

Beginners Guide to Sailing

Introduction

Sailing is very different from other sports. In sports like Football or Tennis the wind is an inconvenience that gets in the way of a good game. With Sailing the opposite is true. We rely on the wind to get us about. Also unlike many other sports a person can learn to sail at any age and almost any fitness level. Some footballers are considered “over the hill” at 35 but I did not get into Sailing until I was over 40 and I’m definitely not fit. At the other end of the scale, children start learning to sail as young as 10 – I took my youngest for her first sail when she was only 3 years old and she loved it.

Although there is rivalry between individual sailors it is very good natured and does not reach the heights of a lot of other sports. You’ll never here a sailor shouting “You cannot be serious” at the wind when they capsize but you may hear them screaming at the top of their voice when tearing along, hanging over the edge of your boat. I think that this is because each sailor is battling against and trying to get the most from the wind. So when the boats are packed up and everyone adjourns to the clubhouse you will hear members recounting their triumphs and disasters, stories of broken masts and new experiences. And there is no shortage of advice.

Disadvantages

1. In most other sports there is very little preparation time. A player gets changed and is out playing in maybe 10 or 15 minutes, whereas in Sailing its not unusual for preparing and packing up to take longer than the time spent out on the water. Probably only Horse Riding would compare in time spent preparing and packing up.
2. There are quite a lot of similarities between Horse Riding and Sailing. One of these is the expense as it can be a lot more expensive than most other sports. Even if you manage to borrow a boat you still have to buy a wetsuit, buoyancy aid, shoes and gloves. However, being a member of a club can help. You’ll always find other members willing to let you loose on their boat and if they have a training programme then boats and possibly sailing gear may also be available (this is how I first started to learn to sail). You’ll get no end of advice on what boat to buy and you may even find someone selling just the right boat for you.
3. Most other sports can be played all year round, inside or out but not Sailing. If there is no wind or too much we cannot go out and apart of the most hardy, Sailors limit their trips out on the water to between April and October.
4. Although it is possible to start sailing with almost no experience, there is a huge amount that needs to be learned to get the very most from your boat. I’ve been sailing for 2 years now and I’d still class myself as a beginner.

With so many disadvantages why would anyone consider taking up the sport. I cannot answer for anyone else but for me, every time I go sailing is different. Every day the wind and water conditions are different so every time I go out on my boat is a unique experience. Also, I find it very difficult to relax but with so much to concentrate on I find sailing a great way to relax and it clears my mind of everyday worries. But that’s only part of it. Its also the feeling of being only just in control of the

elements and the exhilaration of flying across the water at high speed with the wind and sea spray in your face.

So if you are still reading this and want to start getting technical, carry on reading...

Introduction

You'll probably get the most out of this manual if you first read it right through from beginning to end but don't try too hard to take it all in because you will not be able to. Then use it as a reference and go to specific sections when you need some extra guidance. Within the text will also be separate boxes that go into greater depth for those who want to get more technical. But don't be put off by this information as its only there for those that want to know more. Finally, I've included a lot of information that you'll find useful (such as the Beaufort Scale) once your sailing knowledge has progressed.

Sailing Fundamentals

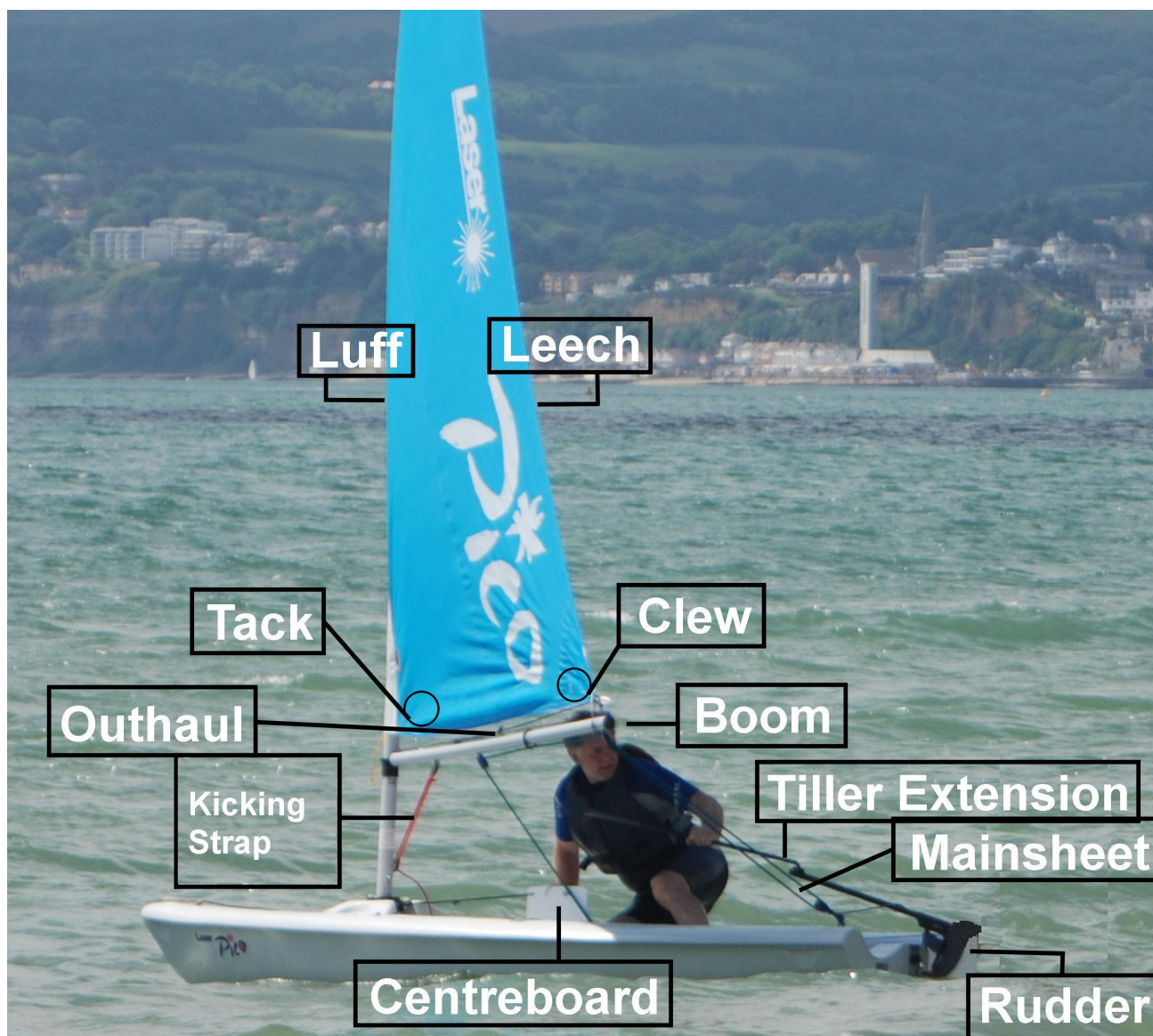


Figure 1 - Parts of the Boat

Even on the most simple craft there are a formidable number of parts that you should become familiar with (Figure 1). The three most important parts that you will need to be most familiar with are the sail, mainsheet and the Tiller.

We will talk later about the importance of correctly lining up the sail to the wind as this needs quite a bit of time spent on it.

The Tiller is the handle with which you steer the boat. It is attached to and controls the rudder. As catamarans have two hulls each hull has its own rudder. However, the rudders are joined together with a cross-bar and are therefore treated as one Tiller. The rudder utilizes the resistance of the water to provide the turning force for the boat. Very often Tillers have an extension bar so you can move further away from the Tiller but still control it. When sailing, you can hold the Tiller extension anywhere along its length in order to make a comfortable connection between you and the Tiller.

The mainsheet is not the sail. It is the line (rope) that you use to control the sail. Trimming (pulling) in on the mainsheet will bring the sail closer to the centre of the boat. Easing (letting the mainsheet out) will allow the sail to swing in the direction that the wind blows it.

As you sit in the boat, with the Tiller extension in one hand and the mainsheet in the other, you will be sitting on the side of the boat hiking out to keep the boat level. The force of the wind against the sail tends to make the boat tip or heel over towards the wind. To counteract this heeling you must hook your feet under the hiking strap and extend your body out over the water.

Even in circumstances where you may be able to hold the Tiller directly, you will find that it is easier to control the Tiller by sliding your hand down and holding the hiking stick close to its joint with the Tiller. It is advisable for you to become accustomed to using the hiking stick at all times, even when you are not hiking out. This will give you faster and more efficient control, plus eliminate the possibility of tangling the dangling Tiller Extension in the mainsheet.

In heavy winds the Downhaul is very important because on Reaches and Runs (see Figure 3) it stops the boom from lifting. This lifting destroys the sail shape and reduces the sail area exposed to the wind.

