



RYA Logbook Theory Notes

Stage 3

Using These Theory Notes

These notes are not intended to totally cover the theory in each stage but instead to provide a guide for students of the RYA Youth Sailing Scheme to supplement their learning from courses and activities.

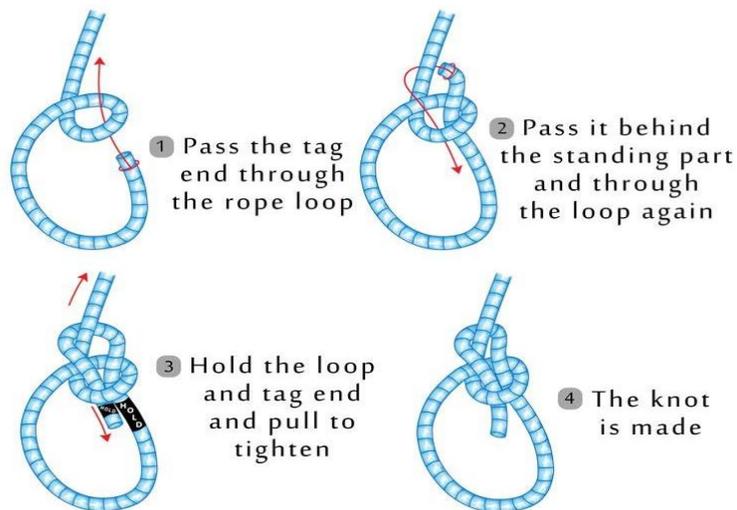


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Ropework

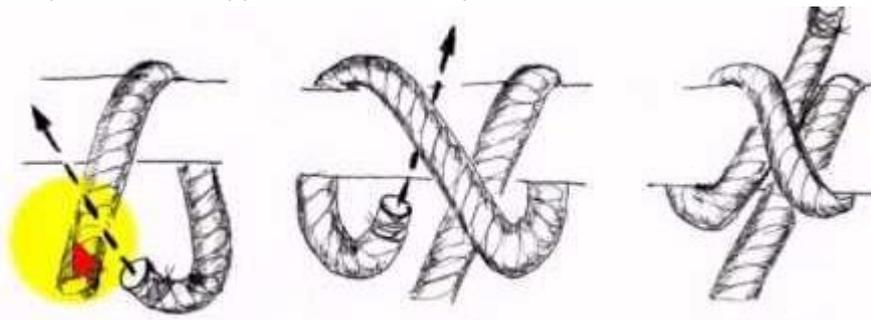
Bowline

- Makes a non-slipping loop, which is easy to untie when there is no tension on the rope.
- Generally used to tie boats together in a towline, or to tie the safety line from a rudder onto the boat.



Clove Hitch

- Used to secure a rope to a bar.
- Commonly used to tie toppers to their trolley.



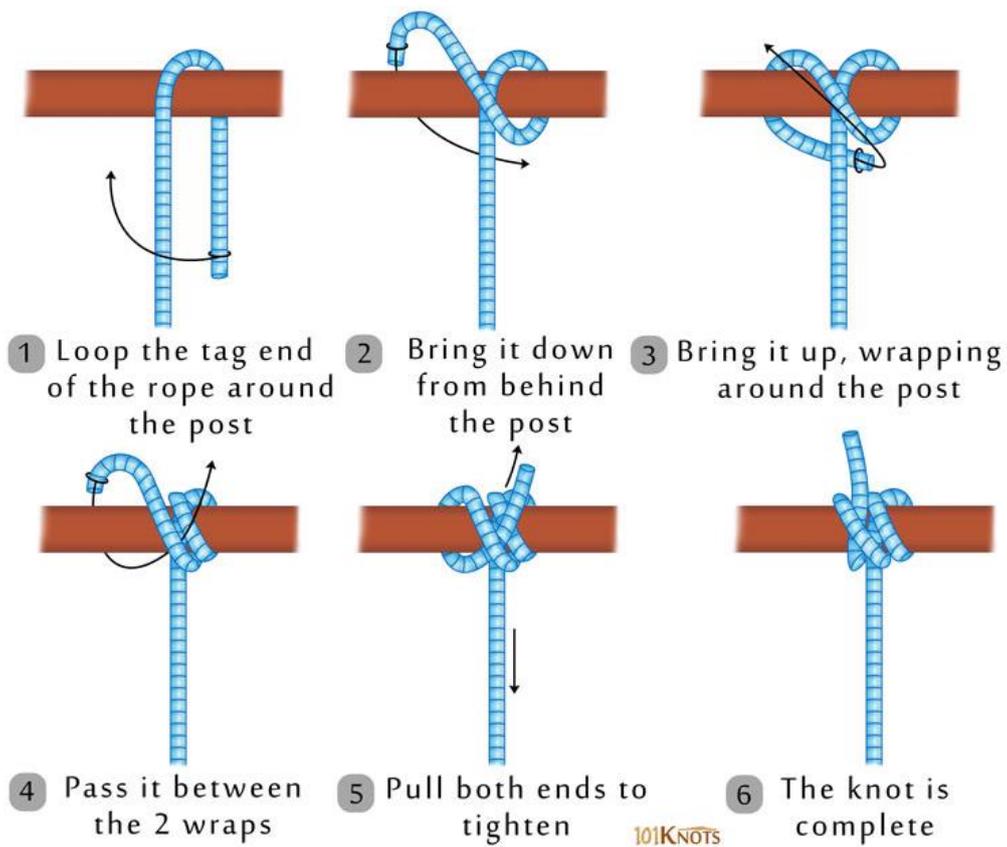
1. Pass the working end over the rail/bar. Then loop it back over itself.

