

**UBC SAILING CLUB**  
**DINGHY SAILING MANUAL**  
**2017**



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## Introduction

There's no substitute for actual sailing if you want to learn to sail. This booklet is only intended as a technical reference, to reinforce sailing lessons. If you're new to sailing, relax—you're in good company. Put this book down until later, and go sailing.

### Credits

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Adapted with permission from the Cal Sailing Club *Dinghy Sailing Manual* [Author: John Bergmann, Editor: John Bongiovanni].

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# 1. Safety First

While sailing dinghies is less dangerous than other outdoor sports, there are certain risks you should guard against:

- Always wear a lifejacket when out on a boat, and practice floating in it if you're not comfortable with going in the water. Our life jackets (AKA personal flotation devices or PFDs) are Class III, which are intended for conscious users, in inland waters, where rescue will be quickly forthcoming.
- Watch out for the boom, and don't stand up in the boat unless you're absolutely sure it is safe to do so. If the boat capsizes, shield your head with your arms to avoid getting clobbered.
- Dinghies are very easily tipped by your weight on the boat. Don't stand up without holding onto something, and pay attention when you step onto an empty dinghy—it can easily tip you into the water. When you are first getting used to dinghies, stay low after you hop in the boat. This way, your center of mass will be low and the boat will be more stable. Also, when moving around in an empty dinghy keep your body as close to the center line of the boat to avoid tipping it over. Slippery shoes, bare feet, and wet hands can cause you to take a hard fall. Wear windsurfer booties or shoes that won't slip on wet plastic, as well as gloves with nonslip palms (preferably with open fingers for untying knots and twiddling with hardware).
- If there is wind, sailing can be wet and cold. Wear a warm hat; it can reduce heat loss dramatically. To reduce heat loss from your body, a wet suit is ideal, and the club has some loaners. If you prefer not to wear a wetsuit, polypropylene fleece and wool are best for warmth because they hold in heat even when wet. Avoid cotton clothing, when wet it loses lots of heat and becomes heavy. Be alert for symptoms of hypothermia, including uncontrollable shivering that can slow your reactions and distort your judgment.
- Sunburn is painful and can lead to skin cancer. Wear a hat with a wide brim and plenty of sunscreen.
- If any part of the boat is broken, it can leave you stranded out on the

water, and it may be some time before Jericho Rescue comes to help. Learn how to check your equipment over carefully and thoroughly before you go out on the water. Learning to identify damage and to repair equipment is a major focus of the club's teaching program (see Repairs section near the end of this booklet).

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## 2. Wind

- Wind: it's what makes sailboats go! So it is the most important thing to learn about. You "read" the wind by looking at the water and at flags and other sails, by feeling it with your body, and by the telltales and sails on your boat.
- The water is a good indicator of the wind's **strength**. The water is glassy smooth in light wind, develops wind ripples (little ripples a few inches apart) as the wind increases, and darkens where gusts pass over it. White-capped waves are signs of strong wind. Remember that the stronger the wind is, the more skill and weight you need to sail a dinghy. If the expert windsurfers are having a great day, it's gonna be wet and wild in a dinghy.
- The best way to feel the wind's **direction** with your body is to use your ears and nose—when your nose is pointed straight into the wind, the wind feels equally strong on both ears. Wind direction is reported based on where the wind is coming from. For example, a northerly wind is blowing from north to south. Conveniently, if you are facing into the wind, this means that the wind direction is the direction you are looking.
- The telltales (yarn or tape streamers) on a boat's shrouds (wires or lines supporting the mast) indicate the wind flowing across the boat, which is influenced by the boat's movement, and is thus the sum of the true wind velocity and a component due to the motion of the boat. If you turn the boat into the wind, the flapping sails indicate the true direction of the wind the way a flag does.
- Anything sticking up above sea level, from a mountain, to a stand of trees, to a tanker, or another sailboat, can create a wind shadow. The area where the wind is blocked is called the lee.

## 2.1. Vancouver Wind: Local wind information and links



Figure 1: Map of sailing area

During the summer, winds in the Vancouver region are generally from the northwest, with southeasterly winds more common in winter months and during the passage of weather systems. However, local wind patterns within the Burrard Inlet can be more variable due to the effects of diurnal temperature variation (onshore and offshore winds arise due to land heating and cooling more quickly than the ocean) and topography. It is always best to consult a weather forecast before going out on the water.

- <http://jsca.bc.ca/services/weather/>  
View CURRENT conditions at Jericho Sailing Centre with links to forecasts of tides and wind!
- <http://wx.iwindsurf.com/map#49.271,-123.158,10,1>  
Shows wind direction from various sensors



- <http://www.sailflow.com/map#49.304,-123.228,12,1>  
Click on arrows to see recent data and forecasts
- <http://www.bigwavedave.ca/forecasts.php>  
Forecast for Jericho
- [https://weather.gc.ca/marine/forecast\\_e.html?mapID=03&siteID=14305](https://weather.gc.ca/marine/forecast_e.html?mapID=03&siteID=14305)  
Environment Canada's forecast for the Strait of Georgia (not specific to Burrard Inlet/English Bay)
- [http://www.opc.ncep.noaa.gov/shtml/P\\_brief.shtml](http://www.opc.ncep.noaa.gov/shtml/P_brief.shtml)  
Pacific Briefing Package: forecasts and analyses
- <http://www.navcanada.ca/EN/media/Publications/Local%20Area%20Weather%20Manuals/LAWM-BC-3-EN.pdf>  
A guide to regional weather patterns (geared toward aviation)
- <http://waves-vagues.dfo-mpo.gc.ca/Library/487.pdf>  
A little oceanography!

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### 3. Learning To Sail

- Sailing is no more complicated than driving a car, and a lot more fun to learn. Some people grasp it immediately, while others take longer. Sailing requires some physical agility as well as a good memory and quick thinking to handle new concepts and language. To make it easier, don't try to take on everything at once. In the sailing lessons, concentrate on practicing sailing, and leave sailing theory to later, when you can read a good book (see list near the end of this booklet) or discuss things at the club.
- The first task is **rigging**. This is the preparation process of attaching sails and threading ropes and sheets through pulleys to get the boat in sailable condition. The rigging process is different for each kind of dinghy. Each kind of boat requires different sized sails, and different parts. You will learn the rigging process for each boat in lessons.
- Out on the water, you should first learn to steer a boat with a tiller. Once you've gotten that down, move on to learning to trim the sails. Along the way, you learn how to turn around and go the other way (coming about or tacking, maybe even jibing too). Then you learn to use your body weight to balance a dinghy sailboat. Unlike a keelboat, which has a big lead weight underneath, a dinghy sailboat stays upright mostly because the skipper and crew use their weight to balance the force from the sails.
- You will also learn how to launch a boat from the ramps on Jericho Beach, rig and de-rig boats, stay safe on the water and on land, and take care of and repair equipment. Your teachers may have different ideas about how to teach, but hopefully they'll ask about your progress and challenge you without overwhelming you. If they screw up, please give them a break! They may be volunteers. Feel free to give lesson feedback to the Head Instructor, the Lesson Coordinator, or someone on the Executive Committee. Sometimes there will be big waves and strong wind, other times there will be little, if any wind. The boat will handle differently in different wind, and there will be different things to focus on. Have fun, and pass those beginner lessons so that you, in turn, can help out new sailors.

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## 4. Sailing basics

- A sailboat's **course** is the direction it is heading.

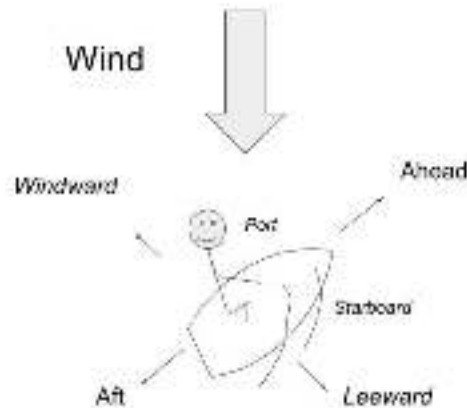


Figure 2: Sailing directions

Figure 2 shows that **ahead** refers to the direction the sailboat is heading, while **port** refers to the side that's on your left when you're facing Ahead. The skipper usually sits on the **windward**, or upwind side of the boat, and the sails are always on the **leeward**<sup>1</sup>, or downwind side.

- The **wind direction** refers to the direction it comes from (not the direction it is blowing towards). A west wind comes from the west.
- **Heading up** means turning toward the wind (see Figure 2: Sailing directions), so the boat is pointed more toward the direction the wind is coming from. **Falling off**, the opposite of heading up, means turning away from the wind.

### 4.1. Coming About and Jibing

- Coming about and jibing are the two ways of turning a sailboat, during which the sails switch from one side to the other.
- **Coming about** (also called **tacking**) means heading up (toward the

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<sup>1</sup>Leeward is pronounced "lee-word" by regular people, "loo-erd" by salty types, and "lurid" by people making fun of salty types.

direction of the wind), briefly pointing **directly into** the wind during the turn, continuing the turn and thus falling off until the boat is sailing again, now with the sails (and sailors) on the other side. The sails will flap their way across the boat as it turns through the wind.

- **Jibing** means falling off, turning the boat **away** from the wind. Making this turn will cause the sails to be flipped across the boat (see Section 5.7).

