

Whitehead Coastal Rowing Club

Coastal Rowing Coxing Information

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1. General Responsibilities of a Coxswain

The primary responsibility of the cox of a coastal rowing boat is for the safety of the vessel and its crew. However, the cox should not be the sole contributor to the safety of a coastal rowing outing, as these responsibilities should be shared collectively with the rowers participating in an outing, the committee, along with coaches, safety officers, and other experienced club members. There are many facets to the safety of coastal rowing activities and the level of responsibility/independence assumed by an individual cox will be concomitant with their level of experience and that of the crew they are coxing and other club or support vessels which are operating within the vicinity.

While it is important that trainee coxes develop the basic theoretical knowledge of coastal rowing and its safe operation and attend the relevant training session, it is only through practical experience that they can hope to achieve a high degree of competency. A trainee cox needs to develop the following skills to be able to lead an outing without the direct supervision of an experienced coastal rowing coach/cox.

Basic Coxing Skills

The coxswain must be able to:

1. steer and manoeuvre the boat using the rudder
2. issue key commands clearly for the crew to manoeuvre the boat
3. understand the basic principles of rowing technique and terminology
4. develop basic maritime competency and local coastal knowledge
5. demonstrate safe on-the-water operation and emergency procedures

These skills are generally, but not completely, developed in the following order

1. Steering
2. Seamanship and Safety
3. Coxing Commands
4. Racing/Coaching

Basic Safety

In coastal rowing particular consideration must be given to dangers of being at sea, but with some simple guidelines and procedures these can be minimised. More detailed information is provided in the section on *Seamanship and Safety*, particularly about what to do in the event of an emergency situation.

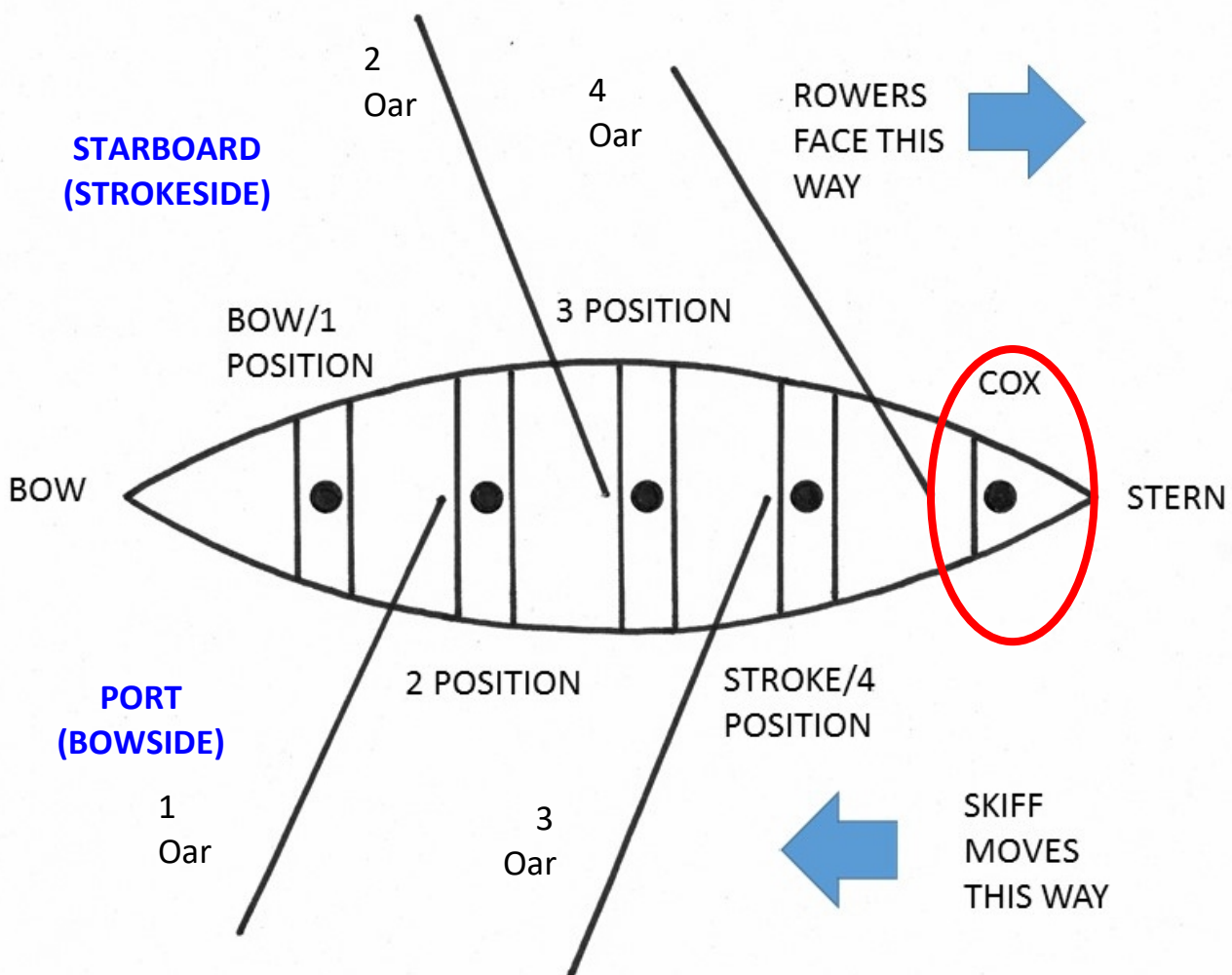
It is primarily the cox and/or coach's responsibility to assess the suitability of sea and weather conditions for rowing. However, the whole crew should also be aware of the prevalence of waves, wind direction and tides throughout an outing so that adjustments to the outing plans

can be made. The cox and crew should also be aware of other boats in their vicinity and their heading to avoid collisions.







Coastal rowing boats are designed to be rowed at sea and therefore are quite stable. This stability is increased dramatically when the oars are properly secured in the gate/rowlock. These boats are heavy so generally a minimum of six reasonably strong adult rowers is required to safely lift a boat, flip it over, or carry it a short distance. However, most of the time the boat will be launched from a trailer or launching trolley where most of the weight of the boat can be taken by the trailer or the water.

2. Technical Information on Coastal Rowing

Terminology



The typical setup of a coastal rowing boat has four rowers (each with one oar) and a cox. The **cox** sits at the stern of the boat and has a rudder to steer. The rower sitting nearest the bow is the number 1 rower (or Bow rower), with the other positions increasing in number towards the stern. The number 4 rower (closest to the cox) sets the rhythm for the other rowers and is also called the Stroke. From the cox's point of view the right hand side of the boat is called starboard and the left hand side port.

Blade (Oar)	The spoon or hatchet/cleaver shaped end of the oar. Also used to refer to the entire oar.	
Bow	The front section of a boat; the first section of the boat to cross the finish line in a race. Also the name of the rowing position closest to the bow.	
Bowside	Is the side of the boat on which the Bow rower has their oar. In a coastal rowing boat this is on the right hand side of the boat as viewed by the rowers. Oars with green collars are used on bowside.	Note that this convention is opposite for "river" rowing boats
Collar / Button	A wide plastic ring placed around the sleeve of an oar. The button stops the oar from slipping through the rowlock/oarlock. They are usually coloured green (bowside) or red (strokeside) depending on what side of the boat the oars are used on.	
Ergometer (Erg)	A Concept 2 indoor rowing machine. This is the main off-the-water training resources for rowers.	
Footplate	An adjustable footplate, into which the rower secures his / her shoes.	
Handle	The part of the oar that the rowers hold and pull with during the stroke.	
Oar	A slender pole which is attached to a boat at the Oarlock. The "handle," is gripped by the rower, the other end has a "blade," which is placed in the water during the propulsive phase of the stroke.	
Pin	The spindle on which the swivel for the gate/rowlock rotates.	
Rowlock/ Oarlock/ Gate	What the oar is inserted into. The oar is secured with the gate which is the small bar across the top of the rowlock secured with a nut.	
Rudder	Used by the coxswain, who steers the boats via lines attached to the rudder.	
Skiff, Yawl, Gig, Universal	Types of coastal rowing boats. The One Design Yawl or Universal is the main competition boat used in ICRF rowing.	

Starboard/Port	The right and left hand sides of a boat from the cox's viewpoint (the direction of travel).	
Stern	Back of the boat. Where the coxswain is positioned.	
Stroke	The name of the rowing position closest to the stern and the cox.	
Strokeside	Is the side of the boat on which the Stroke rower has their oar. In a coastal rowing boat this is on the left hand side of the boat as viewed by the rowers. Oars with red collars are used on strokeside.	Note that this convention is opposite for "river" rowing boats

Types of Coastal Rowing Boats in Ireland

Different coastal regions of Ireland have their own traditional boats which are still raced in specific categories at the All-Ireland Championships. Most traditional boats are "fixed seat" where only the back and arms of the rower are used to propel the boat. However, to allow all clubs to compete against each other on an equal footing an Irish "One-design yawl" (ODY) or "Universal", consisting of 4 rowers and a cox was designed for use at most coastal rowing regattas. The ODY is made from fibre-glass and uses modern oars and fixtures found in river rowing. It has a flat, plastic seat which enables the rower to slide forward so that the legs can also be used in the rowing action. As a result an ODY is generally faster than a traditional boat. WCRC's **Golden Dawn** is an ODY.



A widely used example of a traditional boat is the St. Ayle's Skiff which is used for coastal races in Scotland and in Co. Down. These are fixed-seat rowing boats built almost exclusively with wood to traditional specifications. Very little metal, carbon-fibre, or plastic is allowed to be incorporated into the hull, oars, fixtures and fittings. WCRC's **Kittywake** is a St. Ayle's Skiff.



St. Ayle's Skiff

Irish East Coast Skiff's are wooden boats which are clinker built (planks which overlap) and copper fastened. They are the main boat rowed by clubs in Leinster.



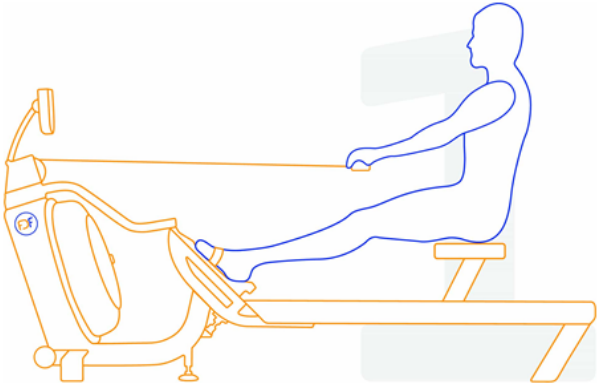
Irish East Coast Skiff

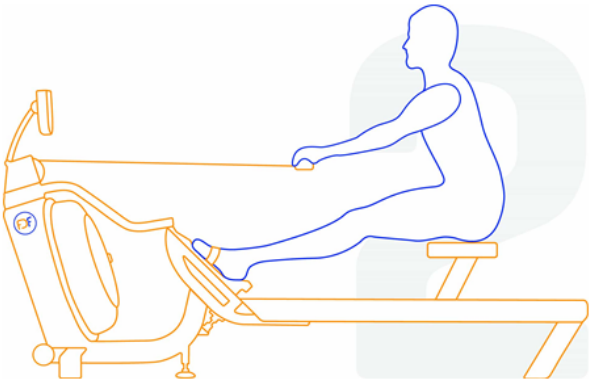

Coastal (or off-shore) rowing is currently being considered for the 2024 Paris Olympics. FISA, the world governing body for rowing, specifies the boats which can be used for these events. In these “FISA boats”, each rower uses two oars (sculls) and has a seat which rolls on wheels. They are narrower than traditional coastal boats, so they are faster but not as stable. They can come as single, double or quadruple sculls, i.e. 1,2 or 4 rowers.