2. Lift up the loop and pass the working end underneath the loop

3. Pull the working end and bunch the turns up at the same time, remove all slack and tighten the knot.

Rolling Hitch

- Like a clove hitch but it is designed not to slip along the bar if it is pulled along the bar.



Ropework Videos



[Check out our video tutorials here...](#)

Sailing Techniques & Manoeuvres

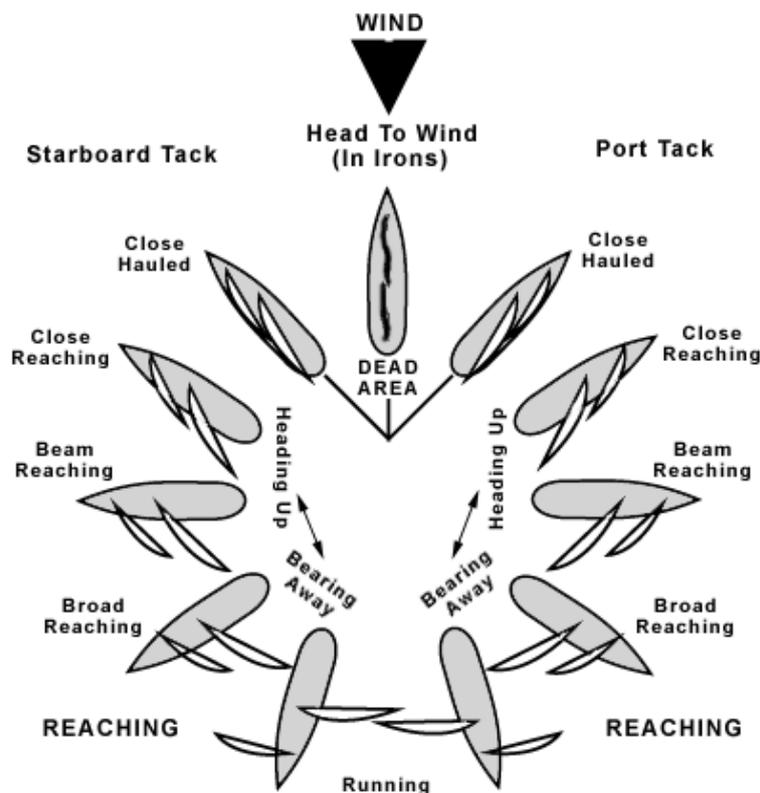
The Five Essentials

These are five things which, if done correctly, can dramatically increase your boat's speed.

Sail Setting

Probably the most important of the five essentials, shown in the diagram below.

- Close haul (45°-the highest angle to the wind that the boat and it's rig can manage, sails pulled in tightly)
- Beam reach (90° to the wind, the sails are half way out)
- Running (close to directly downwind, sails let all the way out)



Centreboard/Daggerboard

The daggerboard is used to prevent the boat from drifting. The correct daggerboard setting depends on the boat's angle to the wind.