## 4.2. The Meaning of Port and Starboard Tacks

- Sailing on a “port tack” or a “starboard tack” is a way of differentiating between boats sailing with their sails on the right side of the boat, and those sailing with their sails on the left side of the boat.
- The port side of the boat is the left one when you are facing ahead (forward). On a **port tack**, the mainsail is on the starboard side of the boat. Typically, this means that the wind is coming from the port side or aft (from behind the boat).
- Determining whether you are sailing on a port or starboard tack is critical to determining which boat has the **right of way**.
- The best way to determine what tack you are sailing on is to identify what side of the boat the sails are on. Generally, the sailor sits on the opposite side of the boat as the main sail. The **side you are sitting on is the same as the tack you are sailing on**. For example, if your sails are on the port side of the boat, you are sailing on a starboard tack, and vice versa.

## 4.3. Right of Way

- The right of way rules have been adapted from the [Transit Canada BoatSmart! Site](#).
- Sailcraft have right of way over motorized boats. However, motorized vessels which are towing other vessels, or are confined to a dredged channel automatically get the right of way. This includes any freighters or tug boats transiting the English Bay.
- Freighters and tankers that are anchored in the English Bay are unable to maneuver. It is thus your responsibility to stay out of their way.
- When the two sailcraft are on different tacks, the one on **starboard** tack has right of way. (If your boat has the mainsail on the **your** port side and

the other sailboat has their mainsail on **their** starboard side, you have the right of way.

- If both sailcraft are on the same tack, the **downwind** craft has right of way. The downwind boat is the boat further from the wind source direction.
- When one sailcraft is coming up from behind another, the **slower** one has right of way.
- If you have right of way, **hold your course**. Yell and gesture to the other boat or windsurfer if it looks like they're on a collision course with you and they don't see you. If they don't make eye contact with you and respond by changing their course, change your own course to avoid the collision. A quick tack is often the best emergency maneuver to avoid a collision, but sometimes it's better to just change course (without tacking) or jibe.
- Always give plenty of room for beginning windsurfers, and never get within a mast's length of a windsurfer to avoid collisions.

#### 4.4. Collision Courses

- Check frequently for other boats or windsurfers coming your way, and always do so before coming about, jibing, or turning suddenly. A boat or windsurfer coming at you may be on a **collision course** if it appears to stay in a fixed position relative to a distant (miles away) object or landmark on the horizon, while getting bigger.

#### 4.5. Points of Sail

*Points of sail* are names for the angle between a sailboat's course and the wind.

- **In irons** means the boat is headed directly into the wind (an angle of 0 degrees).
- **Close hauled** means the boat is headed at about 45 degrees to the wind.
- The fastest way to sail to a destination directly upwind is to sail close hauled, *coming about* in 90 degree turns to switch direction. Zigzagging upwind in this manner is called **beating**, possibly because of the wind and spray suffered by the crew in **heavy weather** (high winds and waves).
- A **close reach** is an upwind course at an angle between 45 and 90 degrees.

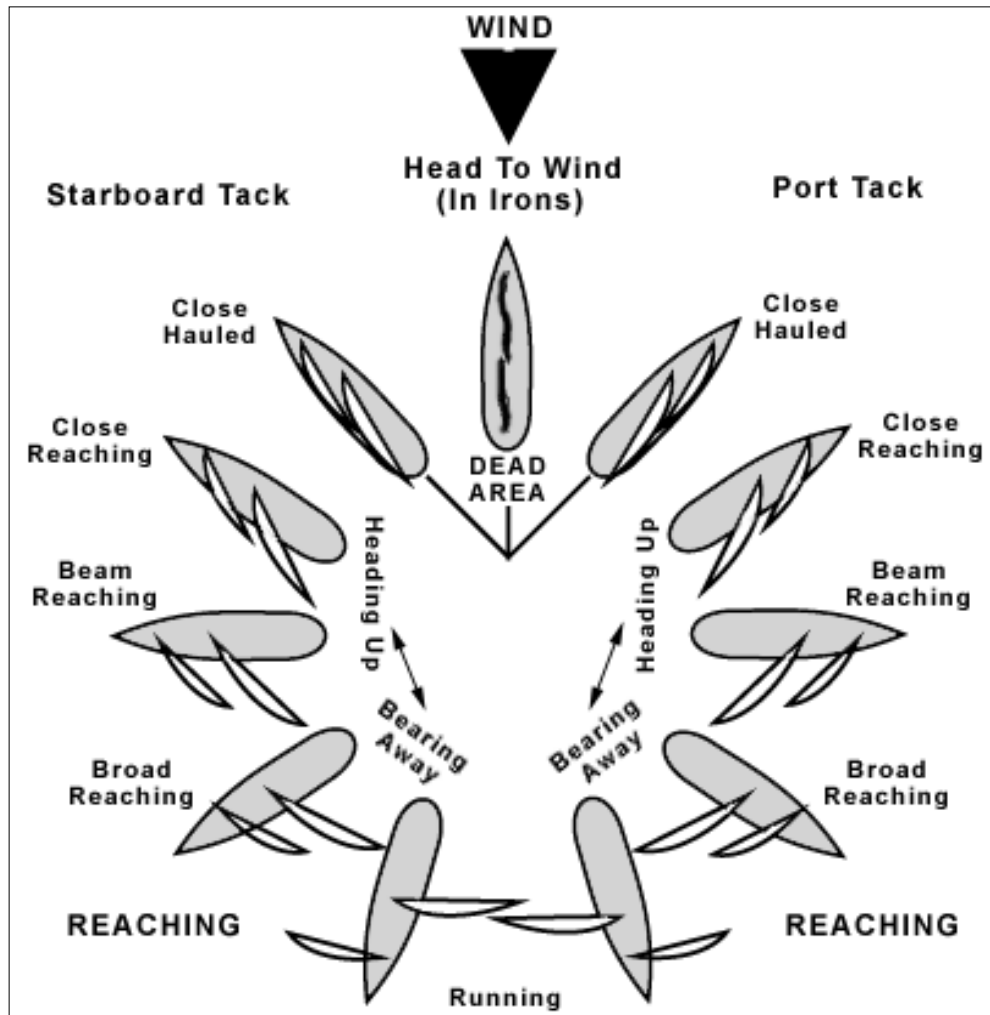


Figure 3: The points of sail

- A **beam reach** is when the wind direction is at about 90 degrees to the boat's direction of travel.
- A **broad reach** is more than 90 degrees and less than about 135 ( $=90+45$ ) degrees. A **run** is when the wind is aft (behind the boat). A **dead run** is sailing straight downwind.
- **By the lee** is when the wind is coming from the same side of the boat that the sail is on. Sailing by the lee can be dangerous-- if the boat turns or the wind shifts, the boat can accidentally jibe.

## 4.6. Parts of the Sail

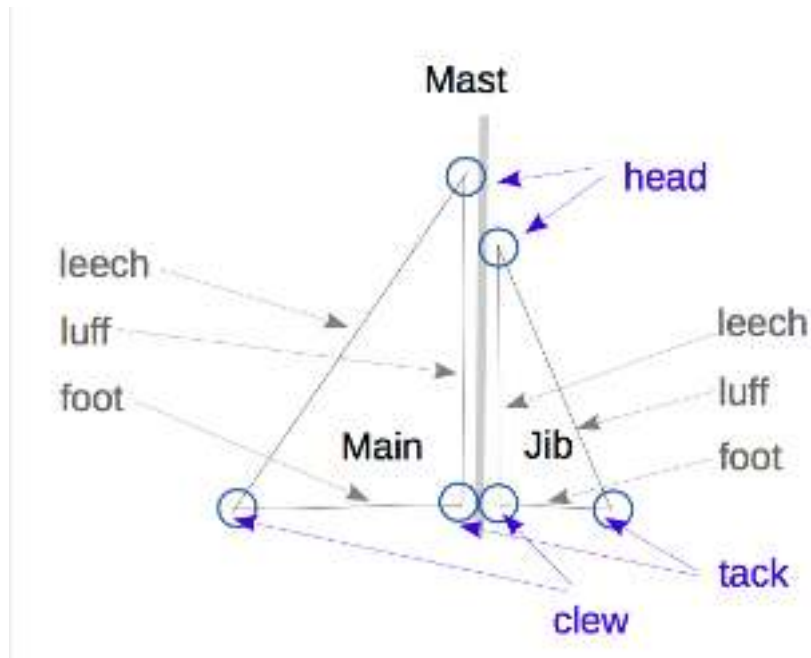


Figure 4: Parts of the sail

On our beginner boats, the sails are triangular.

Edges:

- **Foot:** bottom edge
- **Luff:** front edge. On the main, it is the edge closest to the mast. On the jib it is attached to the jibstay or roller furling.
- **Leech:** aft edge of the sail.

Corners:

- **Tack:** bottom front corner (connecting the foot to the luff).
- **Clew:** bottom aft corner (connecting the foot to the leech).
- **Head:** top of the sail (where the halyard is attached).