Sculling boats are typically more efficient and therefore faster than those employing “sweep” rowing (one oar per rower). Similarly, the fixed-seat rowing is less efficient than boats for which sliding can occur as this brings into play the powerful leg action. Therefore, for equal strength crews, a FISA quadrupole scull will be faster than an Irish ODY, which in turn will be faster than Skiffs or other traditional boats.

Basic Rowing Technique

Term	Meaning
Hands Away	 <p data-bbox="323 1809 1508 2022">From the Finish position the hands are pushed down and away with no body movement. The body is straight and leaning back slightly (5 minutes past the hour), the arms are straight and the shoulders relaxed. The hands should be just above the knees (both in the boat and on the rowing machine).</p>

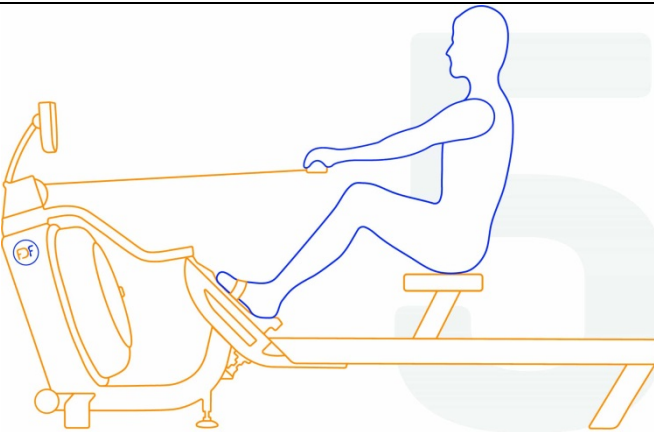
<p>Body Over</p>	 <p>From the hands away position the body is swung over from the hips with the back remaining straight and the head facing forward. The legs are straight.</p>
<p>The Slide</p>	<p>The Slide is the part of the stroke between Body Over and the Catch. As the name suggests your backside slides forward. This is still the method used in IRCF Universal boats, but in most other rowing boats and rowing machines this has been replaced by a seat with wheels (though it is still called a slide rather than a roll). Keeping the arms straight and keeping the body position the same, the knees are gently broken to allow a roll/slide forward.</p>
<p>The Catch or Frontstops</p>	 <p>The Catch is the process of putting the blade of the oar into the water. On a rowing machine at the Catch the shins are vertical while in an IRCF Universal boat you will not be quite so far forward, i.e. slightly less than “full slide”.</p>
<p>The Recovery</p>	<p>The Recovery is the movement in the stroke between the Finish and the Catch where you are moving forward. In the boat this corresponds to the part of the stroke when the oar is out of the water. Even though you cannot move the boat forward on the Recovery, it is very important as it is used to get into a strong position for the Drive part of the stroke.</p>

**The Drive
(1)**



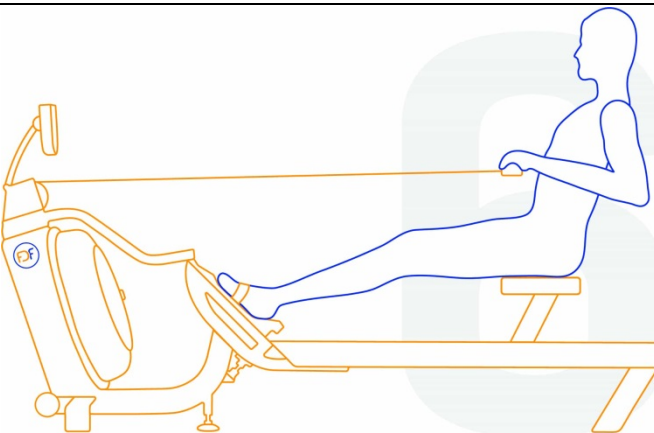
The Drive is the part of the stroke from the Catch to the Finish. When the blade or spoon of the oar is placed in the water, the legs are immediately pushed while keeping the grip loose and shoulders relaxed. Initially on the Drive, the body position is the same so that the hips and shoulders are driven back together.

**The Drive
(2)**

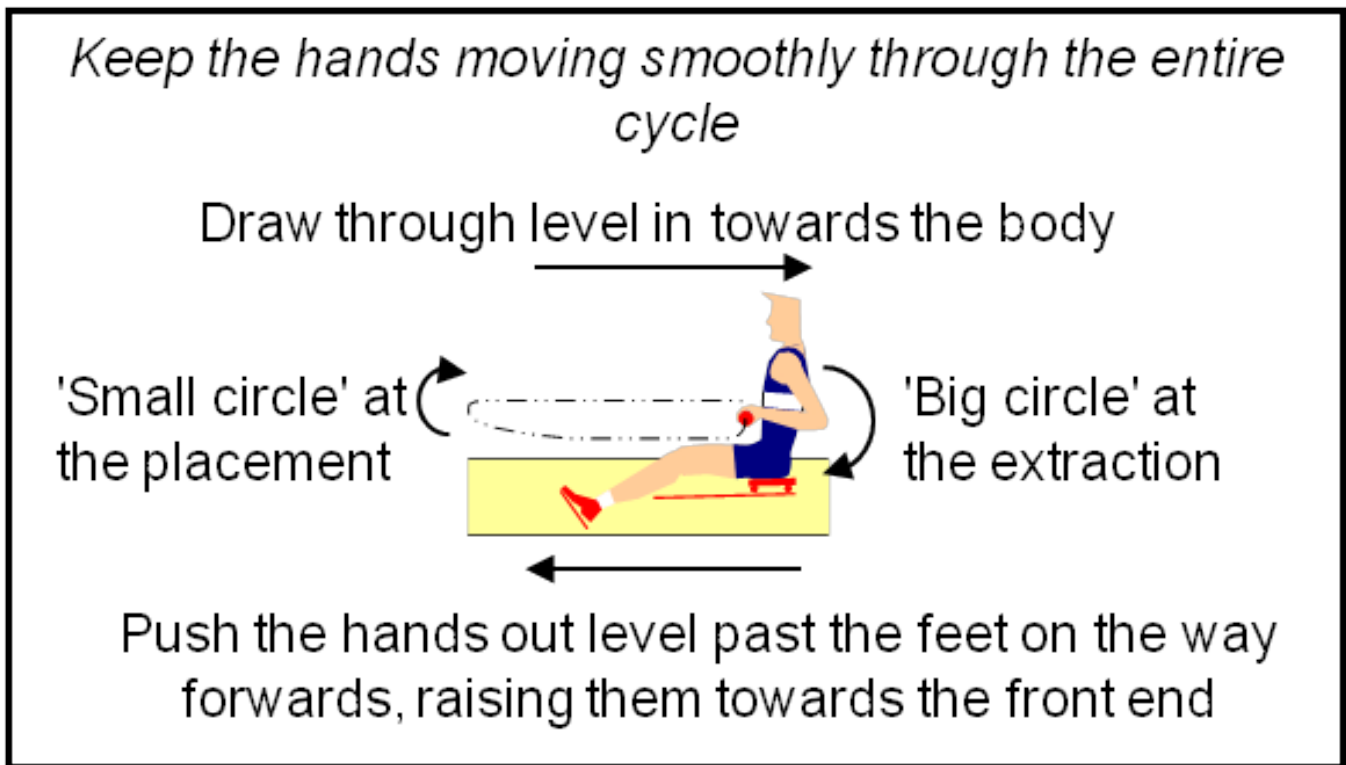


During the drive the body gradually begins to sit back so that the back and legs work together to generate tremendous power, while keeping the arms and shoulders relaxed. It is only when the legs are straight that the shoulders are drawn back with the elbows moving past the body to finish out the Drive.

**The Finish
Or
Backstops**



This is the end of the stroke just before the oar is taken out of the water. The oar handle should be just at the lowest ribs with the forearms be parallel to the water with the wrists straight. The back is straight at an angle of about 5 past the hour. The head is up and the face forward



3. The Coastal Environment

A range of different environmental factors and weather conditions can influence a coastal rowing outing. The cox needs to be aware of these in advance of an outing to enable a safe and successful outing. Here are some links to forecasts of wind, tide, and sea conditions near Whitehead:

<https://www.bbc.co.uk/weather/0/2634095> - BBC Whitehead weather

https://www.bbc.co.uk/weather/coast_and_sea/tide_tables/6/639#tide-details - BBC tide tables for Carrickfergus

<http://www.myweather2.com/Marine/Coastal-Areas/United-Kingdom/Belfast-Lough.aspx> - Belfast Lough sea conditions

<https://www.wunderground.com/personal-weather-station/dashboard?ID=IMIDANDE2> - Live CAYC weather Station

<https://www.windfinder.com/#10/54.8209/-5.7060> - probably the best predictor of wind-speed and direction

Wind

The wind speed and direction are usually the most influential parameters for rowing near Whitehead. It is important that the cox understands the basic terminology of weather forecasting and is aware of how these influence sea conditions and the possible risks. Wind also has a surprisingly strong influence on the speed of a coastal rowing boat (by up to a few mph), so must be taken into account when planning the outing, according to the strength and

experience of the crew. It is good practice to head into the wind at the start of the outing, so that if there are any problems the crew can return to shore with a tail wind.

Wind Direction

The description of the wind direction depends on what it is being compared against. It can be relative to:

- COMPASS POINTS - **Westerly, Southerly**, etc. This is defined as the direction which the **wind is coming from**
- THE SHORE - **On-shore, Off-shore** corresponds to the direction which the **wind is moving to**
- DIRECTION OF THE BOAT - **Head-wind** (wind hitting the bow), **Tail-wind** (wind hitting stern), **Cross-wind**
- ISLAND OR HEADLAND **Windward (upwind)** from the land, **Leeward** – sheltered region **downwind** from the land

Wind Speed

Different forecasts may be given in different units

- Kilometers per hour (kph)
- Miles per hour (mph),
- Knots (kts)
- Beaufort scale (0 – 12, dead calm to hurricane)
- Conversion factors - 1 kt = 1.85 kph, 1 kt = 1.15 mph, 1 mph = 1.61 kph

In summer the best rowing conditions are typically in early morning or late evening when the land temperature is lower and wind turbulence is reduced.

