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20.05

SAIL IN ASIA

KEELBOAT CREW

STUDENT TEXTBOOK

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ISSA PUBLICATION

Electronic edition

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Course Content

The ISSA Keelboat Crew course is an introduction to sailing using keelboats. Crew level is designed as a course for beginners, so no previous sailing experience is required.

The aim is to build the students' nautical knowledge and competences to allow them **to competently take on the duties of a sailing crew on board a keelboat, in daylight hours, within sight of land, in good sailing conditions**.

To complete the course, the student needs to present a basic understanding of the given topic and frequently, but not always perform a given task correctly during the day and in good weather conditions. Upon completion, the students are eligible to undertake the ISSA Keelboat Navigator course.

Tuition is provided by experienced and highly skilled ISSA Instructors using a combination of practical instruction and theoretical teaching. Student learning is enhanced using a variety of handouts and teaching aids with correct student/instructor ratios.

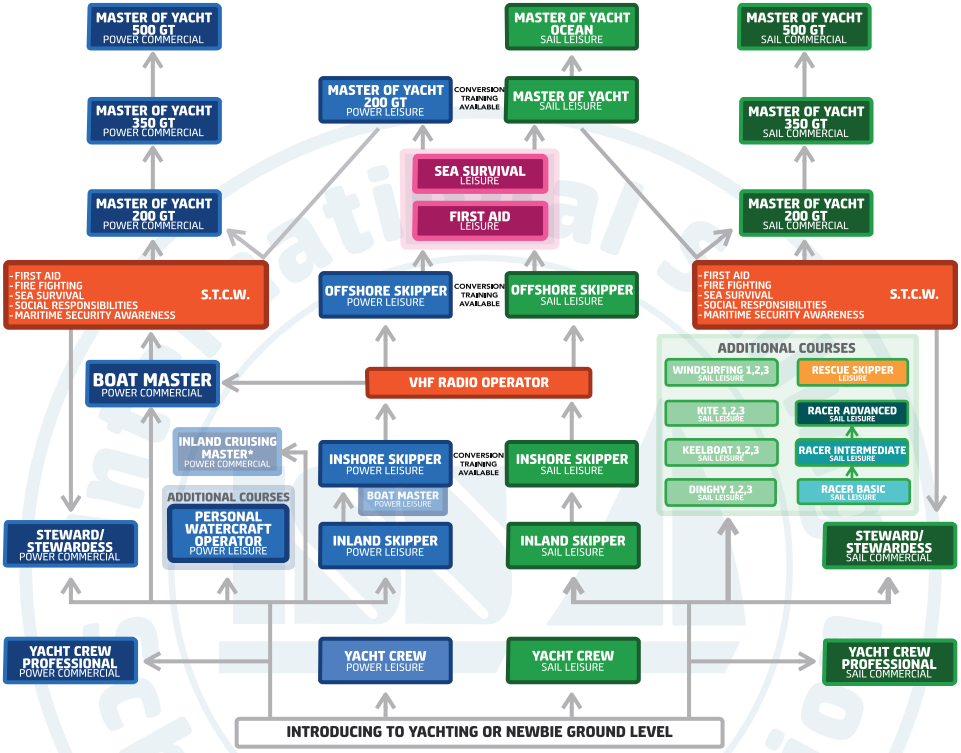
THEORETICAL TOPICS

- Yacht Construction
- Engine Handling
- Lines And Springs
- Handling Sail Sheets And Halyards
- Handling Fenders
- Anchoring
- Safety
- Handling Yacht Under Power
- Man Over Board
- Handling Yacht Under Sail
- Collision Regulations
- Navigational Aids
- Electronic-Based Navigation
- Logbook
- Meteorology
- Other Skills (Ecology, Social Skills)

PRACTICAL TOPICS

- Basics of safe onboard operations
- Fuel supply system
- Elementary yacht sailing equipment and how to use it
- Operating the outboard engine
- Knots
- Lines handling
- Safe operations of sail sheets and halyards
- Safe fenders handling
- Safety issues when using an anchor
- Safe anchoring
- Handling emergency situations
- Safe handling of the yacht under power
- M.O.B. approach under power
- Safe handling of the yacht under sails
- Practical skills in meteorology

ISSA Competence Tree



ISSA LEVEL POWER LEISURE	MAX LOA	TIME OF NAVIGATION	DISTANCE FROM SHELTER
YACHT CREW	N/A	N/A	N/A
PWC OPERATOR	N/A	DAYTIME	5 NM offshore
INLAND SKIPPER	15 m	DAYTIME	inland waters + 3 NM offshore
BOAT MASTER*	12 m	DAYTIME	10 NM offshore
INSHORE SKIPPER	16 m	DAY + NIGHT	20 NM offshore
OFFSHORE SKIPPER	24 m	DAY + NIGHT	60 NM offshore
MASTER OF YACHT	∞	DAY + NIGHT	150 NM offshore