## 4.7. Sail Trim

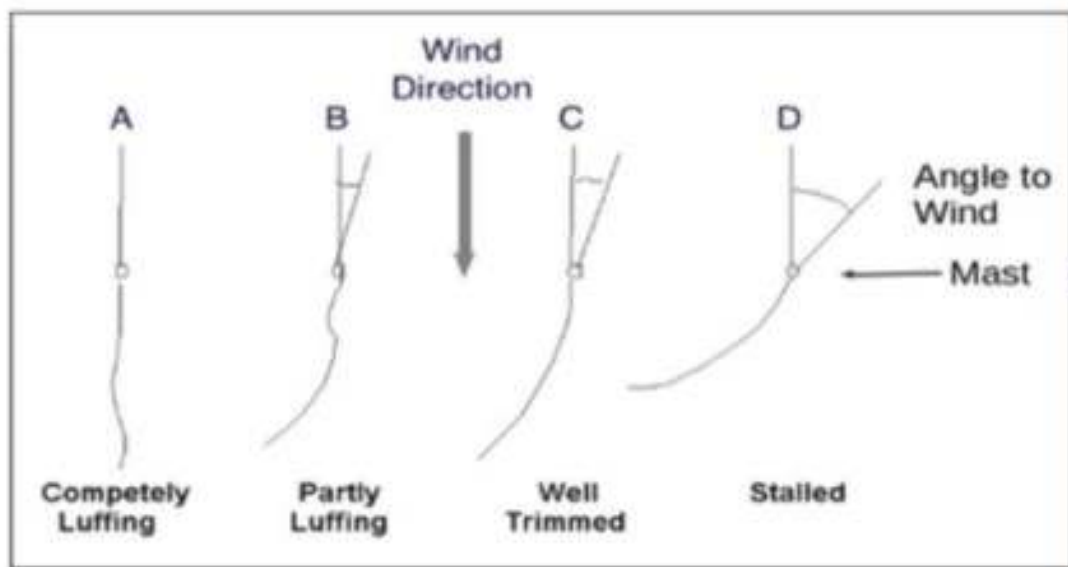


Figure 5: Sail trim

A. Sail angle parallel to wind. B. Sail at shallow angle to the wind. C. Sail trimmed properly. D. Sailed pulled in too close to the wind (stalled).

- The power that a boat gets from its sails depends on the angle between the wind and the sail. The **sheets** are the lines that can be used to adjust the angle of the sail to the wind—mainsheet for the mainsail, jib sheets for the jib. Pulling in (or ‘trimming’) the sheet increases the angle, while letting out (or ‘easing’) the sheet decreases the angle.
- The wind that determines how the sails should be trimmed is the **apparent wind**, that is, the wind as felt by someone in the boat. This apparent wind is formed by a combination of the true wind with the breeze generated by the boat’s motion.
- To go upwind or perpendicular to the wind (reach), a boat must get **lift** from its sails. Sails achieve the most lift at an angle of about 15-30 degrees to the apparent wind.
- To go downwind (run), the wind pushes the sails, and they develop maximum power when let out until they are square to (at 90 degrees to) the wind.
- When a sail is not pulled in enough to create the appropriate angle to the



wind for the boat's heading, it flaps in the wind like a flag (see Figure 5: Sail trim). In sailing terminology, it is completely luffing (A). As the sail is pulled in, it becomes partly luffing (B): the back part of the sail (near the 'leech') takes on a curved shape, while the luff or front part (near the mast or forestay) continues to flutter or retain a bubble-like indentation (see also Fig 5: Luffing Mainsail). As the sail is further pulled in, it stops luffing and develops maximum lift (C). If the sail is pulled in further, it loses lift and is said to be stalled (D). The wind pushes on the sail, creates more heeling of the boat, but does not create much lift.



Figure 6: Sloop with partially luffing mainsail

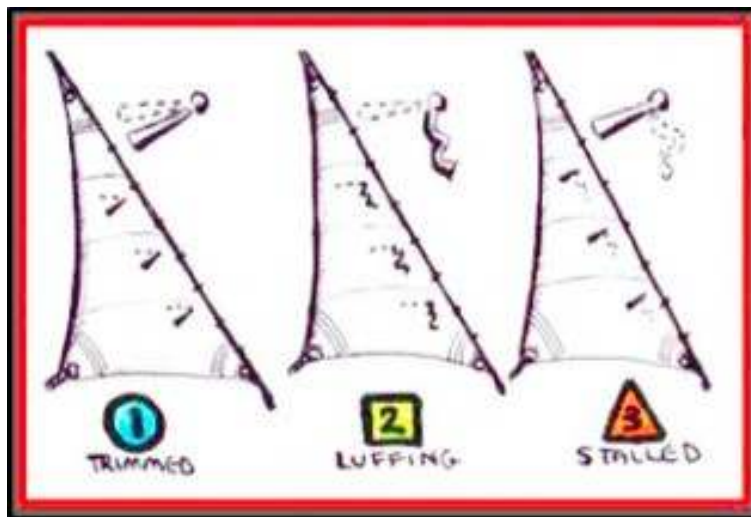


Figure 7: Reading telltales

- To aid in sail trim, strings or ribbons are attached to both sides of the sails (see Figure 7: Reading Telltales). The windward telltales are drawn with solid lines. As the crew is aft of the sails, the leeward telltales are 'behind' the sail and difficult to see. They are drawn with dotted lines. Some boats have clear windows sewn into the sails to help one see the telltales.
- When the sail is trimmed properly, wind is flowing smoothly over both sides of the sail and the telltales are both streaming toward the leech (panel 1). When the sail is luffing slightly, the windward telltale falls or spins - (panel 2). Either trim the sheet or fall off the wind.
- When the sail is beginning to stall, the leeward side of the sail is in the "shadow" of the sail and the leeward telltale will begin to flutter or drop (panel 3). Ease the sheet or head up to into the wind.
- To get the most force out of the sails when on a reach (sailing perpendicular to the wind), let out the sheets (or head up) until the sails luff. Then, pull in the sheets (or fall off) until the sails just stop luffing. On a run (wind coming from behind the boat), let out the sheets until the sails are as close to 90 degrees to the wind as they will go—the shrouds usually get in the way of letting out the mainsail, while the jib won't stay out at 90 degrees by itself. When sailing downwind, the airflow across the sails is from leech to luff and the telltales are not of much use.
- It is also possible to put telltales on the **shrouds** (metal cables that stabilize the mast) of the boat, which are then useful for judging the direction of the wind blowing across the boat. These can easily be fashioned out of old cassette tapes.

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## 5. Dinghy Sailing Maneuvers

- The maneuvers described below— launching from and landing at the beach, coming about, jibing, sailing in small circles, righting after a capsize, and recovering a person overboard—involve skills that are absolutely necessary to safely handle a small boat. For this reason, you are expected to be able to carry them out safely before you will be certified to take out any of UBC Sailing’s sailboats.
- There is not always a single correct way to do many of the maneuvers listed here. Please consider this guide as a starting point for building your sailing knowledge, which you can augment with additional recommendations from instructors and more experienced club members.

### 5.1. Launching the Boat

- Before starting to launch the boat, make sure all boat parts are in working order, and all required safety equipment is on board.
- Usually, you should rig the boat completely before proceeding down the ramp. An exception should be made when the wind strength and direction are such that it is difficult to launch the boat with the sails up. In this case, it can be advisable to leave the main sail down while launching and then to raise it on the water after launching. Even in this case, it is advisable to prepare the main sail on land (attaching outhaul, Cunningham, etc.), so that it is a quick and painless process to raise it on the water.
- While using the launching ramps, be courteous of other Jericho members. Give preference to people bringing boats up the ramp, and don’t block the ramp with your boat for an extended period of time.
- While proceeding down the ramp, try to reduce to force of the wind on the sails as much as possible. This can be achieved by **completely loosening mainsheet, jibsheet, and vang**, and pointing the boat as much into the wind as possible. One crewperson should hold the boat at the **windward shroud** to avoid it capsizing to leeward on the dolly.
- For safety reasons, the dolly should always be **backed down the ramp** (with the sailor uphill of the boat).

- The bottom of the ramps at low tide can be extremely slippery. Exercise extreme care while walking on the lower portions of the ramps.
- Once at the bottom of the ramp, reposition the boat so that it is headed in to wind. Push the dolly into the water so that the boat begins to float. One crewperson should grab the **bow** of the boat, pushing it back until it is free of the dolly, while the other crewperson pulls the dolly out from under the boat.
- While one crewperson returns the dolly to its spot, the other crewperson walks the boat away from the ramp towards the beach, **taking care that the boat doesn't wash ashore** on either the ramp or the beach. The preferable method of holding the boat is with one hand at the bow, and the other extending back towards a shroud.
- While moving the boat off the ramp, please be careful of the **steep drop off** at the side of the ramp.

## 5.2. Leaving from the Beach

- While the **crew** holds the boat at the bow, the **skipper** should prepare the boat for launch: lower the rudder (only partially if the water is not deep enough), make sure the sheets are loose, and raise the main sail (if not done already on land).
- The skipper should then position themselves to begin sailing, holding tiller and mainsheet, while preparing to **counterbalance the crew** as they climb aboard.
- While the skipper is preparing, the crew holds the boat facing into the wind. It is advisable for them to stand in between the beach and the boat, since it will be easier for them to stand on the shallow side of the boat.
- Once the skipper is ready, the crew turns the boat away from the wind and away from the beach, gives a forward push, and pulls themselves over the side of the boat. The crew needs to make sure to turn the boat away from the wind enough that the boat is no longer in irons.
- Once the crew has launched the boat, the skipper's first priority is to steer the boat away from the beach, avoiding any other watercraft in the vicinity. Sheeting in the main sail a bit will help get the boat moving. Once the boat is well away from the beach and other craft, the skipper should

drop the rudder the rest of the way (if not done already at the beach) and make sure that it is secured.

- Once aboard, the crew should sheet in the jib a bit. As soon as the boat is in sufficiently deep water, the crew should drop the center or daggerboard.