General Sailing Terms

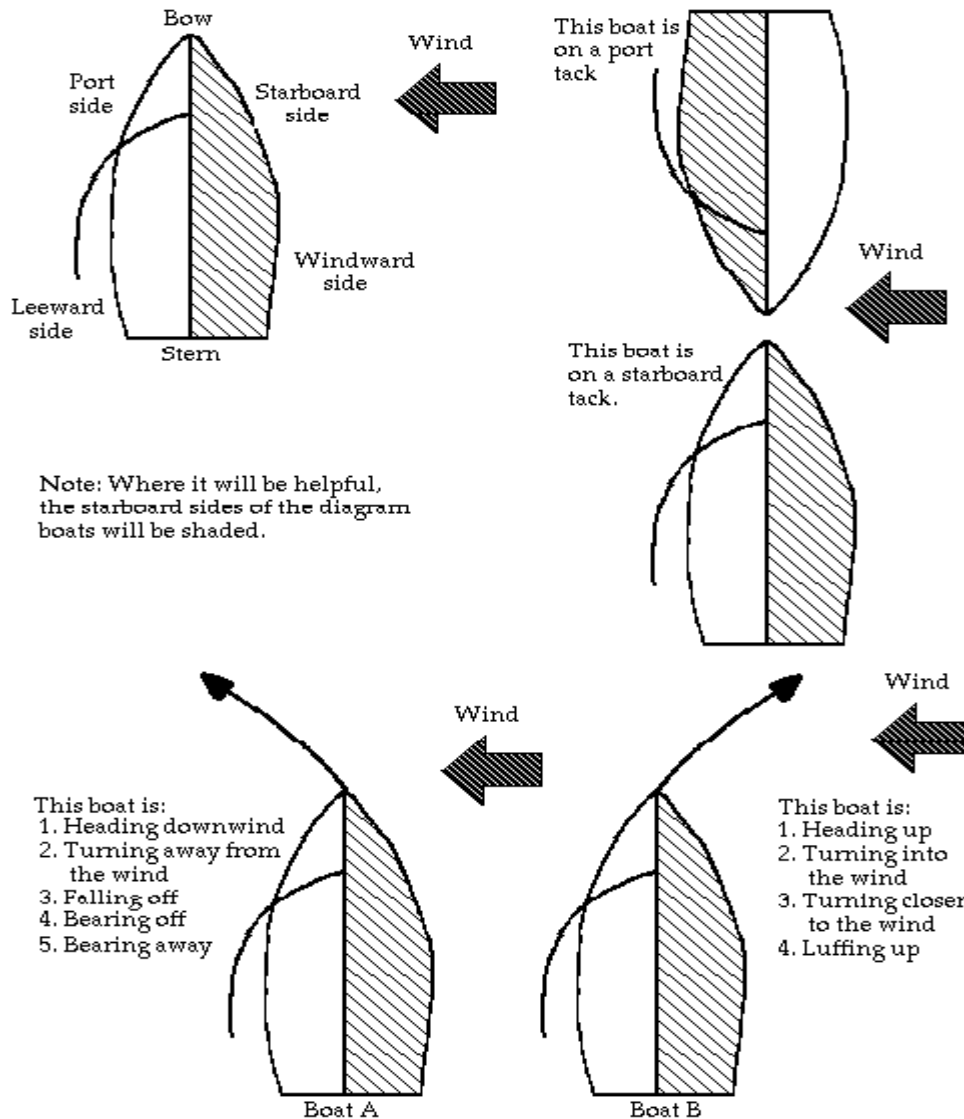


Figure 4

Figure 2 - General Sailing Terms

Besides learning the terms for the parts of the boat, you should also learn some of the general sailing terms represented in Figure 2. The right side of the boat is called the Starboard side (shaded side in the diagrams); the left side is the port side. If the boat is sailing so that the wind first touches the Starboard side, the boat is sailing on a Starboard Tack. Similarly, if the wind first crosses the port side, the boat is sailing on a port Tack. Except for when the boat is sailing by the lee the sail is always on the opposite side of the windsourse, so that a boat on Starboard Tack has its sail on the port side of the boat. A few other terms you will hear mentioned are pinching, footing, feathering, and broaching. Pinching is trying to sail higher into the wind than Close Hauled; sailing lower is called footing. In heavy air when Close Hauled, excessive heeling should be avoided by heading up gently in the puffs; as the puff passes, the boat can smoothly fall off to its proper course. When done as a smooth, continuous operation, this is known as feathering. Broaching is allowing the boat to head up immediately after the Gybe, usually involves excessive heeling and may result in a capsize.

Wind Clock

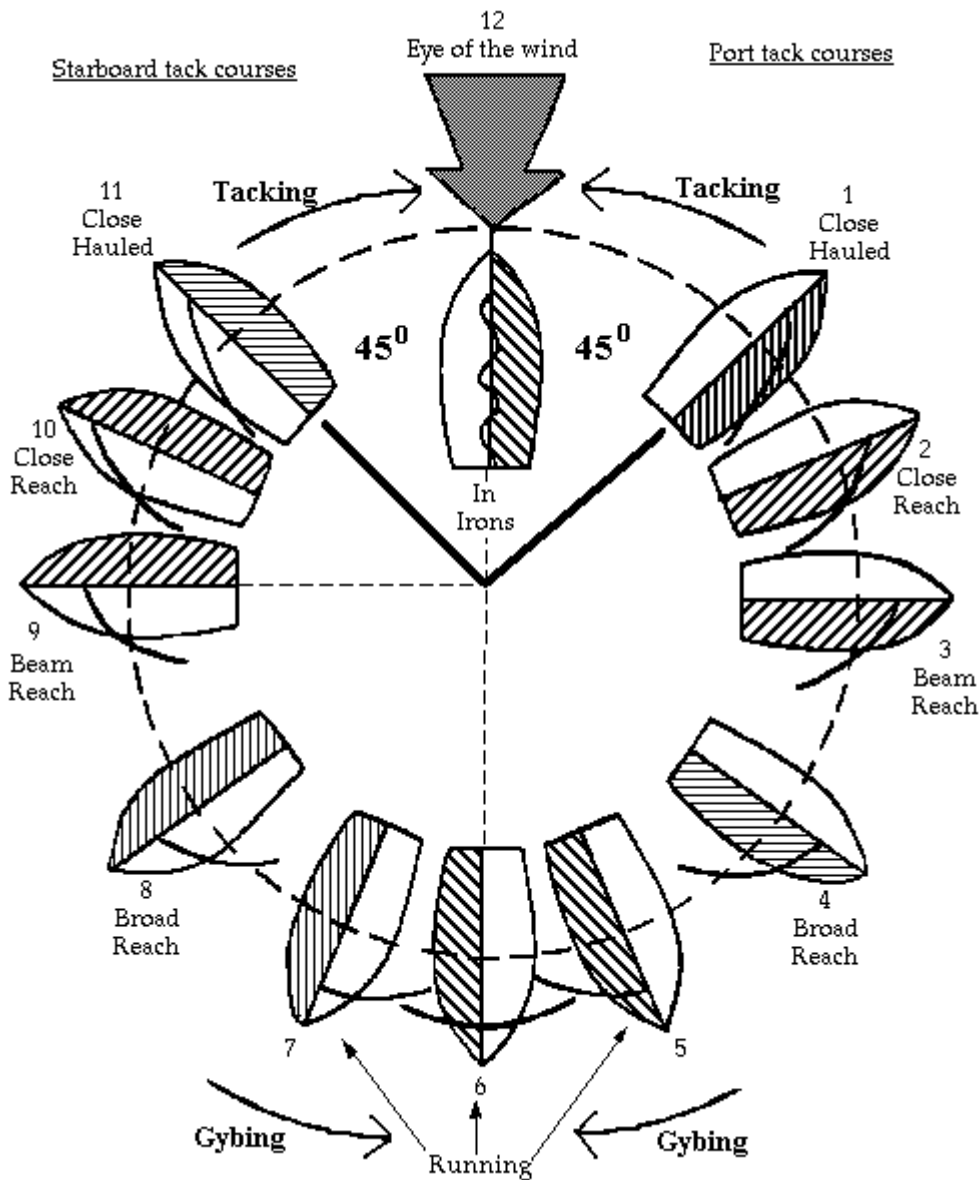


Figure 3 - The Wind Clock

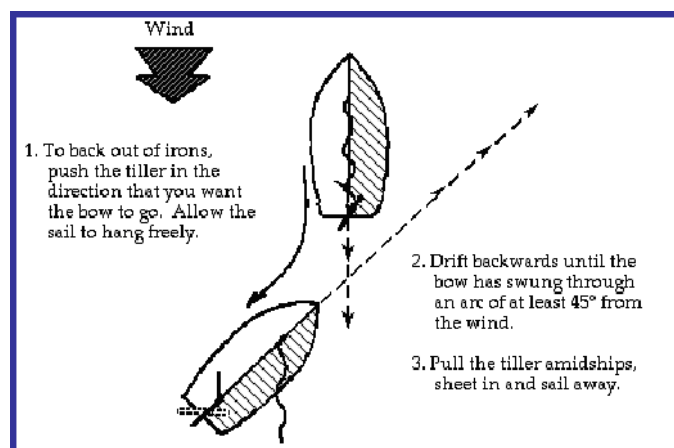
An easy way to remember where your sail should be set is by remembering the wind clock pictured in Figure 3. Imagine the face of a clock on the surface of the water with the wind always blowing from 12 O'clock to 6 O'clock.

It is obvious that a boat can sail if the wind is coming from directly behind it because the wind pushes the boat along. In Figure 3, the boat would then be sailing towards 6 O'clock. But it is also possible for the boat to sail in other directions against the force which drives it, but only at angles to the wind. A dinghy can point no higher than about 45 degrees into the wind. For example, when your boat is facing directly at 12 O'clock (directly into the wind), you won't be able to sail at all. This is

known as being In Irons. Having a Jib on your boat allows you to sail much closer to the wind (more about Jibs later).

When you are In Irons you are in an unsailable area between 11 O'clock and 1 O'clock which is called the Eye of the Wind. To get out of Irons keep your sail slack, hold your Tiller in the centre of the boat and allow the wind to blow you backwards or until you can catch some wind and get forward motion. A slightly more complicated way of getting out of Irons is to push the boom in the direction you wish to go and push the Tiller in the same direction. So if you wish to turn towards the left side of the boat push the sail over to that side and also push the Tiller to that side as well.

Turning the Tiller when you are not moving will have no effect because water flow over the rudder is what causes the boat to turn. Once the sail stops luffing you can point the Tiller in the direction you want to go and you will turn that way. But if you remember to sail no higher than either 11 O'clock or 1 O'clock and only try to Tack when the boat is moving forwards the chances of getting stuck in Irons will be minimised.



When you are sailing towards either 11 or 1 O'clock you are said to be sailing Close Hauled, because the sail is hauled in "close to the boat." As you fall off to 10 or 2 O'clock, you must also let the sail out slightly by easing the mainsheet where you will be on a Close Reach.

Moving further away from the wind while continuing to ease out the mainsheet brings you to 9 or 3 O'clock where you are on a Beam Reach or sailing perpendicular to the wind. When sailing below a Beam Reach you are on a Broad Reach. When sailing directly down wind (6 O'clock) your boat is Running and your sail should be all the way out. Remember that every time you fall off, you must also ease out your mainsheet.

Sailing on a Run is one of the slowest directions for your boat to head and you also need to be careful not to do an accidental Gybe (See Gybe below)

Sailing between Beam Reach and Close Haul is the fastest direction for your boat but the boat will be heeling to Leeward (the side of your boat that is facing away from the wind) so you will need to hike out to keep the boat upright. When sailing between Beam Reach and Close Haul it is actually possible to travel faster than the wind speed.

You should study the wind clock paying particular attention to the position of the sails. Also, get used to feeling the wind on your face and neck so you can easily gauge where it is in relation to your boat.

What Makes The Boat Go?

When sailing Downwind, it is easiest to think of a sailboat getting its power from the wind "pushing" on the boat and the back of the sails. However, when not facing Downwind, a sailboat is propelled along by the airflow across the sail (Figure 4). A properly trimmed (adjusted) sail assumes a shape similar to the wing of an airplane and acts as an airfoil in a very similar way. The lift provided by the sail is actually derived from the change in direction of the air as it flows over the curve of the sail. Notice that all of the sails in this document are drawn as curves.

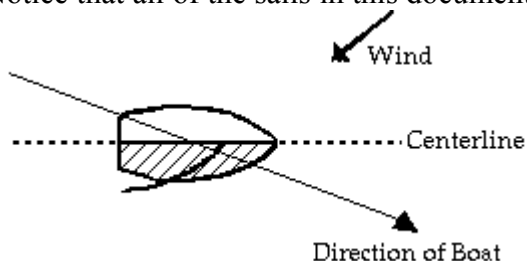


Figure 4 - Basic Concepts

When wind hits the mast, some air flows to the Windward side of the sail, and some to the Leeward side. If the sail is properly trimmed, the air travelling around the outside (Leeward side) of the sail moves faster round the sail than the air on the inside (Windward side). This causes a difference in pressure on the two sides of the sail which pulls the sail to Leeward. The force created by the sail acts roughly at right angles to the boom but only part of it drives the boat forward – the rest tries to push it sideways. As the air accelerates over the sail in one direction, the boat is pushed in the opposite direction.