Weather Systems

- **Low pressure system** (depression, cyclone) – a region of lower atmospheric pressure which typically produces cloud cover, rain, and high wind speeds (although wind is low at the centre or eye of the system)
- **High pressure system** (anti-cyclone) – a region of lower atmospheric pressure which typically produces reduced cloud cover, low rain, and low wind speeds

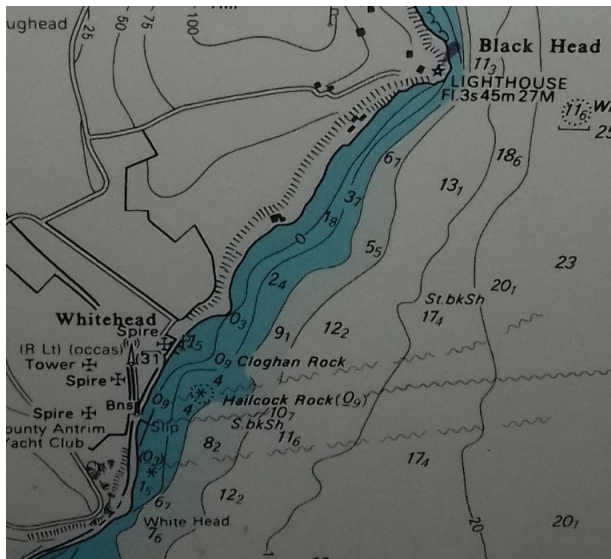
Wind Limits for Coastal Rowing

Wind forecasts are not always accurate and do not necessarily directly translate into the expected sea conditions. However, **an On-shore wind of more than 20 mph will usually be too risky to row in even for an experienced crew.**

Approximate wind limits for Coastal Rowing:

- 20 mph
- 36 kph
- 17 kts
- Beaufort wind force 5

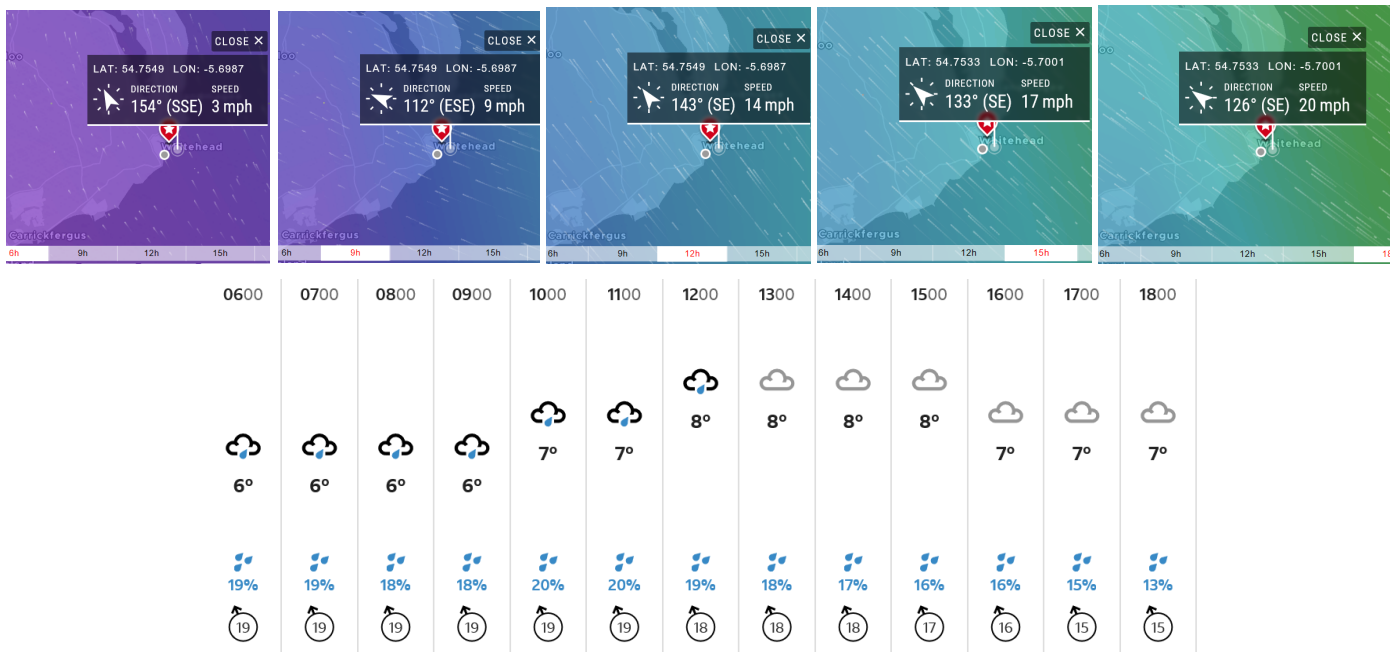
This limit may be rowable for an *Off-shore* wind if the landscape gives significant *leeward* shelter. Whitehead promenade faces in a South-Easterly direction, **therefore, westerly or northerly breezes are the most favourable for rowing in Whitehead**, as they can be undertaken on the *leeward* side of the town (particularly under the shelter of the headlands). However, the cox must be wary of going beyond areas of sheltered water (e.g. beyond Blackhead) or being blown away too far from the shore as the boat can quickly be exposed to poorer conditions.



Marine Chart for Whitehead

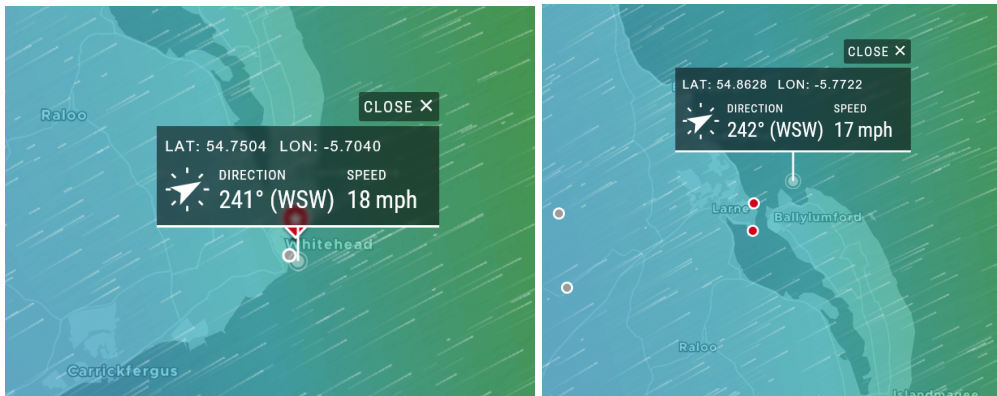
Forecast Assessment

Here is a wind forecast from *Windfinder* over the course of a day. Compare this to the forecast from the BBC for the same day. It is evident the weather forecasts can be unpredictable which is typical of weather in the British Isles, particularly when low pressure systems are sweeping in from the Atlantic.



On this day, an outing in the morning might well be possible in the morning if the Windfinder predictions are accurate. At 9am a *south-easterly (on-shore)* wind of 9mph is predicted, which seems well within limits. However, the cox must be aware that the forecast predicts substantial strengthening of the wind through the morning and the outing plans should be adjusted to account for this additional risk.

The following forecast shows a 18 mph south-westerly wind. As there would be little *leeward* protection in the bay, conditions would not be good. An outing in Brown's Bay might be more favourable as headland there would provide a measure of shelter, but rowing outside Brown's Bay would not be recommended.



Tides/Currents

General Considerations

For coastal rowing within Whitehead Bay, currents due to the tides are usually a secondary consideration after the wind. An outgoing tide from Belfast Lough will result in drift towards the North Channel but this may re-circulate close to shore. However, at other locations tides are major considerations e.g. in the North Channel.

At low tide extra care must be taken to avoid rocks, particularly when launching and landing. The BBC tide tables can be used to determine the water level at the start and end of an outing. Boats can normally be launched from a trolley/trailer from the Kennedy Point slipway as long as the **water level is 0.5 m or greater**. If the level is below this, additional people will be required to lift the boat.

Tidal Action and Terminology

Tides are due to the gravitational pull of the Moon and Sun on the Earth, with the Moon having the greatest effect. This causes the water in the oceans to be stretched from a sphere into an oval as shown below. As the Earth rotates once in 24 hours, this means there are two high tides and two low tides in a day. However, due to the rotation of the Moon about the Earth (which takes 28/29 days), the high/low tide times shifts by almost an hour each day as can be seen below for the tide in Carrickfergus over 6 consecutive days. The level of the high and low tides will vary depending on the relative positions of the Sun and Moon. When these are aligned,

particularly high and low levels are produced (spring tide), whereas when they are out of alignment the **tidal range is low (neap tide)**. Unlike the weather, the time and height of tides are highly predictable, so that accurate tide tables can be produced years in advance.

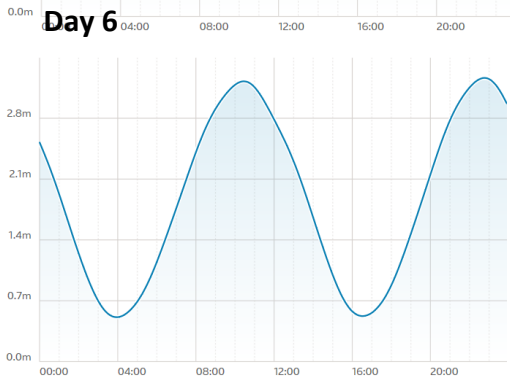
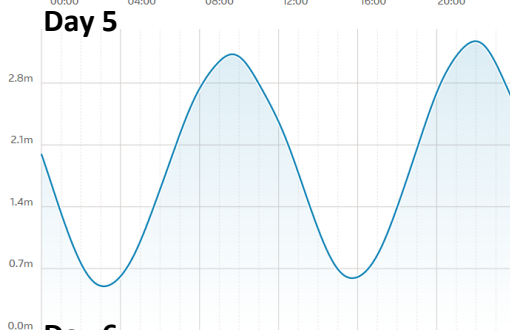
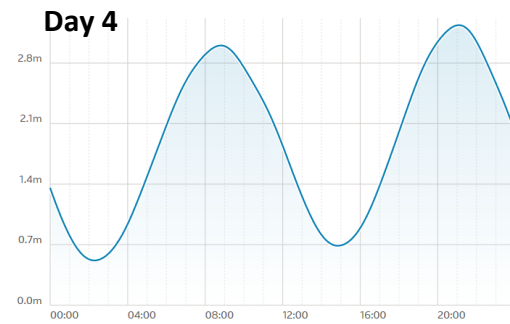
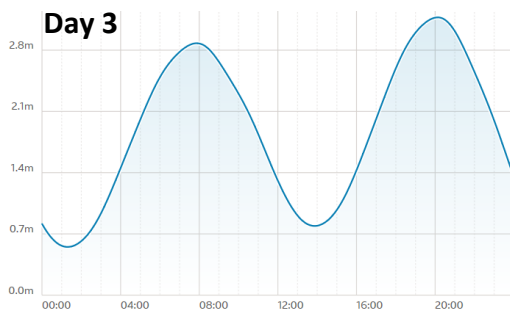
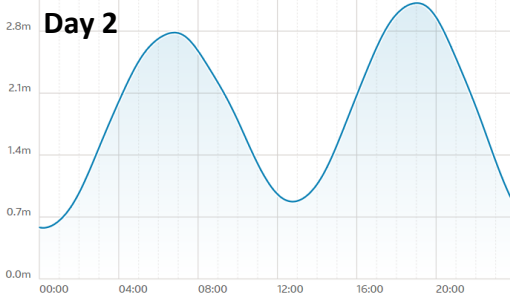
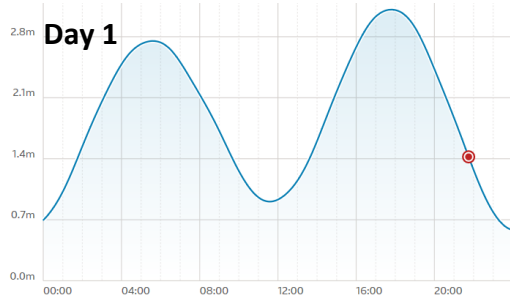
Tidal Currents

The gravitational force acts on the large mass of water in the oceans causing the level to rise and fall. However, the effect this has on the sea levels at different parts of the coast is dramatically different as this water will have to flow past various land features suppressing, strengthening, or disrupting the flow. For instance, the only connection of the Mediterranean Sea to the Atlantic Ocean is via the narrow Straits of Gibraltar, meaning that the tidal range in the Med is very low (about 0.2-0.4 m). By contrast the Bristol Channel, which acts like a funnel to the incoming tide, has one of the largest tidal ranges in the world (up to 13 m). Tides are caused by displacements of water and it takes time for these massive bodies of water to be shifted. As a result high/low tide times are specific to a particular location. For example high tide in Whitehead differs from high tide in Ullapool on the west coast of Scotland by several hours.