### **5.3. Returning to the Beach**

- When returning to the beach, formulate a plan of action with your crew well in advance so that it may be executed precisely and comfortably with no need for panic.
- When approaching the orange cans near Jericho beach, partially raise the rudder, and make sure that the center or daggerboard isn't stuck (but don't raise it yet).
- Choose a spot at the beach to aim for—clear of other watercraft and far away from the asphalt ramps. If you mess up, you want to have plenty of room for error.
- Sail towards the beach just downwind of the spot you have chosen. Control your speed by easing main and jib sheets.
- Just before reaching the beach, have your crew raise the center or daggerboard. Turn up into the wind, letting the sails luff, and have the crew quickly slide off the boat on the side closer to the beach. They should grab the boat near the bow to keep it from floating away.
- Make sure all sheets and the vang are loose, and raise the rudder. If extremely windy, it might be advisable to lower the mainsail on the water.
- While the crew holds the boat, go get your dolly from its spot. Reverse the procedure of launching the boat, making sure that the boat's hull never comes into contact with the beach or the asphalt of the ramp.

### **5.4. Sailing upwind**

- Most beginners have absolutely no problem sailing upwind in wind that is over 3 knots or so. But in lighter wind, even experienced skippers will find themselves on a slow boat moving sideways. Here are a few tips to keep on track and up to speed.
- The most important: Don't pull the sails in too far. This is called stalling the sail. In light wind (less than 5 knots), it's easy to pull in the main and

- jib too far. Watch those telltales (the ribbons on the mainsail and jib) carefully, and let the sail out when the downwind telltale starts to flutter.
- Heel the boat slightly, especially in light air. Heeling the boat about 10 to 20 degrees helps the boat stay on course and reduces side-slip. It also reduces your wetted surface immensely, which cuts drag and improves your speed. Heel the boat until it tracks perfectly on the course you want, with the tiller centered. In light air, you'll be heeled a lot, but in strong wind, you'll have the boat nearly flat.
  - When you sail close-hauled, wait until you've gained the last bit of boat speed before you pull the jib sheet in the last inch or so. If you do start to slip sideways-especially in light wind-you'll notice that your tiller goes over to the downwind side of the boat, to try to head the boat up, but the rudder stalls out and that just slows the boat even further. The right thing to do is to sheet out the main and jib, and also return the tiller to center to reduce the rudder's drag. Once the boat gets moving again, you can head up gradually.

## 5.5. Coming About (aka Tacking)

- Be sure to **check for windsurfers or other boats** behind and upwind of you before coming about, or you may collide with them when you come about.
- Be sure your crew is ready to come about. Call out "**Ready about**" and wait for their "**Ready**" signal before beginning; then call out "**Helm's a-lee**" or "**Coming About**" as you actually head up.
- To come about (or 'tack'), you gently push the tiller toward the downwind side of the boat, and the boat heads up from the old tack and then falls off onto the new tack as it continues to turn.
- You should **cross from one side of the boat to the other as the boom comes across**, so your weight balances the boat as the sails depower and then repower on the new tack. During the tack, you can let go of the mainsheet, but don't drop the tiller.
- **If you are hiked out** (sitting out on the rail above the seat to balance the boat in strong wind) before the come about, fold the hiking stick (tiller extension) as you come into the boat, and hold both the hiking stick and tiller together as you cross. When you get up on the rail on the other side,

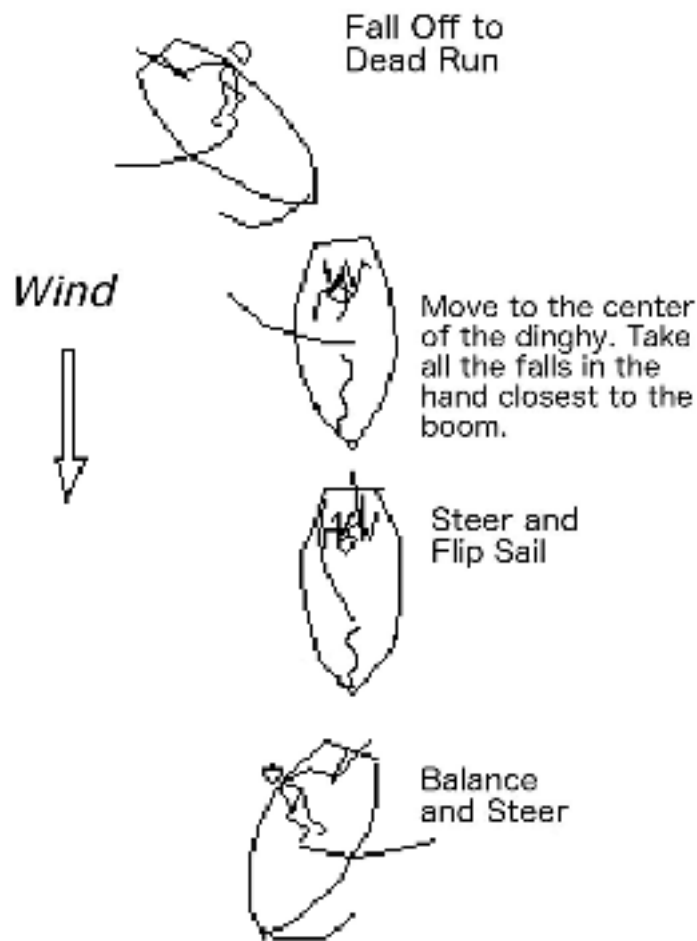
you can unfold the hiking stick again.

- The crew should **release the jib** when it starts to luff, and let the wind carry it across to the other side, then **bring the jib in** when it starts to fill on the other tack. A more advanced technique is for the crew to hold the jib sheet tight as the bow comes through the wind and back fills the jib. When the boat has nearly reached its new point of sail, the jib sheet is released from the windward side and the leeward jib sheet adjusted to provide optimal performance on the new course.
- **It is easiest to tack from a close hauled course to a close hauled course.** This usually amounts to about a 90 degree turn. Before initiating the tack, make sure that you are sailing close hauled. Pick out a landmark 90 degrees to your windward side to help orient you as you turn through the tack. Once your boat is pointing at that landmark, your boat should approximately be on a close hauled course on the other tack.

## 5.6. Heaving To

- Heaving to is used to stabilize the boat for offshore picnics, changing drivers out on the water, or making adjustments to the boat.
- **First method:** To initiate the maneuver, move the tiller to the downwind side of the boat as if you were coming about. As the bow of the boat passes through the wind, the jib is left in place and the mainsail is let out completely so that the mainsail is not repowered on the new tack. As the boat slows, you gradually swing the tiller to the downwind side of the boat to prevent the boat from turning down wind.
- **Alternative method:** Instead of turning the boat, just ease the mainsail completely, and manually pull the jib over to the upwind side of the boat using the windward jib sheet (“backwinding the jib”). As the boat starts to turn away from the wind, counteract this force by pushing the tiller to the leeward side of the boat.
- Heaving to can also be used to allow a person fallen overboard to swim back to the boat. If done immediately, heaving to keeps the boat fairly close.

## 5.7. Jibing



*Figure 8: Jibing*

- To jibe, you pull the tiller **toward the upwind side of the boat**, the boat falls off beyond a dead run and the wind flips the sail over to the other side (see Fig. 8: Jibing). Below is a description of an S turn jibe.
- First get the dinghy sailing on a dead run by pulling the tiller to the windward side of the boat and preparing the crew for the jibe. The jib sail will become limp as it is hidden from the wind by the mainsail. Prior to the jibe, place yourself between the tiller and the boom. Your weight should be shifting to the future windward side of the dinghy. Take the fall



(the parts of the main sheet between the blocks) in your outside hand (closest to the boom). Make sure the crew is ready for the jibe. ("READY TO JIBE?") Before the jibe, you and your crew should be keeping the boat flat.

- In higher winds it is safer to uncleat the vang.
- After hearing affirmative responses from your crew, resume or continue turning the stern of the boat through the wind (this is the first part of the S.) As you feel the tension release from the falls, guide the boom across boat by pushing down on the falls. As the wind carries the boom across, slow the boom down with the falls, call out JIBING (**jibe ho**, or **DUCK!!**), and simultaneously move your weight to the new windward side.
- Never start a jibe without warning the crew, since they could get their skull cracked by the boom swinging across. You should also remember to stay low during the jibe, lest the boom tell you how it got its name.
- As soon as the boom goes across, pull back on the tiller to stop the turn and stay in a run. (This can be seen as the 2nd part of an S turn). It is important to prevent a broach (spinout and tip over) and capsize. Do NOT turn back too far. This will cause you to make an accidental, unexpected jibe back.
- Complete the S turn by adjusting the tiller to take your new course.

Here are some additional suggestions:

- Before jibing, you fall off (pull tiller toward you) toward a run. While on a broad reach, your weight may be needed to balance the boat, but as soon as you reach a run, move to the center of the boat. It's best to squat so you are on your feet when jibing, rather than kneel and be caught trying to climb to your feet if the boat tips over.
- The tiller can be rested against the side of your hip, butt, or thigh, so you can steer by pushing on the tiller with your body, leaving both hands free to grab the mainsheet.
- You can tell when the jibe is just about to happen because the mainsheet goes slack. In heavy wind and waves, try to pull in the boom just as a wave passes underneath the boat, and jibe just as the next wave passes underneath. When the boat is moving fastest, the force on the sail is least.

## 5.8. Circles Around a Buoy

- Sailing in a small circle around a buoy requires that you come about and jibe quickly, just as you may need to do to avoid collisions.
- The come about and jibe should occur when the buoy, as seen from the boat, is 90 degrees away from the wind direction. The circle has a corner because you have to hold a close hauled course before and after coming about.

