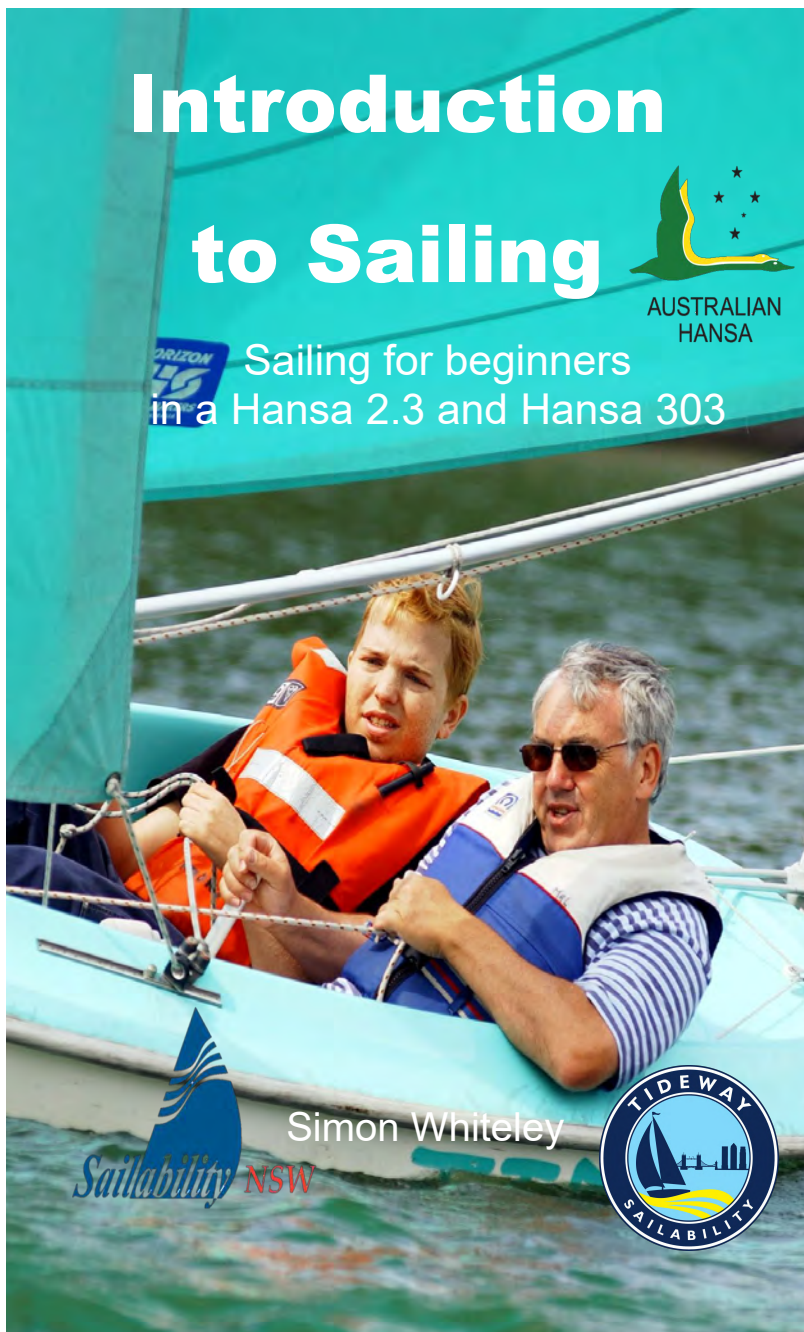


Introduction to Sailing



AUSTRALIAN
HANSA

Sailing for beginners
in a Hansa 2.3 and Hansa 303



Simon Whiteley



First published by Tideway Sailability UK, 2018
This edition published by Sailability NSW, 2021

Copyright @ Sailability NSW

Permission to reproduce any or all of this publication
Should be obtained from Sailability NSW.
www.sailabilityNSW.org.au

ISBN 978-1-64713-001-5

Printed in Australia by Five Senses Education

CONTENTS

Introduction	1
Your first sail	3
1 <i>Clothing and parts of the boat</i>	3
2 <i>Five Rules for your first sail</i>	4
3 <i>First sail clinic</i>	7
4 <i>More simple sailing tips</i>	8
Your next few sails	12
5 <i>Launching the boat</i>	12
6 <i>Preparing the boat before sailing</i>	13
7 <i>Points of sail</i>	14
8 <i>Gybing- turning the boat away from the wind</i>	16
9 <i>Reefing- reducing the sail size when the wind is stronger</i>	17
10 <i>Improving on the Five Rules- some practical exercises</i>	18
11 <i>Improving manoeuvres</i>	21
12 <i>More boaty terms</i>	26
13 <i>Knots and securing the boat</i>	29
14 <i>Avoiding collisions</i>	30
15 <i>Wind strength</i>	33
More advanced sailing	34
16 <i>Sailing theory</i>	34
17 <i>The mainsail outhaul</i>	37
18 <i>Jib sheet tracks (303 only)</i>	38
19 <i>Sailing in strong winds and big gusts</i>	39
20 <i>Tell tales</i>	41
21 <i>Wind shifts, gusts and lulls</i>	44
22 <i>Simple racing</i>	46
23 <i>Glossary</i>	56

© Tideway Sailability 2018

Sailability centres are permitted to reproduce or incorporate the contents in their own documents provided the source is identified, these copyright terms are maintained and any charges do not exceed the cost of printing. For more information and downloads and to make comments and suggestions go to www.sailability-forum.uk.

Introduction

This booklet provides an introduction to sailing, based on two easy to sail boats, the Hansa 2.3 and Hansa 303. These boats were designed for sailors with limited mobility and have become one of the more popular boats used by these sailors around the world.

The boats also provide an easy route into sailing for anyone who wants to start with a stable small sailing dinghy. Everything that you learn on a Hansa will provide a good foundation of sailing knowledge and experience transferable to other sailing boats. Or you can just develop your skills in these boats!



Hansa 2.3 sailing solo

TOP TIP

Hansas have a heavy keel for extra stability and safety. They are designed to be harder to capsize than a conventional dinghy, making them perfect for beginners and less mobile sailors.

The Hansa 2.3 is an ideal boat for beginners and juniors, with just one sail. It can be sailed by one sailor or can take two juniors or one adult and one junior.



Starting young-two sailors in a Hansa 2.3



The Hansa 303 is slightly bigger with two sails and can take one or two sailors, junior or adult.

The words highlighted in **red** are explained in the Glossary on page 56.

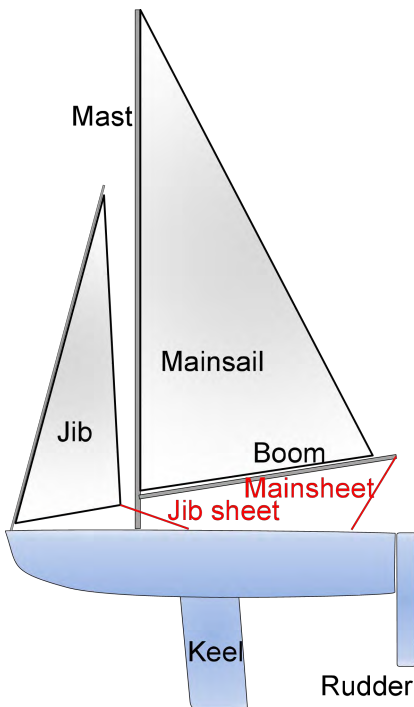


Your first sail

1 Clothing and parts of the boat

The only special clothing you will need to sail one of these boats is a **lifejacket** or **buoyancy aid**. If you can swim, a buoyancy aid should be sufficient, but if you can't, or you are feeling nervous you may prefer the extra flotation in a lifejacket.

Waterproofs- the Hansa boats are designed to be very hard to capsize, unlike conventional sailing dinghies so there is no need for wetsuits. However on windier days there can be splashes and you may get some water in the bottom of the boat. So if you don't want to get a bit wet, some lightweight waterproofs are good, and will also keep you dry if there is a shower. You might want to bring a spare set of clothes. It is always colder on the water! And on a sunny day, the reflection on the water can be dazzling or cause sunburn. A hat for warmth or for protection from the sun is a good idea.



Key parts of the boat for your first sail

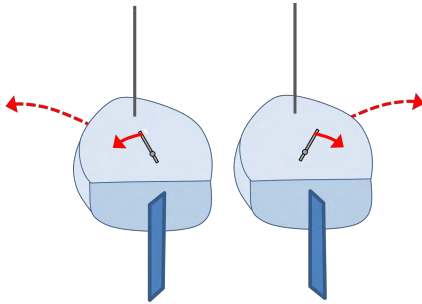
The boat is driven by the sails- the **mainsail** and the smaller **jib** in front. The sails are attached to the **masts**. The mainsail is stretched out by the **boom**.

The mainsail and the jib are pulled in and out by two ropes called 'sheets'- they are the **mainsheet** and the **jib sheet**. The sheets are secured to the boat by **cleats** which grip the rope.

The boat is steered by the **rudder**.

The **keel** keeps the boat stable and stops the boat drifting sideways under pressure from the wind.

2 Five Rules for your first sail

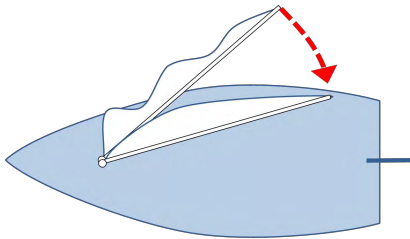


*Steering-
left to go left, right to go right*

1

Steering the boat

To change direction push the joystick in the direction you want the boat to sail. Left to go left, right to go right.

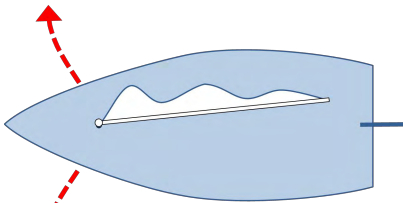


*Flappy sail is an unhappy sail.
Pull the mainsheet (rope) in!*

2

If the sail is flapping

Pull the mainsheet in (the main rope that controls the sail). Pull it just far enough until the sail stops flapping.

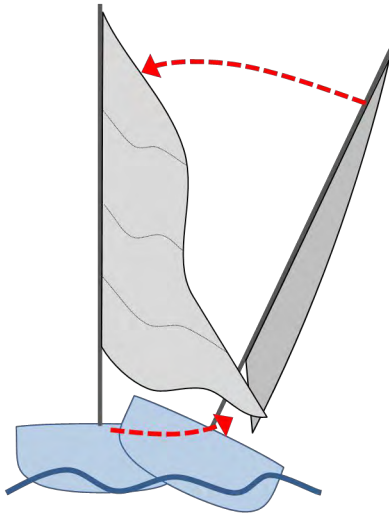


Still flapping? Turn left or right

3

If the sail is pulled tight in, and it is still flapping

To make the sail stop flapping, you need to turn the boat to the left or right. Turn enough until the sail stops flapping.

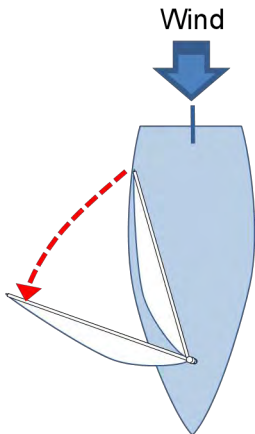


*Leaning too far?
Let go of the mainsheet*

4

If the boat leans over too far

Let out the mainsheet until the sail starts flapping. "Too far" means when you are not comfortable, or if water is coming into the boat!



*Wind behind you-
let the sail out*

5

When the wind is coming from behind you, or over your shoulder

Let the sail out, up to 90 degrees.

TOP TIP

Hold the mainsheet in your hand all the time. Be prepared to let the rope out when you start to lean too far.

To begin with, don't use the cleat to secure the mainsheet- use your hand instead.



Sails not flapping, sailing nicely

Wind behind- sails let out

That is all you need for your first sail.