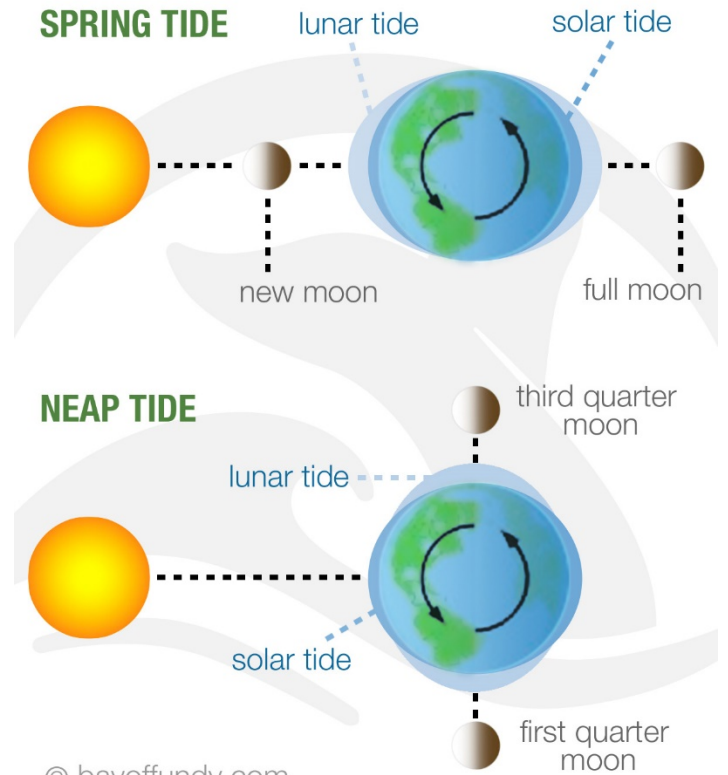
The coastline strongly affects the strength of tidal currents as well as tide times. Water from the Atlantic flows into the Irish Sea via the relatively narrow North Channel. This produces strong currents between Northern Ireland and Scotland making this stretch of water quite dangerous. By contrast, the tidal currents in Belfast Lough are relatively weak. Where tidal currents from different directions meet, this can produce difficult conditions for rowing. This is sometimes evident at Blackhead. Tidal currents will be weakest close to high or low tide and strongest in between. The speed of the currents for a spring tide will also be almost double that of a neap tide.

So the cox must be aware of the strength of these currents. The tidal stream chart for the North Channel below indicates the strength of currents around Northern Ireland. The longer and fatter the arrows, the stronger the current. The numbers indicate the speed in knots of flow under neap and spring tide conditions. For instance 25,36 indicates that the current at this point and time is 2.5 kts (2.9 mph) for a neap tide and 3.6 kts (4.1 mph) for a spring tide. The cox should bear in mind that a strong coastal rowing crew, should be able to maintain a steady pace of 6.5 kts (7.5 mph), would be significantly slowed down if rowing into such a current. Similarly, an inexperienced crew (or crew with an incapacitated rower) may be unable to make any progress in these conditions.

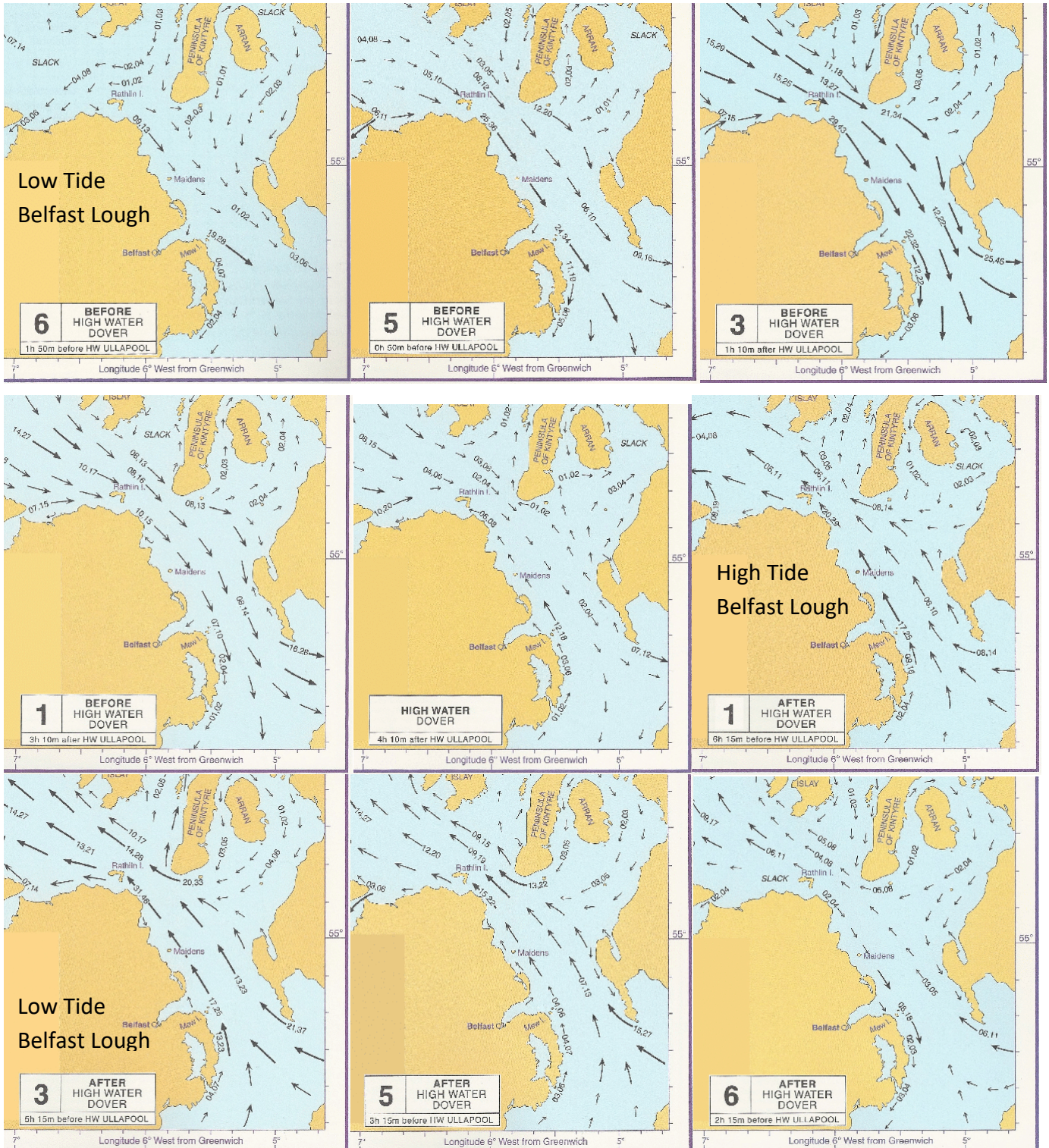
Carrickfergus Tide



The Tidal Effect of the Moon and Sun



Tidal Currents in the North Channel



Sea Conditions

Sea conditions are determined by the waves and swells present in the water. A wave is a moving disturbance/undulation in the level of a body of water which is typically caused by the local wind conditions. A swell is a longer, more consistent series of waves caused by more distant weather systems which continue even when the local wind dies down.

Waves

The viability of coastal rowing is normally limited by the height of the waves which is determined by the wind speed and direction. In other locations the confluence of tidal currents can also cause choppy wave conditions. **Rowing should generally be suspended when the wave height exceeds 1m (3 ft).** As a visual guide, when white caps (horses) are widely prevalent on the waves, then rowing should not proceed.



Choppy but rowable conditions



Foreground - sea rowable. Further out - challenging conditions

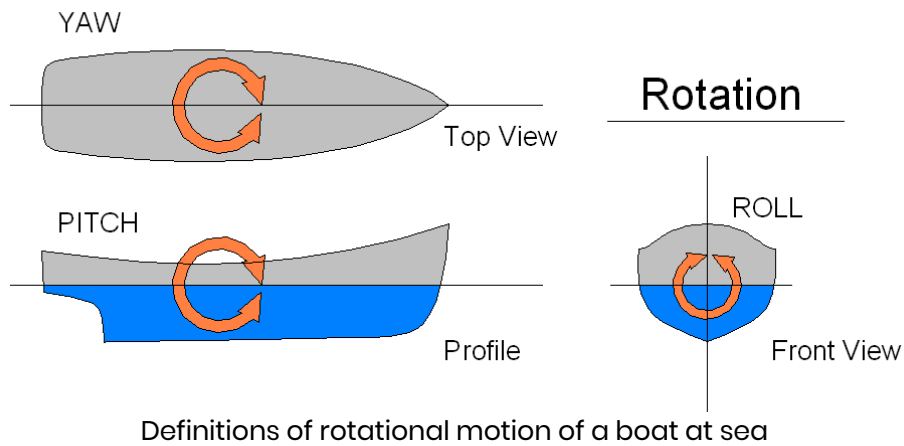
Swells

A swell is defined by its height, the direction it is moving in, and the wave length (distance between peaks) or the time period between peaks. In Whitehead Bay, rowing conditions are usually determined by the choppiness of waves rather than swells as Belfast Lough offers some measure of shelter. Occasionally there may be a strong swell coming in from the North Channel due to a storm further away. At other locations, swells will be more prevalent, e.g. on the North Coast or Antrim Coast.