## 5.9. Steering While Drifting Backwards

- Steering while the dinghy drifts backwards is a handy skill which can be used to recover control if you stop while coming about.
- When the boat is drifting backwards, the tiller works the opposite way compared to when the boat is sailing forwards. If you move the tiller to port, the bow moves to port.
- To practice steering while drifting backward, head up until the boat is in irons. Let it coast to a stop while in irons. The bubbles in the water alongside the boat will indicate when you start to drift backwards.
- When you start going backwards, steer to keep the boom over the middle of the boat. You have to keep the sails from filling, which would cause the boat to sail forward.
- If the boom swings to one side, swing the tiller toward the opposite side, so that the rudder will push the stern back underneath the boom. At first, you will have to hold the tiller hard over to get any effect, but as the boat drifts faster less tiller movement will be necessary. If you face backwards, you will find that the line of the tiller will indicate the direction the stern will take as the boat drifts backwards.

## 5.10. Person Overboard Drill

- When a person falls off a boat, it is critically important to keep them in sight so you don't lose them. Assign someone to watch them.
- To pick them up **safely**, the boat must be going **slowly enough** that they can be brought in.
- The person overboard drill requires sailing slowly with good control. To sail slowly with good control, a boat must be on a close reach with the sails **partly luffing**.

- The method taught to beginners for the person overboard drill is called “broad reach—come about—close reach back”. After assigning someone to watch the person overboard, sail away on a broad reach, so that you will be able to return on a close reach. At a broad reach, the boom should be 50-60 degrees off the axis of the boat when the mainsail is properly trimmed.
- After sailing a few boat lengths on the broad reach, prepare the crew to tack and then come about.
- Then fall off to a close reach. On the new course, the boom should be at about 45 degrees to the boat when the main is trimmed and will luff if you turn up further into the wind.
- Tell the crew to ease the jib sheet when you're within about 20 feet from the person overboard.
- As you approach, keep the boat pointed at the person overboard, or a little upwind to compensate for sideslip from wind and waves. The boat should come to a near stop with the person overboard on the **upwind** side.
- In real life, often it will be your crew who falls overboard, so you will have to pick them up singlehandedly. If you do not feel like you will be able to do so, immediately capsize the boat so that your crew has a chance of swimming to the boat. While sailing singlehandedly, it is advantageous to slide your weight further forward in the boat. When performing maneuvers by yourself, it is best to focus on proper use of mainsheet and tiller, only adjusting the jib when it is convenient.

### 5.11. Avoiding Capsizes

- Capsizes can almost always be prevented. If the boat starts to tip over, let the sheets out (fastest response), hike out, or head up into the wind.
- Always keep the mainsheet handy so you can immediately release it if the boat heels suddenly in a gust. Always be ready to move your weight suddenly if necessary, and scramble for the high side if the boat heels suddenly.
- Never sail with the boat heeled over so far that it's only an inch or two away from taking on water. That not only puts you closer to a capsize but also slows you down. Head up a little and let the sails luff more.
- If you do capsize, keep calm and plan your actions so you'll be back

sailing more quickly. Never swim away from the boat or cling to the high side of a capsized boat.

## 5.12. Recovering from a Capsize

- First **check that everyone is OK.**
- **No one** should leave the boat to swim after any paddles or clothing.
- As soon as possible, one person should get their weight on the centerboard to prevent the boat from completely inverting (“turtling”).

### **If the boat is inverted:**

- When the boat completely inverts, both skipper and crew should get on the hull.
- Leaning back while holding on the centerboard or daggerboard should bring the boat up so that the mast is parallel to the water.
- As the boat is rotating up, once person should move on top of the centerboard so that they are ready to right the boat.

### **Before righting the boat:**

- Make sure that jib and main sheets are completely loose. Also, make sure that the vang is completely loosened. This is often overlooked, but makes righting the boat considerably easier.
- It’s easiest to right the boat if the bow is pointing into the wind. Often as the boat starts coming up, it will naturally turn into the wind. If this doesn’t happen and it is otherwise difficult to get the boat up, you can get the boat to turn into the wind by assigning one person to float in the water, holding the bow. Because their body acts as a sea anchor, the wind will push the hull downwind.
- In very windy conditions, one may also lower the sails before righting. Consider this only as a last resort, if you have been unable to recover with the sails up.
- Anyone not needed to point the bow into the wind or to right the boat can float between the hull and the boom, holding onto a hiking strap (but not putting any weight on the hull). As the boat comes upright, they should pull themselves into the cockpit using the hiking strap. This way, someone is already on board when the boat is righted.

## Righting the boat

- After making preparations as in the previous section, either crew or skipper should position themselves standing on the centerboard or daggerboard. The quickest, but most physically demanding, way of doing so is by climbing onto the board directly from the water. If you are unable to do so, an option which is less physically demanding is to climb up the hiking straps like a ladder, and over the side of the boat on to the top of the centerboard. While doing this, the weight of your body will cause the boat to want to invert completely. To avoid this, have your crew hold the board while you do this, and climb up the boat as quickly as possible.
- Once on the centerboard or daggerboard, grab the jib sheet to help you balance. Pull on the jib sheet so that you pull the stopper knot against the block, not so that you are putting pressure on the jib itself. Position your weight on the far end of the board and lean back, using the jib sheet for balance.
- It's OK to step out on the centerboard or daggerboard. Putting all your weight on the board isn't as much stress as it normally bears while sailing in strong wind. However, don't jump up and down on the board; it could break it.
- As the boat comes up, you can try to pull yourself in over the side by grabbing onto the shroud. Alternatively, wait until the boat comes up, move around to the stern, and pull yourself in there.
- Once both crew and skipper are in the boat, do a quick inspection to make sure everything is in working order. Re-tighten the vang, and start sailing again!

### 5.13. In Case of Grounding

- The area directly to the west of the Jericho pier ("Spanish Banks") is extremely shallow, and exposed at low tides. To reduce risk of grounding, avoid sailing here.
- If you go aground, raise the centerboard or daggerboard halfway to get away. If that doesn't work, get out and walk the boat. If you're near rocks, don't get out unless you're wearing foot gear, the rocks can cut up bare feet.

## 5.14. Equipment Failure

- If any club equipment breaks while you are sailing, return to the beach immediately and fix it as soon as possible (see section on Repairs). If you can't fix it, then signal for a tow.
- The distress signal consists of standing up and waving your arms up and down at your sides. To get a tow from Jericho Rescue, you should tie the rescue boat's tow line around your forestay with a bowline knot. Raise your centerboard before being towed.
- Since equipment failure can happen at any time, make sure that your boat is always within sight of Jericho.

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## 6. Knots

- A good knot must be easy to tie, easy to untie, and firm and safe when performing its task.
- Most knots will weaken the strength of the cord, so it is always appropriate to perform a quick inspection on the cords of the boat since most of them will be used multiple times through a long period. Other typical conditions such as exposure to sun and moisture will also deteriorate the cord quicker.
- There is plenty of material for learning knots all over the web. This is a really good site with animated knots: <http://www.animatedknots.com>

### 6.1 Bowline knot

- **Use/function:** The bowline forms a loop that will not slip or jam, and can be untied easily even after being used for heavy loads. It is one of the most useful knots for sailors.
- The bowline is frequently used to attach the mainsail halyard to the head of the mainsail (Figure 9: Bowline knot).
- The phrase to memorize is: "*The rabbit pops up out of the hole, jumps over the log, runs behind the tree, and pops back down the hole*".

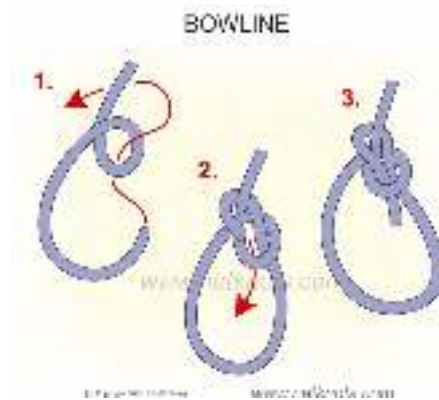


Figure 9: Bowline knot

- The "rabbit" is the end of the line, which you pass through the fitting you want to attach.
- The "hole" is a loop formed in the main part of the line (not the end). The

loop spirals toward you, so that the "log" is in front of the "tree". If the "log" is behind the "tree", the knot will fall apart

- To untie a bowline, you loosen it by bending the main part of the line over and pushing on the loop formed around the main part of the line.

## 6.2 Bead knot

- **Use/function:** This knot is an alternate way to attach the halyard to the head of a sail if it has a beaded end. It can also be used to secure the free end of the halyard to the standing rigging when the halyard is not in use.
- To tie the knot, make a loop near the free end of the halyard. Push the end of the loop through the cringle in the head of the sail. Catch the bead in the loop, and pull the loop tight.

## 6.3 Triple Half Hitch on a Bight

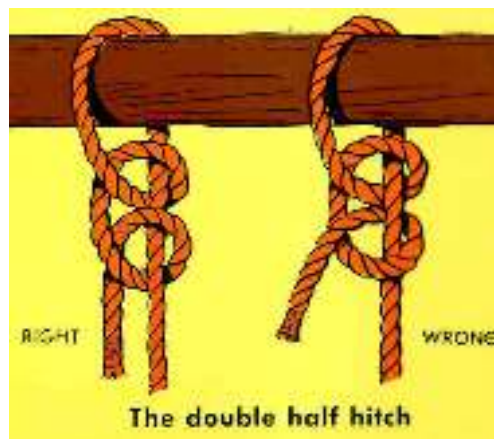


Figure 10: Double half hitch

- **Use/function:** This knot is a good way to tie boats to the rail on the dock.
- It is simply three half hitches with a loop of the bow painter around the rail. You won't find this knot in any knot book, it's just too simple. The knot pictured in Figure 10 is similar.
- Be sure to have all half hitches ending towards the same direction (see figure) and that they are all as tight close to the rail as possible.