- When going upwind, the daggerboard should remain fully down, to help the boat go as straight as possible.
- When reaching across the wind, the boat isn't being pushed downwind as much, so the daggerboard can be taken up about halfway to reduce the drag of the water.
- When going downwind the daggerboard isn't needed as much and take it up $\frac{3}{4}$ of the way to reduce as much drag as possible while allowing us to still right the boat if it capsizes.

Boat Trim

Like the daggerboard the shape of the hull of the boat helps the boat follow a straight path.

- When going upwind, the helm should sit as far forward as the tiller extension comfortably allows them, to help the boat go as straight as possible.
- When reaching across the wind, the boat isn't being pushed downwind as much, so the helm can sit slightly further back to take the bow out of the water.
- When going downwind the helm can again sit further back in the boat to have the boat sitting flat in the water, take care not to sit too far back, this causes the stern (back of the boat) to dig in, creating more drag and slowing the boat.

Boat Balance

In dinghies, we want the boat as flat as possible at all times, as the sail works best when perpendicular to the water, and when the boat heels on one side it tries to turn, slowing us down.

There are a few exceptions including in light winds, when leaning the boat a little away from the wind can help pick up speed. There's also some advantage of leaning the boat over to the side the sail is not on when sailing on a run, raising more of the sail further up into the wind.

Course Made Good

This is about sailing in a direction to get where you're going as quickly as possible and generally the best way to do this is to sail in a straight line. When we cannot sail in a straight line, such as going upwind where we need to tack, we make loads of short tacks instead of a few long ones.

Course Made Good = Getting from one point to another in the shortest time

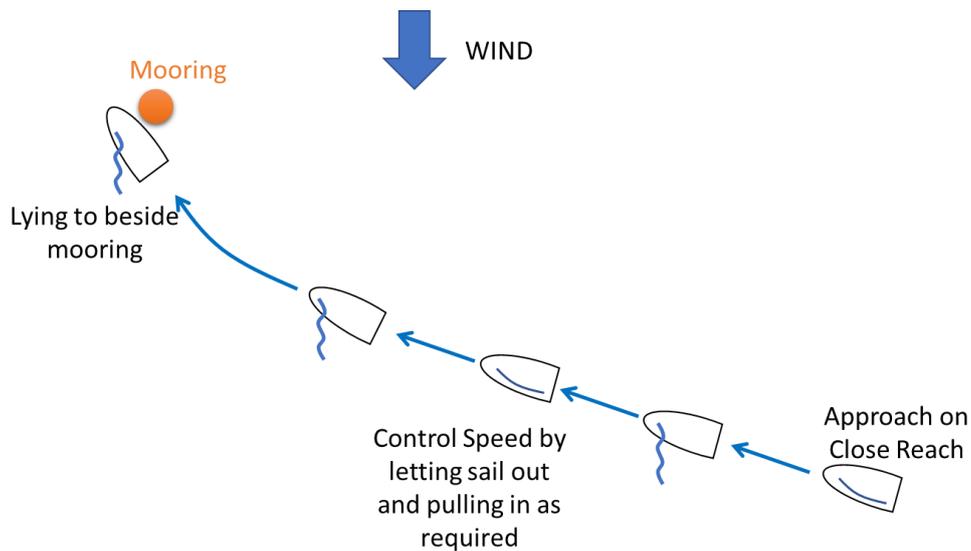
Righting a dinghy

- The first thing to do when a dinghy capsizes, is to not pull it over any more.
- Then swim around to the daggerboard and hold it, when all crew are ready, you can begin climbing up on the daggerboard until the boat comes over.
- Get one person into the boat, over the transom (back of the boat) is the easiest way to get in. Once the first person is in the boat they should help anyone else into the boat before sailing off again.