Later on we will explain how to refine this. This boat is leaning and the sails are balanced.



3 First sail clinic

Here are some common problems and what to do about them.

My steering isn't working.

You need to be moving. Get some speed before you try to turn.

The boat keeps tipping over!

Let the mainsheet out until the sail flaps- that will reduce the power in the sail.

I can't tell what the wind is doing.

Look at the wind indicator at the top of the mast- the stick bit points where the wind is coming from.
Or feel the wind on your face.

How do I know if the sail is set right?

Let the sail out until it starts to flap. Then pull it in until it just stops flapping. Perfect!



Oops- flappy sail.....



That's better!

4 More simple sailing tips

Where is the wind coming from?

Sailors always need to know where the wind is coming from, and have various methods for working it out:

- Feeling the wind on the face and ears is the quickest and easiest, with practice. If you aren't sure, turn your face from side to side until you can feel the wind equally on both ears.
- Mast head wind indicator
- Other sailing boats- if they are sailing well, you can work out where the wind is coming from
- Flags and surrounding trees
- Waves on the water



Wind indicator Flag
Two methods to check wind direction

The wind is always changing direction, particularly if you sail in more enclosed water with trees or buildings. You will need to use all these methods at some point, and they all get easier with practice.

If it is not too cold or wet, it is better not to sail with a hood so that your ears can feel the wind, particularly if you are sailing with the wind behind you.



Looking for the wind.

The slightest wind changes the look of the water, from mirror smooth to small ruffles on the water- which show as darker patches. Generally this will be away from any buildings or trees that are blocking the wind.

When the wind is light, try to sail where the wind is a bit stronger- the boat will respond to the steering better and you will get a better feel for what effect you are having.

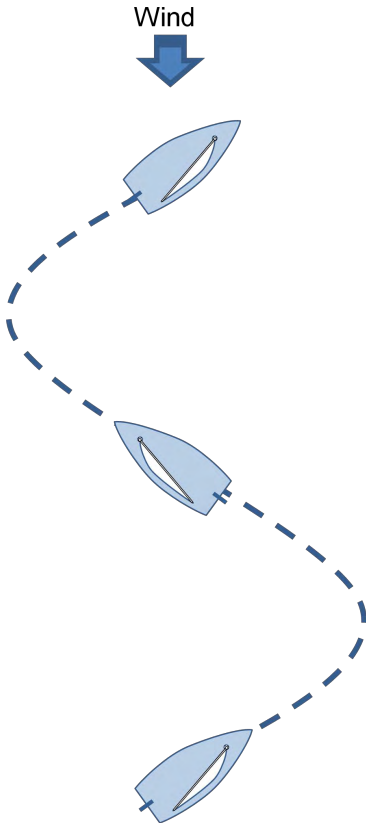


Sail to where the wind is- there is better wind in the middle of the photograph- none at the back

Practice: Looking for the wind

Look at the different patterns on the water and feel the strength of the wind on your face. Next time you will remember how they are related.

Tacking- sailing towards the wind



Tacking- boats sail towards the wind in a series of zigzags

Make sure the sail is kept tight in and keep the boat turning until the wind is properly on the new side, and the sail stops flapping. Then straighten the steering, with the joystick in the middle.

Sailing boats can't sail directly into the wind- the sail flaps and the boat stops. Boats can sail at an angle of about 45 degrees to where the wind is coming from. The sail needs to be tight in, almost along the centre of the boat.

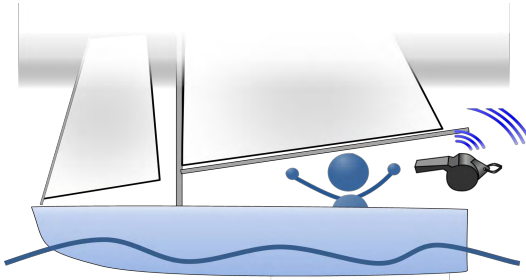
Turning the boat towards the wind, until the wind is on the opposite side of the boat, is called **tacking**. The wind will be on alternating sides of the boat, with the boat turning about 90 degrees to the wind.

The boat follows a zig-zag course towards the wind. The sail will start to flap as the boat turns towards the wind, then the sail will swing across to the other side of the boat.



A 303 sailing towards the wind

Attracting attention



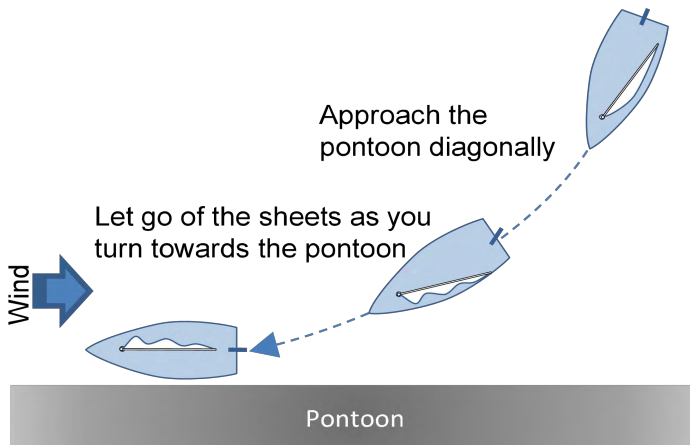
Attract attention by waving both arms, or blowing a whistle

If you need help, wave both arms in the air- a one arm wave might be taken for just a friendly greeting! If you have a whistle, use it.

The safety boat will come and give you a hand.

Returning to the pontoon

Sailing boats don't have brakes to slow down, so they have to use wind and water resistance. To return to the **pontoon** (the floating platform where you started your sail) and stop without assistance, the boat needs to be facing into the wind with the sails flapping.



Return to the pontoon at an angle towards the wind

Keep steering until you are alongside. Stay in the boat until you are tied up, keeping hands clear of the edges.

Well done, you have finished your first sail!

Your next few sails

5 Launching the boat



Backwards down the slipway

Most places which sail Hansa boats will launch from a **slipway** and tie up to a floating pontoon for rigging the boat before sailing.

Always lower a boat down the slipway backwards. Check that there are no boats or people lower down. The boats are quite heavy so two people is a good idea. Put the launching trolley just far enough into the water for the boat to float.



Tie up front and back to the cleats fixed on the pontoon

Tie the boat to the pontoon with the front of the boat (**bow**) pointing towards where the wind is coming from using one of the knots shown on page 29. If you aren't sure which way to point, look at the other boats tied up- they will probably have got it right. It is best to use two ropes, one leading a bit forward from the front of the boat, one holding the back in close to the pontoon.

6 Preparing the boat before sailing

To prepare the boat for sailing you will need to:



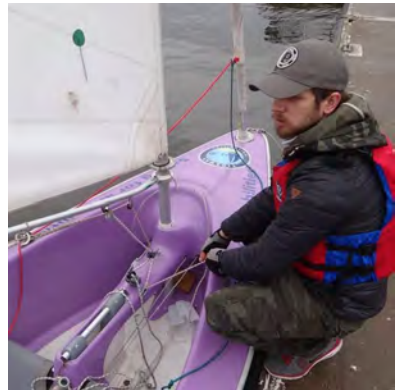
Lower the keel, use a C Crane or Keel lifter (if available). This is heavy - only do this after you have been trained in how to do it. Insert the long pin through the handle to hold the keel in place.



Insert the rudder into the sleeve. The rudder needs to be with the more rounded edge facing to the bow (Fat edge Forward).



Fit the front end of the boom (with the plastic jaws) onto the drum just below the sail. Check the lines are not twisted.



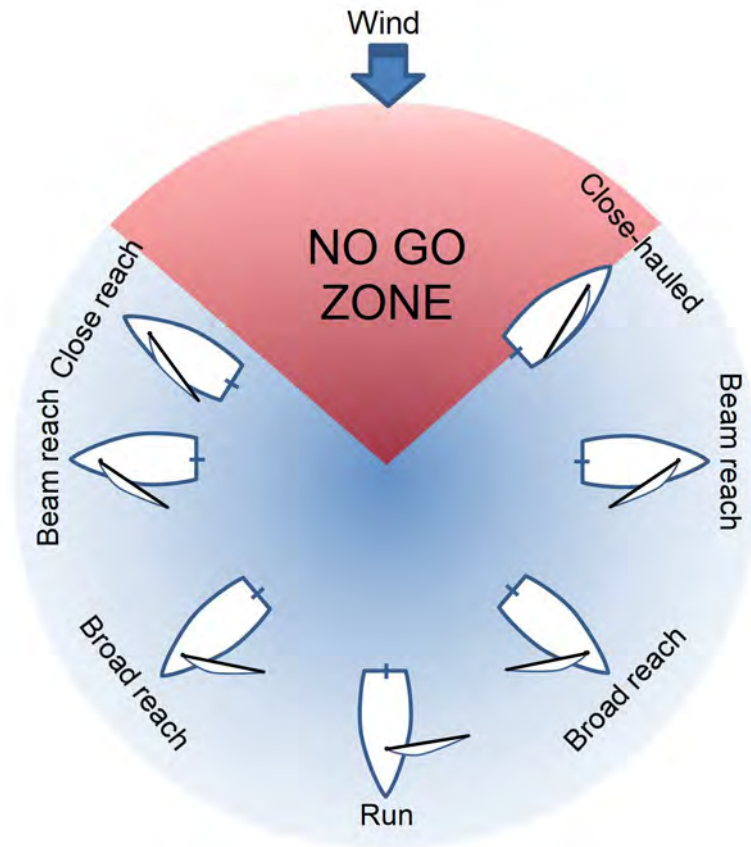
Unwrap the sail and fix the bottom corner to the shackle at the rear of the boom. Tighten the **outhaul** to stretch the bottom of the mainsail.

You are ready to go sailing!

7 Points of sail

Sailors refer to **points of sail** to describe:

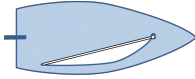
- how the boat is angled to the wind
- how the sail is set (pulled in tight or let out) to catch more wind.



Points of sail- as the boat sails on a different angle to the wind, you change the angle of the sail to match

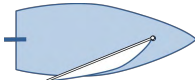
The **No Go zone** is the area about 45 degrees either side of the wind direction where the boat will not sail.

Sail setting for the points of sail



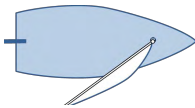
Close-hauled

Close-hauled is sailing as close to the wind as possible, with the sail pulled (“hauled”) in close to the centre of the boat. Used to sail towards where the wind is coming from, or **upwind** as sailors call it.



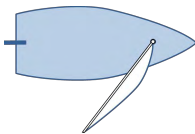
Close reach

Close reach is in between close-hauled and a reach. The sails are let out slightly compared to their close-hauled position.



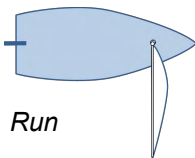
Beam reach

Beam reach is sailing across the wind (with the wind at right angles to the boat). The sail is let out to about 45 degrees from the centre of the boat.



Broad reach

Broad reach is in between a reach and a run. To adjust the sail for these points of sail, let it out until it just starts to flap, then pull it in a little bit.



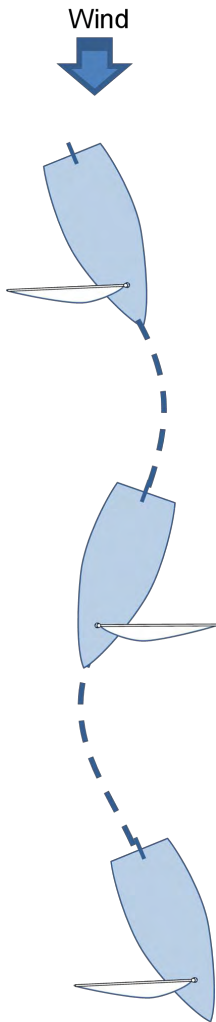
Run

Run is sailing with the wind behind the boat, or sailing **downwind** as sailors call it. The sail is let out until it is at 90 degrees to the boat, to catch as much wind as possible.