## 6.4 Cleat Hitch

- **Use/function:** This knot is the best way to tie a line around a cleat to



secure the halyards (Figure 11: Cleat hitch).

- First loop the line around the cleat, then diagonally over it. Next, form a loop in the end of the line, and slip the loop over the cleat, twisting the loop so that the end of the line is trapped under a diagonal across the cleat. This is a “locking hitch” that keeps the line from coming undone. When securing a halyard to a cleat on the mast, the locking hitch should be on the upper horn of the cleat so that gravity holds it on rather than pulling it off the cleat.
- You should end up with the line crossing the cleat twice in one diagonal direction underneath another diagonal crossing in the other direction.
- Note: Instead of the locking hitch, use a series of criss-crossed loops for tow ropes and for tying off large boats to dock cleats. The locking hitch is NOT a good idea for tow ropes, because it’s hard to undo. The locking hitch is also dangerous to use for tying up a large boat, since your fingers can be pulled under the loop and squeezed against the cleat.

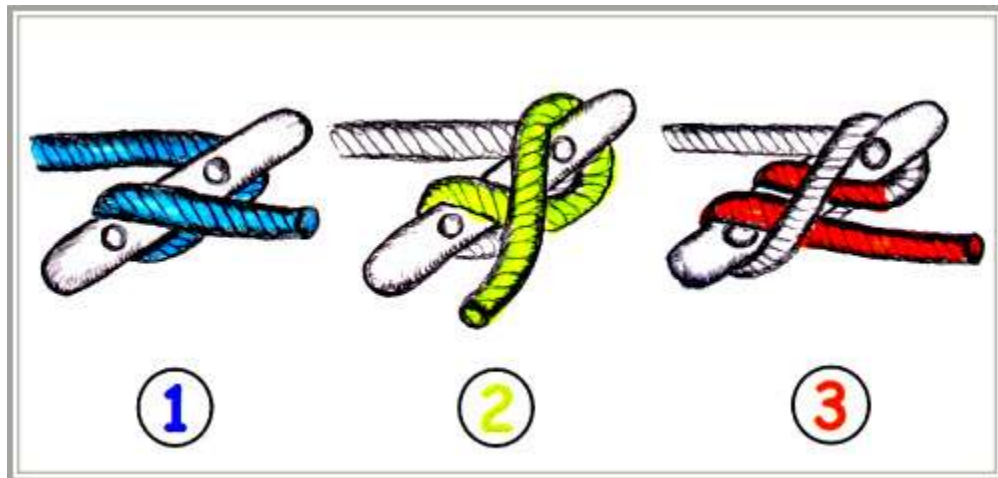


Figure 11: Cleat hitch

## 6.5 Figure Eight Knot

- **Use/function:** This knot is used as a stopper in the end of the mainsheet and each jib sheet (Figure 12: Figure eight knot).
- Make a loop, then take the end around the main part of the line before bringing it through the loop.
- Stopper knots are most easily untied by bending over the main part of the line, then pushing the loop to loosen the knot.

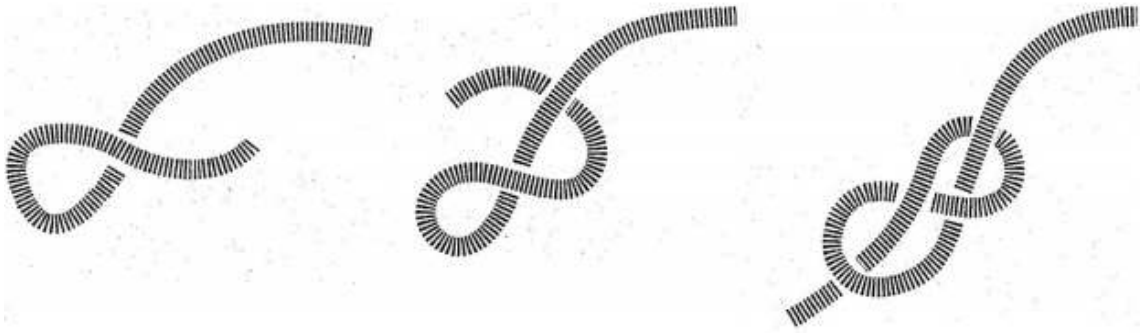


Figure 12: Figure eight knot

## 6.6 Reef (or Square) Knot

- **Use/function:** This knot is used to tie the two ends of a single rope, typically around an object.
- Some use it to tie two ropes together, forming a bend, but it is not recommended as it is only safe when the ropes are strictly identical and not slippery. In any case, use the Sheet Bend for this purpose.
- In a reef knot, you cross the lines one way for the first knot, then the other way for the second knot. A mnemonic way to remember is "right over left; left over right".
- The reef knot can be untied easily even after carrying a heavy load. Just pull one end against the main part of the line nearest it.
- Be careful to not do a "granny knot", when you cross them the same way both times. This will result in a much weaker knot.

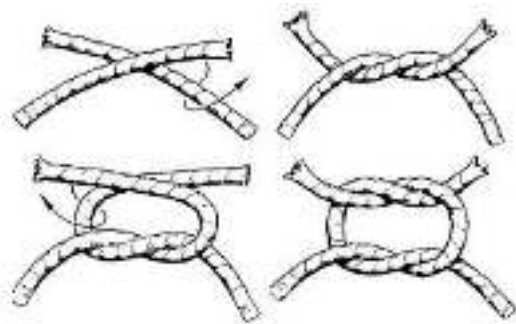


Figure 14: Reef knot

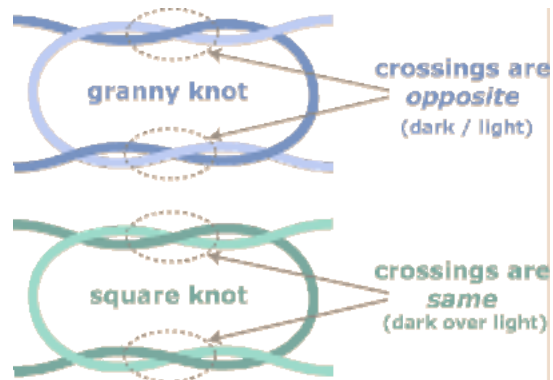


Figure 13: Reef vs. granny knot

## 6.7 Slip Knot

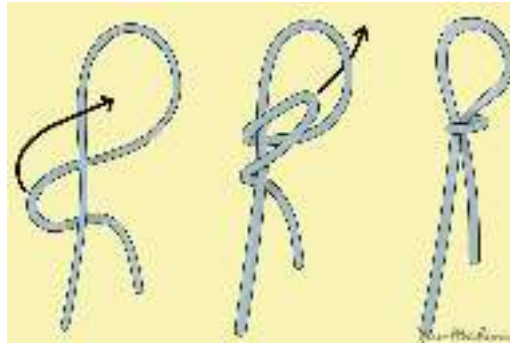


Figure 15: Slip knot

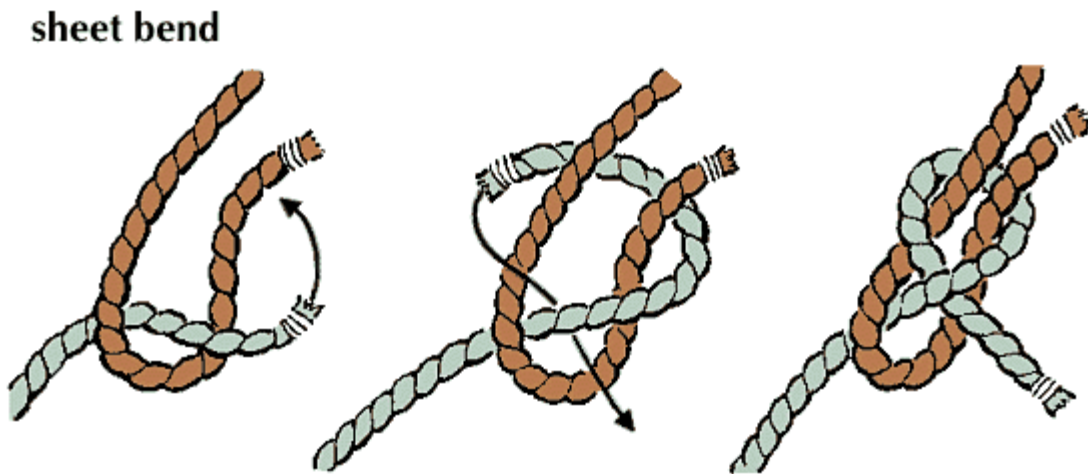
- **Use/function:** These knots are useful as stopper knots that are in the middle of a line and/or that you may want to quickly undo. Also good to provide a quick loop that won't take much stress.
- There are a few ways to tie it. One method is to form a loop in the end of the rope. Prepare a bight in the short end. Tuck the bight through the loop and tighten.
- They are frequently used to back up a cleat or to hold a halyard that supports a jib sail cover. When used for this purpose, make sure the side of the knot that 'slips' is opposite the side that needs to be 'stopped.'
- Also, to secure the halyards when the sails are down, tie slip knots in them (Figure 15: Slip knot). Tighten the loop to attach the shackle or bead on the halyard. Remove slack from the halyard and cleat it. **NOTE: Never let go of the end of a halyard if it is not securely attached to something. It can easily get away from you and end up at the top of the mast. You will need to fetch it!**

## 6.8. Sheet Bend

- **Use/function:** To join two ropes together, making a bend.
- To tie it, form a bight in one rope and hold it in one hand (if the ropes have different thickness, this bight should be the thicker one). Pass the other (thinner) rope through the bight and behind its tail and standing ends, in

that order. Finally, tuck the smaller rope under itself to finish the knot.