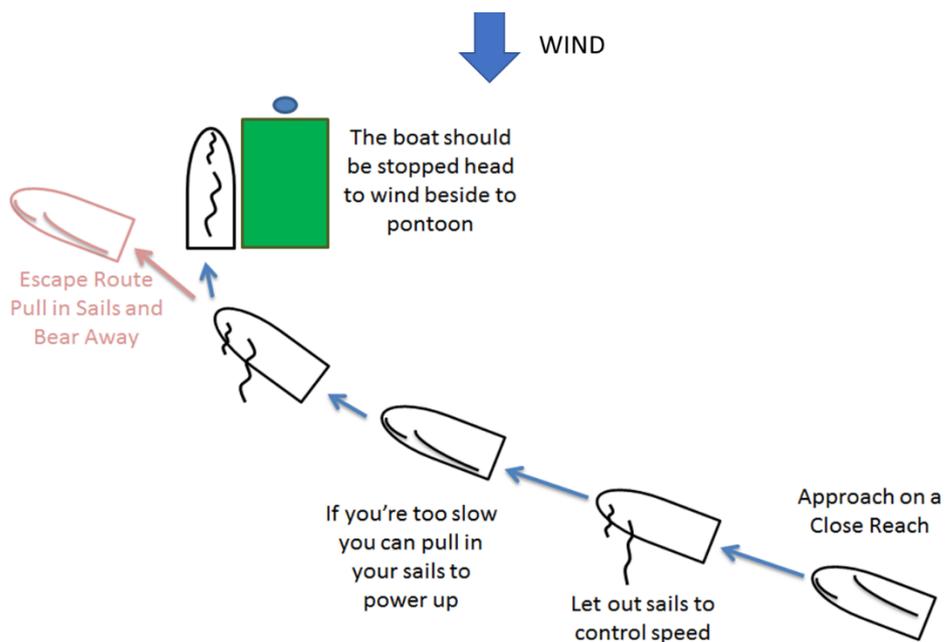
Coming Alongside/ Picking Up a Mooring

- Position your boat so that you can sail on a reach or a close reach to the pontoon, and that you are 8-10 boat-lengths away.
- If you have a jib, un-cleat it and furl it if you can, and use the mainsail to start to slow by filling and spilling. To do this as you pick up speed let the sail out (spill), and then pull your sail back in (fill) to slowly sail to the far side of the pontoon.
- You should be able to turn up to the pontoon and have come to a stop beside the pontoon.
- If the boat stops before you get to the pontoon and you are too close to the wind to make it, pull the tiller towards you to bear away and try again.

Picking Up a Mooring



Coming Alongside



Prepare for Tow from a Powerboat

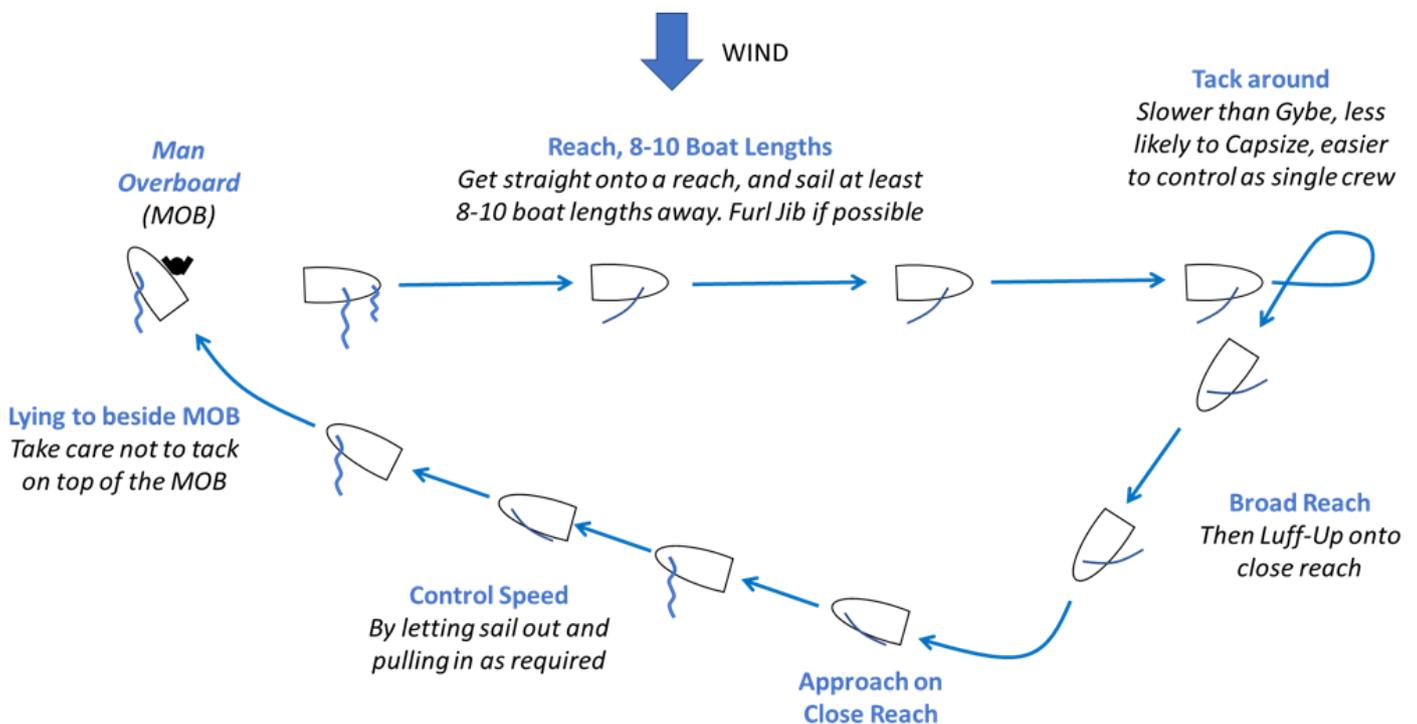
- Let the sail out and un-cleat the jib if you have one.
- Steer the boat towards the engine of the powerboat or the back of the boat in front of you.
- Be aware of the boom over your head, it could swing over the boat.

