew: Go to the bow – point
boat into the wind
Skipper: Go to centerboard



Climb on centerboard



Reach for jib sheet



Pull on jib sheet (knots against fairlead)
Lean back – Crew can join if required to add weight



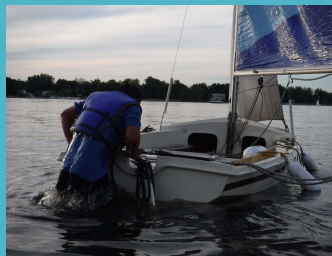
Jib sheet knot must hold !
Mainsheet knot for Laser



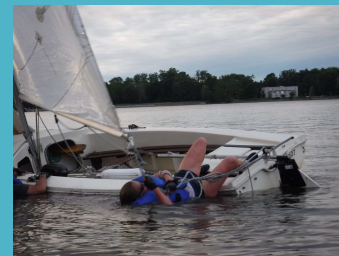
The physics does not lie !
Boat will move.... Be patient



Skipper: Climb in boat from stern
and grab tiller to have control
Crew: climb once skipper is control



As this is not a kayak, feet first will
not work unless you have
fantastic abs !



Need Help ?



Seamanship

Skipper & Crew responsibilities

CL-16

Joint:

Communicate clearly
Rigged/De-rigged the boats

Crew:

Keep a lookout for obstacles (other sailboats, powerboats, log, etc...)
Balance the boat
Trim/Adjust the jib sail
Push away from the docks / Ensure safe arrival at docks
Listen to the skipper

Skipper:

Trim/Adjust the main sail
Manage the tiller/rudder

Seamanship

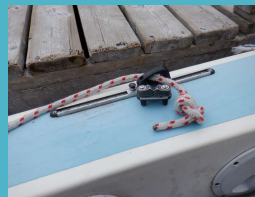
Additional controls

In addition to the jib and main sheets, the following can be adjusted as you sail depending on wind conditions and point of sails to optimize performance:

- Centerboard (heeling / side way motion)



- Boom vang (Shape of mainsail)



- Fairlead (Shape of jib sail)



- Outhaul (Tension in the foot of the mainsail)

- Cunningham (Tension in the Luff of the mainsail)



Seamanship

To bring back a boat to the docks

1-Being towed by the rescue boat
– Only if someone is available



2- Paddling



3- Paddling with your hands



4- Rocking a Laser



Seamanship

Lee-Shore



A lee shore: Shoreline/Docks that wind is blowing toward.

Lee shores are dangerous because if a boat were to lose its maneuverability, they would eventually drift towards the lee shore/docks likely resulting in a grounding or collision with the shore, docks or other boats.

If you try to dock on such a dock, you will arrive at the docks with too much speed and you will not be able to stop.

You cannot go close right from the beach as you will not have any rudder or centerboard. 1) The crew move the boat away from the beach, keep it in irons, until they stand with water to their waist/chest 2) skipper raised main sail, lower rudder/centerboard as much as possible without touch the bottom. 3) crew get on board 4) fully lower rudder/centerboard you get away from the shore.

Seamanship Towing

- Towline is wrapped around the mast (no knots required). If in a boat with forestay/shrouds, ensure that the towline is located between the forestay and shrouds. When being towed, the towline **MUST NOT** put any pressure on the shrouds.
- Crew hold on the towline.
- Skipper steer the boat toward the stern of the rescue boat.
- Raised the centerboard.
- Lower mainsail (if required).

NOTE: See Annex A for the operation of the powerboats.