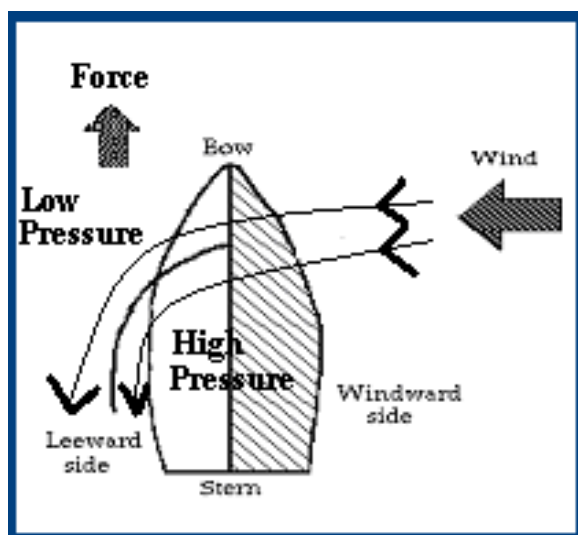


Figure 5 - Airflow Over The Sail

It turns out that the direction the wind pushes our sailboat is not along the centreline of the boat but at a slight angle (Figure 4). If we travelled in the direction of the arrow, we would not make much

progress in the upwind direction. We need a way to prevent our boat from travelling sideways or "sideslipping." This anti-slip mechanism is the centreboard. The centreboard is simply a blade which extends beneath the boat to keep it from travelling sideways too much. Because water is so much denser than air, the centreboard can be relatively small (compared to the sail) and very efficient. If you leave the dock and seem to be going sideways more than forward, make sure that your centreboard is down all the way.

If we look at the water passing the centreboard instead of the centreboard passing through the water we can see how it works to prevent sideslip through the water in Figure 6.

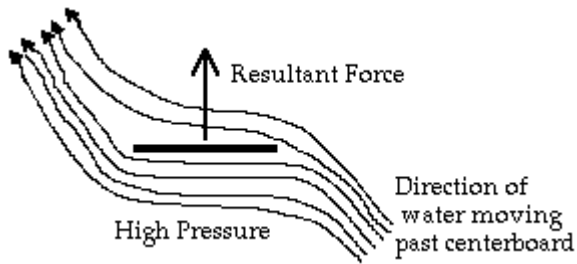


Figure 6 – Water Flow Over The Centreboard

Launching the Boat On Land

There are many different ways of launching a boat. It can be launched straight off the beach as we do at Yaverland, it can be launched from a slipway by backing the car and trailer down the slipway into the water (remember to put the handbrake on before you get out of the car). Or it can be launched from a pontoon that is already in the water. We will only deal with launching from the beach in this document but there are plenty of books telling you how to launch a boat using the other methods.

1. If your boat has any watertight seals make sure they are in place and fully closed. After launching the boat once I remembered I'd not fitted the seals to both hulls of my catamaran. So I panicked and headed back to shore to replace them.
2. Make sure that the Mainsheet can run freely through the pulleys.
3. On Picos the sail is permanently fixed to the mast so it just needs to be unwound off the mast. Clip the sail to the Clew and then use the rope along the boom (called the Outhaul) to tighten the sail.
4. Finally fix the Downhaul (which is attached to the boom) to the bottom of the mast and tighten it.

The tension on the Downhaul differs in light and heavy wind. The Downhaul needs to be a lot tighter in light wind to keep the boom from riding up and spoiling the shape of the sail.

5. Now that the boat is rigged it is time to launch it. Stand by your boat and spend a minute or two noticing the direction of the wind. Ideally you need to launch the boat directly into any waves breaking on the beach because this will reduce the chance of the boat being knocked over by the waves. However, if the wind is blowing onto the shore from the sea then you need to point the boat to one side or the other of the wind. Pick the side that gives you more manoeuvrability. In Figure 7 the wind is blowing slightly from one side so launching the boat on the side where there is more space will give you more manoeuvrability. But also take into account other obstacles like underwater pipes or groynes.

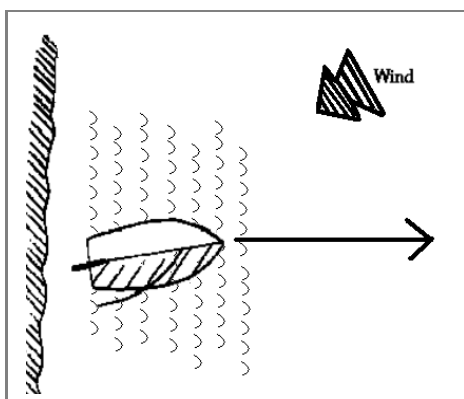


Figure 7 - Launching from the Beach

Straight Course Sailing

Once you are out on the water you need to position yourself so that your back is towards the wind. This is so you can always see the curved sail in front of you and looking one way you can see the back of the boat and looking the other way you can see the front of the boat and the direction you are heading. Now decide in what direction you wish to go. Don't forget that you cannot head directly into the wind so decide on a direction that is one side of the wind or the other. Now you need to figure out which direction the wind is coming from and adjust your sail trim. If you let the mainsheet out completely so it is loose (boat A Figure 8) the wind will hit both sides of the sail with equal force causing it to flap or luff. The wind will not push the boat forward at this point. As you pull the mainsheet in, the boat will move forward. Continuing to pull the mainsheet in will cause more of the sail to fill (boat B, Figure 8) until the whole sail is filled and there is no luffing (boat C, Figure 8). With the sails correctly shaped you will get the best possible speed from your boat. If you pull the mainsheet in even further (boat D, Figure 8) the wind will not flow as fast around the curved sail, and the forward thrust from the wind will be decreased. Once your boat is moving it is very important to keep it moving in a straight line, even while adjusting sails. To accomplish this, make sure that the Tiller is always kept straight.

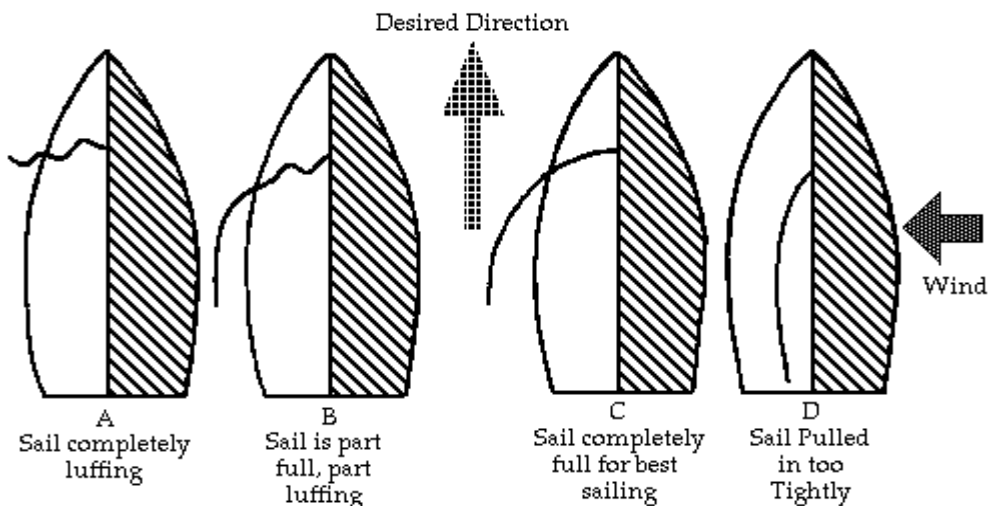


Figure 9

Figure 8 - Sailing at a Right Angle to the Wind

While you are sailing in a straight direction, it will be necessary to check the sail often to see that you are getting the maximum force of the wind. If the sail is full you have no way of knowing whether it is too tight as in boat D in Figure 8. Therefore, you must run a sail check by easing the sheet out until the sail begins to luff then trimming the sail in until the luffing just stops. Now your sail is set properly for the direction you are heading.

When you are sailing downwind the sail will not luff no matter how far out it goes. In this case it should be left as far out as possible; when in doubt, let it out. It will be roughly perpendicular to the boat to get the maximum force of the wind. An important fact to remember is that whenever you alter your course, you must also alter your sail trim.

Changing Direction

Tiller Control

Steering your boat is done with the Tiller Extension. When you pull the Tiller Extension the Tiller is also pulled. If you are sitting on the Starboard side and pull the Tiller towards yourself, the boat will turn towards the port (away from you). If you are sitting on the port side and pull the Tiller towards yourself, the boat will turn towards the Starboard (again turning away from you).

If you push the Tiller towards the port side, the boat will turn towards the Starboard (towards you). To put this simply, you push the Tiller in the opposite direction to the one you want to go in.

Any direction change also needs to be accompanied by a change in the sail trim. So you need to trim the sail just until it stops luffing. If you turn away from the wind by pulling the Tiller towards you the sail should be let out further. Turning away from the wind is called falling off or heading down (as in heading down wind). An easy way to remember sail adjustment is by the phrase Down & Out, Up & In. As you fall off (head down), you let your sail out. As you head up, you trim your sail in.