ISSA LEVEL SAIL LEISURE	MAX LOA	TIME OF NAVIGATION	DISTANCE FROM SHELTER
YACHT CREW	N/A	N/A	N/A
INLAND SKIPPER	15 m	DAYTIME	inland waters + 3 NM offshore
INSHORE SKIPPER	24 m	DAY + NIGHT	20 NM offshore
OFFSHORE SKIPPER	24 m	DAY + NIGHT	80 NM offshore
MASTER OF YACHT	24 m	DAY + NIGHT	∞
MASTER - OCEAN	∞	DAY + NIGHT	∞

ISSA LEVEL POWER COMMERCIAL	MAX LOA	TIME OF NAVIGATION	DISTANCE FROM SHELTER
YACHT CREW	N/A	N/A	N/A
STEWARD/DESS	N/A	N/A	N/A
INLAND CRUISING MASTER*	∞	DAY + NIGHT	inland waters + 3 NM offshore
BOAT MASTER	15 m	DAY + NIGHT	20 NM offshore
MASTER 200 GT	∞	DAY + NIGHT	150 NM offshore
MASTER 350 GT	∞	DAY + NIGHT	∞
MASTER 500 GT	∞	DAY + NIGHT	∞

ISSA LEVEL SAIL COMMERCIAL	MAX LOA	TIME OF NAVIGATION	DISTANCE FROM SHELTER
YACHT CREW	N/A	N/A	N/A
STEWARD/DESS	N/A	N/A	N/A
MASTER 200 GT	∞	DAY + NIGHT	160 NM offshore
MASTER 350 GT	∞	DAY + NIGHT	∞
MASTER 500 GT	∞	DAY + NIGHT	∞

* NOTE: BOAT MASTER LEISURE & INLAND CRUISING MASTER ARE AVAILABLE ONLY TO CERTAIN REGIONS OF THE WORLD

Safety

Safety comes FIRST on all ISSA courses

As a certified Keelboat Skipper, you are in command, and you are responsible for the safety of every single person aboard, including yourself.

While being in charge of a vessel underway, the Keelboat Skipper, the helmsman, or any other person performing any crew tasks MUST NOT be under the influence of alcohol nor any other drugs.

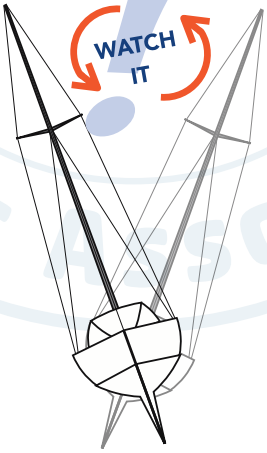
BASIC SAFETY RULES

Hazardous situations on the water happen rarely but frequently enough to do training for them meaningful. Here are some basic rules to follow.

Always keep "one hand for the boat"

Wear proper outfit, especially shoes

Always wear life protecting gear

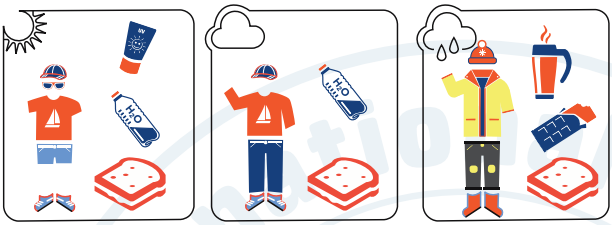


Never run on board

Avoid walking bare feet

PERSONAL SAFETY EQUIPMENT

Keep your clothing, footwear, and victuals appropriate to weather conditions

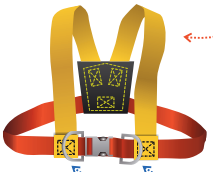


Sailing gloves are essential, and a small multitool is a handy thing to have on a keelboat

Life Jackets: You are always obliged to have a sufficient number of the SOLAS Life Jacket aboard. The life jacket keeps the head of an unconscious person above water.

There must always be at least **ONE LIFE JACKET PER PERSON** aboard. Life Jackets must be fitted with reflective tapes, whistle, and a flashlight. You can choose between **solid/rigid** ones and **inflatable** life jackets. However, keep in mind please that the inflatable ones must be serviced each year.

Personal Floatation Device (PFD): It is more convenient to wear, thus more popular and often used in water sports activities. However, **THIS IS NOT AN ALTERNATIVE TO THE LIFE JACKET**. PFD provides only floatation features. It requires you to be conscious and able to swim, as in some cases, it might not support the whole weight of your body. PFD will not keep the unconscious person's head above water.