Seamanship

Leaving the boat rigged at the docks

CL-16: Lower the main sail and secure it using the mainsheet

Secure the bow only (allow boat to move)

Raise the centerboard

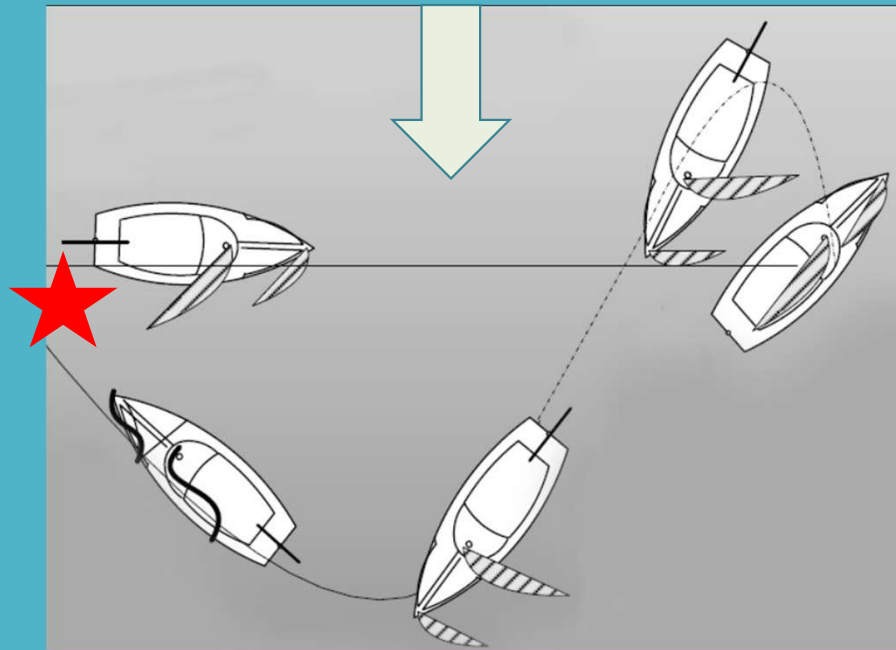


Laser: Remove the boom

Raise/Remove the daggerboard

Seamanship

Men overboard



1. Go on a Beam reach – Stay level with MOB
2. Go 15-20 boat lengths, tack (never gybe) – It will be hard as no one is trimming the jib.
3. Go on a Broad reach.
4. When the MOB is abeam (at 90 degrees to the boat direction), go to a Close Hauled.
5. Maneuver the boat and let you sails out to lose speed and stop beside MOD.
6. You want the MOB to be on the windward side of the boat.

Seamanship – Docking Head to wind

1. Sail close to the docks and identify:

- Where is the wind coming from ? Watch out for Lee shore
- Where are space available ?

2. Formulate a plan

- Where do you want to dock ?
- Which points of sail will you be when arriving at the docks ?
- How much speed will you need and how will you slow down ?
- Size (footprint) of boat with the sails.
- Any obstacle to watch for ? Anchor line, other boats (ie Shroud) ?

*** Unsure what to do: Dock at a safe location (even the rowers dock) and paddle the boat to a proper location once unriggered ***