Sailing Close-Hauled

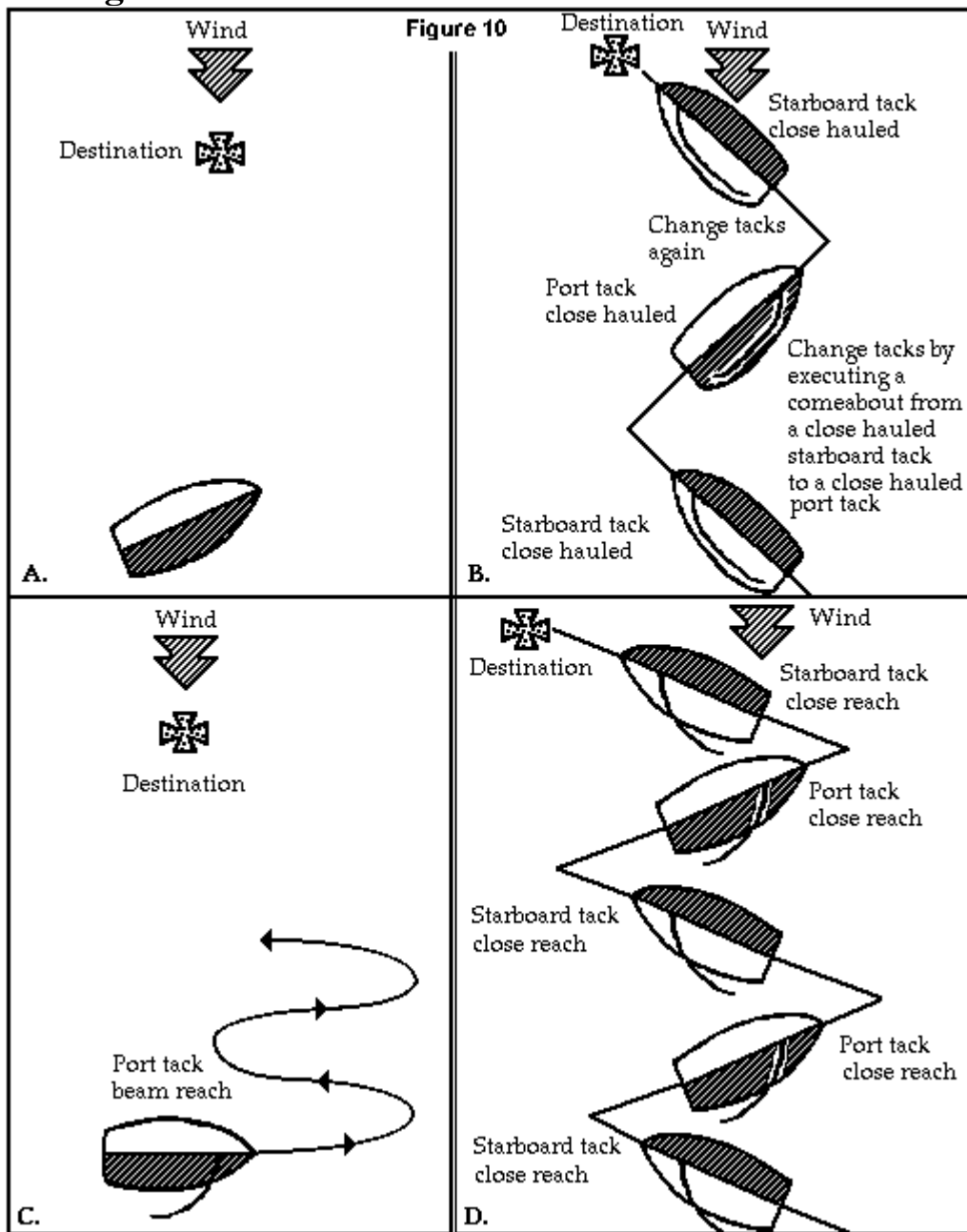


Figure 9 - Sailing Close-Hauled

Since you can't sail the boat directly into the wind, you may be wondering how boat A in Figure 9 can reach its destination. To sail upwind, sailors use a technique called Tacking - zigzagging upwind (see boat B, Figure 9). Clearly the boat which sails closest to the wind (close-hauled) will reach its destination quickest. For instance, in Figure 9, boat C, on a beam reach (actually slightly above it), will reach its destination, but it will take much longer than boat B which is close-hauled. When sailing close-hauled, the sail should be pulled in as far as possible and the boat should be steered as close to the wind as possible without the sail luffing. If it luffs (and while keeping the sail pulled all the way in), turn away from the wind until the sail just stops luffing.

Tacking/Coming About

Tacking is a manoeuvre used to change directions across the wind source; specifically, from Close Hauled on one Tack (port or Starboard) to Close Hauled on the other, (Figure 9). It is also referred to as coming about. Tacking involves crossing the "unsailable" eye-of-the-wind between 11 and 1 O'clock. Inside this area (called In Irons) the sail will only luff and there is nothing you can do to fill the sail except turn out of it. Since your boat cannot get any useful power from a luffing sail, the most your boat will do In Irons is drift. The object of Tacking is to turn the boat through Irons without stalling, so you need to Tack while moving.

The starting point for a Tack is normally a Close Hauled course. If you are not already sailing on a Close Hauled course you need to turn the boat slowly until you are on that course.

As you prepare to Tack alert your crew by saying "Prepare to Tack". This warns the crew that you are about to Tack and therefore they need to keep low so the boom does not hit them. Make sure you get a reply and if in doubt tell them again. Push the Tiller away from you (which will turn the boat into the wind) but don't push it too sharply because the water hitting the rudders will act like a break and stop the boat. The boat should coast in an arc through the eye of the wind, putting your boat on the opposite Tack. If you get confused, check to see if you are now aiming towards the spot you looked at. Use this time to settle yourself on the opposite side of the boat, tidy up all the ropes laying on the deck and change the Jib, if you have one.

Tacking Checklist:

1. Turn the boat until it is Close Hauled and moving forward.
2. Alert your crew by announcing "Prepare to Tack" and make sure they heard you.
3. Push the Tiller far away from you but not hard enough to stall the boat.
4. Duck under the boom and switch sides just as the sail crosses.
5. Watch the sail and keep the boat turning until the sail stops flapping.
6. Straighten the Tiller as soon as you are on a new course.
7. Switch hands holding the Tiller and Mainsheet and sit on the other side of the boat.
8. Trim in the sail just so it stops luffing.
9. Tidy up the deck and change the Jib, if you have one.

While Tacking you will need to switch steering and Mainsheet hands. When sailing on a Starboard Tack close-hauled you will be holding the sheet in your right hand (hand closest to the bow) and the Tiller Extension in your left hand (the one closest to the stern). Correspondingly, when on a close-hauled port Tack course you will have the sheet in your left hand and the hiking stick in your right. At first you will have difficulty changing hands but it will become easier until you do it without thinking. Just remember that the Mainsheet is your gas pedal and the Tiller extension is your steering wheel. Never let go of the "steering wheel" while driving. It is ok to let go of the gas pedal (mainsheet) if you must let go of something.

When Tacking in heavy weather be sure that the boat has enough forward momentum to carry it through the eye of the wind. Watch for a lull in the waves and Tack or start to Tack as you come up a wave so the next one will push the bows round. If a wave hits the boat just as you are Tacking, it may stop the boat in irons before you coast over to the new Tack.

Gybing

Look again at the wind clock (Figure 3). The boats at the bottom of the clock are Running or sailing directly downwind. The sail is out as far as possible to expose the maximum sail area to the wind since the wind is simply pushing the boat along. Suppose you are in boat #5, running on a port Tack and you want to turn and sail on a Starboard Tack where the sail is on the other side of the boat and sailing in the same direction as boats #7, 8, 9, 10 or 11. One way to do this would be to keep turning your boat closer to the wind on the port Tack until you are Close Hauled (like boat #1) pulling in the sheet as you are turning to keep the sail from luffing. Then when you have gained good momentum on the Close Hauled course you would Tack until you are on a on the Starboard Tack (like boat #11). Finally on a Starboard Tack you would then steer your boat to your desired course and readjust the sail. Clearly, this is the long way around (and the slowest).

It would be much simpler to turn in the direction boat #7 or 8 is going, and somehow get the sail on the other side of the boat, this is called Gybing.

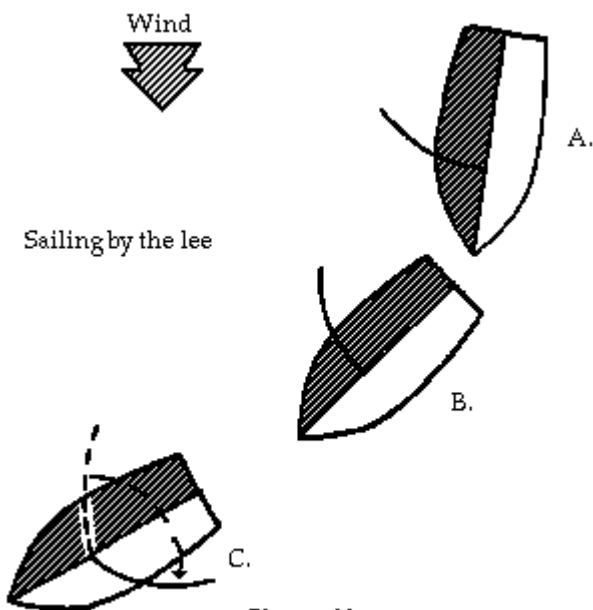


Figure 11

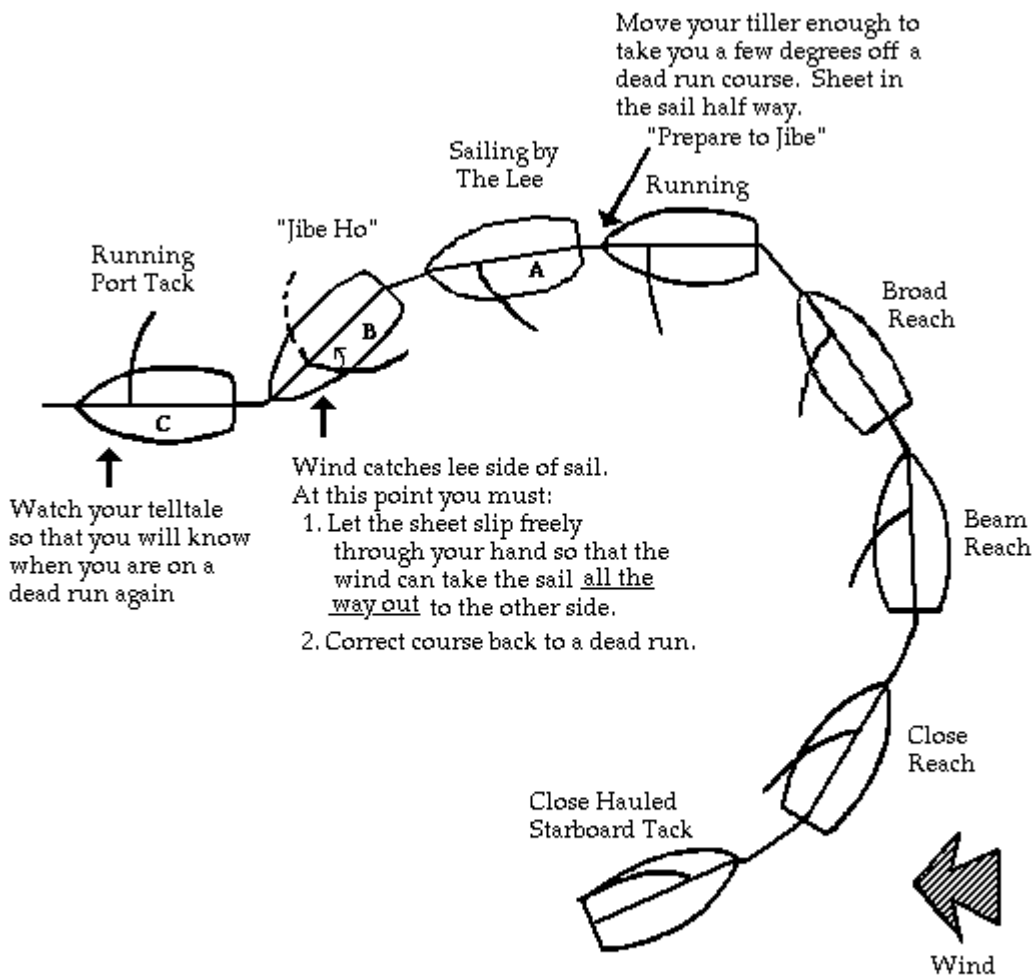
Figure 10 - Gybing

Before considering the Gybe, it is a good idea to understand sailing by the Lee. Suppose you are in boat A of Figure 10, and you want to turn to Starboard. If you just turn the boat in this direction you will end up like boat B. So now the sail is on the same side of the boat that the wind first crosses (the "wrong" side). Boat B is sailing by the lee. You don't want to stay on this position long because the boom is on the verge of coming across and it'd be wise to pay attention to that if you don't want it to hit you on the head.

Executing a controlled Gybe is nothing more than following the sequence of boats A to C in Figure 11 while taking some precautions to make sure that the flopping of the sail from one side of the boat to the other is not too catastrophic.

The oral command "Prepare to Gybe!" is given to alert the crew of the up-coming manoeuvre (this warns them to keep their heads low and out of the way of the boom as it swings fast across the boat).

As you prepare to Gybe, move your weight towards the centre of the boat. Steer downwind slowly with the Tiller pushed away from the sail. When the wind is blowing straight along the boat from back to front you are sailing by the lee. Keep turning slowly. Grasp all the Mainsheet ropes just below the clew (where the ropes fix to the Mainsail). When the sail is ready to switch sides you will notice the sail starts to move towards you. As the sail starts to swing across the boat use your hand on the Mainsheet to control the speed that it crosses the boat. Once the sail nears the other side of the boat you can let go and move to the side of the boat opposite the Mainsheet. Guiding the Mainsheet across the boat also helps prevent it getting tangled in other parts of the boat.