A long period swell coming onto a beach

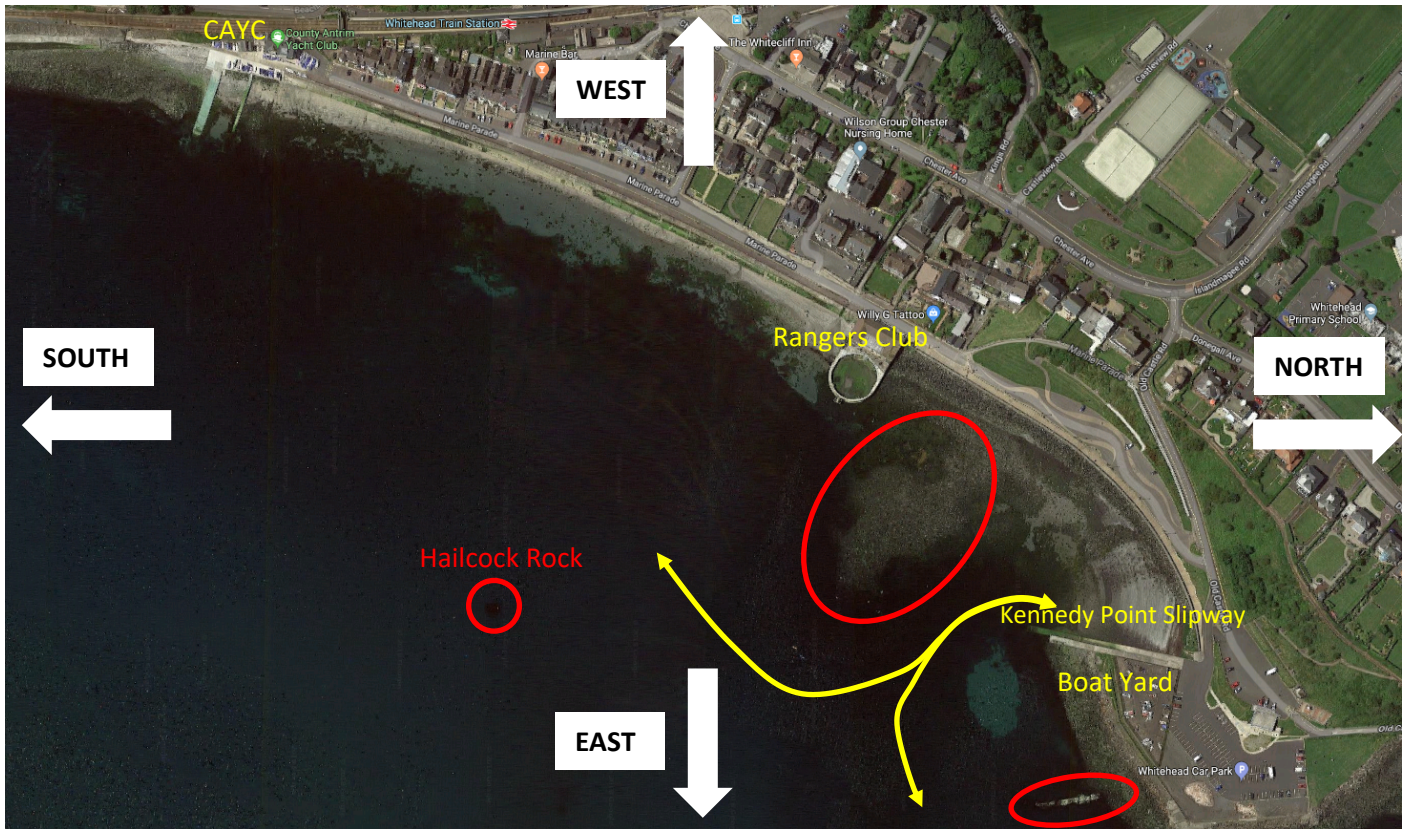
Swells are easier to row in than shorter, less predictable waves of similar height, especially when the wavelength is longer than the size of the coastal rowing boat. However, it requires considerable skill from rowers and cox to move the boat effectively in swells. If a swell is coming side on to the boat (broadside), it is very challenging for the rowers as this strongly affects the balance (roll) of the boat. A head-on swell is easier to row in as roll is minimised, though the boat will pitch up and down from stern to bow. For this reason a very heavy rower should not row at Bow in a swell as the additional weight will cause the bow to pitch deeper into the water. If the swell is coming in at an angle to the bow, then the bow of the boat will yaw slowly from side to side. The cox should resist the temptation to fight against this yaw motion with the rudder as this will cause the boat to roll and slow the overall speed.



Underwater Hazards

Shallow water should be avoided when rowing and this requires some local marine knowledge. The best way to get a feel for this is to look at the coastal environment at a low tide and if available, a local nautical chart. The drafts of coastal rowing boats are relatively shallow but the rudder is a good bit deeper and liable to get damaged in shallow water. The rudder should be removed when landing the boat in shallow water, e.g. a beach. In more difficult conditions shallow water should also be avoided as wave height increases as the depth decreases. In unfamiliar water the cox should remain vigilant to spot any underwater hazards which may be evident from patches of seaweed or where the water surface looks different from surrounding areas.

Specific hazards to be aware of along the coast of Whitehead are the shallow rocky areas between the Rangers club and the Boat Yard which extends far out as a causeway at low tide. Also avoid Hailcock Rock which is almost in line with Marine Avenue. It is usually marked with a large red buoy in summer by CAYC.



Whitehead Bay courtesy of Google Maps. Arrows show entrance and exit channels from the Launching Slipway. Hazardous rocks are shown in red.

Other Environmental Factors

Fog

Coastal rowing should not be undertaken when visibility is poor. In the event of thick fog enveloping the crew during an outing, the cox should return to the boat park remaining close to shore. If necessary, the compass in the cox bag can be used to get a bearing to the shore.

Temperature/Clothing

The crew should take personal responsibility to ensure they have appropriate provisions and clothing, but the cox should check before launching. Rowing is vigorous exercise and rowers will quickly warm up, and multiple layers are advisable to account for air temperature and exposure to the elements. Rain jackets should also be brought when rain is a possibility. Water should be brought by each rower in all weathers but particularly on hot days. Sun-screen is also essential as reflection from the water increases the chances of sun-burn. The cox should not forget their own protection, particularly taking into account that they need considerably greater insulation, with hat, gloves, thick layers, and wind-proof jacket essential for most of the year.

4. Seamanship and Safety

To safely conduct coastal rowing outings, the cox should become fully familiar with the details of the *WCRC General Risk Assessment* document (in preparation). The first responsibility of the

cox is to ensure the safety of the crew. During outings, the cox needs to keep their head up to continually assess the local environment and the position of the boat relative to the shore, rocks, underwater hazards and other boats. This will require the cox to be knowledgeable about the local shoreline and sea charts to account for hazards which may or may not be come into play depending on the tide, sea and wind conditions. If conditions worsen, the cox must assess if the outing should be terminated given the strength and competency of the crew.

Mitigating Risk

There are simple ways of mitigating the risks identified in the *WCRC General Risk Assessment* document. Here are a few which should be considered when planning or executing a coastal rowing outing:

- The boat is seaworthy and well maintained
- People on land are aware that a crew is going out
- The crew has reliable means of communication
- There is appropriate safety equipment on-board
- The relative strength and experience of the crew is appropriate for the conditions and outing plans
- The crew is appropriately positioned in the boat according to their size, strength and ability
- The weather forecast and tidal timetable has been considered, particular if wind is predicted to strengthen
- Can another coastal rowing crew or motorised vessel available accompany the boat?

Planning an Outing

The cox may be in charge of an outing and keeping the crew and equipment safe, but what is purpose of the outing? How long/far will the crew row for? What is it meant to achieve? What exercises are going to be conducted? Are the conditions and location appropriate for these exercises?

The answer to these questions will vary depending on the overall motivation of the rowers, guidance from coaches, and the local environment and conditions. The cox should include an appropriate warm up routine on shore and/or in the boat, particularly if high intensity rowing is required. The cox must also factor in the experience and strength of the individual rowers and be prepared to adjust the outing if rowers are struggling with the physical or technical requirements. The types of the outing may include the following:

- Social/Touring Rowing
 - Long paddle to a destination, e.g. Gobbins, Carrick
 - Short easy paddle
- Race Training
 - Technical – series of exercises either for beginners or experienced rowers to improve technique
 - Stamina Building – long rowing pieces over fixed time or distance, including exercises to maintain focus
 - Cardio Building – multiple short pieces, interval training (fartlek)
 - Pre-Race Preparation – sharpening up via practice starts, turns, and bursts

Plans for an outing/trip should be discussed with the committee/coaches of the club and approved in advance. The following preparation should then be undertaken:

- Organise crew and time
 - Check if the tide for desired outing is appropriate (must be greater than 0.5m for launching and landing boat, unless extra bodies are available to lift boat up the beach at low water)
 - Give information to the relevant Spond administrators to create an event for people to sign up
- 24 h environmental assessment
 - Check potential crew composition
 - Assess weather and wind conditions are suitable for the experience of the crew
 - Be ready to cancel outing if the forecast is unsuitable
 - Check the availability/seaworthiness of a boat to row
 - Acquire a safety bag and keys to the boat park/trailer
 - Ensure the VHF radio is charged
- 0-6 h – Final outing planning
 - Check sea conditions in advance of the outing (can use experienced person in the vicinity)
 - Assess the abilities of the individual rowers
 - Determine the purpose of the outing
 - Select rowing positions
 - Formulate an outing plan

Safety Checklist and Launch

The cox needs to perform a pre-launch safety assessment. This includes the following checks:

- Is it safe to proceed with the outing from assessment of the current and expected sea and weather conditions, taking into account the experience of the crew?
- Check personal safety of crew (including the cox)
 - Does everyone (including the cox) have life-jackets properly fitted?
 - Is everyone wearing appropriate clothing for the weather/conditions?
 - Is there sufficient drinking water, sun cream, etc. for the outing?
- Assess the condition of the boat and equipment for any defects
 - Bail out any water
 - Inspect hull for damage
 - Check rudder and rudder brackets
 - Check the boat deck including footstraps and pins, rowlocks, gates and oars
- Check the safety bag and its contents. It should contain at least the following items:
 - VHF radio (with sufficient battery charge)
 - Whistle
 - Bailer
 - It may also contain optional items – throw line, compass, torch, first aid kit, emergency locator beacon, air horn, etc.

- Turn on radio, make sure it is set to the desirable channel (normally channel 16). Secure it your person
- Marshall boat safely into water, bring alongside slipway (using fenders if available)
- Guide rowers into boat one at a time, ensuring boat is held stable
- Put rudder in (if water sufficiently deep) and push off

Steering and Rudder Control

The initial job of the novice cox is to master boat steering using the rudder and the rowers in the boat to orientate and guide the boat under moderate environmental conditions. To steer the boat to the left, the left rudder string is pushed forward and vice versa. The typical rudder on a coastal rowing boat is large, so inexperienced coxes will typically oversteer by a large margin. Steering a boat in a straight line is much harder than it looks, especially if there are cross winds/currents or one side of the crew is stronger than the other. The rudder ropes should not be allowed to go slack with some tension maintained on each to ensure that a steering adjustment has an immediate effect.

It takes confidence for a novice cox to make the small steering adjustments required. While this is naturally important for collision avoidance and a safe outing, in training or in races profligate use of the rudder negatively influences the boat in the following ways:

- It increases the distance rowed by the crew
- It increases the drag on the boat slowing it down
- It affects the balance (roll) of the boat

Inexperienced coxes can gain confidence by practicing steering in a straight line by regularly looking at a buoy or landmark and to make small adjustments towards that target. In order to avoid oversteering, the cox can try holding the rudder string in one hand only for 3-4 strokes at a time before making a small adjustment. Further experience can be gained by steering sweeping turns around buoys and rowing alongside other boats.

Collision Avoidance

To prevent a collision, there are certain 'rules of the road' which need to be obeyed. Full details are available at <http://www.collisionregs.com/MSN1781.pdf>; the pertinent points to remember are:

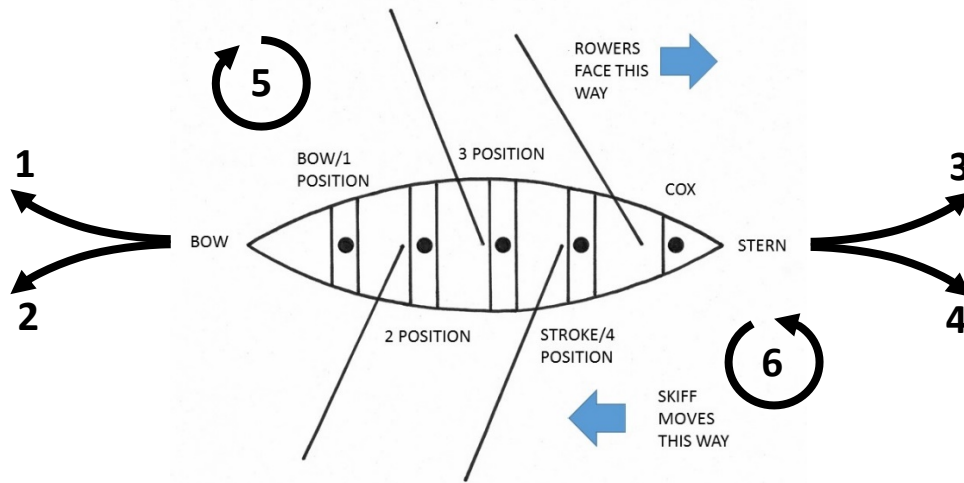
Rule 14 – Head on situation – each vessel alters course to starboard (right)

Rule 15 – Crossing situation – give way to traffic approaching from starboard (same rule as driving)

Rule 18 – Responsibilities between vessels – rowing vessels must give way to sailing vessels

Positioning/Orientating the Boat

When operating close to a hazard, e.g. the slipway when launching or landing the boat when windy, the cox must be in full command to the crew in order to orientate the boat correctly and move away from the hazard. This requires the cox to be able to quickly identify and command individual rowers to row or back down.