In severe weather conditions, **harnesses** and **tethers** will keep you attached to the boat if you fall overboard, and if placed well, they'll prevent you from going overboard in the first place.

BOAT SAFETY EQUIPMENT

1 Fire extinguisher

2 Life jacket for EVERY PERSON on board

3 Ring buoy

4 Boat hook

5 Paddles

6 Extra rope
At least 2x boat's length long

7 Knife

8 Bucket and sponge

9 Spare anchor

10 Binoculars

11 Handheld VHF Radio

12 Extra horn

13 Waterproof flashlight + extra batteries

14 First Aid Kit

15 Magnetic compass

16 Small toolbox

17 Manual bilge pump

18 Dry bag

While on water, keep your essential items like documents, smartphones, or car keys in the dry bag.

DISTRESS SIGNALING EQUIPMENT

With the majority of sea-going vessels, now fitted with high-level technology, visual distress signals are still relevant and often mandatory safety equipment on board, used to attract attention in case of an emergency at sea. Typically this includes the pyrotechnic, which are useful backup when everything else fails. However, they are also difficult to store (they don't like wet conditions, which is difficult to achieve on a small vessel) and dangerous to use, especially on a rolling boat.

ELECTRONIC FLARES

Recently, a high-powered LED flares started to provide an alternative to pyros. They can usually operate for several hours and can be switched off at any time. They emit a very bright light that is supposed to be visible for up to 10 miles. More importantly, they are easy to operate, waterproof, and submersible, and some even float.

PYROTECHNICS

Red distress rockets - most effective during the night. They go up to 300m and should be fired pointing downwind.

Red hand flares - used mainly when other vessels are in the vicinity. They attract more attention if you wave them. They got extremely hot.

Orange smoke - most effective during daytime and most visible to aircraft. It burns for 3 minutes, and apart of attracting attention, it shows the direction of the wind.

ALWAYS FIRE DOWNWIND

DO NOT USE ROCKETS NEAR HELICOPTERS

ALWAYS POINT DOWNWIND

DON'T LOOK DIRECTLY ONTO BURNING FLARE

All the pyrotechnics have expiry dates. Make sure your equipment is always up to date.

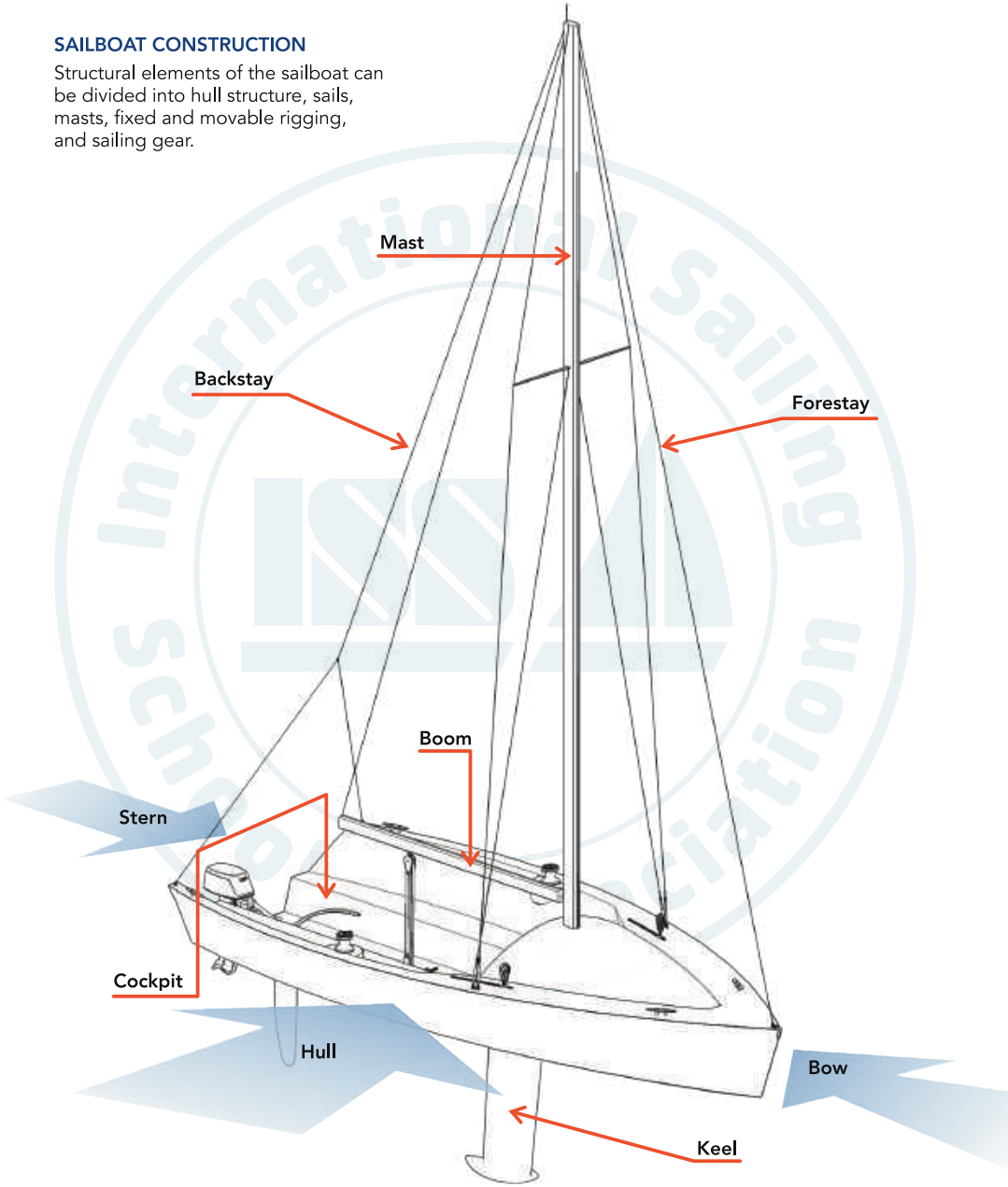
White hand flares - are not distress signals. They are used to attract attention in order to avoid collision at night.