Note: It is important to maintain proper trim of the sail between or during execution of the above maneuver.

Figure 12

Figure 11 - Executing a Controlled Gybe

While getting yourself repositioned make sure the Tiller Extension is brought back to the centre, correcting your course back to a dead run and counteracting an immediate tendency of the boat to head to Windward. As you get more confident, you can do your light air Gybes more quickly.

Figure 11 illustrates a boat close-hauled on a Starboard Tack changing its course slowly until it is running before the wind on a Starboard Tack. It then shows the boat changing to a port Tack run by Gybing.

Try to avoid Gybing in high winds but when you have to, place your weight on the sail side before you Gybe (you and the sail are on the same side) and then grip the Mainsheet and control the speed of the Mainsail crossing the boat. This will help avoid capsizing the boat.

You may hear the terms Flying and Accidental Gybe. A Flying Gybe is simply allowing your boom and sail to swing across the boat while not holding the Mainsheet. This is a faster Gybe than you would get from holding the Mainsheet. Many people mistakenly equate a Flying Gybe with an Accidental Gybe. An Accidental Gybe is when the sail moves across the boat before you are ready. Both of these may lead to the boat capsizing.

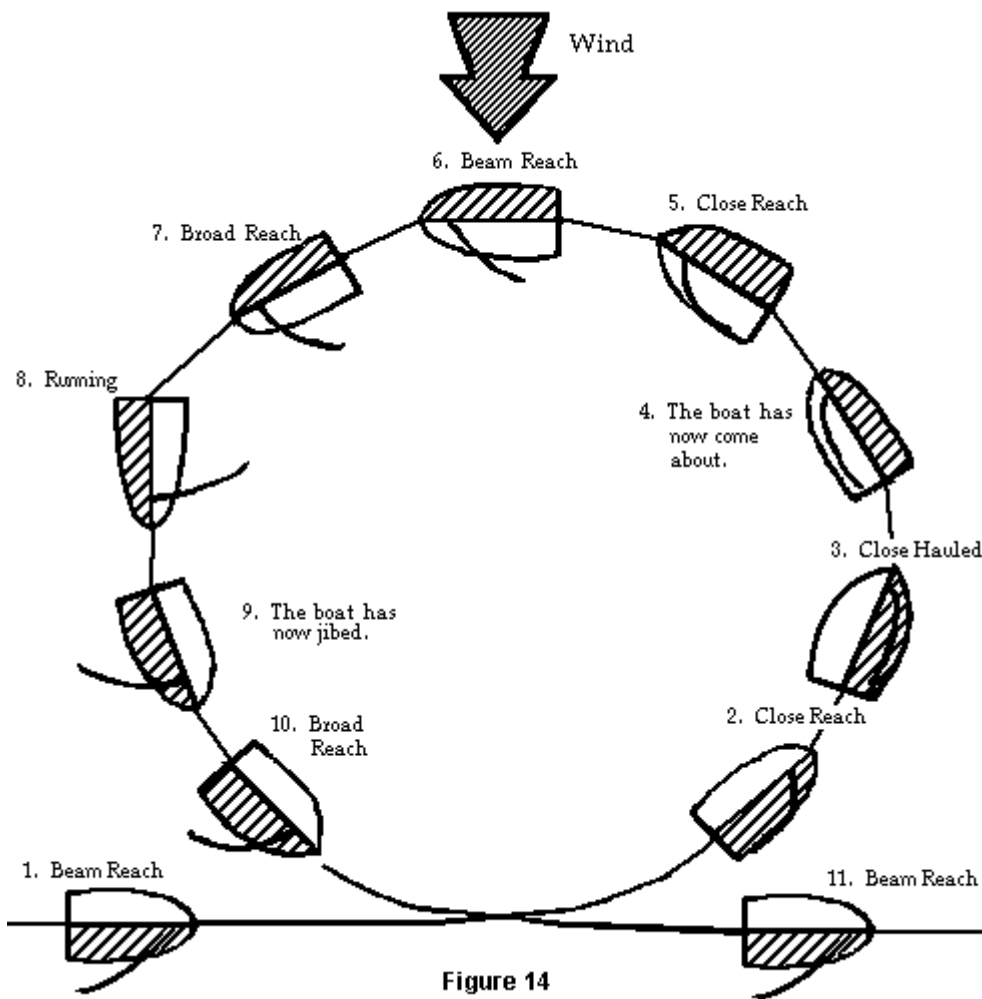


Figure 12 - Changing Direction

Figure 12 shows a boat on a port Tack, beam reach (position 1). As the boat moves forward, it also heads up. In position 2 the boat has trimmed in its sail and is now on a close reach. Following the boat through all positions, we see how it Tacks onto Starboard Tack (position 4) by passing its bow through the eye of the wind. We also see it fall off from Close Hauled (4) to a close reach (5), to a beam reach (6), to a broad reach (7), to a run (8), and then Gybe over onto port Tack again (9) and sail off in its original direction on a beam reach (11).

Righting a Boat

A subject which is important to learn in sailing is righting a boat. There are two situations that may occur during a sail after which the skipper/crew will need to right the boat.

Capsizing

When a boat capsizes, it tips over so that one side of the boat is completely in the water. After capsizing, he/she swims around to the "bottom" side of the boat and stands on the centreboard. Hopefully, if you stand on top of the centreboard while holding on to the side of the boat it will slowly begin to right itself.

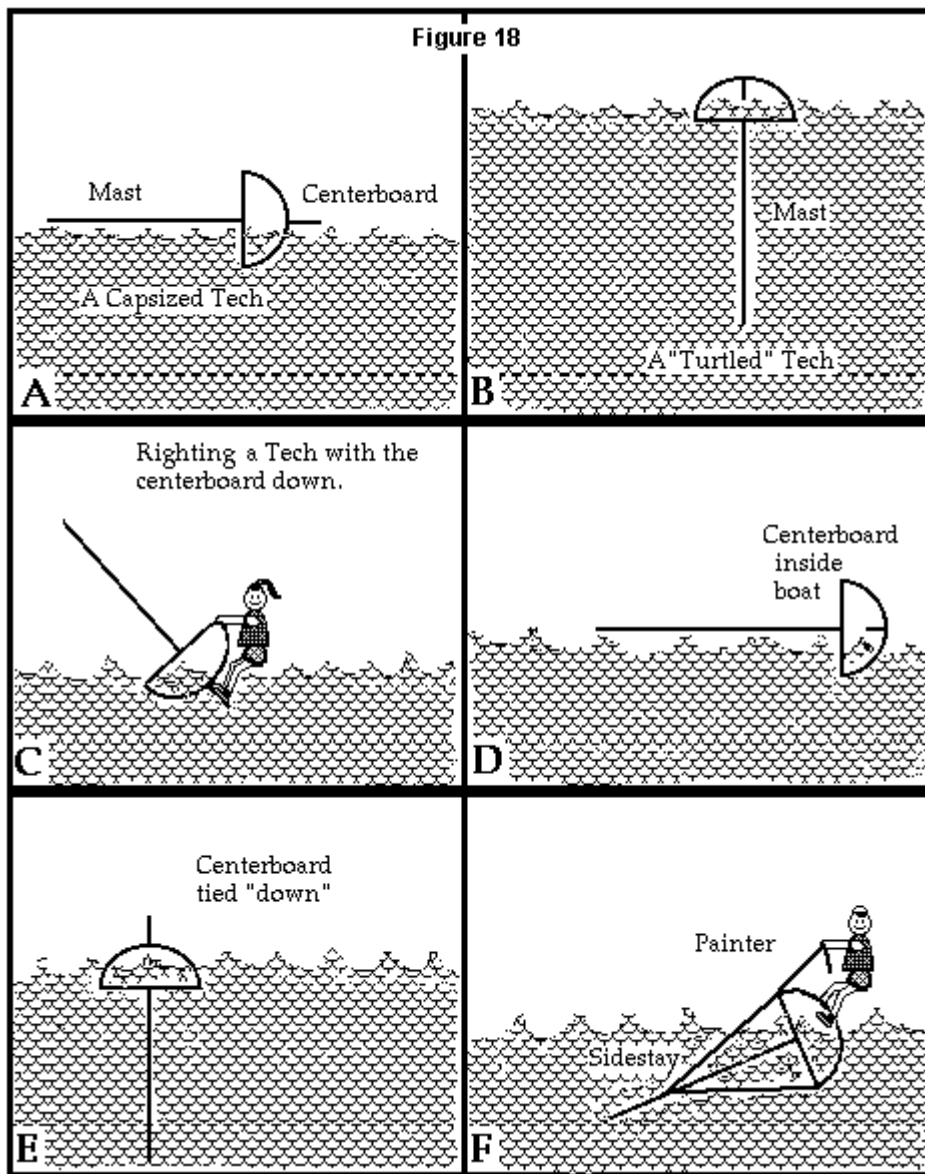


Figure 13 - Righting from Capsized or Turtled Boat

If you were sailing with the centreboard "up", or if it happened to fall back into the boat when you capsized (Figure 13D), you will have to move it to the "down" position in order to get enough leverage to right the boat.

Turtling

When a boat turtles, it is tipped over so that the mast is pointing to the bottom of the sea. If the boat has Turtled you can right the boat in a similar manner as you would if the boat had capsized. However, if you are unable to get the centreboard in a position to right the boat, then loop the painter (or use the free end of the halyard, if available) around one of the side Stays and pull on it while standing on the other side of the boat. (Figure 13F).

Once you have righted the boat, you may climb back in. Getting in may be a more creative challenge, especially for those with less upper body strength. To get in, go to the Windward side of the boat and pull yourself in using the hiking strap as a handhold. If you pick the Leeward side, the boat may tip over on top of you and then you have to go through the whole procedure again.

If you have trouble pulling yourself into the boat you can use the buoyancy of your lifejacket to help you get back on the boat. Lower your shoulders into the water then with a strong kick pop out of the water, grab a hiking strap and pull yourself in. Another useful technique is to take your painter, tie a bowline and set it next to the side Stay; then put your foot in the loop of the Bowline and step onto it like a ladder and climb up.

If you own your own boat and know you will have trouble getting in again after capsizing, you could buy a length of rope, tie a Bowline in it at the right place and have the rope permanently tied to the boat. Then if you have trouble getting back in just pull the rope over the side and use it to climb in. I even have a short length of hose pipe in the loop of the Bowline to help put my foot in.

Once in the boat don't rush to sort the boat out. Have a rest, get your breath back and only set off when you feel completely ready again. However, if you are feeling very tired head back to shore. You could always put the boat on the beach, have a rest and then when you are ready head out to sea again.

Righting the boat will be a lot easier once you have learnt the proper way to do it and practiced it a few times. Many training establishments will hold sessions dedicated to practicing Righting the boat and it can even be turned into a game where the trainee tries capsizing and righting the boat without getting wet.

Additional Sailing Tips

Boat Trim

The position of the crew on a boat can greatly affect the performance of a sailing boat. In general, "sail the boat flat to sail it fast" is a phrase to remember. They should be sailed flat in light conditions and a slight heel to the Leeward side of the boat under most other conditions so that the sail is kept full. If the crew needs to alter their position it should be done smoothly so as not to disturb the motion of the boat.