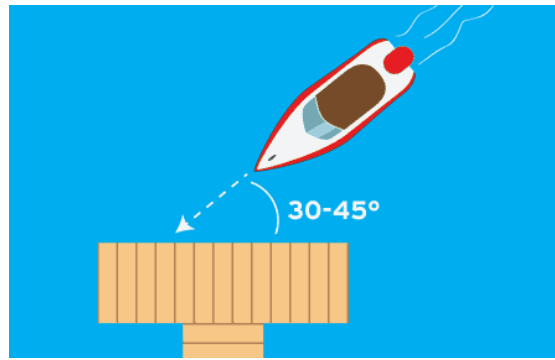


1. Move boat forward while turning boat to starboard/strokeside – **Row on/Tap it 1/Bow**
2. Move boat forward while turning boat to port/bowside – **Row on/Tap it 2**
3. Move boat backward while turning boat to starboard/strokeside – **Back it 3**
4. Move boat backward while turning boat to port/bowside – **Back it 4/Stroke**
5. Turning the boat starboard/strokeside/clockwise – **Row on 2+4(bowside), Back it down 1+3(strokeside)**
Alternatively just **Row on 2, Back it “down 3**
6. Turning the boat port/bowside/anti-clockwise – **Row on 1+3(strokeside), Back it down 2+4(bowside)**
Alternatively just **Row on 1, Back it down 4**

Landing the Boat

Coming alongside the slipway is the point in an outing when the boat is most likely to get damaged. This is a tricky manoeuvre especially in difficult conditions. Ideally someone on shore will assist and the cox should wait until they are in position to help.

- The boat should approach a slipway or pontoon at an angle (30 degrees) at very low speed.
- The cox commands the crew to “easy oars” well before the slipway. The boat can then drift in, but the cox must take into account the influence of wind, waves etc.
- The cox instructs the crew to remove their feet from footstraps and put down fenders if available.
- Just before the bow is at the slipway, gently turn the rudder to turn the bow away from the slip to bring the boat parallel.
- If travelling too fast, get the crew to hold it up and use individual rowers to tap it or back it down if necessary.
- If the water is shallow or landing a boat on the beach, remove the rudder in advance to avoid it getting damaged.



5. Coxing Commands

Basic Commands

- Giving commands to individual or groups of rowers (1, 2, 3, 4), (Bow pair, Stern pair), (Bow side, Stroke side), (Full crew)
- *Tap it* (take short strokes using arms only)
- *Back it down* (row reverse strokes using body and arms only)
- *Come forward* (come fully forward to the Catch with the blade square and buried in water)
- *Are you ready? Ready All!* (rowers cautioned they are about to row and should put their oars into the water to show they are ready. Other coastal clubs tend to use *Oars In!*)
- **Row! Go! Begin!** (start rowing)
- *Easy, Easy there, Easy oars* (stop rowing pausing at the hands away position) *And drop* (following *Easy* blades are dropped onto the water in a feathered position with crew relaxed)
- **Hold it up!** (emergency stop where the blades are squared into the water and held there until boat stops)
- **Head crew! Have an eye! Ahoy there!** (warning given to another crew/boat who are on a collision course)
- **Give Water!** (Warning to another boat your crew is coming past/through)
- Other technical rowing exercises. *Arms only. Bodies only. Square blade rowing. Single strokes finishing hands away. Single strokes finishing bodies over. Full length strokes. Light Pressure. Half Pressure. Full Pressure.*

Voice Command and Timing

Most of the coxes commands are given in two parts, a cautionary part in which the action to be taken is described and an executive part determining exactly when the change is to be enacted. The voice should always be loud and clear enough for all rowers to hear with the executive part being particularly short and sharp. Examples

- *Are you ready?* **Row!**
- *Bow pair.* **Tap it!**
- *Next stroke.* **Easy there!**

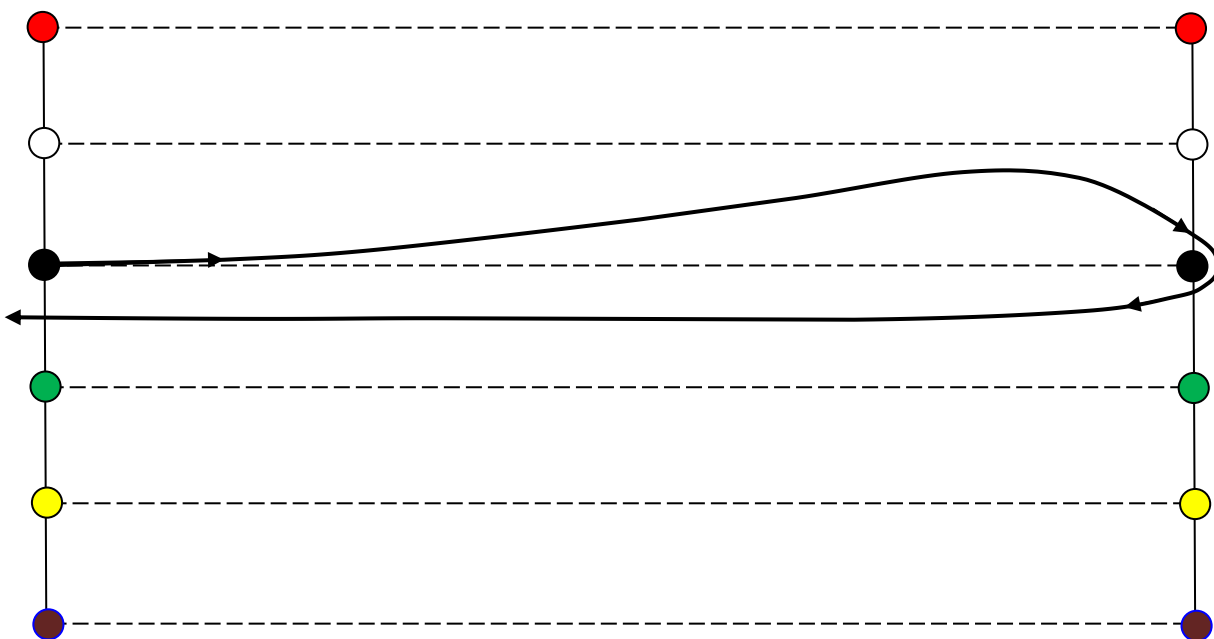
The timing of these commands is given in the rhythm of the rowers, with words usually spoken at the catch when the oar enters the water. For example *Next Stroke* is spoken at the catch.

Easy! is spoken at the next catch with the rowers completing that stroke and pausing at the hands away position.

When talking to the crew and encouraging them to row together, the cox should talk to them in rhythm with the strokes, speaking predominantly at the catch or finish, i.e. when the oars are going into or out of the water.

Coxing a Race

Coxing a race, requires consider practice to be able to attach the boat and line it up at the start, and steer the boat effectively while at the same time giving clear commands to the crew. The key point for a novice racing cox is to concentrate on travelling the shortest possible distance from the Start to the Finish. It is very easy for an inexperienced cox to be overly influenced by the immediate environment – own crew, nearby crews, rather than keeping an eye on the destination (the buoys marking the turn or the finish). Similarly, much ground can be lost by overshooting a buoy while going around it. For a regatta race the following course should be steered.



“Ideal” course to steer in a multi-lane coastal regatta

The Start

Getting attached to a starting buoy and keeping the boat pointing in the right direction, sometimes for many minutes in difficult conditions, is one of the toughest skills for a cox and crew to master. The easiest way to attach to the buoy is by coming from behind, pointing down the racing line, and slowly rowing alongside, with the cox grabbing the handle or line attached to the buoy. Alternatively the crew can back down onto the buoy.

Once attached, the cox should immediately use the rowers (usually 1 and 2) to point the boat along the racing lane. If there is any wind and current, the bow of the boat will quickly be moved off-line, so the cox should try to keep the bow pointing slightly into the wind or current even if

this is off the racing line. The crew should also keep tapping the boat to ensure the buoy line is stretched to its maximum thus ensuring the greatest forward advantage to the crew at the Start (especially if there is a head-wind). While alignment adjustments are being made, the Stroke rower (No. 4) should keep their arm up to indicate the crew is not ready to start.

- Rowers should completely cover the end of their oar before the start. The cox should identify if this is not the case for individual rowers.
- 3 x short strokes with no body swing (sit up straight and don't lean back). The rowers take time on the first stroke and then gradually build the rhythm as the boat speed increases. Called "1,2,3" at the catch by the cox.
- 3 x lengthen strokes where the body starts to swing so you are at full slide by the 6th stroke. Called "lengthen, lengthen, lengthen" at the catch by the cox.
- 10 full length, flat out strokes. Called by the cox "1,2,3,4... ..8,9, check (or control)" at which point the rowers push their hands away from the finish more slowly but keep pushing as hard as they can with the legs on the next stroke. This will slow the rhythm down without losing much boat speed.

The Turn

Any buoys which are in integral part of the racing course should be passed to starboard, i.e. all turns are taken by turning right. The cox should make full use of the width of the lane to make a wide sweeping turn into the buoy. That way part of the turn is already completed before the buoy is reached. However, the cox must be aware that if a boat in the lane to the left is ahead, it will emerge first from its buoy and has right of way. **This is the most dangerous part of a coastal rowing regatta race as head-on collisions are possible.** Despite, the adrenaline of the race, the cox must keep calm and avoid collisions even if this disadvantages the crew in the race. For a legal racing turn, only the hull of the boat needs to go around the buoy. Longer, challenge races will probably have larger buoys for which the oars as well as the hull will have to round. Here is the procedure for a racing turn:

- The cox will warn the crew when they are about 50m from the turn.
- Then cox will call, "Next Stroke" at a catch. At the following catch the cox calls, "Turn!"
- Cox pulls hard on the rudder to help turn and slow the boat down
- The full crew completes the stroke
- 4 does not take the oar out at the finish and holds it in the water pushing against it and leans inwards towards the end of their oar (ideally pushing the oar deeper into the water)
- 3 rows on at a steady pace (not too fast), getting as long a stroke as they can (without hitting 4 in the back)
- 2 moves in time with 3 but does not put their oar in the water (air strokes)
- 1 tries to get as long a stroke as they can to pull the bow around the buoy keeping in time with 3
- 4 is still pushing against the oar and should get fully forward ready for 1st stroke out of the turn
- When boat is about $\frac{3}{4}$ way around, cox calls "Ready" as the oar of 3 goes in the water, then calls "Go!" at 3's next catch.
- Do another Start. Get to the Finish as fast as you can.

Race Warm-Up

This is an example of a full race warm-up. It should be altered depending on the time available and readiness of crew (should be shortened if crew has already raced earlier)

1. Fixed seat warm up, lively rate
2. Full length stokes, at low rate
3. 20 strokes firm at low rate
4. 20 strokes light
5. 20 strokes firm at race pace
6. Easy
7. 2 x 3 stroke start
8. 1 x 6 stroke start
9. 1 x 20 stroke start
10. 2 x practice turns
11. Attach to buoy

6. Emergency Procedures

Local Emergency Services

The main Coastguard Operations Centre for Belfast and Northern Ireland is actually located in Bangor near the Marina. The coastguard is the first point of contact in an emergency situation. The Royal National Lifeboat Institute (rnli.org) is a volunteer charity which aims to improve safety at sea and operates lifeboats across Britain and Ireland on a volunteer basis. It has several stations in Northern Ireland which can launch lifeboats on short notice (typically less than 15 minutes) for emergency rescues. Lifeboats stations are located at Bangor, Larne, Donaghadee, Portaferry, Newcastle, Kilkeel, Cushendall, and Portrush.