- A mnemonic way of thinking this procedure is "the rabbit comes out of the hole, around the tree, and under the exposed tree root".
- If the ropes are too different in thickness, the "double" version is recommended.



*Figure 16: Sheet bend*

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## 7. General instructions on how to rig a dinghy

*For specific rigging instructions, please consult the individual rigging guides for our fleets.*

### 7.1. Getting started

- In the club room:
  - Check the white board and choose a boat that is sail-able.
  - Collect the items necessary to rig your dinghy
  - **Sign yourself out** on the sign out sheet
  - Get a life vest
  - Get a paddle
- At the boats:
  - Make sure there is no significant damage to the hull
  - Make sure you have all the necessary lines and parts
  - **Point your boat into the wind** and then proceed to rig
- As you rig, you do not want the boat and dolly to go for a sail without you! To make sure this doesn't happen:
  - Keep your boat pointed into the wind.
  - **Keep all your controls loose** until you go onto the water. Do not tighten the cunningham or outhall. Make sure your mainsheet is free to move around.
  - Be sure the plug is in the boat.

### 7.2. Derigging

- As you approach the beach:
  - Raise the centerboard and pull up the rudder
  - Loosen the sails (e.g. uncleat the jib) and hold the bow of the boat pointed into the wind
  - The crew gets the dolly as the skipper walks the boat to the ramp
    - The boats should never run aground/be in the sand. It will damage the hull
    - For a laser, ask for help from someone in the yard. If help cannot be located, the laser may be **briefly** beached.

- o If someone else wants your boat when you're done, be sure to sign it back in and make sure they sign it out. Otherwise you're responsible for derigging it and putting it away properly.
- Once ashore:
  - o Keep the boat pointed into the wind until the sails are fully down.
  - o Rinse off the boat thoroughly with one of the hoses in the yard. This includes sails, especially if you capsized (yay swimming!)
  - o Drain the hull. Leave the drain plug out to allow any residual water to evaporate. Make a note on the whiteboard if there is more than a quart of water inside the hull.
  - o Carefully and conscientiously roll the sails and replace the sails and the other parts of the boat into their bags
  - o Replace the boat in its proper position, raising the bow with blocks or a wooden stand.
- Return the sails and other gear to the club room. **Be sure to sign the boat back in**

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## 8. Repairs

You are expected to repair any damage that occurs to a boat that you have checked out and strongly encouraged to repair damages you observe. Here is a short primer on basic repairs. Always notify [monohull@ubcsailing.org](mailto:monohull@ubcsailing.org) and write a note on the white board in the club room if you are unable to complete a repair.

### 8.1. Ripped Sails

- Small rips (<1 foot long) can be repaired with sail repair tape, which can be found in the fix-it room in a black toolbox labeled “sail repair.” Clean the sail with alcohol, dry it off, and apply tape extending at least a couple of inches beyond the tear.
- Sails with larger rips will need to go to the sailmaker. Wash the sail off (salt ruins expensive sewing machines), dry it, write a note with the sail number and location of the rip, roll the sail, and tape the note to the rolled sail, then put the rolled sail in the club room and put a note on the white board and email [monohull@ubcsailing.org](mailto:monohull@ubcsailing.org).

### 8.2. Battens Falling Out

Sew the batten pocket back up with a sailmakers needle and palm, kept in the top drawer of the large red tool box in the fix-it room.

### 8.3. Broken/missing boat parts

- You can try to find the part in the fix-it room. There are fishing tackle boxes that contain a number of small parts, such as shackles and plugs. Regardless of whether you find the part, email [monohull@ubcsailing.org](mailto:monohull@ubcsailing.org) to inform them of the missing part or if you have used a part. If you cannot find the part, additionally write on the white board that the part is missing.

### 8.4. Frayed lines

- See our YouTube channel for a tutorial on whipping line:  
<https://www.youtube.com/watch?v=NEpT0aO0BQI>

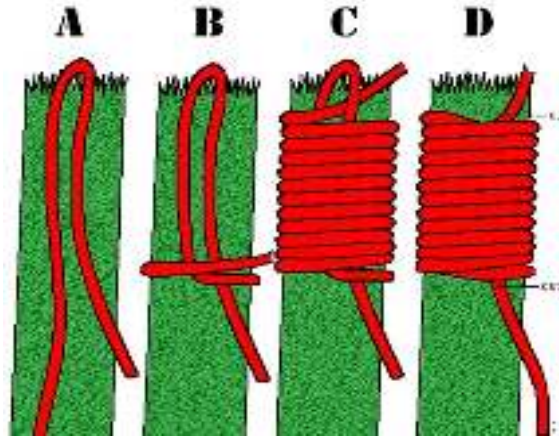


Figure 17: Whipping the end of a line

- Locate twine. It is in the fixit room, in the top centre drawer of the large rolling tool box
- Fold the twine along the length of the line to be whipped (A)
- Begin to wrap the twine around the line, starting at the bottom and going towards the end of the line. Make the wrapping tight. (B)
- When you reach the end of the line and the top of the loop, put the twine through the loop and pull at the other end of the twine such that the top of the loop disappears into the wrapping. (C and D)
- Use a lighter to burn the end of the line.

## 8.5. Rudders

- For the Vanguard fleet, the rudders might lose their tension and tend to fall, causing them to hit the ground. To fix this, simply tighten the bolt on the side of the rudder.
- For any boat, if you notice that the rudder is splitting (you can see the inside of the rudder), do not use it as this will cause further damage. Find a different rudder, place the rudder in the fix-it room and email [monohull@ubcsailing.org](mailto:monohull@ubcsailing.org)

## 8.6. Flat tires on the dollies

Flat tires are very easy to fix. The Jericho main office has numerous bike pumps. Learn how to fix things! People will be happy to show you how!



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## 9. Club rules for the monohull fleet

Refer to <https://ubcsailing.org/index.php/club-rules/>

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## 10. Other resources: Introductory sailing books

- Check your public library, and check Amazon if you want your own copy! These are just a few of the excellent introductory sailing books out there.
- **Start Sailing Right**, US Sailing, Derrick Fries
- **Learning to Sail: the Annapolis Sailing School Guide**, Diane Goodman and Ian Brodie
- **Sailing for Dummies**, J. J. and Peter Isler
- **Colgate's Basic Sailing**, Steve Colgate
- **The Everything Sailing Book**, Michael and Nikki Smorenburg
- **DK Complete Sailing Manual**, Steve Sleight
- **The Complete Sailor: Learning the Art of Sailing**, David Seidman
- **Sailing Fundamentals**, Gary Jobson
- **Sailing the Bay**, Kimball Livingston
- **An A-Z of sailing terms**, Ian Dear and Peter Kemp
- And the oldest introductory sailing book...
- **Practical Boat Sailing**, Douglas Frazar, 1879 (available online, Google books)

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## 11. Sailing Dictionary

- **abaft** extra super salty talk for "aft of", as in "abaft the mast".
- **aft** toward the stern of a boat or behind it.
- **anchor** metal device for taking mud samples and keeping dinghies off rocks.
- **apparent wind:** The Wind direction as seen by a moving observer. In fact it is the vectorial sum of the true wind and of the boat speed.
- **backwind** hold a sail so the wind pushes its backside.
- **battens** semi-rigid slats that are inserted in the main sail's leech to support the roach.
- **beam reach** sailing at 90 degrees to the wind's direction.
- **bear away** turn the boat more downwind. Also called **fall off**.
- **beating** zigzagging upwind, sailing close hauled and coming about.
- **bend** a knot used to join two lines. See also *hitch*.
- **bitter end** The last part or loose end of a line.
- **block** nautical term for a pulley.
- **boom** horizontal pole that holds the bottom of the mainsail; named after the sound it makes when hitting your head.
- **boom vang** line that pulls the boom down toward the mast and controls the angle of the boom to the mast (see also *gnav*).
- **bow** the front (pointy) end of the boat.
- **bow painter** line attached to the bow; used to tie the boat to the dock, etc.
- **bowline** pronounced bo' linn, super salty knot with loopy end--see knots section.
- **bowsprit** A spar projecting from the bow used as an anchor for the gennaker's tack
- **broach** to round up uncontrollably from a run to a beam reach, heeling over. "If broaching sideway to the sea, our dropsied ship may founder by the lee".
- **broad reach** sailing at 90 to 135 degrees to the wind direction. When you get in a broad reach on a starboard tack you will likely head towards a large white building in Emeryville, which is therefore known as the Broad Reach Condo.
- **capsize** when a boat tips over.