As well as paying attention to the leaning of the boat to Port and Starboard the crew must also pay attention to the leaning of the boat to the front or back. Again it is best to try and keep the boat flat but there are exceptions. When the wind is light (0-5 mph), it is best to sit towards the front of the boat so that the crew weight lifts the back of the boat out of the water slightly to reduce drag.

When on a Run keep well back because the force of the wind on the sail (particularly in heavy wind) will try and push the bows down into the water. When “surfing”

The term “surfing” when used by sailors refers to when the boat is heading towards the shore when there are noticeable waves because the boat can surf on the wave just like someone on a surfboard. When doing this it is very important to have the crew weight as far back as possible in order to keep the bows from digging into the wave in front and pitching over (called Pitchpoling). Also, stay straight with the wave so that the boat is not at an angle to the wave because this could also cause the boat to tip over.

However, if you get this right it is a fantastic way to sail and great fun.

Steering

There are a few general rules to steering which should be followed to increase your boat speed. First of all, steer as little as possible. Every time the Tiller is moved it creates more drag on the boat which will slow the boat down. The better sailors on the course will only move the Tiller a few inches away from the centreline except in a few cases when the boat is Tacking, gybing or avoiding another boat.

Once the proper position in the boat has been established, it is best to hold the hiking stick in front of your chest using only your index finger, thumb and wrist to move the Tiller. This position works well in most conditions because it allows for small and sensitive movements of the Tiller. It is also easier to use the Tiller hand to help trim the sheet when the Hiking Stick is in front of one's chest. With proper placement of body and Hiking Stick, all that is left to do is steer the boat around the course.

Anticipation is the key to proper steering techniques. Small adjustments of the Tiller is all it takes when a change of conditions is anticipated. For example, if a person notices the boats in front on the same Upwind Tack are heading up, an alert skipper will anticipate the same and will head up gradually so as to reduce the drag caused by a sharp turn of the rudder. Exaggerated movements of the Tiller only require exaggerated counter movements of the Tiller to compensate and soon a vicious cycle is started. When the weather starts to get rough, an underhand grip of the hiking stick will allow more control of a feisty Tiller.

Sail Adjustment

Adjusting the shape of the sail

One of the most important factors in sailing fast, especially to Windward is the shape of the sail. Look at the sail carefully and notice how performance is affected in different wind and wave conditions by changing the position and amount of draft (the curvature of the sail). The draft can be adjusted most readily on shore or on the water by using the downhaul and the outhaul (if you have one). Tightening the downhaul moves the draft closer to the mast, flattening the sail and allowing the boat to sail closer to the wind. This will also improve performance in stronger winds with smooth water. Generally, the proper downhaul adjustment is somewhere between the point where horizontal wrinkles in the sail disappear and a vertical crease appears in the sail luff while beating to Windward in moderate winds.

smaller. N.B. The Bowline is used to make a loop in a rope or to tie to a ring or post. It is a secure knot but cannot be untied when under load.



Figure 15 - Bowline

4. **Double-Loop Bowline** – Double up the rope. Start quite a way down the Standing Part. Form a fist round the Standing Part and loop the rope up and behind the Standing Part. Pinch the part where one rope touches the other – this forms a loop. If fixing to a ring or post loop the end round the object. Form another loop by passing the end down through the smaller of the two loops from in front of the loop. Now take the very tend of the doubled rope and pass the **WHOLE** of the knot you've just made between the two parts of the doubled rope. Tighten the whole knot. You are left with two distinct loops. N.B. This is a variation on the Bowline but it uses a doubled rope instead of a single line. This knot was generally used at sea for lowering an injured man from aloft, by putting one leg in put through each loop.



Figure 16 - Double-Loop Bowline

5. **Clove Hitch** – Pass the end over the post or through the ring and loop round. Pass the end over the top of the Standing Part. Again loop it round the post and pass the end up, under the loop you have just created. You should now have the Standing Part coming up from the bottom and the end of the rope going upwards. N.B. A Clove Hitch can be used to tie a rope to a post or ring. It is quick to tie but a snatching load can undo it, so leave a long working end.

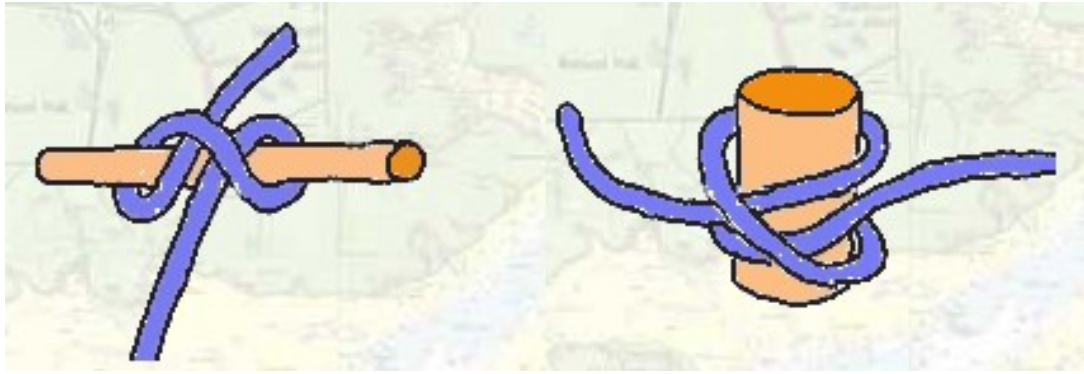


Figure 17 - Two Versions of the Clove Hitch

6. **Rolling Hitch** – Pass the end over the post or through the ring and loop round. Pass the end over the top of the Standing Part. Loop the end over the post again on the left side of the previous loop and bring it up on the right of the Standing Part. Again loop the end over the post to the left of the other ropes but this time pass the end up, under the loop you have just created. You should now have the Standing Part coming up from the bottom and the end of the rope going upwards. N.B. The Rolling Hitch is very similar to the Clove Hitch except that it passes over the pole three times rather than two. It is therefore more secure than the Clove Hitch and will not slide along another rope or a spar. It is useful when you need to take the load off another rope.

For a really good explanation of these knots and others, visit the Tollesbury Sailing Club at <http://www.tollesburysc.co.uk>

An overhand knot cannot be untied easily once it has been pulled tight. Tying improper knots can cause many potential problems. Please prevent these from occurring by tying "real" knots as illustrated. If you're a visual learner, ask someone to show you easy ways to tie these. Then, practice often and teach others.

Clothing

Wetsuits

General Principles

Wetsuits aren't as complicated and high-tech as the wetsuit manufacturing companies would like us to believe. They are essentially just rubber panels that have been sewn together to form a garment designed to trap a layer of water against the skin to insulate the wearer from the cold. Wetsuit companies are competing hard for your money, and even the most simple features have names that sound like something from the Space Shuttle or a stealth bomber.

Generally speaking, with wetsuits, the more you pay, the more features you get, the thicker the suit, and the 'better' the suit is able to insulate. Whether or not a given feature is worth the price increase is totally subjective. Prices for wetsuits vary widely, from as little as £50 to close to £200.

All that aside, the single most important feature is how the suit fits. If the suit is too tight, you won't be able to paddle or move or breathe. It will only get worse as the suit ages and shrinks and stiffens,

and the additional stress on the suit will wear out the seams. If the suit is too loose, you'll be carrying 50 gallons of water around with you and getting pinched by all the folds of rubber.

How do wetsuits keep you warm?

A wetsuit is a snug fitting neoprene rubber suit designed to insulate you in cold waters. When you first submerge, differences in pressure force a thin layer of water between you and the wetsuit. Your body heats this layer, while the neoprene insulates you from the outside cold. In a wetsuit under normal use, you will be completely wet on the inside...hence the term "wetsuit".

Is all wetsuit material waterproof?

A common misconception is that some wetsuit materials are not waterproof. Wetsuit material (also called neoprene) is a closed-cell product. It is completely waterproof. All wetsuit material comes laminated on the inside with a jersey for strength and ease of getting into. Some wetsuit materials come laminated with jersey on both sides. This is the material that causes misunderstanding as the neoprene (closed-cell and waterproof) is hidden between the two layers of jersey. In a wetsuit you will still get completely wet but this is not a result of water coming through the material.

How do wetsuits make you swim faster?

Neoprene material is filled with microscopic bubbles of gas. Besides providing insulation, these bubbles give neoprene incredible buoyancy. You can swim faster in a wetsuit because the neoprene lifts you into a higher position in the water. In this higher position you displace less water, which reduces drag and speeds up your swimming. Some wetsuit materials also have an outer surface slicker than human skin which can further reduce drag, but this is a very minor performance aide as compared to thickness. As proof, Triathlon governing boards put no limits on what we can do to the outside of wetsuits, but some are strict on how buoyant (thick) a wetsuit can be.

How do I decide between a Full wetsuit and a Sleeveless wetsuit?

Although we feel there are good arguments for both full wetsuits and sleeveless models, warmth should be a very important part of this decision. With a full wetsuit, you gain additional warmth and buoyancy in the arms, but give up a little of that "free" feeling that comes with a sleeveless wetsuit. Sleeveless wetsuits give the best freedom of motion, but aren't as warm. If most of your swimming is in waters above 65 degrees a sleeveless wetsuit should be fine. If you swim in water from the low 60's to low 70's you can probably use either style. If you swim in water that is consistently below 65 degrees, a full wetsuit is probably your best choice. (Adjust these temperatures if you know you run warmer or cooler than most people.)

How long do wetsuits last?

Neoprene tends to lose some of it's flexibility as it ages, so athletes who use a wetsuit just a few times a year will probably find that their wetsuit never wears out, but after 5-10years, it won't feel as good as it did when it was new. If you are lucky enough to swim in a wetsuit a lot, you can expect to get 250-300 swims in a wetsuit before the neoprene slowly starts to degrade. Consistent exposure to Chlorine, Salt Water, and Sunlight will all shorten the life of neoprene.

What to Look For

Things I look for when shopping for a new suit. Let me know if I miss anything important:

Fit. Try on different sizes, different suits (companies have several different types of suit with different names), and different wetsuit manufacturers.

Neoprene type. 'Smoothie' neoprene tends to stretch better, look better, and is warmer esp. in windy conditions. It is also a little more susceptible to damage than the neoprene with fabric on the outside. Some suits now use a polypropylene lining on the inside which helps to repel the water and keep you a little warmer.

Seams. These connect the panels of neoprene. Generally speaking, more panels in a suit design means better flexibility. It also means more places for water to get in. There are a few types of seams used:

Overlock. This is found on the least expensive suits. This type of stitch lasts forever, is not watertight, and can cause skin irritation or rash as it protrudes a lot.

Flatlock. A flat stitch that doesn't push into your skin like the overlock stitching. It is not as durable as the overlock stitch, but does not cause as much rash problems. This is also not a watertight stitch.

Blindstitch. Blindstitching is flat and does not penetrate through to the other side of the neoprene, so there are no stitch holes for cold water to follow. Double-blindstitched suits have stitching on both sides, neither of which break through to give water a path to follow. Blindstitching (or double-blindstitching) is nearly always combined with a gluing-together of the seams beforehand, and protective tape for additional seal and comfort on the inside seams.