Distress Calls

Mayday! – is a distress signal, which means that there is imminent danger to life or to the continued viability of the vessel itself.

Pan-Pan! – is used to declare that there is a situation that is urgent, but for the time being, does not pose an immediate danger to anyone's life or to the vessel itself.

DSC Alert – A Digital Selective Calling Distress Alert provides a rapid and accurate means of reporting a distress to another radio station. Most modern VHF radios are fitted with a DSC button. The DSC signal has a longer range than the analog VHF signal and can include additional information such as GPS data.

999 – if there is a connection to a mobile phone network, emergency services can be called. This might be more appropriate if the boat is not in danger but a crew member needs medical assistance at the slipway.

VHF radio vs Mobile Phone

In an emergency, the key thing is to raise the alarm. On land this would typically be done with a mobile phone but at sea this is a poor substitute for a radio as:

- mobile phone networks may offer poor coverage at sea

- you can only ring one number (for example, the Coastguard); with a radio, everyone hears your call for help. There could be a vessel a mile away that hears you on the radio and could reach you in minutes
- lifeboats and helicopters cannot home into the signal of a mobile phone - with a radio they can and will find you more quickly.
- The VHF radio is waterproof

VHF Radio Operation

VHF radios are analog transmission devices which enable line-of-sight communication between vessels or the shore. The range depends on the height of the antennae of the sending and receiving devices, with the higher the antennae the further the range. The range between two coastal rowing boats, which are low to the water, may only be 4-5 miles (or less in poor conditions), but raising the radio higher by just 1-2 metres may extend this by a few miles. Communication with coastguard stations possessing large antennae will extend the range much further, e.g. communications from the Belfast Coastguard are easily received in Whitehead. However, as coastal rowing normally takes place close to the shore, VHF communication may not be possible due to headlands obstructing line-of-sight to rescue stations.

The coastguard can be contacted directly on a VHF radio in British and Irish waters via Channel 16 (Distress).

The club owns two VHF radios – Standard Horizon HX870 models. Ideally the cox should attend a course on how to use VHF radios at sea, but for normal coastal rowing training sessions such a detailed knowledge is not essential, However, it is imperative that some simple procedures can be followed in emergency situations. The radio has many functional features, but the cox only needs to be aware of a few key operations.



Basic Procedures

1. Press the ON button and hold until the display comes on
2. Check the battery
3. Check the Distress Channel (16) is selected
4. If not press the red button which will set the radio to channel 16
5. Communicate by holding in the PTT (push-to-talk) button and hold it in while talking
6. To activate the DSC Distress beacon, lift the cover on the distress button and push it (see below)



Pressing the DSC Distress button will send a signal digitally to the coastguard. As the HX870 has a Global Positioning System (GPS) receiver, the DSC signal will include GPS information.

Here is more detailed information on the radio controls. The manual for the particular model used can be downloaded by searching for it on the internet.

- ① **Power**: Press and hold to turn on/off the transceiver.
- ② **PTT (Push-To-Talk)**: Activates the transmitter when pressed.
- ③ **SQL**: Press to display the SQL level setting screen, then press the **CH▲** key to squelch or press the **CH▼** to un-squelch the radio.
- ④ **MIC**: Speak slowly and clearly into the **MIC** hole having it about 1/2 to 1 inch (1.2 to 2.5 cm) away from your mouth while pressing the **PTT** key.
- ⑤ **Left/Right Arrow**: Press to toggle the on-screen menus to right/left.
- ⑥ **CLR**: Press to cancel a function or menu selection.
- ⑦ **MENU**: Press to access MENU.
- ⑧ **DISTRESS**: Activates a DSC distress call. Lift the red cover, press the **DISTRESS** once, then press and hold until the radio alarms.
- ⑨ **Soft keys**: These three programmable keys can be customized through the setup menu mode. By pressing one of these keys briefly, display the key functions at the bottom of the display.
- ⑩ **Strobe Light**: Blinks the internationally-recognized Morse Code "S.O.S" message by pressing the **[STROBE]** soft key.
- ⑪ **CH▼/CH▲**: Press to change the operating channel.
- ⑫ **On**: Press and hold to lock and unlock the keypad.
- ⑬ **16/S**: Press to recall channel 16. Press and hold to recall the sub channel.
- ⑭ **VOL-/VOL+**: Press to adjust the speaker audio volume.



Emergency Alert Instructions (as recommended by RNLI)

- Ensure channel 16 is selected
- Press the RED button to activate the DSC alert if fitted
- Press and hold transmit button and say:
 - **MAYDAY! MAYDAY! MAYDAY!**
 - THIS IS... [BOAT NAME – 3 TIMES]
 - OUR POSITION IS... [EG. 400M SOUTH-EAST OF WHITEHEAD], GIVE GPS IF AVAILABLE
 - WE ARE...[DESCRIBE THE NATURE OF THE DISTRESS, THE ASSISTANCE REQUIRED, NUMBER OF PEOPLE + ANY FURTHER INFORMATION]
 - OVER

For urgent but non-emergency situations, replace the *Mayday!* call with *Pan-Pan!*

Distress Scenarios

The cox must be able to take appropriate action when problems or emergencies are encountered. Here are a few scenarios and the action which should be taken (which may need to be adapted depending on the particular circumstances).

Emergencies

Situations where there is risk to life are emergencies and **Mayday!** and/or **DSC** distress alerts must be sent.

- The boat is taking on excessive water (either from a leak or waves) and will sink imminently

In most situations, water in the boat can be bailed out (hence the importance of bringing one along), but if the boat has a large hole in the hull or the conditions are extreme this will be impossible. Some boats, e.g. the one-design yawl (ODY), will have flotation compartments to aid buoyancy so the boat will not “sink” as such. The procedures are as follows:

- Tell the crew to remove their feet
 - Send a Distress call
 - Get crew to keep rowing and head towards the nearest safe harbour, if feasible
 - Instruct the crew to inflate their lifejackets before they enter the water.
 - Reassure the crew that help is on the way and that they must stay with the boat to await rescue.
- The boat flips over

This is a highly unlikely, but not impossible scenario as the boats are designed to be stable and have added stability when the oars are properly fixed and held by the rowers. Stepping into and out of the boat from a slipway/pontoon is actually where this is most likely, so always make sure the boat is being held when people stand in the boat. Flipping is more likely to occur for skiffs if the oars are not completely secured into the rowlocks (unlike a gate on a ODY). If the boat does turn over at sea, then the crew should:

 - Inflate lifejackets
 - Hold onto the boat (do not attempt to swim to shore)
 - Send a Distress call
 - Await rescue
- Man/Person Overboard (MOB)

While this is not necessarily an emergency situation, this can quickly escalate particularly for cold conditions. The cox should judge the situation and send a distress call if immediate recovery is not possible, making sure an ambulance is available at a landing point. Recovery procedures:

 - Shout to the crew “Man Overboard!”
 - Shout to the MOB to inflate their lifejacket if this has not been done already (for manual inflation lifejackets remind them the toggle is normally on the right hand side).
 - Re-assure the MOB that the lifejacket is doing its job and they will be recovered soon.
 - Bring the boat around so that it is downwind of the MOB and approach on the port side (left-, stroke-side), taking care that not hit the MOB with an oar.
 - Once the MOB is amidships where the boat is lowest to the water, hold the MOB to the side of the boat (gunnel) with the assistance of rowers 2 and 3.
 - Rowers 1 and 4 should now hold onto the oars of 2 and 3 respectively while still holding their own. All oars should be flat on the water in the feathered position for maximum stability.
 - With 1,4 and cox adjusting their weight within the boat to keep it level, 2 and 3 should attempt to pull the MOB into the boat.
 - If recovery is not possible, hold/secure the MOB to the side of the boat
 - Assess the casualty for injury, degree of shock, or hypothermia and keep the casualty warm and out of the wind.

- If possible move the boat to shore or await rescue.
 - Make sure an ambulance has been called for immediate assistance on shore.
- A crew member collapses in the boat
Even if there is a first aider on board, a coastal rowing boat is wholly unsuitable for performing effective first aid (it is not even possible to put the person in the recovery position). Therefore, the fastest route to immediate medical attention on shore is essential.
 - Assess the closest landing point which will be accessible to an ambulance crew or motorcycle paramedic.
 - Given the position of the casualty and the strongest rowers in the crew, assign one crew member to hold and protect the casualty while the other two row to shore.

Challenging Situations

There will be many other events/situations short of an emergencies for which the cox will need to evaluate the immediate or developing risk and take appropriate action. Here are a few possibilities:

- The conditions worsen to the point where the crew is unable to return to the slipway
Use a mobile phone to seek help or send *Pan-Pan!* message on the VHF.
- Crew not sufficiently strong to reach a safe harbour/landing site
Similarly, send a *Pan-Pan!* communication.
- Rudder detached, lost
It is almost impossible for the boat to keep a straight line without the rudder in place. If the cox is capable of doing so, he/she should kneel towards the stern and hold the rudder straight in the water while the crew rows towards a safe harbour. The rowers on each side of the boat should adjust their pressure to keep the boat straight. If the rudder has been lost or the cox is not able to hold the rudder straight in the water, then a *Pan-Pan* signal message should be sent on the radio for assistance.
- There is a hole or significant leak in the boat
Return to shore immediately and bail out the boat periodically. If bailing fails to reduce the water level in the boat, send a *Pan-Pan!* message on the radio.

Appendix: Local Destinations

Gobbins

Travelling to the Gobbins by sea provides a unique perspective on this tourist attraction and in the Spring and early Summer gives the opportunity to be right in among the nesting Kittiwakes, Guillemots, Razorbills and Puffins. The distance from Kennedy Point to the start of the Gobbins is 6.0 km with a further 0.5 km to the bird nesting sites around the Seven Sisters caves.

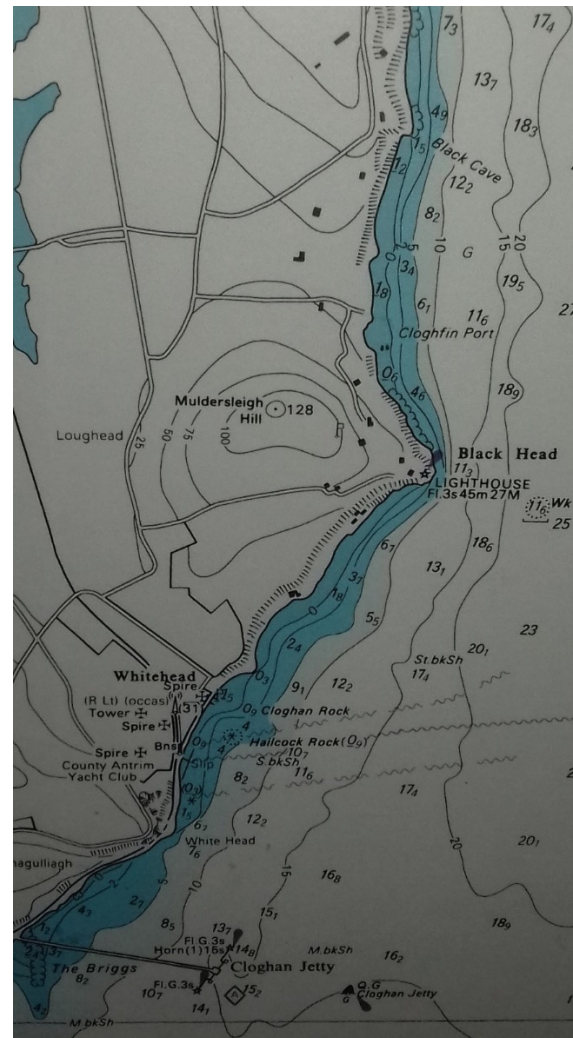
Therefore, the crew must be strong enough to row the 13 km distance. Usually this row is performed in good conditions, but the cox must consider the possibility that conditions may worsen as the outing progresses and to turn back if necessary. The cox should be aware of the wind and tidal conditions at the time of the outing as this should influence any decision making. Past Blackhead there will a strong tidal current in the North Channel between low and high tides.