Practice: memorising the points of sail

Out on the water, ask yourself “what point of sail am I on?”

8 Gybing- turning the boat away from the wind



Gybing- turning the boat when the wind is behind you

Gybing is the same as tacking (see page 10), except the boat is facing away from the wind. The boat turns so the wind is coming from the opposite side. Because the wind is blowing into the sail throughout, the turn can be through a much smaller angle than the 90 degree turn needed for tacking. The sail doesn't flap and the boom swings across much faster (keep your head below the boom level if you are tall).

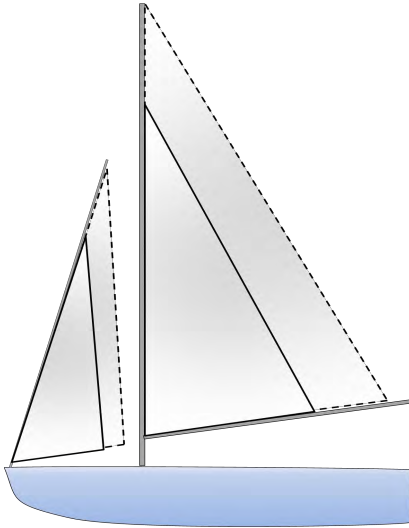
The boat also turns more quickly than when tacking. Watch where you are going!

On a run, it is harder to tell exactly where the wind is coming from. The apparent strength of the wind is reduced by the speed at which the boat is moving away from the wind. Sailors call this **apparent wind**. You will need to concentrate harder to work out where the wind is coming from.

TOP TIP

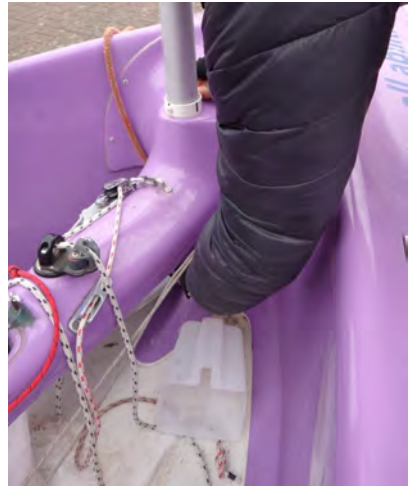
*Use the backs of your ears to work out where the wind is coming from when sailing downwind.
Better not wear a hood.*

9 Reefing- reducing the sail size when the wind is stronger



Reefing- reducing the size of the sails

In stronger winds, or with a junior or lighter sailor, you may want to reduce the sail size, which is called **reefing**. This is done by wrapping the sail round the mast clockwise with one, two or three wraps.



Tighten the mast collar (underneath the console) to stop the mast rotating



Put the reefing line in its cleat

After reefing, make sure you tighten the outhaul (see page 13). The sail should have a gentle curve, about 4 inches (10 cm) deep in the middle. In strong winds a bit less, in light winds a bit more, up to about 6 inches. In fact it is a good idea to check this frequently because it can slip- make sure you know how to tighten it.

For the first few sails ask someone to check that you have done the reefing right.

10 Improving on the Five Rules- some practical exercises

Steering

The steering on the Hansa is quite sensitive. Try to sail in a straight line, with just small movements on the joystick. In a gust of wind, the boat will want to turn towards where the wind is coming from. With practice you can anticipate that as you feel the gust on your face.

Big movements of the joystick will slow the boat down- the rudder acts as a brake in the water.

Flapping sail- pull in the mainsheet

The ideal sail position is when the sail just stops flapping. The only way to know whether you have achieved that is by letting it out until it starts to flap, then pulling it in just enough so it stops flapping.

Practice: Watch the front of the mainsail

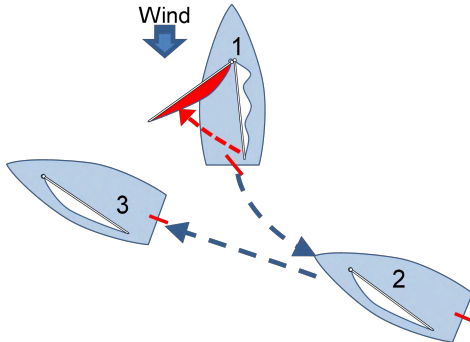
As you let out the mainsail, watch the front of the sail- as soon as you see a bulge in the sail towards to you, pull it in until the bulge just disappears- maybe only an inch or two of rope.

Perfect sail setting!

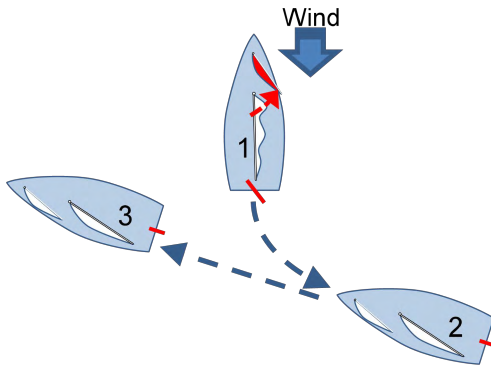


Flapping sail when the mainsheet is fully in.

You are pointing straight towards the wind. You need to turn left or right, but probably you are not moving. You are **in irons** as sailors call it, or in the No Go zone (see page 14). The wind will probably blow the boat sideways after a bit, but you can speed things up by using the sails.



Getting out of irons by backing the mainsail. Push the boom out and turn the joystick away from the boom.



Backing the jib in a 303- hold the jib out to the side of the boat and turn the joystick towards the jib

Backing the mainsail. If you can reach, push the boom away from you, on the side nearest the wind if there is one. The wind will push into the sail, and the boat will start to move backwards. As there is water moving over the rudder, the rudder will now work. Turn the joystick away from the boom to help the boat turn away from the wind. When the boat has turned enough and you feel the wind coming a bit from the side, let go of the boom and pull in the sheet.

Backing the jib. The wind will push into the sail. When the boat has turned enough, change the jib to the other side.

Practice: Stopping and starting

Approach a buoy, aiming to stop right by it, head to wind, sail flapping. Then get out of irons.

Boat leans too much

If you let go of the mainsheet completely, the boat will stop quite quickly while it comes upright. In practice letting out the mainsheet by 6 inches (15 cm) or so should be enough in most gusts to stop the boat leaning too far, and the boat may well keep going at full speed as well.



Easing the mainsheet...



That's better!



Holding the mainsheet in the same hand as the joystick

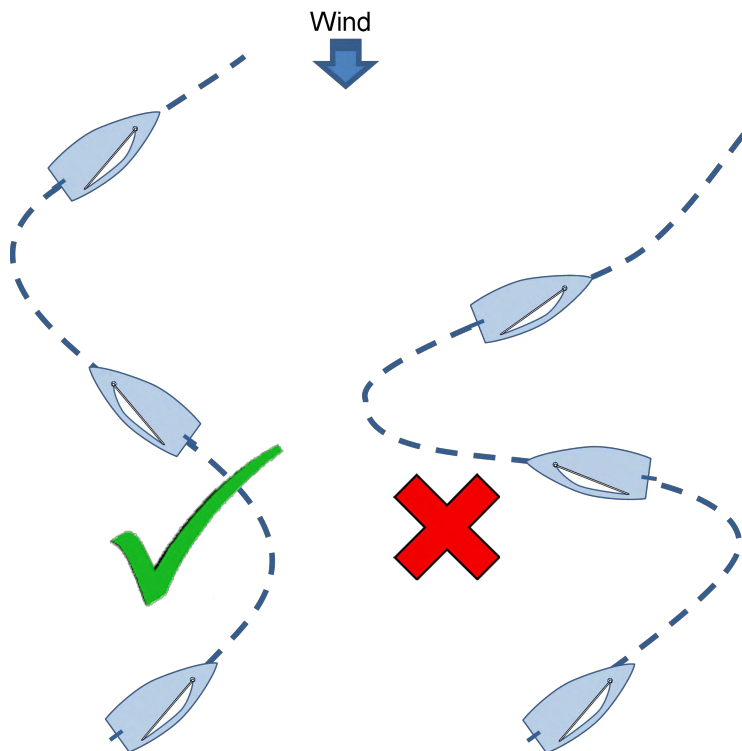
In strong winds, never use the cleat (see page 3)- hold the mainsheet in your hand. To pull in the mainsheet without using the cleat, trap the sheet using the index finger of the hand which is steering, freeing your other hand to pull in the mainsheet.

Watch the front of the sail (the luff) for the bubble towards you- the bigger the bubble, the less power there is in the sail and the less you will lean. You can sail happily with a bubble in the sail to limit the lean.

11 Improving manoeuvres

Tacking- how much to turn?

When tacking, it is very easy to turn too far- all it needs is a 90 degree turn. Before you start the turn, select a spot on the shore that is at the right angle to your current course, and then aim towards that. Also watch the sail and stop your turn as soon as the sail stops flapping.

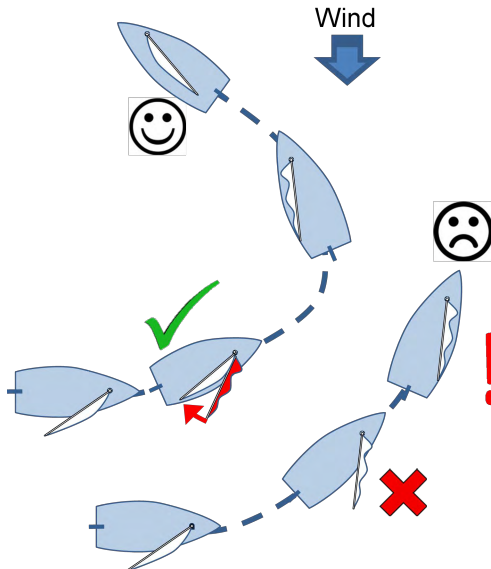


Tacking- aim to tack by turning about 90 degrees each time

In practice you will almost certainly turn a bit too far, so prepare to turn a bit back towards the wind. It is actually good practice to turn a bit far until the boat has picked up speed again- but only by 10 degrees or so!

Tacking from a reach

If you start the turn when you are further away from the wind than close-hauled, two things may happen:



The sail may not be fully in when you start to tack (perhaps you are actually on a reach). You need to pull the sail in as you start the turn in order to keep the boat moving through the turn.

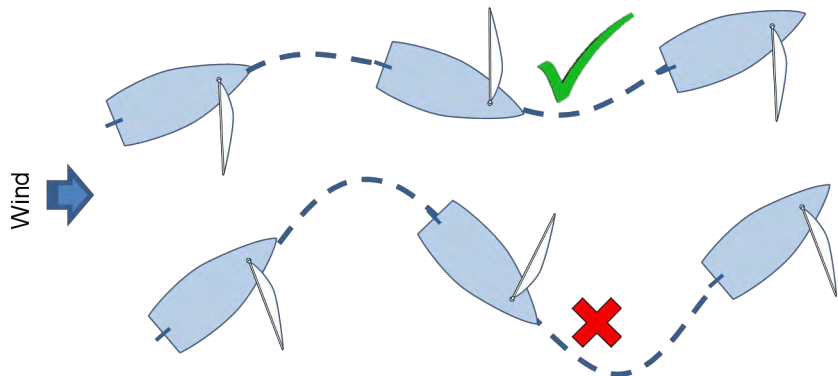
You will need to turn through more than 90 degrees to complete the tack. With the sail pulled fully in as you turn, watch the sail until it just stops flapping then stop turning.

Starting a tack from a reach, you need to pull in the mainsheet to keep the power on



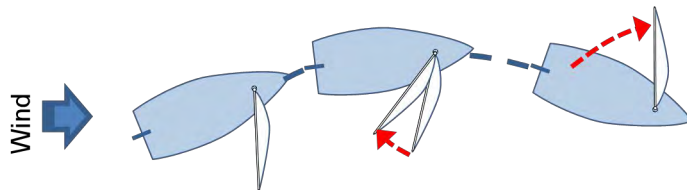
Hansa 303 sailing in good breeze with two crew, note to mainsail bubble de powering the sail.