This type of seam is less durable than either overlock or flatlock. It is watertight, which makes a tremendous difference. Suits with this type of seam can have more panelling, meaning more flexibility, without causing more water inflow through the seams. The warm layer of insulating water near the skin stays there, instead of circulating with the cold ocean. Naturally, this type of seam is found on only the most expensive wetsuits.

Arm/Leg/Neck Seals. This tends to fall under the 'fit' category. Most suits now have a wide, smooth seal at the neck. Make certain there's lots of velcro to keep the neck closed.

Closures.

Back-zip suits. The most common type, and for a long time the only type. Check these suits for a sturdy metal zipper rather than cheap plastic, and for good, thick flaps behind the zipper to prevent cold water flushes. "Zip cups" are often added in the better suits to the bottom portion of the zipper, providing extra protection against cold water intrusion.

Shoulder-zip suits. The major drawback of back-zip suits is the stiffness of the zipper, reducing paddling and surfing flexibility. Shoulder zippers eliminate this problem to some extent, creating new inflexibility in the upper chest region.

Zipper-free suits. These suits use new neoprene with more flexible nylon liners and various kinds of velcro closures to create a suit that eliminates potential for cold water flushing into the zipper as well as flexibility problems. These suits can be hard to get into or out of, are very expensive, and may have wear-and-tear problems. So far, few people have had these for more than a few months (as of early 1996).

Thickness. Obviously, the thicker the suit, the colder the water you will be able to brave. Thick suits also result in more weight and less flexibility, as well as higher prices. Finding quality in the other categories can allow you to reduce the thickness for a given water temperature.

Other Bells and Whistles

Titanium. A coating of titanium oxide is applied to the wetsuit rubber on the inner side of the suit before the nylon and neoprene are bonded. The titanium is supposed to reflect heat that is radiated out from the body. Does it work? In theory, yes, but it is unknown how important it is.

Polypropylene. Used as an inner lining for the newest wetsuits. This material is hydrophobic (repels water) and is supposed to help keep you drier. It is marketed both as used in the wetsuit itself and as a separate liner (like a rash guard). This stuff works best when just used totally by itself to protect from wind while surfing in warm water.

Fit. This one is important. So much so, in fact, that many surfers are opting to pay \$600+ for a custom-made wetsuit.

Buying Tips

Prices tend to be essentially the same from one surf shop to another. Dive shops and sporting goods stores do frequently advertise cheap wetsuits, but these suits are typically fashioned with overlock stitching, minimal panelling, and are usually poor suits to wear when surfing.

You can usually get a good deal on a winter wetsuit towards the end of the summer. At around that time the 'new year' of wetsuits typically starts to arrive, and shops are eager to push 'last years' models out the door. Unlike the automobile industry, there is often little difference between the two 'model years'.

Used wetsuits can also be a good buy. Be sure to check for cracks and tears. Feel the neoprene to make sure it hasn't degraded when looking at a double-lined suit.

How to care for your wetsuit.

1. When not in use keep the suit out of direct sunlight as the heat and UV rays will cause cracking and stiffening.
2. Avoid purchasing a suit that is too small. Neoprene will stiffen as it is stretched repeatedly over extended periods of time.
3. Never put a wetsuit in a dryer, and avoid exposing it to excessive heat, i.e. from a room heater or from draping it over a radiator.
4. Keep your suit clean. If dirt or salt (see above) gets into the inner lining of the suit, it can interfere with the suits ability to trap an insulating layer of water near your skin.
5. If using the wetsuit in salt water, rinse the wetsuit with fresh water and drip dry on a wide hanger (plastic or wood). Do not leave your wetsuit drying in the sun, as the sun will age the material. Do not leave your wetsuit in the car on hot days, as this may cause your seams to weaken. Excessive use in chlorine (afterward...rinse with fresh water) may also age the material.

6. If you have the luxury of being able to take your gear home and rinse it in your bath this is your best choice! Fill your tub with some warm (not hot!) water, add some baby shampoo and gently place your gear in the bath. Slosh things around a bit to dissolve and dislodge salt and sand particles and then let it soak for about 5 minutes. Drain the tub and rinse with clean water. The warm water is better at removing salt deposits and baby shampoo helps to remove those "special body odours." If the deposits are not washed off minerals in the seawater will accelerate the degradation of neoprene.
7. Packing a suit away for the winter or getting ready for a holiday? Neoprene has a nasty habit of remembering folds and some may never recover! If you can't hang a suit up or lay it flat all the time it is recommended that you lay it out flat and then roll from the legs upward. Remember! Roll, don't just make short folds! When you get to the top just roll the arms inward so they cross each other. While keeping the wetsuit straight is still the best, rolling is well-suited for travel or short term storage.
8. If using a hanger make sure the sides are long enough not to dig into the sides of the shoulder.
9. Get some neoprene glue and take some time to fix up leaks and holes before they become too large to repair.

Safety

Now that you have the safety of your crew in your hands, how can you make sure you have a fun sail and make it back safely? Here are a few items that are useful in making your sail safe for yourself, your passengers and the craft you use.

Wear a lifejacket

This is one of the two rules that are most useful for reducing drowning if you are in danger on the water. People with little body fat (including children) often get cold quickly and simply sink when they hit the water. Wear your lifejacket!

Stay with your craft

Unless someone is right there to help you off of your craft and into their rescue boat, stay with your boat at all times! Motorboats and lifesaving craft can see and avoid a larger object (such as a boat) much better than a smaller object (such as your little floating head). Also, the craft floats and is like wearing many lifejackets in that it will keep you above water.

Dress appropriately

In the summer a pair of shorts, t-shirt, non-marking shoes with grip (such as light-weight tennis shoes), sunglasses, sun protection, a water bottle and a hat are items that you may need.

If it is cooler, such as in rainy or windy weather and spring or autumn, wearing a rash vest over your wetsuit and dressing in layers is advisable. Even on the hottest days, when there is a strong breeze one may become "chilled" out on the water.

If you have any medications you might need to take while on the water (such as asthma meds) get a waterproof container to bring them along in. Even if you don't have any medication buying a waterproof container is still a good idea for keeping your phone or your lunch in it.

Additional safety tips

Here are a few more helpful hints on safety:

Know your equipment and how to use it safely and effectively.

Practice, practice, practice!

Check the weather forecast before you go out. Check it a couple of days before you are due to go out and then check it again just before you leave to go sailing.

Educate your crew on what they need to do and when. (Going over when to duck their heads is particularly useful.)

Remember...

When people drown they often do so because they sink in the water. To reduce this from happening wear a snug, quality lifejacket and stay with your craft always! Sound simple? It is.

Sailing Glossary

Abeam	Any location either side of the boat, located on a line at right angles to one running from the bow to the stern.
Ahead	In front of.
Amidships	The portion of a vessel midway between bow and stern; also midway between port and Starboard sides.
Anchorage	A sheltered place or area where boat can anchor.
Apparent Wind	Wind felt on a moving vessel. This type of wind is only caused by the speed of the boat and the air flowing over the boat as it moves. The faster the boat moves the higher the Apparent Wind. But this type of wind cannot be used for sailing because you will always be sailing into this type of wind and would therefore always be In Irons.
Astern	Behind or backwards.
Backing Wind Shift	A counter-clockwise wind shift.
Backwind	To hold the mainsail or jib off to the side to cause the wind to blow onto the backside of the sail.
Bail	To remove water from a boat by hand.
Battens	Long, thin, narrow strips of wood that are placed in pockets sewn perpendicular to the leech of a sail and are used to hold the leech out.
Beam	The greatest breadth of the boat.
Beam Reach	Sailing perpendicular to the wind. See Wind Clock XX
Bearing Away	Altering course away from the wind; falling off; heading down.
Bearing Off/Away	Altering course away from the wind on any course from head to wind until the boat begins to Gybe.
Beat	To sail towards the direction from which the wind blows by making a series of Tacks while sailing close-hauled.
Beating	Sailing upwind; close-hauled.
Before The Wind	Sailing with the wind from astern, in the same direction toward which the wind is blowing.
Bight	Any part of a rope with the exception of the end; usually refers to a loop in a rope.
Block	A pulley through which a line passes.
Blowing Stink	A term made famous by Hooper instructors. High winds! It is advised that at

	the first sign of the Big Stink one should Rig and Go!
Bolt Rope	Rope sewn into the luff and foot of sail for attaching to the mast and boom.
Boom Vang	<p>A wire or rope running from the boom to or near the bottom of the mast which holds the boom down.</p> <p>A boom vang is a line or piston system on a sailboat used to exert downward force on the boom and thus control the shape of the sail. It is better known as the "kicking strap" or an older term is "martingale".</p> <p>The vang typically runs from the base of the mast to a point about a third of the way out the boom. Due to the great force necessary to change the height of the boom while a boat is under sail, a line based boom vang usually includes some sort of a pulley system. Hydraulic piston vang's are used on larger sailboats and controlled by manual or electric hydraulic pumps.</p> <p>On smaller boats it starts at about a quarter along the boom and is fixed to the deck very close to the mast. It has a pulley on it to keep it tight.</p>
Boom	Pole or spar attached to the mast to which the foot (lower edge) of the sail is fastened.
Bow Plate	A plate that fits on the bow of the boat to which the lower end of the forestay is attached.
Bow	Forward part of the hull.
Broaching	A sudden swooping around broadside to the wind and waves while running.
Broad Reach	Sailing with the wind coming from any direction from abeam to on the quarter. See Wind Clock
By The Lee	Sailing before the wind with the wind coming from the same side that the boom is on.
Capsize	To tip the boat over so that the mast is parallel with the water.
Cast Off	To let go.
Centre Of Effort	Centre point of sail area where all the force of the wind can be said to be centred.
Centre Of Lateral Resistance	Centre point of all underwater area of the hull where the hull's lateral resistance can be said to be centred.
Centreboard Line	A rope or wire attached to the top of the centreboard with which it is raised or lowered.
Centreboard Truck	Watertight housing for the centreboard.
Centreboard	A fibreglass or metal blade projecting through the bottom of the hull in centre which prevents the boat from sliding sideways. It pivots up and back into the centreboard trunk.
Chain Plate	A plate that fits on the side of the boat to which the lower end of a shroud is attached.
Clear Ahead	A boat not overlapped w/ a following boat. (see overlapped)
Clear Astern	A boat not overlapped w/ a leader boat.
Cleat	A formed fitting in wood or metal to which lines are made fast.
Clew	The lower aft corner of a sail.
Close Hauled	Sailing close to the wind. (sails all the way in). See Wind Clock
Close Reach	Sailing with sheets eased and the wind forward of the beam (sails out 1/4).