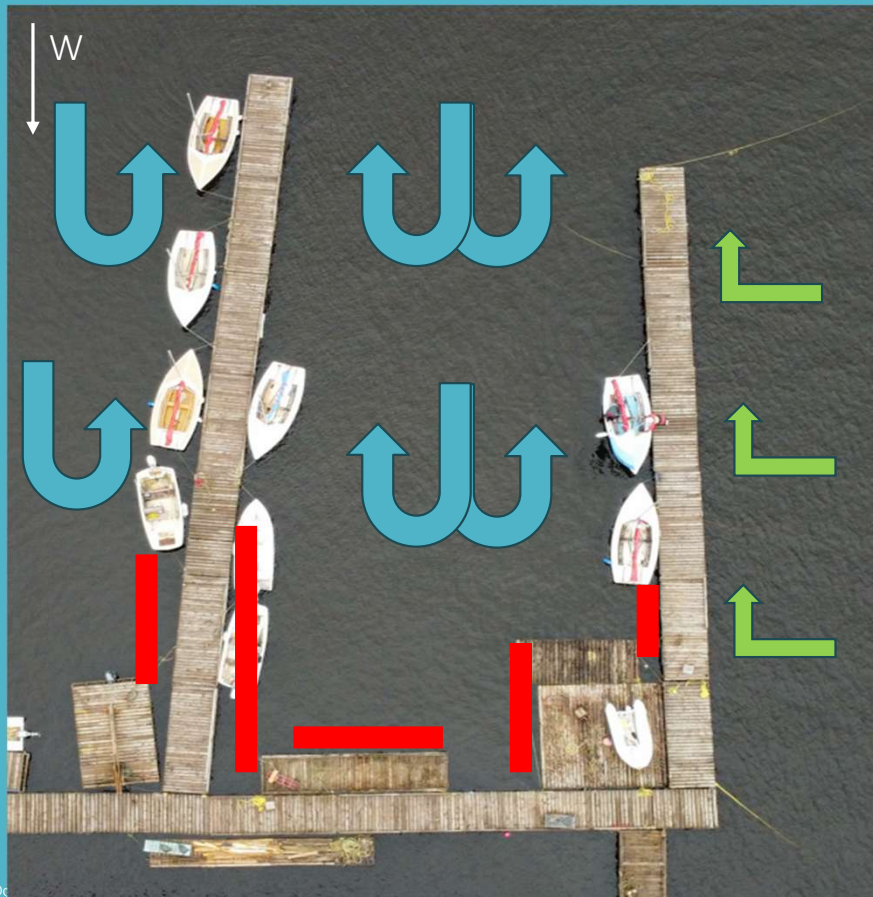
3. Implement plan

- Nothing wrong if you miscalculate. Abort before you hit the docks or another boat and try again.
- Let the jib out as you will lose some speed.
- Once you are at the docks, lower the sail and move the boat to the worst possible position hence allowing the best position for other boats still on the water.



Seamanship

Docking – Where to go or not go (West wind/Upriver)



Green : Will stop at the docks bow into the wind. No pressure on the sails. Easy to disembark.

Blue: Will stop at the docks bow into the wind. No pressure on the sails. A bit more complicated as the boat need to come at a run and then do a 180 degrees at the docks.

Red : Approach very difficult.

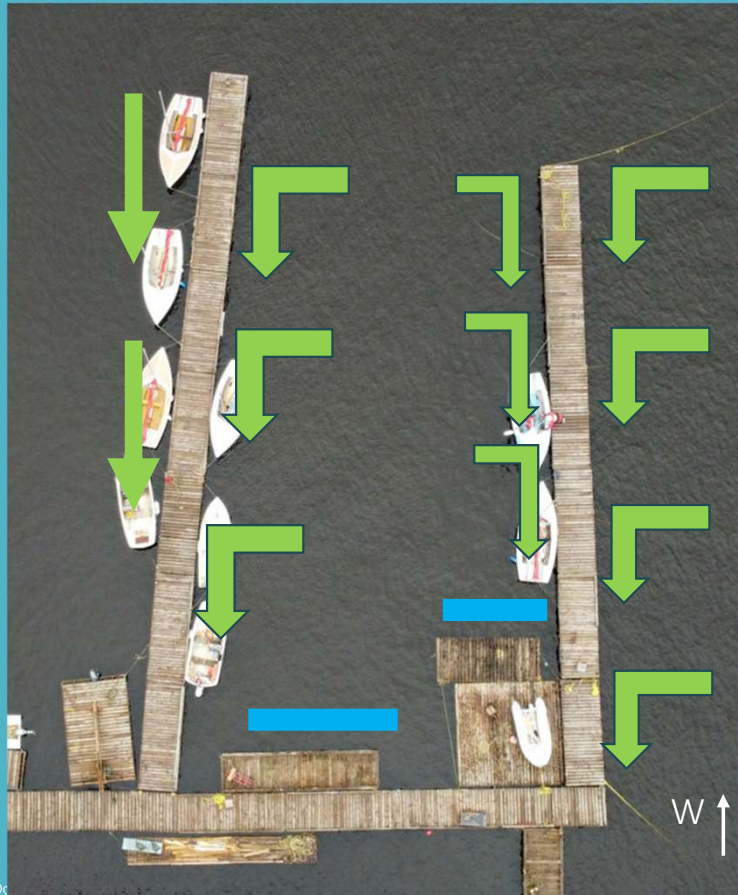
- Not enough time to reduce speed and turn the bow into the wind; or
- This is a Lee Shore. Not able to slow down.