Gybing- limiting the turn



Gybe through as small an angle as you can

Practice doing the smallest course change you can. It is easy to over-steer, like a tack, in fact even more so.



Pull the mainsheet in to assist the gybe- remember to let it out again!

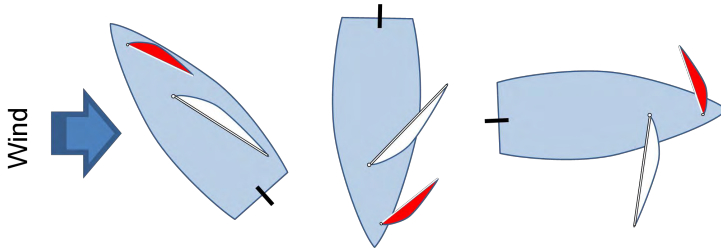
Controlling the gybe- pull in the mainsheet as you start the turn to help the boom to come across. Remember to let the sheet out again immediately after the gybe.

TOP TIP

Gybing in strong winds can be "interesting"- see page 39. You may want to tack instead.

Using the jib

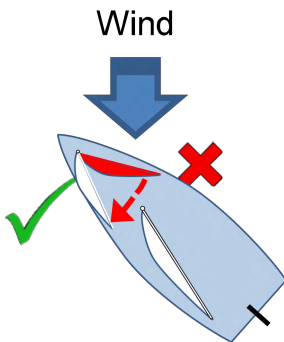
The Hansa 303 is fitted with a jib. The jib operates like the mainsail but it has two separate sheets, one leading to each side of the boat, and these need to let out and pulled in for every tack and gybe.



Jib setting on different points of sail- matching the mainsail

Set the sail to match the mainsail- tight in for close-hauled (with a slight curve in the foot of the sail). Further out for a reach (until the sail is just not flapping). On a run the jib may be blanketed by the mainsail- if you are going exactly downwind you should be able to set the sail on the opposite side to the boom (**goose-winged**). You will need to steer very precisely to keep both sails set goose-winged.

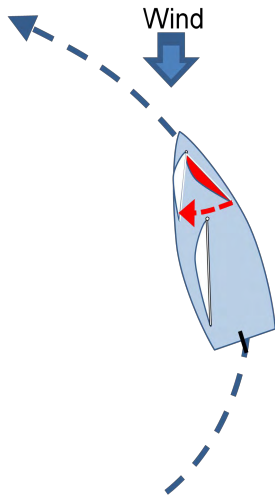
To tack with the jib, let the jib sheet go as you start the turn, and pull in on the opposite side as soon as the wind is on the new side of the boat- the wind will blow the sail across.



Switch the jib across when you tack



Teamwork- crew handling the jib, person steering holding the mainsheet



You can speed up the tack by delaying letting the old jib sheet go until the wind is actually pushing on the outside of the jib. Easier to do with two people in the boat but worth practising. You can also use this technique to help get out of irons (see page 19)- pull the jib to the opposite side to where you are pushing the boom (called “backing the jib”). This will help blow the bow round until you are out of the no go zone.

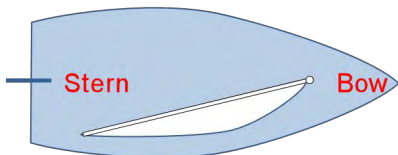
Speed up your tacks by switching the jib just after the boat is past head to wind



Are you as happy?

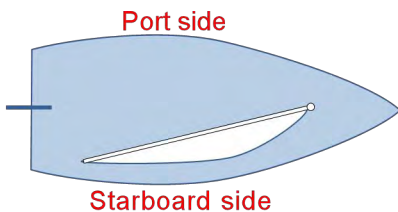
12 More boaty terms

You may have noticed that sailing has a language all its own. The terms have precise meanings and it is worth trying to remember them. Here are a few more.



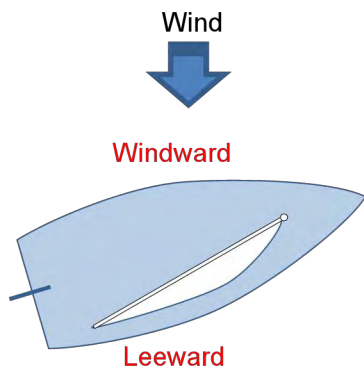
The **bow** is the front of the boat.

The **stern** is the back of the boat.



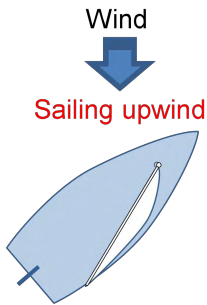
Port is the left side of the boat looking towards the bow.

Starboard is the right side.

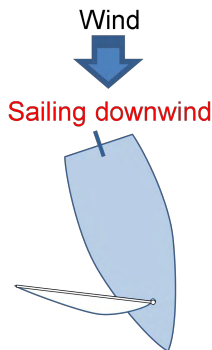


Windward- the side of the boat nearer the wind is the windward side. A boat is to windward of another boat if it is nearer the wind.

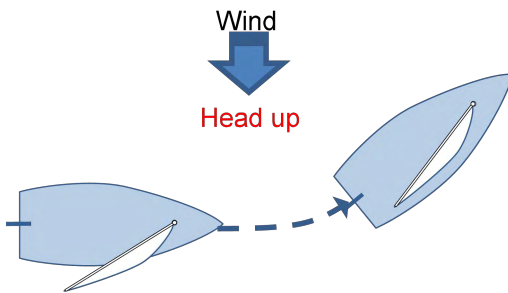
Leeward- the side of the boat further from the wind. A boat is to leeward of another boat if it is further away from the wind.



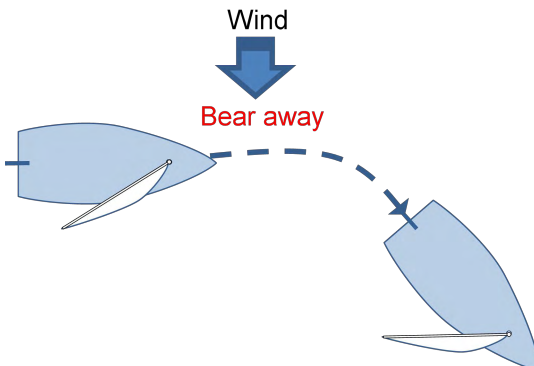
Sailing **upwind**- moving towards where the wind is coming from. You are sailing close-hauled or on a close reach- see page 15.



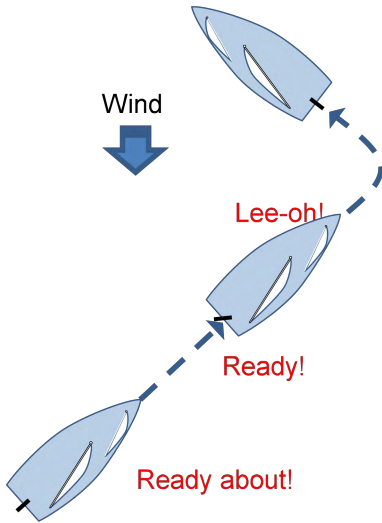
Sailing **downwind**- moving away from where the wind is coming from. You are sailing on a broad reach or a run- see page 15.



To **head up**- to steer the boat nearer to the wind (the "head" or bow of the boat is turned towards the wind). Remember to pull in the sheet as you turn.



To **bear away**- to steer the boat further away from the wind. Remember to let the sheet out.

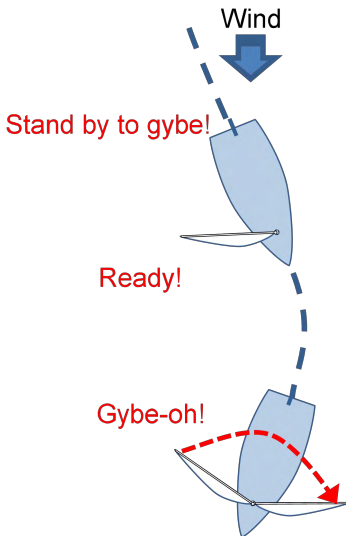


Preparing to tack- how to warn the crew

“Ready about- Lee-oh”

“Ready about” is used to warn the crew that you are about to tack. The crew should respond with “Ready” when they are ready to let the jib sheet off.

When the person steering begins the tack, they say “Lee-oh”. The crew lets off the jib sheet and pulls it in on the opposite side



Preparing to gybe- how to warn the crew

“Stand by to gybe- Gybe-oh!”

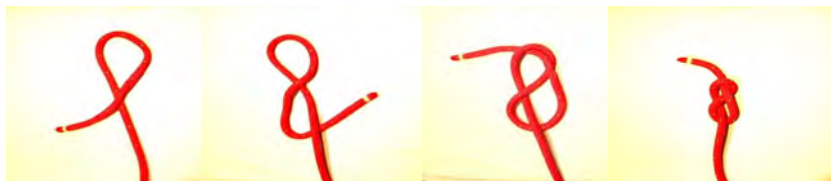
“Stand by to gybe” is used to warn the crew that you are about to gybe. As well as encouraging the crew to get ready with the jib sheets, it also warns the crew that the boom will swing across quickly. The crew replies “Ready”.

The Hansa boats have a high boom position so there should be no need to duck. But the boom can swing across suddenly when the wind catches the back of the sail.

The person steering should call “Gybe-oh” as the boom swings across, which should be after the turn has started.

13 Knots and securing the boat

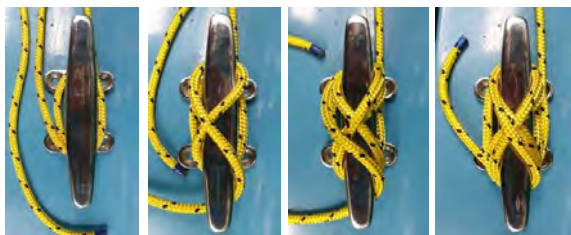
Sailors use special knots that are secure but can be undone when required. There are three that you should learn to begin with.



The figure of eight knot stops the end of a rope from running out all the way through a cleat and is mostly used in the ends of sheets. The



The round turn and two half hitches is used to tie a rope to a ring or a bar. The round turn makes the knot appear to be turned round the ring twice, and is important to allow the knot to be undone when necessary.



Most pontoons have cleats (metal fasteners) to help secure the boat to the pontoon (see photo on page 12). To use a cleat, **wrap the line once round the outside of the cleat**, then do two figure of eights with the rope over the top of the cleat. Then wrap the rope once more fully round the outside of the cleat.

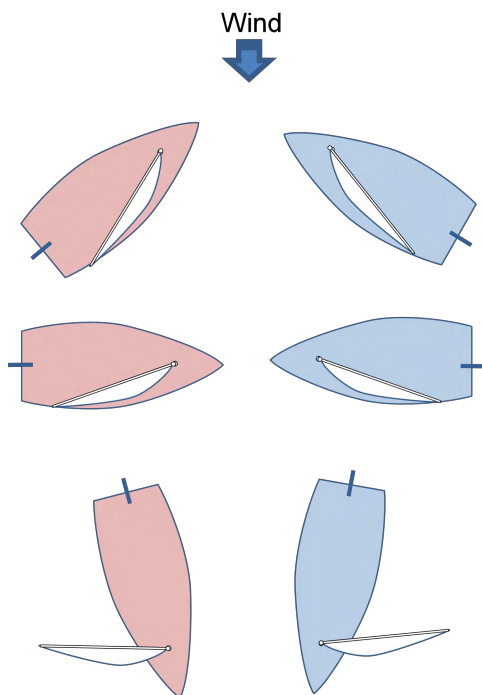
14 Avoiding collisions

Always look where you are going, particularly if you are about to change direction. Try to anticipate what other boats might do, particularly near obstacles or busy areas like pontoons. If in doubt, tell the other boat what you intend to do, or ask what they intend to do.

Every boat is responsible for avoiding collisions. But generally one boat needs to change course to avoid a collision, while the other boat keeps its course. To work out which boat you are, first you need to know what **tack** you are on. This is indicated by the side of the boat that the wind is on, or the side opposite the boom.