Sailing Background & Theory

There are several manoeuvres and concepts students on stage 3 are expected to understand. They do not necessarily have to be able to apply them on the water, however, they should make every effort to use the knowledge when able.

Recover a Man Overboard

- Shout Man Overboard, and if there is crew left in the boat, they should point at the M.O.B.
- Un-cleat the jib and reach away from the M.O.B. for approximately 8-10 boat lengths.
- Do a big granny tack so that you are now on a broad reach in the direction of the M.O.B.
- Start to point upwind so that you are sailing on a close reach towards the M.O.B. Fill and spill to slow down, by letting the sail out (spill) to lose speed and pulling the sail back in again (fill) so that you can keep momentum.
- Have the boat stopped so that the M.O.B is on the windward (opposite side from the sail) side of the boat and the sail is all the way out. Help the M.O.B back into the boat.



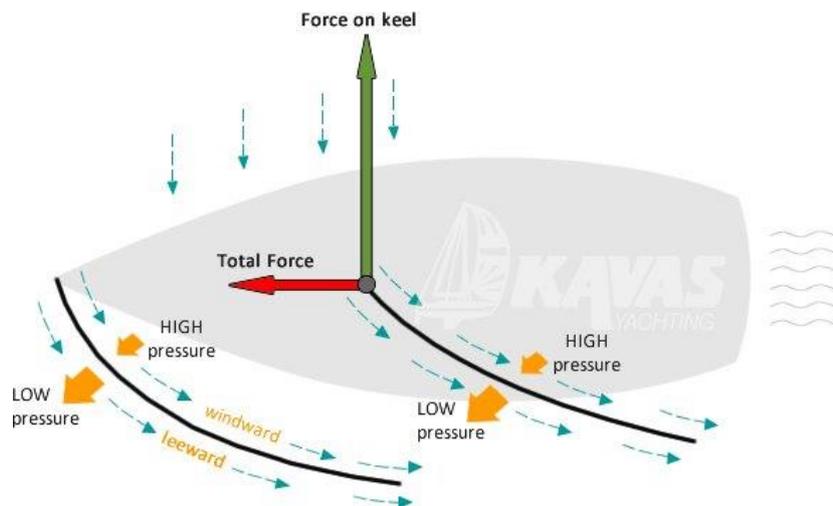
We have a more detailed explanation of this manoeuvre on our website, check out the videos and detailed breakdowns:



[MOB –Videos and Detailed Presentation](#)

How a sail works

- As the boat goes closer to the wind, the sail acts more like an aerofoil. The air on the leeward side of the sail is more spread out compared to the air on the windward side of the sail.
- This creates an area of low pressure on the leeward side and high pressure on the windward side. High pressure wants to go to low pressure so that pushes the sail as shown in the diagram.
- Due to the daggerboard and the shape of the boat the boat travels in more of a straight line.