The cox should also consider that there are no easy landing spots between Kennedy Point and Portmuck in case of an emergency. It may be possible to pull onto the rocky beaches at the Cove (Cloughfin Port) or at the start of the Gobbins path, but these will be difficult in poorer conditions. Access to these points from land by

Carrickfergus

It is about 9.5km from Kennedy Point to Carrick Harbour (or 8.5km to Fishermans' Quay). On the approach to Carrickfergus from Kilroot, stay at least 500m away from the promenade due to the shallow water and presence of numerous single rocks. The entrance to harbour is accessible for all tidal conditions and there is a broad, open slipway to recover the boat. There is a beach at Fisherman's Quay to land the boat (preferably not at low tide) and care must be taken on approach due to shallow water and rocks.

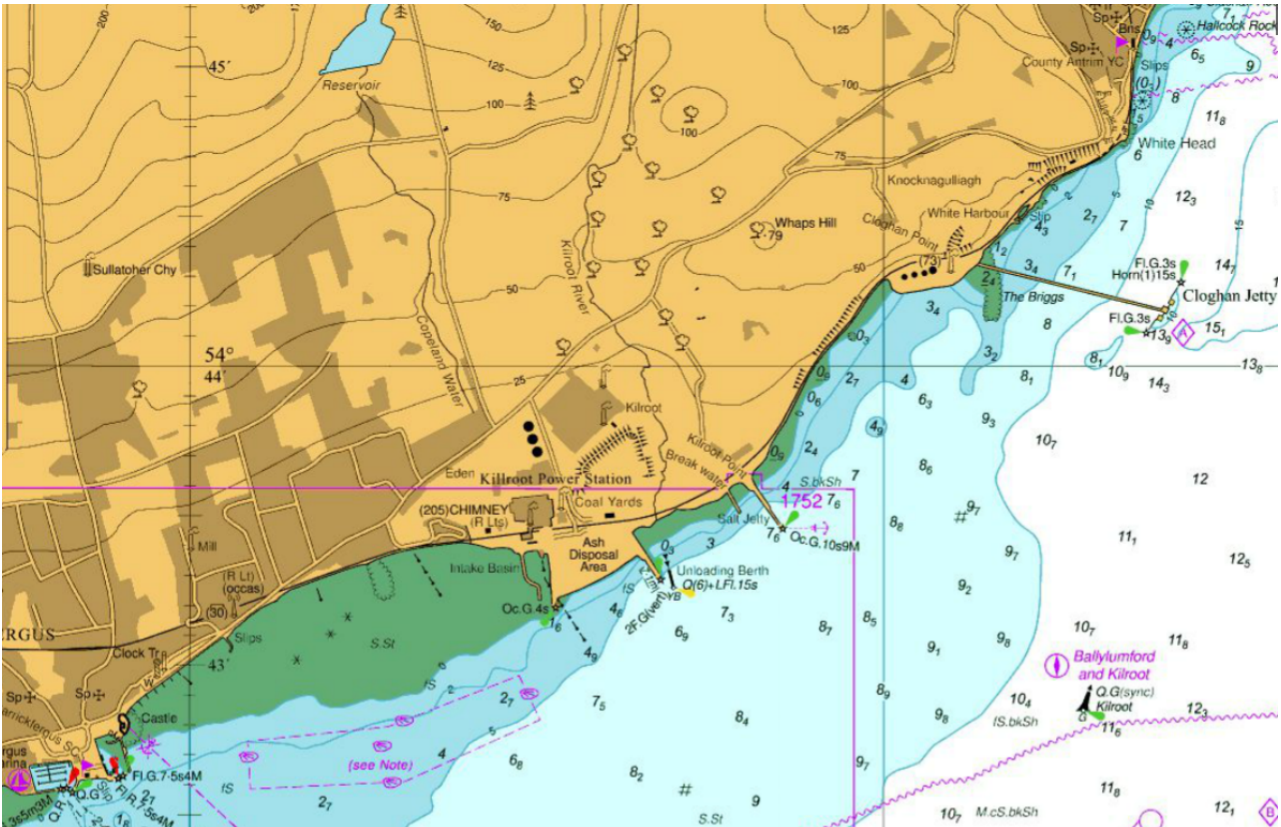
Emergency Services by the Port Road or Gobbin Path respectively are not ideal and transport to Whitehead via rescue boat is preferable.



Marine chart between Cloughan Point and the Gobbins



Carrick Harbour and Marina

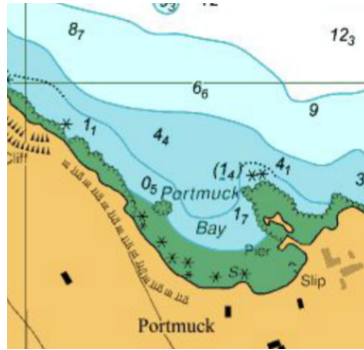


Marine Chart from Whitehead to Carrick (from www.visitmyharbour.com)

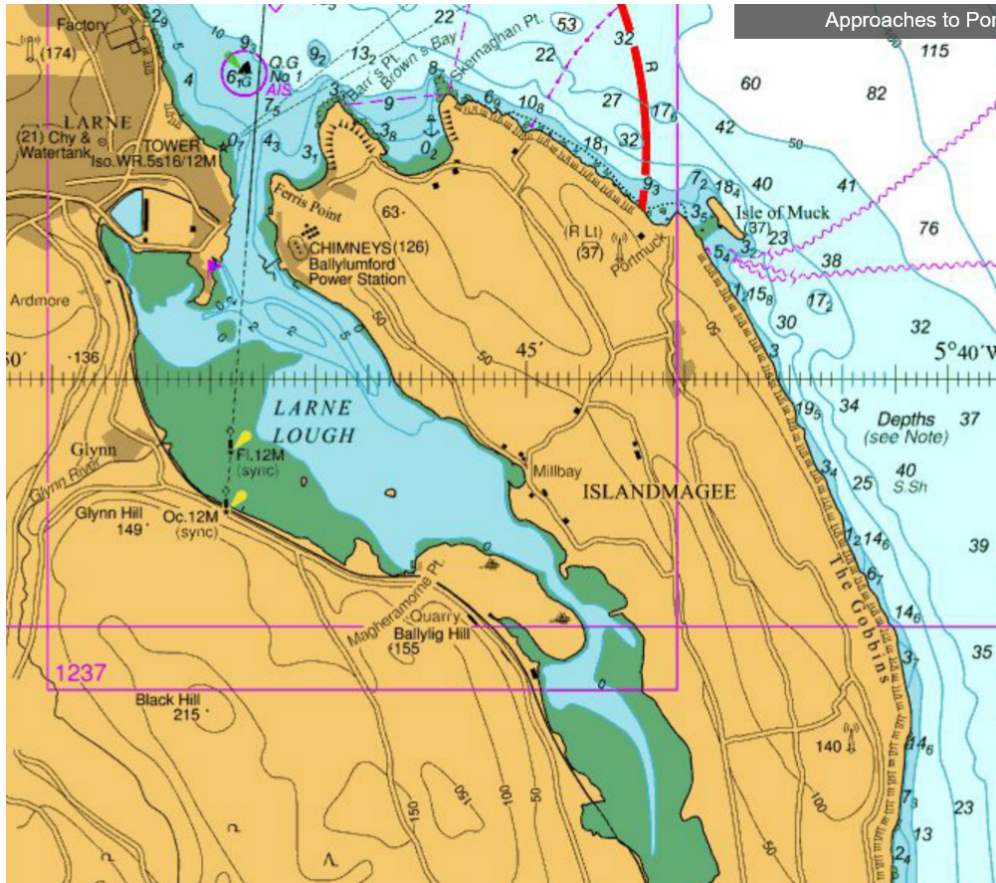
Islandmagee – Portmuck, Brown's Bay, Larne Lough

Portmuck has a sandy tidal harbour for which there is trailer access to launch or recover a boat. The row to Portmuck is a good bit further than the Gobbins (12.5km). Rowing in either direction, the cox should steer around the Isle of Muck rather than take a short cut between the island and the land. At low tide there is a causeway to the island and there can be strong currents.

It is not much further to Brown's Bay (15.5 km) where there is a sandy beach and access point for a trailer (WCRC has a key to the gate). Further on is Ballylumford Harbour (17.5 km) with a slipway for access. If travelling into Larne Lough, naturally care should be taken if there is ferry activity at the Port of Larne. Larne Lough itself offers the potential for sheltered rowing with access possible from the Blue Circle Sailing Club at Magheramorne. However, Larne Lough is shallow and tidal, so the cox should be aware of the areas which are sufficiently deep for rowing.



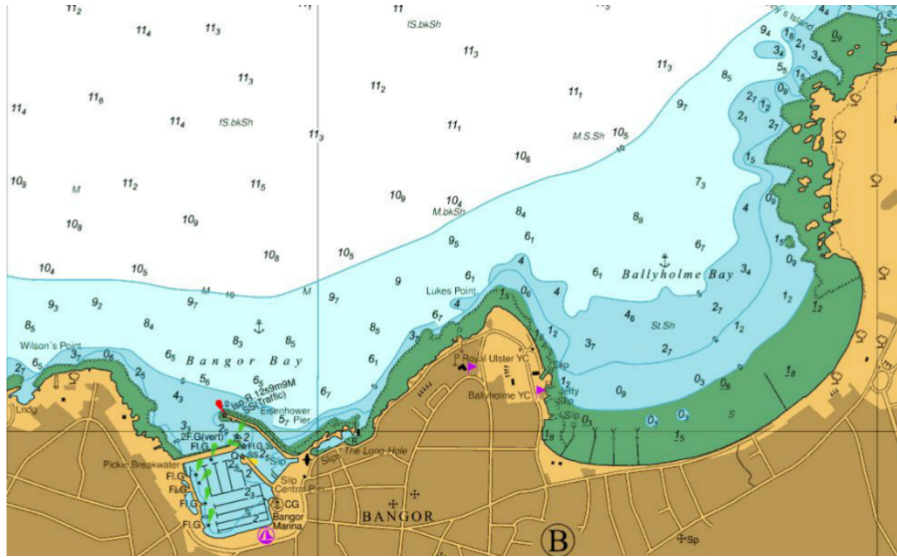
Approaches to Portmuck Harbour



Marine Map of Islandmagee and Larne Lough (from www.visitmyharbour.com)

Bangor

Bangor Marina is almost exactly 10 km from Kennedy Point. A crossing is not strongly influenced by currents, which are weak in Belfast Lough. Of course, out in the Lough there is greater exposure to the wind and swells which may be more substantial than evident from shore.



The approach to Bangor Marina