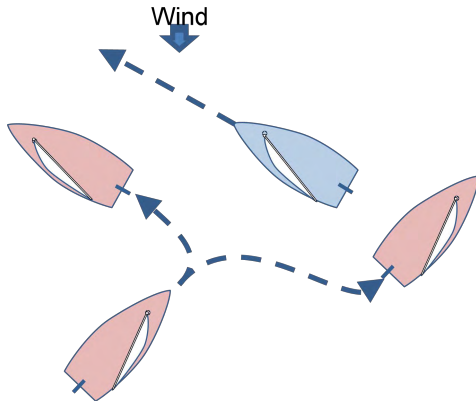
Port tack has the wind on the port side of the boat.

Starboard tack has the wind on the starboard side of the boat.



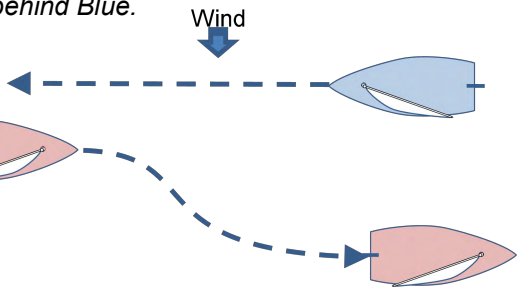
Which tack am I on? The side of the boat the wind is on tells you. Sailing downwind, it is the side opposite the boom

Port tack gives way to starboard tack

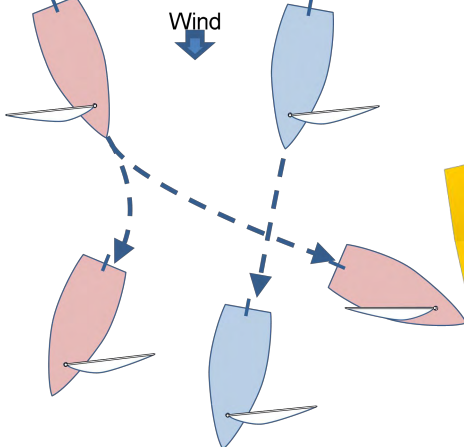


Above- Red on port tack must give way to Blue on starboard tack. It keeps clear by tacking or by steering behind Blue. Blue must stand on

If you are on port tack, and another boat is on starboard tack, and there is a risk of a collision, you should change course to **keep clear** until the risk of collision has passed. The boat on starboard tack should keep going on a straight course (**stand on**) until the risk of collision has passed.



Above- Red on port tack steers to leave Blue on its port side

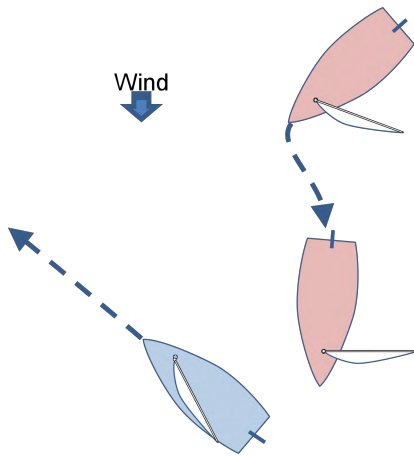


Red gybes to keep clear of Blue, or crosses behind it

TOP TIP

If you are on starboard tack and you are not sure whether the port tack boat has seen you, a cry of "Starboard!" is the conventional warning- loud is good!

Windward boat gives way to leeward boat

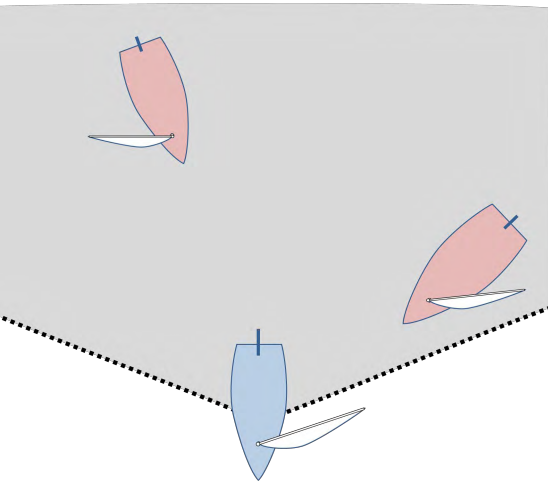


Red as windward boat keeps clear by steering behind Blue, the leeward boat

If both boats are on the same tack, the **windward boat** (the boat which is closer to where the wind is coming from) keeps clear.

The **leeward boat** (the boat further away from the wind) must stand on until the risk of collision has passed.

Overtaking boat keeps clear



Both Reds are overtaking Blue because they are approaching in the shaded area. They must keep clear by tacking or steering behind Blue.

Overtaking boat is a boat approaching another boat in the shaded area. If you are overtaking another boat, you must keep clear while overtaking.

Remember the other boat may not even know you are there, so warn them you are overtaking as they should maintain their course. (For the relevant rule when racing see page 46).

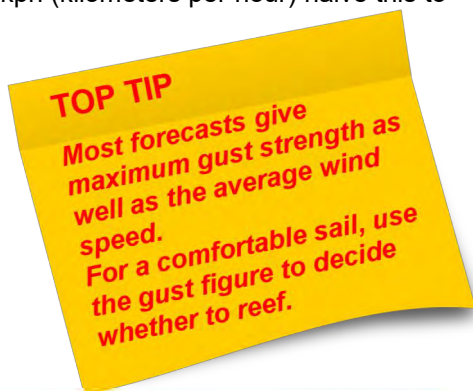
15 Wind strength

Every day's sailing is a bit different from every other day, and the main reason is the variation in the wind strength. It is worth getting a local weather forecast so you know what to expect. For sailors, the wind speed is the important part of the forecast, including the speed of gusts.

Less than 5mph	A peaceful sail, or even a drift- just enjoy being out on the water!
5-10knots	Ideal for beginners or the less confident- enough wind to see the effect of what you are doing
10-15knots	Beginners will want to reef. Perfect sailing for the more confident
15-25knots	Advanced sailors are enjoying themselves. Beginners will have a big reef, or leave it for another day!
Over 25knots	Only for more advanced sailors- good reactions are needed to keep the boat dry!

Sailing weather forecasts give wind strengths in knots (nautical miles per hour). Other forecasts use kph (kilometers per hour) halve this to get knots.

English marine forecasts, such as the Shipping Forecast, use the Beaufort Scale of wind forces from Force 1 (Light air) to Force 9 (Strong gale)- the practical upper limit for a Hansa boat is Force 5 (fresh breeze).



Practice: Judging the wind strength from the waves

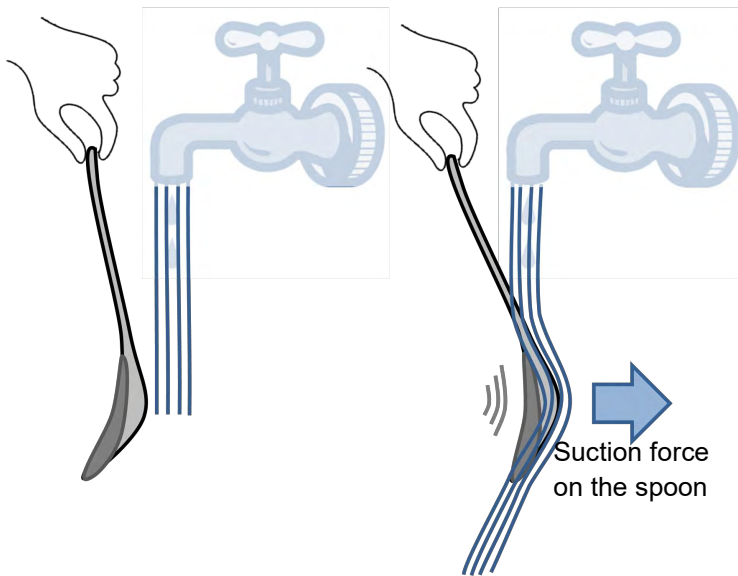
Find out what the wind strength is and look at the patterns on the water- with practice you will learn to judge the wind strength with your eyes!

More advanced sailing

16 Sailing theory

Sails work by suction, at least when going upwind. In fact, it is more accurate to say that the wind is sucking a sailing boat along than to say it is blowing the boat.

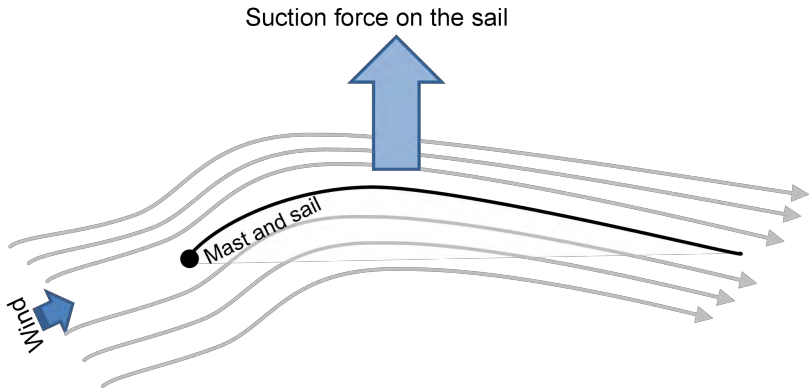
You can test this with a spoon and a running tap. Hold the spoon lightly between your fingers- as soon as the back of the spoon touches the water stream, it is sucked further into it.



The water stream passing over the curve of the spoon sucks the spoon towards the tap

Practice: Why the curve of the sail matters

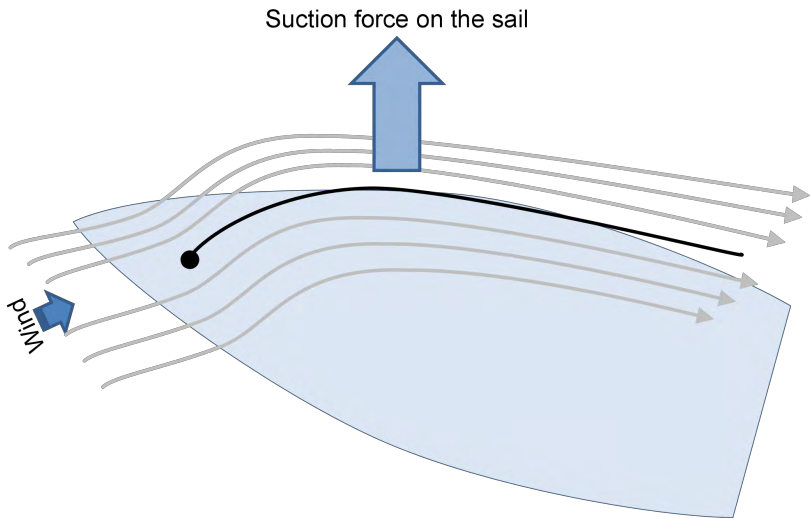
Compare the effect of the water stream using a spoon and a table knife. The flat blade of the knife creates no suction force.



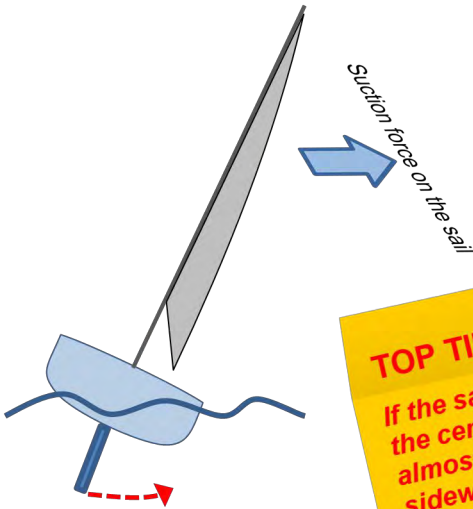
The wind passing over the curve of the sail has the same effect as the water passing over the curve of the spoon

Air is a fluid, just a very light one. So the wind passing over the sails is creating a suction force, just like the water creating the force on the spoon. The force is roughly at right angles to the sail.