- **center of effort** The point of origin of net aerodynamic force on sails, roughly located in the geometric center of a sail, but the actual position of the center of effort will vary with sail plan, sail trim or airfoil profile, boat trim, and point of sail. Also known as *center (or centre) of pressure*
- **center of lateral resistance** the point of origin of net hydrodynamic resistance on the submerged structure of a boat, especially a sailboat. This is the pivot point about which the boat turns when unbalanced external forces are applied, similar to the center of gravity. On a balanced sailboat the center of effort should align vertically with the center of lateral resistance. If this is not the case the boat will be unbalanced and exhibit either lee helm or weather helm and will be difficult to control.
- **centerboard** fin under boat to prevent sideways sailing; swings up for storage.
- **centerboard downhaul** usually a stretchy cord that pulls to make centerboard go down.
- **centerboard uphaul** regular line, pull and cleat it to hold centerboard in up or partially up position.
- **chainplate** or "U-bolts"- metal piece on boat that attaches shrouds (wires that hold mast up).
- **cleat** (noun) device for holding lines such as jib sheets or halyards.
- **cleat** (verb) fasten a line using a cleat.
- **clew** aft corner of a sail (where the outhaul pulls it out, "without a clew") – see Parts of the Sail.
- **close hauled** sailing at about 45 degrees to the wind direction.
- **close reach** sailing at between 45 and 90 degrees to the wind direction.
- **come about** to turn the boat up into the wind and over to change the side the sails are on (also called "tack").
- **cunningham** line used to pull down on the luff (front edge) of the sail.
- **dinghy** a little open boat.
- **fairlead** ring used to guide lines.
- **falls** the part of the main sheet between the 2 blocks
- **fall off** turn the boat more downwind. Also called **bear away**.
- **foot** bottom edge of a sail – see Parts of the Sail.
- **forestay** the wire between the bow and mast, which keeps the mast from falling backwards when the jib is off.
- **furl** to roll or gather a sail against a mast, spar, or mostly in our case, the jib on the forestay

- **gennaker** a large, lightweight sail used for sailing a fore-and-aft rig down (such as on our dinghies) or across the wind, intermediate between a genoa and a spinnaker.
- **gnav** a bar that extends from the top side of the boom to the mast above. The gnava pushes down on the boom to control the angle between the boom and the mast and indirectly the amount of twist in the mainsail.
- **gunwale** upper edge of the hull.
- **gooseneck** fitting that attaches the boom to the mast with a flexible joint.
- **halyard** line used to lift the sails; from "haul yard" since square-rigged boats had yards that were hauled up to lift their sails.
- **hank** plastic or metal clip or snap to hold jib on forestay.
- **head** top corner of the sail – see Parts of the Sail.
- **header** a change in the wind direction which forces the helmsman of a close hauled sailboat to steer away from its current course to a less favorable one. This is the opposite of a **lift**.
- **heading** the direction a thing's nose is pointing.
- **head up** turn the boat more upwind.
- **heavy weather** strong winds and waves, possible 60's origin.
- **heel** leaning over to one side, usually because of the wind.
- **helm** a boat's steering mechanism, that can be a tiller or a ship's wheel.
- **helmsman** now you are a cruising skipper, you are not going to have the tiller anymore – you leave it to your student helmsmen (women)
- **hike out** move your weight to balance the sails' force, by sitting out on the rail above the seat.
- **hiking stick** or 'tiller extension' a stick attached to the tiller by a flexible joint, for steering while hiked out.
- **hitch** a knot used to tie a line to a fixed object. Also see *bend*.
- **hull** the floating parts of a boat, not including the sails
- **in irons** pointing into the wind far enough so that you cannot power the sails, therefore you are "shackled" in irons and left to rot in oblivion.
- **jib** small sail in front of boat, hooked onto forestay.
- **jibe** turn away from the wind to cause the sails to flip over to the other side of the boat.
- **jib sheet** line that controls the trim (angle to the wind) of the jib.
- **kedging** salty talk for throwing out the anchor and hauling in to move the boat. A good alternative to walking hip deep in the mud dragging the boat when there is no water in the South Basin.

- **keelhauling** maritime punishment: to punish by dragging under the keel of a boat. Fortunately our keelboats are free of barnacles so the subject will pretty much get through this unscathed.
- **knots** nautical miles per hour; 1 knot = approx. 1.1 mph.
- **leech** aft (rear) edge of a sail. Not to confound with leeches, which are found on the rear end of sailors who don't know how to kedge when stuck in the mud – see Parts of the Sail.
- **lee helm** the tendency of a sailboat to turn to leeward in a strong wind when there is no change in the rudder's position. This is the opposite of weather helm and is the result of a dynamically unbalanced condition. See also **Center of lateral resistance**.
- **leeward** downwind; pronounced “lee-word” by most people, “lew’ ard” by idiots, “downwind” by geniuses, and “lurid” by smartasses messing with the idiots.
- **lee shore** a shore downwind of a boat. A sailboat which cannot sail well to windward risks being blown onto a lee shore and grounded. Its skipper is liable to get **keelhauled**.
- **leeway** the amount that a boat is blown leeward by the wind. Also the amount of open free sailing space available to leeward before encountering hazards.
- **lift** an enabling wind shift that allows a close hauled sailboat to point up from its current course to a more favorable one. This is the opposite of a **header**.
- **line** the correct nautical term for the majority of the cordage or “ropes” used on a vessel. A line will always have a more specific name, such as **halyard, uphaul, downhaul** that specifies its use.
- **luff** noun forward edge of the sail – see Parts of the Sail..
- **luff** verb when sails flap because they're not pulled in, or to turn the boat into the wind (“**luff up**”) or let out the sails so that the sails luff.
- **luff up** to steer a sailing vessel more towards the direction of the wind until the pressure is eased on the **sheet**.
- **mainsail** big sail in back.
- **mainsheet** line that controls the trim (angle to the wind) of the mainsail.
- **mast** long vertical pole that holds the sails up.
- **outhaul** line that pulls on the clew of the mainsail to tighten the foot of the sail.
- **padeye** metal dohickey with a ring on it for attaching stuff.

- **PFD** Personal Floatation Device, lifejacket, or what it's like when there's no wind.
- **pinching** sailing at less than 45 degrees to the wind, with the sails partly luffing.
- **pintle** the pin or bolt on which a boat's rudder pivots. The pintle rests in the gudgeon.
- **pitchpole** to capsize a boat stern over bow, rather than by rolling over.
- **plane** to skim over the water at high speed rather than push through it.
- **port** left side of the boat when you are facing forward.
- **port tack** sailing with the mainsail on the starboard side of the boat.
- **rail** part of the gunwale on a dinghy, where sailors sit to hike out.
- **rake** to incline from the perpendicular; something so inclined is *raked* or *raking*, e.g., a *raked* or *raking* stem, stern, mast, funnel, etc.
- **reach** sailing with the wind coming over the side of the boat.
- **reefing** tying up the bottom of the sail to reduce sail area.
- **rigging** the hardware on a boat, or putting the sails and other pieces on a boat.
- **roach** the curved part of the mainsail that extends abaft of the straight line between the head and the clew.
- **rudder** big movable fin that helps one to steer a boat.
- **run** (opposite of reach) sailing with the wind coming over the stern. If it is directly away from the wind, it is a **dead run**.
- **running rigging** rigging used to manipulate sails, spars, etc. in order to control the movement of the ship. Cf. standing rigging.
- **sculling** rowing the boat, i.e. by swinging the tiller back and forth.
- **shackle** snap or locking ring used to connect lines, sails, spars, and blocks.
- **shroud** a wire that keeps the mast from falling over sideways.
- **shrouds** standing rigging running from a mast to the sides of a boat to support the mast sideways. The shrouds work with the **stays**, which run forward and aft, to support the mast's weight.
- **skipper** the person who is in command of a vessel, who should be the one who signs a CSC boat out.
- **spar** a wooden, in later years also iron or steel pole used to support various pieces of rigging and sails.
- **spreader** a spar on a sailboat used to deflect the shrouds to allow them to better support the mast.
- **stand-on** a vessel that is supposed to keep her course and speed where two vessels are approaching one another so as to involve a risk of collision.

- **standing rigging** rigging which is used to support masts and spars, and is not normally manipulated during normal operations. Cf. running rigging.
- **starboard** right side of the boat when you are facing forward.
- **starboard tack** sailing with the mainsail on the port side of the boat.
- **stay** rigging running fore (*forestay*) and aft (*backstay*) from a mast to the hull. The stays support a mast's weight forward and aft.
- **stern** the back end of a boat, usually the square end.
- **tack** verb change tacks, usually by coming about.
- **tack** noun the forward and lower corner of a sail, ("tack it down") – see Parts of the Sail
- **tack** noun as in port tack and starboard tack; a boat's heading as determined by the side that its sails are on.
- **tell tale** a light piece of string, yarn, rope or plastic (often magnetic audio tape) attached to a stay or a shroud to indicate the local wind direction. They may also be attached to the surface and/or the leech of a sail to indicate the state of the air flow over the surface of the sail. They are referenced when optimizing the trim of the sails to achieve the best boat speed in the prevailing wind conditions.
- **tiller** stick for steering, attached to the rudder.
- **transom** the flat part of the stern.
- **trim** adjustments made to sails to maximize their efficiency. Sheeting in or easing out are examples of trimming.
- **true wind** the wind direction as seen by a stationary observer.
- **turtling** in dinghy sailing especially (but can include other boats), a boat is said to be **turtling** or to **turn turtle** when the boat is fully inverted with the mast pointing down to the lake bottom or seabed. In general it is also accompanied by a costly dismasting.
- **weather helm** the tendency of a sailboat to turn to windward in a strong wind when there is no change in the rudder's position. This is the opposite of lee helm and is the result of a dynamically unbalanced condition. See also **Center of lateral resistance**.
- **whitecaps** white foamy tops on the waves caused by high winds.
- **windward** upwind; also called "to weather".