In either case, high risk of collision with the docks/boats.

Note: Once you have de-rigged, move the boat to its final storage location on the south side of any docks.

Seamanship

Docking – Where to go or not go (East wind/Downriver)



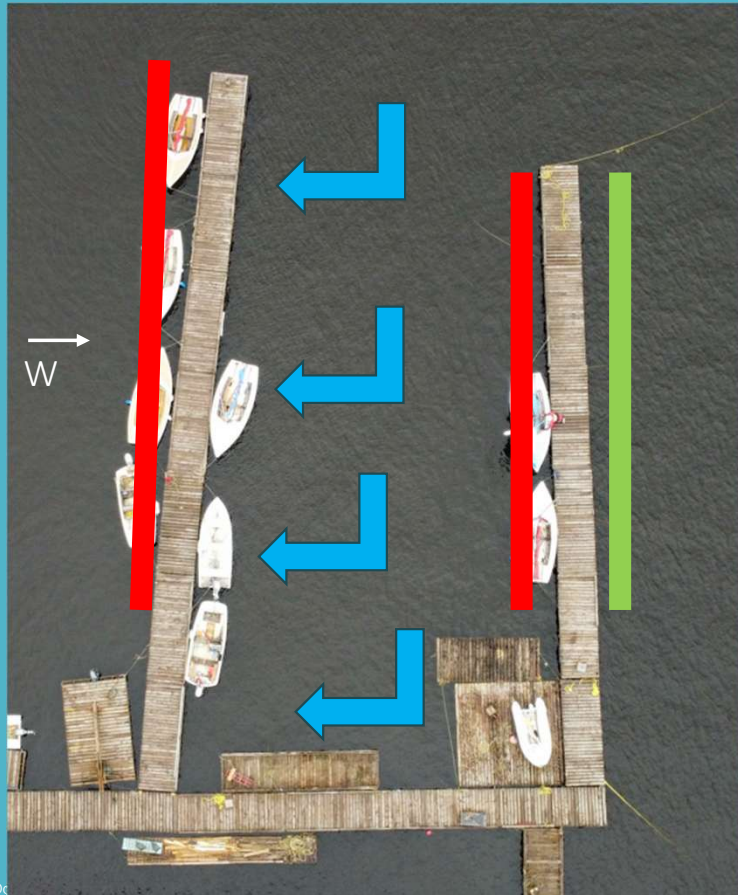
Green: Best locations possible as the boat will arrive at the docks bow into the wind.

Blue: While the boat will approach the docks bow into the wind, there is a risk of the bow hitting the docks.

Note: Once you have de-rigged, move the boat to its final storage location on the south side of any docks.

Seamanship

Docking – Where to go or not go (South wind/Ottawa)



South wind is usually very shift, hence at the last second the wind may change direction.

Green: Coming from the open river, the boat will have choices on how to approach the docks but at the end the boat will turn sideways. Still there is a risk of hitting the docks.