When we attach a boat to the sail, the suction force pulls the boat in the direction of the arrow.

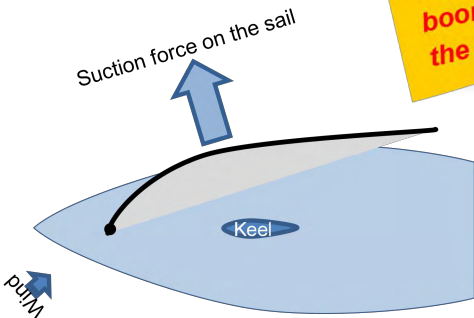


The boat is attached to the sail and is pulled in the direction of the arrow



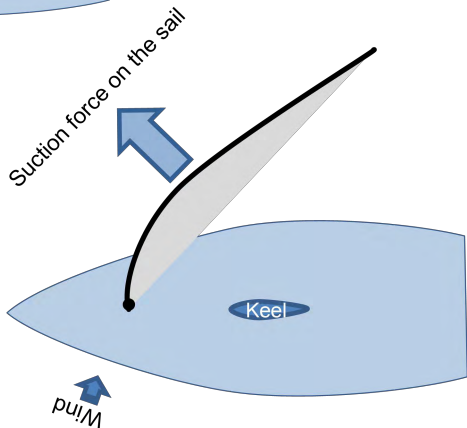
The keel stops the side force, and its weight acts against the boat leaning over.

TOP TIP
 If the sail is pulled right in to the centre line of the boat, almost all of the force points sideways- the boat goes very slowly and leans over.
 Try not to do this! Angle the boom towards the corner of the boat.

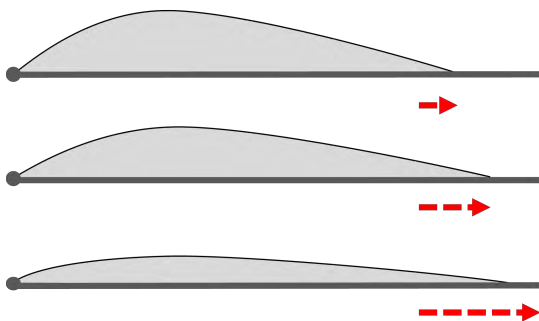


When the sail is pulled in close, the force points mostly sideways and a bit forwards.

With the sail let out for a reach, more of the suction force points forward. You go faster and lean over less.



17 The mainsail outhaul



The outhaul pulls the bottom of the sail, reducing the amount of curve in the sail



2-4in/ 5-10cm

As a rough guide, leave this gap between the boom and the bottom of the sail

We know the sail needs to be curved, but how much curve is good? And how do you set it?

The **outhaul** (see page 13) is the rope that stretches out the bottom of the mainsail along the boom. Because the sail is only attached at the bottom corners, pulling this rope affects how much curve the sail has in it.

TOP TIP

On windy days, or if you are just over-powered, tighten the outhaul. Let the mainsheet out first- the sail needs to be flapping. Check the curve in the sail regularly- the outhaul can slip.

Practice: Adjusting the outhaul

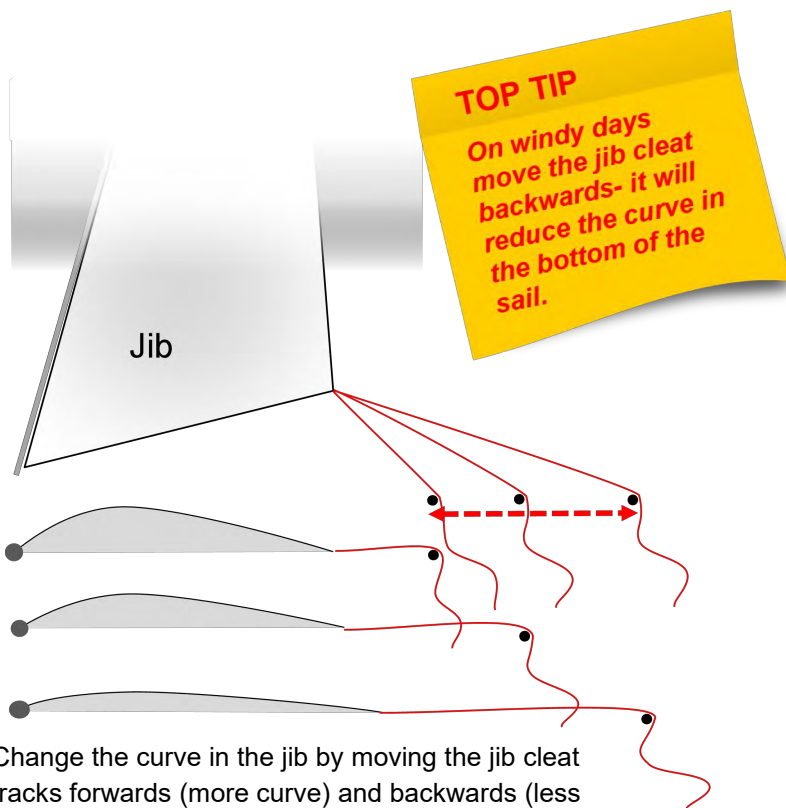
Try adjusting the outhaul on the water and feel what effect it has on how well the boat sails. There isn't a firm rule so you will need to experiment.

18 Jib sheet tracks (303 only)



Jib sheet cleat and track- lift the pin to slide the cleat along the track

The curve in the jib is set by moving the jib tracks forward and backwards. There isn't a boom to measure the amount of curve, so you will have to do this by eye. You want a consistent amount of curve all the way up the jib- you can see this more easily when the jib is sheeted in for close-hauled sailing and you are sitting on the leeward side of the boat.



Change the curve in the jib by moving the jib cleat tracks forwards (more curve) and backwards (less curve).

19 Sailing in strong winds and big gusts



The mainsail and the jib can be reduced in size (reefed) in stronger winds (see page 17). But sometimes every sailor gets caught out with more sail than they want. The 2.3 and 303 can be reefed on the water but sometimes you just want to know how to get back to the pontoon safely, or ride out a big gust. Here are some things to do.

A reefed 303 with the jib pulling and the mainsail let out a bit to keep the boat level



More reefing in Windy Wellington New Zealand

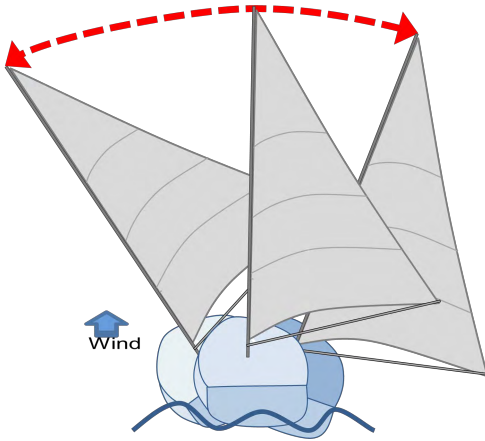
TOP TIP

Watch the water for the gusts- dark ruffled patches on the water. Ask your crew to warn you if you know the gust is coming, you will be prepared for it
Uncleat the mainsheet and hold it in your hand.

Practice: Strong wind sailing

In a Hansa 303, sail on a close reach with the jib properly set, but the mainsail set a bit loose and flappy. The boat will sail quite happily like this.

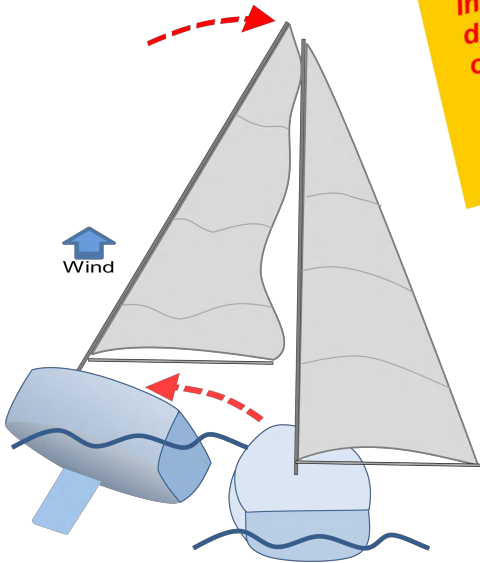
In a Hansa 2.3, sail with a bulge towards you at the front of the sail- this has the same effect.



A death roll- downwind the boat rolls sideways quite sharply. In strong winds it is better not to sail straight downwind

In strong winds, sailing on a run (straight downwind) can lead to a **death roll** – the boat rolling from side to side. To counteract the roll, try to steer the boat in the direction of each roll- so that the boat is moving towards a point underneath the tip of the mast, although this is not easy.

Better to sail on a broad reach than a run.



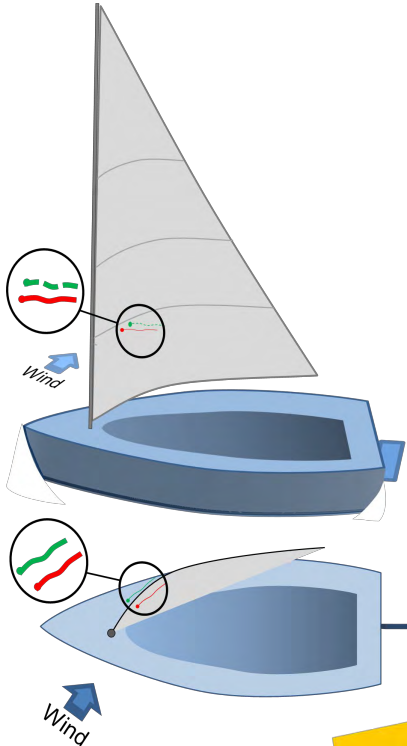
A broach- the boat swerves and leans over sharply. Almost invariably wet! Time to reef

A **broach** is when the boat swerves and leans over sharply, usually sailing downwind in strong winds. Let go of the mainsheet. The sail will flap. Allow the boat to steer itself. You may well find water has come into the boat.

20 Tell tales

The hardest part of learning to sail is setting the sail just right for the wind direction and the course you want to steer. We have described two techniques so far:

- if the sail is flapping you need to do something (page 18)
- looking out for an inward bubble in the front of the sail (page 20).



Both tell tales streaming horizontally- sail is set correctly

There is a more refined technique, using the bits of wool stuck on to the front of the jib and mainsail. These are called **tell tales**, because they tell you what the wind is doing in the sail. Typically the tell tale on the port (left) side of the sail is coloured red, and the starboard (right) one is green.

The ideal is for the bits of wool on both sides of the sail to be streaming horizontally. The tell tales only work between close-hauled (sails fully in) and a broad reach, when the wind is blowing on both sides of the sail.

TOP TIP

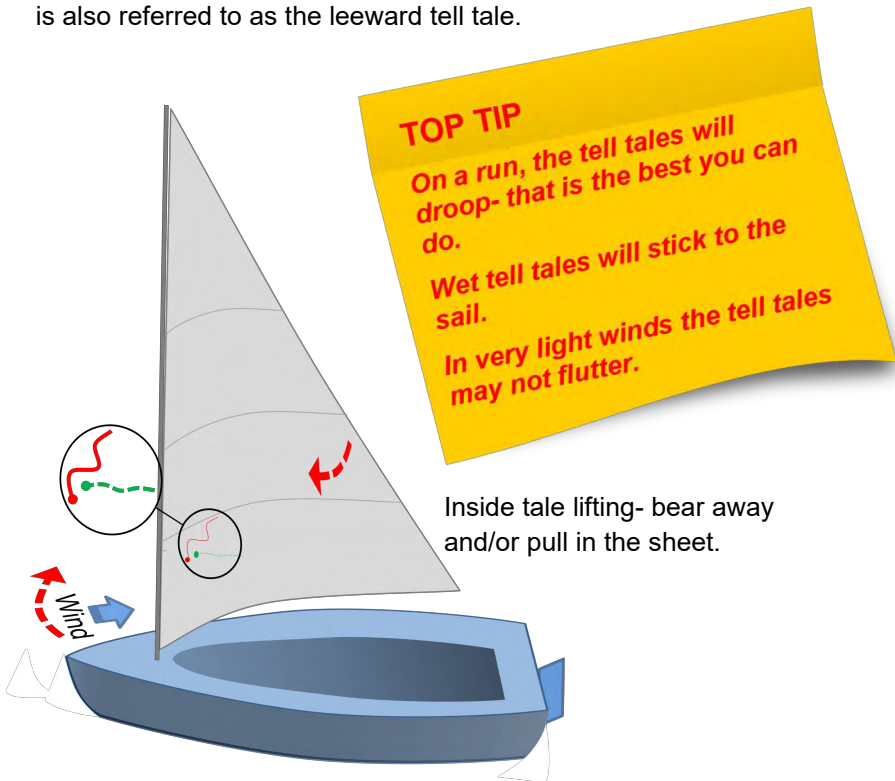
Add "look at the tell tales" to your routine, along with "look out for other boats" and "look for the wind on the water".