Coming About	Changing Tacks by heading up, bow into the wind and past head to wind on the other Tack (Tacking).
Cunningham	Line passed through a grommet in the luff of the sail used to flatten the sail by tightening the luff.
Dagger Board	A centreboard that slides up and down in a vertical slot.
Deck	The horizontal top on the hull.
Dinghy	A small handy rowing boat, sometimes rigged with a sail.
Displacement	The weight of the water displaced by the vessel.
Downhaul	Line attached to the bottom of the boom used to flatten the sail by pulling the boom down, and thus tightening the luff of the sail.
Downwind	In the direction the wind is going. A boat sailing downwind is running with the wind.
Draft	The depth of water to a vessel's keel.
Ease Sheet	To let the sheet out.
Eye Of The Wind	An unsailable sector between Close Hauled headings. Also known as In Irons
Fathom	Measurement of six feet.
Foot	The bottom edge of a sail from Tack to Clew.
Footing	Sailing lower than Close Hauled.
Fore And Aft	In the direction of the keel.
Forestay	A wire running from the upper part of the mast to the bow of the boat.
Gooseneck	Hinged fitting on the mast which connects the boom to the mast.
Grommet	A ring sewn into the sail through which a line can be passed.
Gungeon	The rings which, with pintels, make up the hinge assembly for the rudder.
Gunwales	The upper edge of a boat's side.
Gust	A sudden burst of wind stronger than what is blowing at the time.
Gybe	To go from one Tack to the other when running with the wind coming over the stern.
Gybing	Turning the stern through the eye of the wind.
Halyard	In sailing, a halyard is a line (rope) that is used to hoist (pull up) a sail, a flag or a yard. <ul style="list-style-type: none"> * A triangular (Bermuda or "Marconi") sail has only one halyard which is attached at its uppermost point (the head). * A gaff rigged sail has two; a throat halyard to lift the end of the gaff nearer the mast, and a peak halyard to lift the outer end. * A square rig sail with a halyard is mounted on a lifting yard that is free to slide on a short section of the mast. The halyard is used to raise the yard when setting the sail. <p>On smaller boats the Halyard is used to keep the sail taut on the mast.</p>
Haul	To pull.
Head To Wind	Having the bow pointing directly into the wind.
Head	Uppermost corner of a sail, or the toilet.
Heading Up	Turning closer to the wind, up wind.
Headway	Moving ahead.
Heave In	To haul in.

Heel	To tip to one side, due to wind pressure on the sail or crew on the side.
Helm	The Tiller.
Helmsman	The one who steers the boat.
Hiking Stick	See Tiller extension.
Hiking Straps	Straps to hook toes under in cockpit.
Hull	The actual body or shell of the boat.
In Irons	When a Tack is not completed and the boat stalls out with the bow pointed directly into the wind.
In Phase	Sailing optimal angles to the next mark; Tacking on knocks and sailing on lifts.
Inshore	Toward the shore.
ISAF	International Sailing Federation.
Kicking Strap	<p>The Kicking Strap typically runs from the base of the mast to a point about a third of the way out the boom. Due to the great force necessary to change the height of the boom while a boat is under sail, a Kicking Strap usually includes some sort of a pulley system. Hydraulic pistons are used on larger sailboats and controlled by manual or electric hydraulic pumps.</p> <p>On smaller boats it starts at about a quarter along the boom and is fixed to the deck very close to the mast. It has a pulley on it to keep it tight.</p>
Knock	A wind shift that forces a boat to sail below its mean wind course.
Leech	After edge of a sail.
Leeward Side	The side of the boat away from the wind.
Leeward	The direction away from the wind (opposite of Windward).
Lift	A wind shift that allows a boat to sail above its mean wind course.
Line	A rope.
Luff	The forward edge of a sail.
Luff Up	To steer the boat more into the wind, thereby causing the sails to flap or luff.
Luffing	Altering course towards the wind; heading up. Luffing or bearing away is presumably the boat's proper course.
Luffing	When the forward part of the sail is fluttering.
Mainsail	The sail set on the mainmast.
Mainsheet	The line that controls the angle of the mainsail in its relation to the wind.
Mark	Any floating object w/in the water specified as so.
Mast Slot/Groove	The opening up the back (aft) edge of the mast in which the mainsail luff rope slides when it is (sail slot) hoisted. Some masts have an external sail track.
Mast Step	The fitting in the bottom of the boat in which the bottom or heel of the mast sits. (The step is on the deck in the boat designs.)
Mast Tangs	Fittings on the mast to which the forestay and shrouds attach.
Mast	The vertical pole or spar that supports the boom and sails.
Masthead	The top of the mast.
On A Tack	A boat is always on one Tack or the other; that is the sail is always on one side or the other.
Outhaul	<p>A line used to haul out the clew or after corner of a sail on the boom.</p> <p>An outhaul is a line which is part of the running rigging of a sailboat, which</p>

	<p>is used to extend a sail, and control the shape of the curve of the foot of the sail. It runs from the clew (the back corner of the sail) to the end of the boom. The line is pulled taut to the appropriate tension (to provide the desired shape to the foot), and then secured to a cleat on the boom.</p> <p>The details vary, but the two most common methods are:</p> <ul style="list-style-type: none"> * A knot, usually a bowline, is tied to a grommet provided for the purpose in the clew of the sail, then fed directly to the cleat. * The line is attached to the boom, lead through the same grommet, and thence to a cleat; this system provides a factor of two mechanical advantage over the previous one. <p>The outhaul, besides simply holding the sail out, is an effective sail shape control. Tightening or slackening the outhaul can flatten or fill out the sail, shift the draft forward or aft, change leech and foot tension, increase or decrease camber.</p>
Overlap	The condition where a line drawn across the transom of the leading overlapped by a middle boat.
Overtaking	Passing another vessel.
Painter	A rope secured in the bow of a small boat, used for tying up or towing.
Pinch	Sailing too close to the wind so that the sails start to luff.
Pintels	Pins which, with gudgeons, make up the hinge assembly for the rudder.
Plane	When a sailboat rises up on its own bow wave and reaches speeds far in excess of those normally associated with its waterline length.
Port Tack	The Tack a boat is sailing on when the wind is coming over the port side.
Port	The left-hand side of the boat as you face the bow.
Privileged Vessel	One that has the right of way.
Puff	A sudden burst of wind stronger than what is blowing at the time.
Pulpit	Metal guardrail at the bow.
Rake	The angle of a vessel's masts from the vertical.
Reaching	Sailing across the wind or any course between close-hauled and running (close, beam, broad). See Wind Clock
Ready About	An expression used to indicate that the boat is about to Tack.
Rigging	A general term applying to all lines, stays and shrouds necessary for spars and sails.
Rudder	A movable flat blade hinged vertically at the transom of a boat as a means of steering. It is controlled by a Tiller or wheel.
Running Rigging	<p>The part of a ship's rigging which is movable and reeves through blocks, such as halyards, sheets, etc.</p> <p>Running rigging is the term for the rigging of a sailing vessel that is used for raising, lowering and controlling the sails - as opposed to the standing rigging, which supports the mast and other spars.</p> <p>Traditionally the running rigging was easily recognized, since for flexibility it was not coated with tar and therefore of a light colour, while the standing rigging was tarred for protection and therefore black or dark in colour. On</p>

	<p>modern vessels, running rigging is likely to be made from nylon and other synthetic fibres, while the standing rigging is frequently made of steel cable, for strength.</p> <p>Some types of running rigging include:</p> <ul style="list-style-type: none"> * halyards, which are used to raise sails * sheets, which control the angle of a sail to the wind * downhauls, which lower a sail or a yard, and can be used to adjust the tension on the luff of a sail * Cunninghams, which tighten the luff of a sail * guys, which control spars * topping lifts, which hold up booms or yards * barber hauls, which adjust the sheeting angle of a foresail (jib) <p>Older ships (particularly square-rigged vessels) required even more running rigging like braces, which were used to adjust the fore and aft angle of a yard and lifts, which adjusted the up and down angle of a yard.</p>
Running	Sailing with the wind coming from behind the boat with the sail out at right angles to the wind. See Wind Clock
Sailing	Using only the wind and water to increase, maintain or decrease speed.
Sailing By The Lee	Sailing on a run with the wind coming over the stern from the same side as the boom (danger of Gybes).
Secure	To make fast; to make safe.
Shackle	A U-shaped piece of iron or steel with eyes in the ends, closed by a shackle in.
Sheet	A line that controls the angle of the sail in its relation to the wind.
Shove Off	To leave; to push a boat away from a pier or vessel's side.
Shrouds	Wire side stays running from the upper part of the mast to both the Starboard and port sides of the boat. The forestay and shrouds form a triangle which supports the mast in an upright position.
Side Slipping	When the boat is moving sideways (to Leeward). This can occur if the centreboard is up.
Sidestay	Shroud or wire on the side of the deck attached from the mast to the gunwale.
Slack	Not fastened; loose. Also, to ease off.
Slot	The gap between the jib and the main sail through which the wind is funnelled.
Spinnaker	A spinnaker is a special type of sail that is designed specifically for sailing downwind (with the wind behind the boat). The spinnaker fills with wind and balloons out in front of the boat when it is deployed, called flying. It is constructed of very lightweight, usually nylon, fabric, and is often brightly coloured. The spinnaker is often called a chute, as it somewhat resembles a parachute in both construction and appearance, or a kite.
Spreaders	Poles used to push the shrouds outboard.
Squall	A sudden and violent gust of wind often accompanied by rain.
Stalling	The turbulent effect of air on the lee side of a sail when trimmed in too far.
Standing Part	The fixed part of a rope--the long end, when tying knots.

Standing Rigging	<p>The part of a ship's rigging which is permanently secured and immovable; e.g. stays, shrouds, etc.</p> <p>On a sailing boat, the standing rigging is that collection of lines which are fixed. Standing rigging includes a forestay, a backstay and the shrouds. On modern yachts, standing rigging is often stainless steel wires or stainless steel rods. Standing rigging is placed under tension to keep the various spars (mast, bowsprit) securely in position.</p> <p>Contrast with running rigging.</p>
Starboard Tack	The Tack a boat is sailing on when the wind is coming over the Starboard side.
Starboard	The right side, facing the bow from aft.
Staying Clear	Avoiding collision by altering course when not the right-of-way boat.
Staus	Rigging that supports the mast, Shrouds.
Stern	The after (back) part of a boat.
Stow	To put in place.
Swamp	To sink by filling with water.
Tack	Lower forward corner of a sail.
Tacking	Coming about; turning the bow through the eye of the wind.
Taut	With no slack; strict as to discipline.
Telltails	Ribbon or yarn strips attached to rigging or sails to indicate wind action or direction.
Thwart	Support for centreboard trunk and hull across the beam at mid length.
Tiller Extension	Hinged extension of the Tiller which allows the skipper to control the Tiller while hiking or sitting forward.
Tiller	A bar used to control the rudder.
Topside	Above the deck.
Transom	The portion of the stern to which the rudder is attached.
Traveller	Line which runs across the transom, and which the mainsheet travels on.
Trim	To sheet in.
Turnbuckle	A metal appliance consisting of a thread and screw capable of being set up or slacked back and used for setting up standing rigging.
Turtle	To tip the boat over so that the mast is pointing to the bottom of the lake.
Underway	Said of a boat moving and under control of the helmsman. Technically, a boat is underway when not aground, at anchor, or made flat to the shore.
Upwind	In the direction from which the wind is coming. A boat sailing upwind is sailing toward the wind.
Veer	A clockwise wind shift.
Weather Helm	When the Tiller has to be held off the centre line and toward the weather side or wind to keep a boat on its course.
Weather Side	The Windward side.
Wind Shadow	The area affected by the turbulent air from a sailboat's sails.
Windward Side	The side of a boat which the wind crosses first.
Windward	The direction from which the wind is coming.