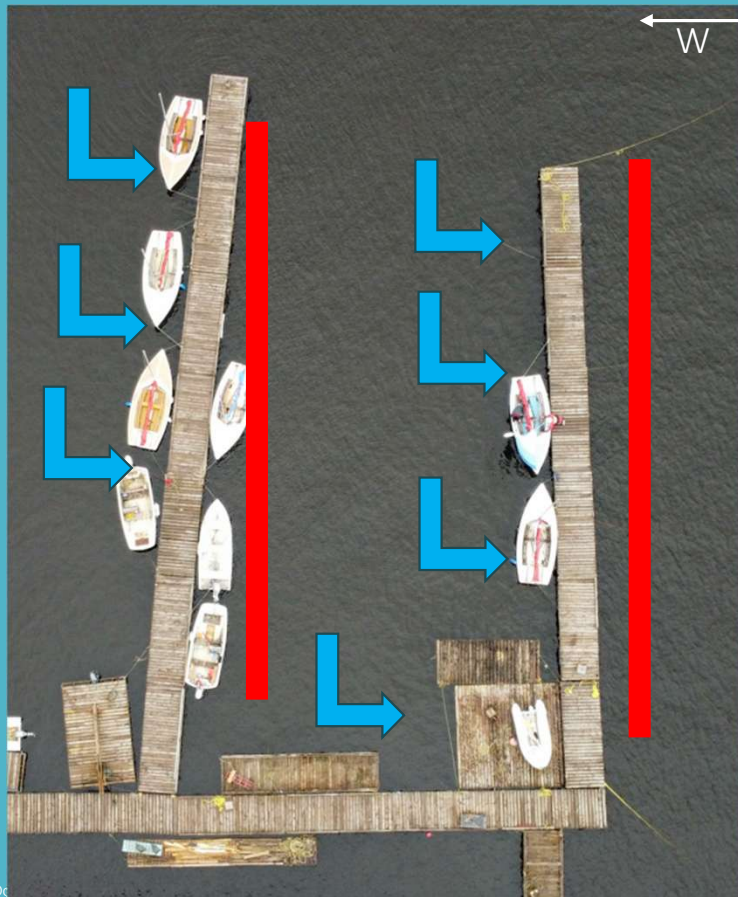
Blue: Boat will need to arrive within the harbor on a beam reach, turn up into iron and then come alongside the docks.

Red: Boat will either arrived on a beam reach or run and there is no possibility of stopping the boat.

Note: Once you have de-rigged, move the boat to its final storage location on the south side of any docks.

Seamanship

Docking – Where to go or not go (North wind/Gatineau)



Green : N/A

Blue:

Red: These docks are on a lee shore. No possibility to reduce speed. High risk of collision with the dock.

Note: Once you have de-rigged, move the boat to its final storage location on the south side of any docks.

Seamanship

Docking – Do & Don't

- Docking head to wind

You always want the final approach to the docks to be "head to wind" so that you can dock with as little speed as possible. Never try to dock while on a beam reach, broad reach or running !

-CL left on the north finger of ONEC docks

The south side of the north finger of the ONEC docks is reserved for the Lasers, the Picos, the Zests and the Quest. The north side of the south finger is for power boats and for one CL 16. The south side of the south finger is for CL16s.

-CL secure to the dock only with the bowline

This allows for the boat to move in all directions and can hit the docks and damage the hull or other boats. They should be tied tightly to the docks so they cannot move.

-CL is loosely attached to the docks

The boat has a lot of movement so it can hit boats located on either side and could result in damage to multiple boats. They should be tied tightly to the docks so that they will rise and fall with the docks.

-No fenders between the CL hull and the dock.

All of the powerboats and CL16s should be tied using bumpers between the boat and the dock. This will reduce the possibility of damaging the hulls as a result of the boats banging against the docks.

-CL secure to the docks with bowline

The proper knot to use is the round turn and two half hitches. A bowline would be very hard to undo if there is any pressure on the line. Round turn and two half hitches can be undone whatever the pressure is.

Ontario vs Quebec Shores

Ontario shore

1. Rocky shore.
2. Good depth close to shore hence it is possible to get close to the shore.

Quebec shore including Kettle & Duck Islands

1. Sand bottom.
2. Very slow slope. Unless you want to beach the boat, stay a good distance away.
3. Be careful that centerboard and ruder does not touch bottom.

Paperwork

While we try to keep paperwork to a minimum, some is required for the good working of the club. We try to keep it all in one single binder.

Membership card - Well as they are now on sheet of paper, they are more a log than card but the name stick.. Important to keep track and see the new members achieves objectives through the training program.

Guest Waiver - You are a certified skipper and you want to bring a guest out ? No problem, but your guest needs to sign a waiver.

Racing Scoring Sheet - Need to keep the results somewhere !



DHPtC.TmmtahcuXSPsY7Gv

Passcode: .u@1Z!y.

Questions ?

Recorded 2025 zoom session: https://us06web.zoom.us/rec/share/C6JPAME5Aeh6xR2ft40iv8aX6CuPb-tOpNLGZInHDlhj1j-JznehGel_K2-DHPtC.TmmtahcuXSPsY7Gv

Passcode: .u@1Z!y.