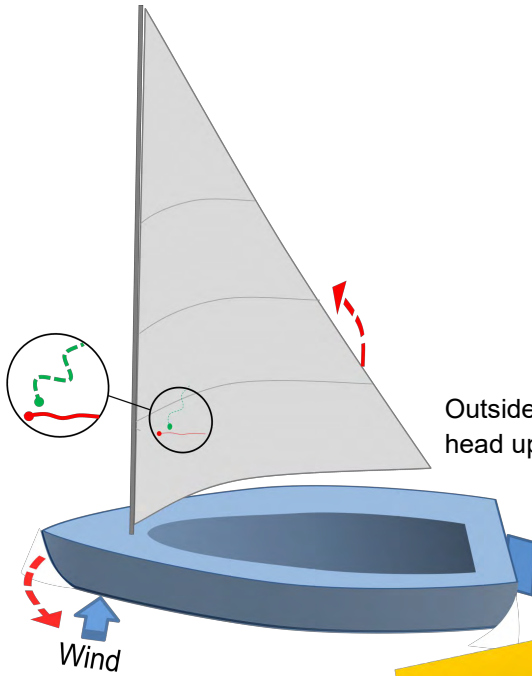
Ask your crew to help with all these.

But what do you do if both tell tales aren't streaming horizontally?

Tell tales are	EITHER Adjust the sails	OR Change course
(Sail is flapping)	Pull mainsheet in a lot	Bear away a lot
Inside tell tale lifting	Pull mainsheet in a bit	Bear away a little
Both horizontal	Looks good!	Keep going!
Outside tell tale lifting	Let mainsheet out a bit	Head up a little
One or both drooping	Let mainsheet out a lot	Head up a lot

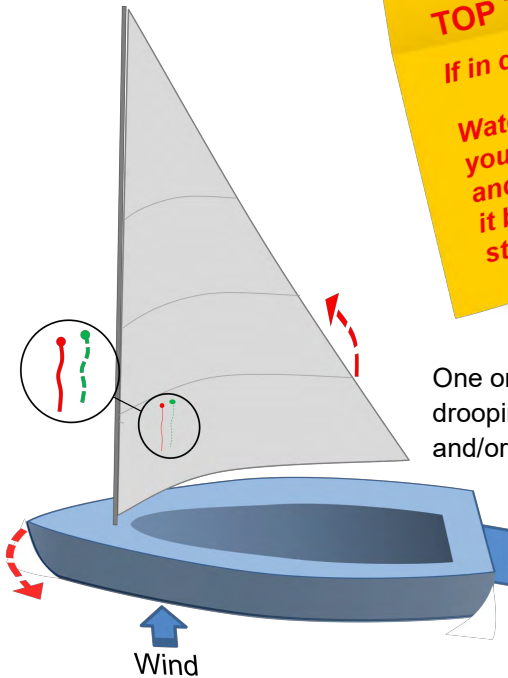
The inside tell tale is the one nearest to you when you are sitting in the boat- it is also referred to as the windward tell tale. The outside tell tale is the one on the far side of the sail when you are sitting in the boat- it is also referred to as the leeward tell tale.





Outside tell tale lifting-
head up and/or let the sheet out.

TOP TIP
If in doubt, let it out!
Watch the sail when
you let the sheet out
and be prepared to pull
it back in when the sail
starts to flap.



One or both tell tales
drooping- head up sharply
and/or let the sail out a lot.



Both mainsail tell tales are streaming nicely. Jib could be pulled in a small amount- the curve of the sail is not very smooth.

Practice: Tell tales

Adjust the mainsail and watch for the effect it has on the tell tales. Spend as much time as you can staring at the tell tales- with practice your response will become automatic.

21 Wind shifts, gusts and lulls

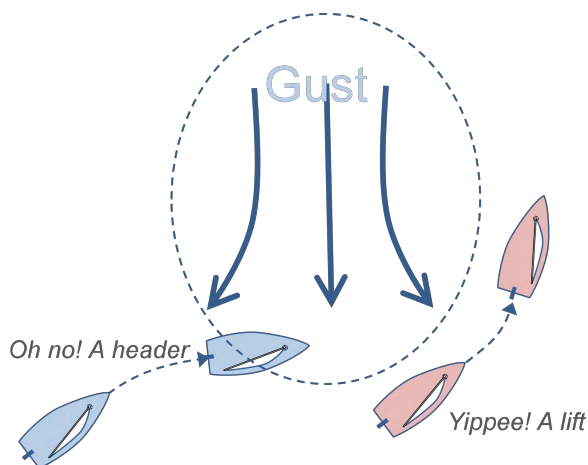
The wind is never constant in strength or direction. A **wind shift** is when the wind suddenly changes direction. A **gust** is when the wind suddenly increases- very often underneath a big dark cloud. A **lull** is when the wind decreases (drops). All of these have consequences for sail setting and the direction you can sail in.

Wind shifts are most noticeable when you are close-hauled. You have your sails perfectly set, tell tales streaming but suddenly it goes wrong- the wind has shifted.

If the wind changes in direction towards the bow it is called a **header**- it is now coming from more ahead of you, and the sails will start to flap. Pull the sails in if you can, or you will need to steer away from the wind a bit.

If the wind changes in direction away from the bow, it is called a **free-er** because you can sail more freely. Let the sails out a bit, or point more towards the wind. If you are racing, this is your opportunity to sail more towards the next mark. It can also be called a **lift** because you are lifted towards the mark.

A gust is usually indicated by dark, ruffled patches on the water, and they usually appear to move downwind. If you know the gust is coming, you will be prepared for it. If you are already leaning, be ready to let the mainsail out or to steer more towards the wind so that the sail flaps.



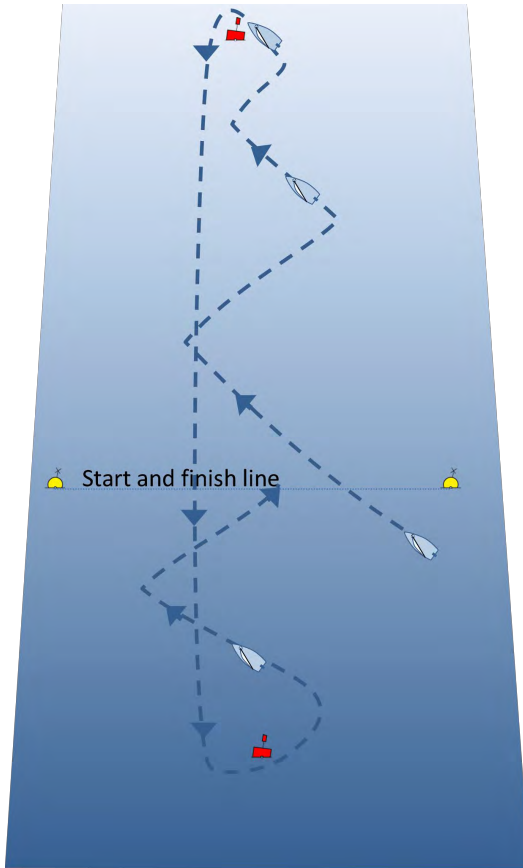
Gusts tend to fan out on the water, so different boats experience a different effect. Blue has a header- Red has a lift from the same gust

A gust is frequently accompanied by a wind shift. You can sometimes anticipate this from the position of the gust on the water- if it is in front of the boat it is likely to give you a header. If it is more alongside the boat it is likely to give you a lift. This is because gusts tend to fan out on the water.

In a lull, try to keep the boat moving- once you have stopped it is harder to get moving again. Check the trim of the sails. Don't change course suddenly as the rudder will act as a brake. A lull may also give you a header (sometimes known as a "velocity header"). As the wind drops it seems to be coming more from ahead of the boat so you will need to bear away or pull in the sails.

22 Simple racing

Racing is a very good way of improving your skills and testing how much you have learnt.



A typical race course- from the start line marked by the two yellow buoys, up to a windward buoy, back to a leeward buoy and finish at the start line

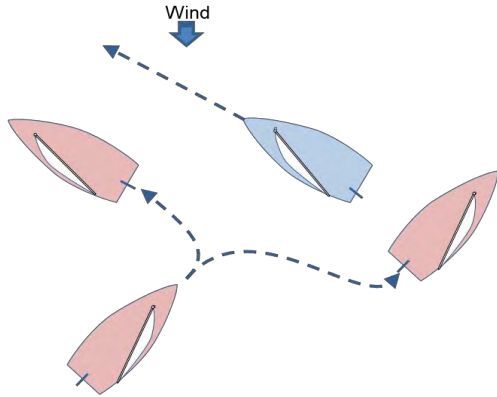
The course

Most races involve sailing around a set course, marked by buoys in the water, with a start and finish line between two of the buoys. The buoys need to be sailed round in the right order and in the right direction, according to the course set by the race officer. Make sure you find out what the course is! The race may be one, two or three laps of the course.

If you miss out a buoy, you have to go back round it.

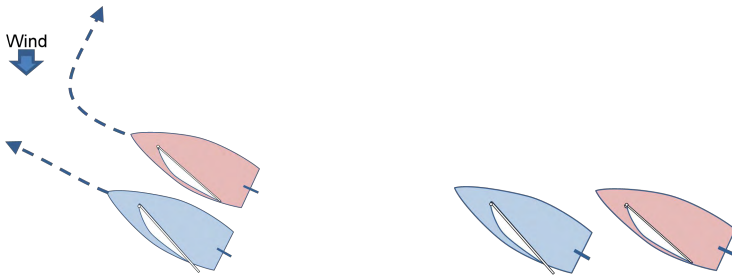
The racing rules- when boats meet

The rules of which boat has **right of way** when racing are similar to the rules for avoiding collisions (page 30), except for the rule for overtaking boats. Here are some common situations that happen when racing.



On opposite tacks

Red on port tack must give way to Blue on starboard tack. Red keeps clear by tacking, or by steering behind Blue. Blue must not change its course while Red is avoiding Blue and if doing so would mean that Red needed to change its course as a result.



On the same tack, overlapped

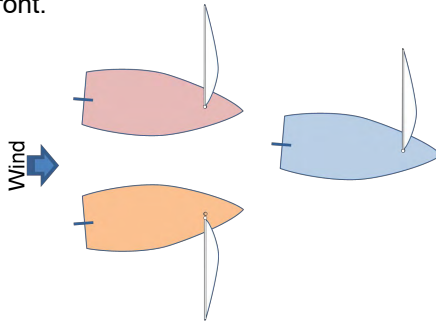
Red is just overlapped with Blue

Red as windward boat is overlapped (alongside) Blue, the leeward boat, but is too close to it. Red must tack. Blue can only tack after Red has tacked, but can make Red aware of its obligations!

An overlap exists when any part of one boat is alongside any part of another boat.

On the same tack, not overlapped.