[Watch our introductory video on sail aerodynamics](#)

Terminology

- **Windward** - closest to the wind, is used to describe marks on a course and the side of the boat closest to the wind
- **Leeward** - furthest from the wind, is also used to describe marks on a course and the side of the boat furthest from the wind
- **Bear away** - turn the bow of the boat away from the wind, for example, go from a reach to a broad reach.
- **Luff up** - turn the bow of the boat closer to the wind, for example, to go from a reach to a close reach.

Advice to Inland Sailors for Coastal Sailing

- They need to remember the tide has an effect and if they are going outside the harbour they need to take the direction of flow of the tide to decide which direction to go to.
- There tends to be more boats and bigger commercial boats in coastal waters, so care needs to be taken to avoid commercial boats which have right of way.

Telling Someone Ashore

- In the case that something goes wrong while sailing, someone ashore needs to know when you are going sailing and when you plan to be back. They should also know where you plan to go, what boat you're out in, who's on board.

Correct Clothing for Protection

- Swim togs underneath a wetsuit, base layers on colder days can be helpful.
- a wetsuit should be worn in Ireland, especially while sailing on the sea, as you will be out there for a long time.
- a gaiter can be worn over the wetsuit as a windbreaker to help stay warm.
- booties with reasonably thick soles should be worn to protect your feet, especially if walking on gravel or concrete.
- Hypothermia is when your body temperature drops too low and is a risk while sailing in Ireland. the best way to prevent hypothermia is to wear proper clothing while sailing.

Rules of the Road

For any boat on the water the most important rule is to avoid collisions at all cost.

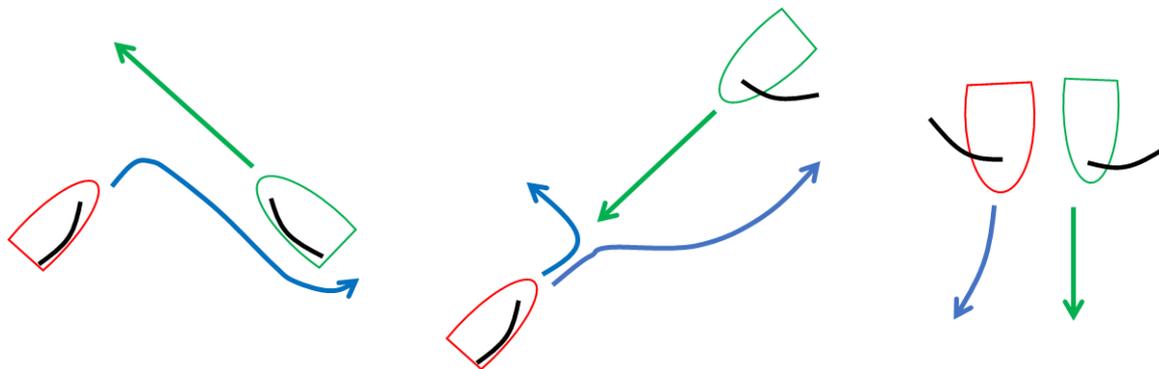
What "Tack" are you on

If your sail is on the port (left) side of the boat, the wind is hitting the starboard (right) side first. In this case your boat would be on starboard tack. For a boat to be on port tack the wind would be hitting the port side of the boat first.

Note: Boats on **Starboard Tack** drawn in **GREEN**, Boats on **Port Tack** in **RED**.

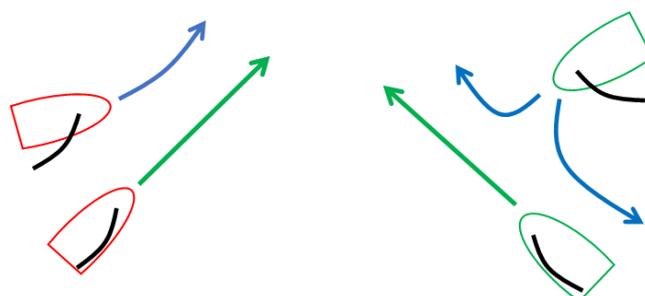
Port/Starboard Rule

If two boats are on different tacks and heading towards each other, the boat on starboard tack is the stand on vessel, another way of saying they have right of way. This means the boat on port tack should move out of their way.