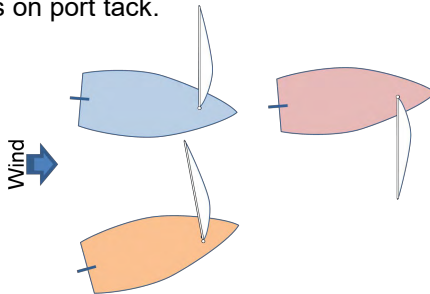
If two boats are on the same tack but one boat is behind the other boat (not overlapped), the boat behind must keep clear. If the boat behind is on a different tack, then the port tack boat has to keep clear, even if it is the boat in front.



Blue has right of way over Red because they are on the same tack but not overlapped.

Blue has right of way over Orange because Blue is on starboard tack and Orange is on port tack.

Red has right of way over Orange because Red is on starboard tack and Orange is on port tack.



Both Blue and Orange have right of way over Red because they are both on starboard tack and Red is on port tack. Red needs to watch out! It may want to gybe on to starboard tack.

Blue has right of way over Orange because Orange is on the same tack and overlapped, and is on the windward side of Blue (note, in the rules the “windward side” means the side opposite the boom). Orange needs to change course. The end of its boom is also too close to Blue (note, in the rules it is any part of the boat, not just the hull, which needs to keep clear).

The start

The race begins with all the boats crossing the start line immediately after a signal. There will be warning signals counting down the time to the start (usually either 5, 4 and 1 minute, or 3, 2, and 1 minute before the start).



Hansa 303s at the start line. Two of the boats have good starts- the others should have been closer to the line. The leading boats used a transit from the pin flag to the white house on the hill.

The start is the most important part of the race- get a good start and you should do well. Recovering from a slow or late start is hard.

If any part of your boat crosses the line before the starting signal you must go back across the line and start again properly. All of your boat must go behind the line before you can start again.

TOP TIP

If you are not very confident in your starting, try to find a spot on the line away from other boats where you can start on starboard tack with clear air all round.

Where on the start line should I start?

During the last minute before the start you need to be up close to the start line and able to cross the line without needing to do a tack.

There may be several good places to aim to cross the start line.



Blue is on starboard tack (so has right of way over port tack boats) at the right hand end of the start line and is just behind the start line as the start signal is given- It can tack whenever it likes without meeting another boat. Nice start!

Green has been more cautious, a bit further behind the start line but with no other boats around to interfere- another good start.

Red is on port tack and although it is close to the line, it will probably have to give way to Green which is on starboard tack.

Orange has been caught out a long way behind the line at the start, and will probably need to tack before it crosses the line- try not to be here! Stay close to the line in the minute or so before the start.

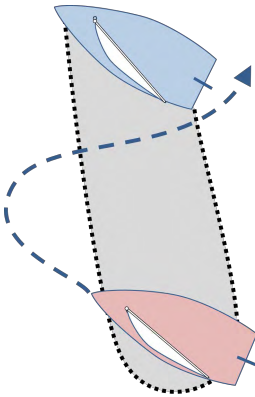
Practice: Approaching the line to start

Do a dummy approach to the line to test how long it takes to get there. A watch with a timer is helpful.

The windward leg

The first part (leg) of the race is usually to windward. This will test how good you are at sailing close-hauled and tacking neatly. You also need to keep a good look out for other boats and quickly work out whether you have right of way when another boat comes close.

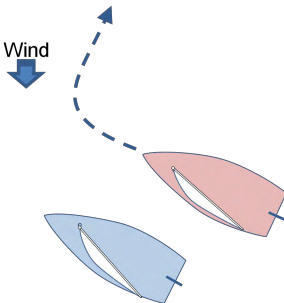
On the windward leg there are three common situations that you may find yourself in.



Sailing in another boat's wind shadow.

Sailors call this sailing in dirty air, disturbed by the other boat. This is always slow- you need to move away, probably by tacking and going behind the other boat.

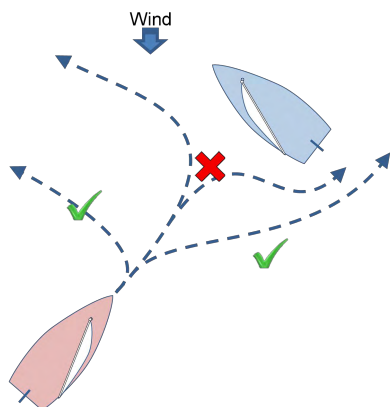
Red is in Blue's wind shadow and needs to tack as soon as possible



Close to windward of another boat.

If you are close enough to another boat to be worried about contact, it is usually better to tack away rather than hanging on. You will be distracted and that will slow you down

Red (windward boat) is close to the blue (leeward) boat. If contact becomes a possibility, Red has to tack to keep clear



As Red do you tack or do you dip behind Blue? Whatever you do, decide early

Red is the port tack boat: does Red tack or go behind (dip) Blue which is on starboard tack? Either could be right, depending on what other boats are doing. Anticipate and try to decide early- a smooth dip behind the starboard tack boat will cost you little. As will an early tack, staying in clear air.

A late tack will probably put you in dirty air, a late dip will need a sharp change in direction and will slow you down.

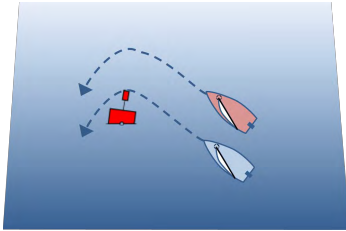


White on port tack is crossing ahead of Red. White needs to be sure he has the speed and room to do this

TOP TIP
 Try to sail in clear air away from other boats whenever you can.

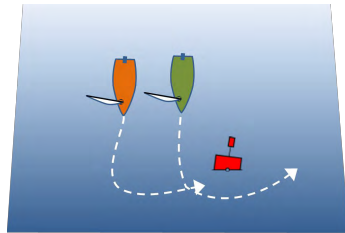
Going round buoys

Going round buoys can be congested with other boats and there are special rules for this. Simplified, when you are near the buoy the outside boat has to give any boat inside it (between it and the buoy) room to sail round the mark. Plan ahead and aim to have the inside track as you approach the buoy!



Blue is inside Red as it approaches the buoy. Red has to give Blue room to go round the buoy

Green is inside Orange. Orange has to give Green room to go round the buoy

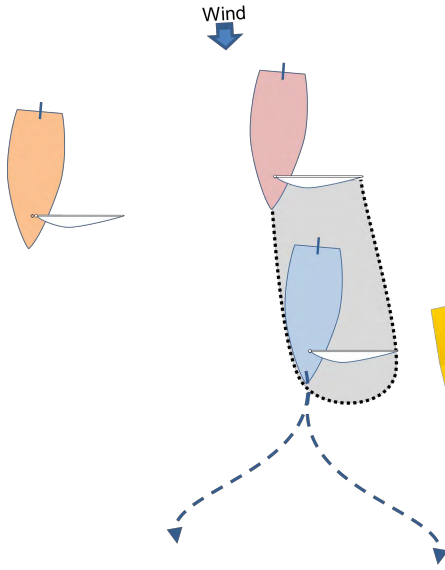


Orange may be able to sail inside Green as they both sail away from the buoy at the beginning of the next windward leg.



These boats could all be close together when they get to the next buoy!

The downwind leg



Blue is being slowed down by sailing in Red's windshadow. Blue has right of way, so Red probably can't overtake but Orange is a danger to both boats. Blue should steer out of the wind shadow of Red.

TOP TIP

Downwind-
look behind you,
both for following
boats, and to spot
the gusts.



Purple is slowing down Yellow by making Yellow sail in its windshadow. Purple is also on starboard tack and has the right of way over Yellow on port tack.

Yellow needs to keep out of Purple's way. Or gybe to acquire right of way (same tack, leeward boat- see page(48).

The finish



The race finishes for you when you have crossed the finish line after going round all the buoys in the right order. Don't give up – the boats ahead of you may not have sailed the course properly and could be disqualified!



23 Glossary

Apparent wind	The strength or direction of the wind as it feels when in a moving boat
Backing the mainsail or jib	To push or hold the sail towards the wind-used to get out of irons
Beam reach	The point of sail with the wind at 90 degrees to the direction of the boat
Bear away	To turn the boat away from the direction of the wind
Boom	The pole that stretches out the bottom of the mainsail
Bow	Front of the boat
Broach	In strong winds, when the boat swerves and leans over sharply
Broad reach	The point of sail in between a beam reach and a run
Buoyancy aid	A padded foam jacket giving swimmers additional buoyancy if they fall in the water
Cleat	A device used to hold a rope in position
Close-hauled	The point of sail as close to the wind as the boat will sail- on the edge of the No Go zone. The sails are pulled in fairly tight
Close reach	The point of sail in between close-hauled and a beam reach
Death roll	In strong winds sailing downwind, when the boat rocks strongly from side to side
Downwind	The direction away from where the wind is coming from
Free-er	A change in wind direction that allows the boat to sail more directly upwind
Goose-winged	Sailing on a run, with the jib on the opposite side of the boat to the mainsail
Gust	A sudden temporary increase in wind speed

Gybing	Turning the boat away from and through the wind, so that the boom changes side
Head up	To turn the boat towards the direction of the wind
Header	A change in wind direction that makes the boat sail further away from the direction the wind is coming from
In irons	When the boat is stationary, pointing towards the wind with sails flapping
Jib	The front sail
Jib sheet	The rope used to control the jib
Keel	The weighted plate underneath the boat that stops the boat from moving sideways and makes it more stable
Keep clear	Avoiding a collision by keeping out of the way of a right of way boat
Leeward	The side of the boat away from the wind
Leeward boat	Of two boats, the one which is further away from the wind
Lifjacket	A foam or gas inflating jacket used by non-swimmers to float if they fall into the water
Lift	A change in wind direction that allows the boat to sail more directly upwind
Lull	A temporary reduction in wind strength
Mainsail	The only sail on a 2.3. On the 303, the larger sail
Mainsheet	The rope used to control the angle of the mainsail
Mast	The pole used to support the mainsail
No Go zone	The direction toward the wind where the boat will not be able to sail- about 45 degrees either side of the wind direction
Outhaul	The rope used to stretch out the mainsail along the boom

Overtaking boat	A boat approaching another boat from behind, either directly behind or behind and on one side of the other boat
Points of sail	The angle the boat is pointing in relation to the direction of the wind
Pontoon	A floating platform used to secure and access a boat
Port	The left side of the boat when facing forwards
Port tack	Sailing with the wind on the port side of the boat
Reach	The points of sail (close reach, beam reach, broad reach) with wind on the side of the boat).
“Ready about- Lee-oh”	The warning to the crew that the boat will soon tack
Reefing	Temporarily reducing the size of the sail
Right of way boat	A boat which is entitled to sail its chosen course, although it must stand on if near another boat
Rudder	The board in the water at the stern of the boat that swivels to steer the boat
Run	The point of sail directly away from the wind
Slipway	The sloping area used to launch boats- can be slippery!
“Stand by to gybe- Gybe-oh”	The warning to the crew that the boat is about to gybe
Stand on	The requirement of a right of way boat to maintain its course when near another boat
Starboard	The right side of the boat when facing forwards
Starboard tack	Sailing with the wind on the starboard side of the boat
Stern	Back of the boat
Tack	See Port tack or Starboard tack

Tacking	Turning the bow of the boat towards and through the wind, so that the sail changes side
Tell tales	The bits of wool stuck to the sides of the sail
Upwind	The direction towards where the wind is coming from
Wind shift	A temporary change in wind direction
Windward	The side of the boat towards the wind
Windward boat	Of two boats, the one which is nearer to the wind



Part of the singles fleets leaving the marina at the 2018 World Titles in Hiroshima Japan, the island of Miyajima in the background.

Notes

The Hansa 2.3 and Hansa 303 are perfect beginners' boats

for anyone from age 6 to rather older, and are designed to be used by sailors with limited mobility. They are simple to sail and stable.

No special clothing is required- your sailing centre will



Sailability NSW offers sailing regardless of ability, it has over 20 locations across NSW, www.sailabilitynsw.com.au.