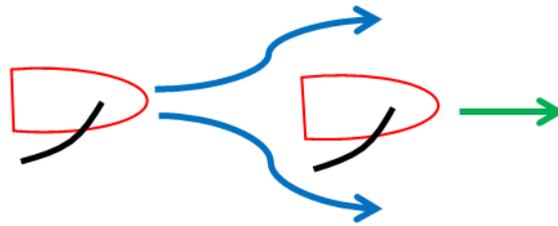
Windward Boat Keeps Clear

If two boats are heading the same direction (i.e. on the same tack) and one boat is downwind of the other boat, then the leeward boat is the stand on vessel and the windward boat must keep clear.



Overtaking Boat Keeps Clear

If one boat is overtaking the other boat, the boat that is overtaking must keep clear of the other boat.



Meteorology

Obtaining a Weather Forecast

Sea Area Forecast

The best tool available to sailors is the Met Eireann **Sea Area Forecast**. It provides a comprehensive overview of the weather expected over the next 24 hours, and by reading the full forecast you can determine a number of extra bits of information to give you a much more comprehensive view of the current weather conditions. The **Sea Area Forecast** is available on their website www.met.ie and is updated every 6 hours.

[Sea Area Forecast Link](http://www.met.ie)

Weather Apps and websites

- There's a wide variety of weather websites and apps, including those that predict wind. Generally, they all pull their information from the same source files, and are computer models based on this.
- Examples include windguru or windy websites.

Real Time Weather Information

- For more real-time information Dublin Bay Buoy is a buoy in the middle of the bay and has a twitter feed which updates live every fifteen minutes, www.twitter.com/dublinbaybuoy.
- Dun Laoghaire Harbour have a weather site that updates every minute. www.dlhweather.com

Beaufort Wind Scale

This is a commonly used wind scale for defining the speed of the wind. It ranges from 0-12. In general, we don't go sailing above a force 5.

- Winds of Force 6 or above trigger what is known as a "Small Craft Warning" in Met Eireann's Sea Area Forecast.
- Winds of Force 8 or above trigger what is known as a "Gale Warning" in Met Eireann's Sea Area Forecast.

0	Calm	< 1 knot < 2 km/h	Sea like a mirror	Smoke rises vertically.
1	Light air	1–3 knots 2–5 km/h	Ripples with appearance of scales are formed, without foam crests	Direction shown by smoke drift but not by wind vanes.
2	Light breeze	4–6 knots 6–11 km/h	Small wavelets still short but more pronounced; crests have a glassy appearance but do not break	Wind felt on face; leaves rustle; wind vane moved by wind.
3	Gentle breeze	7–10 knots 12–19 km/h	Large wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses	Leaves and small twigs in constant motion; light flags extended.
4	Moderate breeze	11–16 knots 20–28 km/h	Small waves becoming longer; fairly frequent white horses	Raises dust and loose paper; small branches moved.
5	Fresh breeze	17–21 knots 29–38 km/h	Moderate waves taking a more pronounced long form; many white horses are formed; chance of some spray	Small trees in leaf begin to sway; crested wavelets form on inland waters.
6	Strong breeze	22–27 knots 39–49 km/h	Large waves begin to form; the white foam crests are more extensive everywhere; probably some spray	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.

7	High wind, moderate gale, near gale	28–33 knots 50–61 km/h	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind	Whole trees in motion; inconvenience felt when walking against the wind.
8	Gale, fresh gale	34–40 knots 62–74 km/h	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well-marked streaks along the direction of the wind	Twigs break off trees; generally impedes progress.
9	Strong/severe gale	41–47 knots 75–88 km/h	High waves; dense streaks of foam along the direction of the wind; sea begins to roll; spray affects visibility	Slight structural damage (chimney pots and slates removed).
10	Storm, whole gale	48–55 knots 89–102 km/h	Very high waves with long overhanging crests; resulting foam in great patches is blown in dense white streaks along the direction of the wind; visibility affected	Seldom experienced inland; trees uprooted; considerable structural damage.
11	Violent storm	56–63 knots 103–117 km/h	Exceptionally high waves; small- and medium-sized ships might be for a long time lost to view behind the waves; visibility affected	Very rarely experienced; accompanied by widespread damage.
12	Hurricane force	≥ 64 knots	The air is filled with foam and spray; sea is completely white with driving spray; visibility very seriously affected	Devastation.