Other safety equipment may vary across the vessels. **Always check your safety equipment before sailing.**

Parts of a Boat

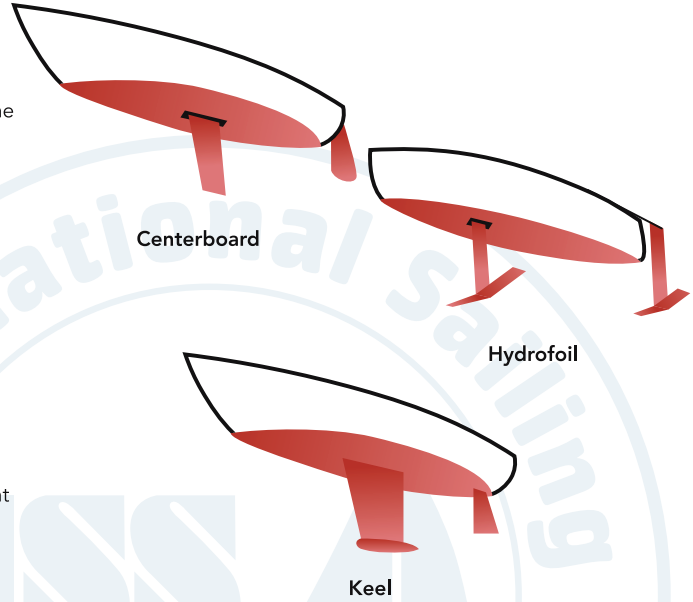
SAILBOAT CONSTRUCTION

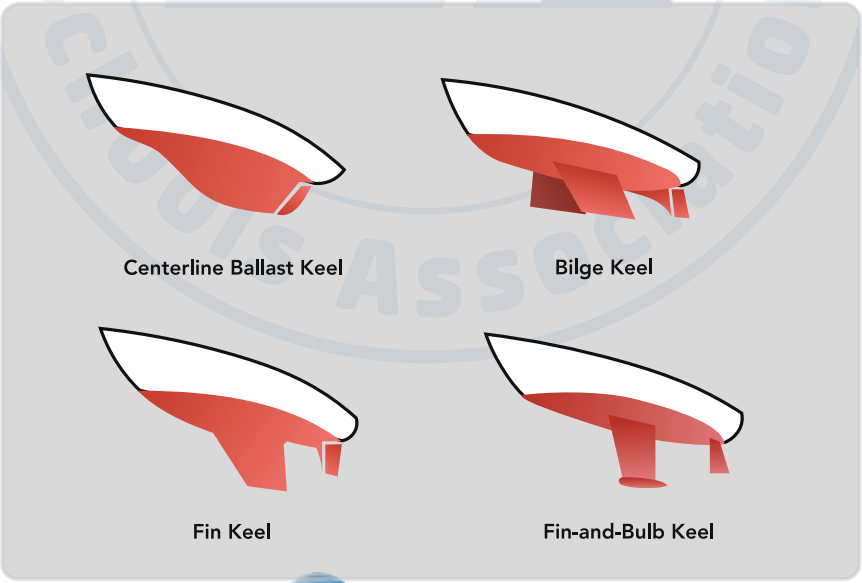
Structural elements of the sailboat can be divided into hull structure, sails, masts, fixed and movable rigging, and sailing gear.



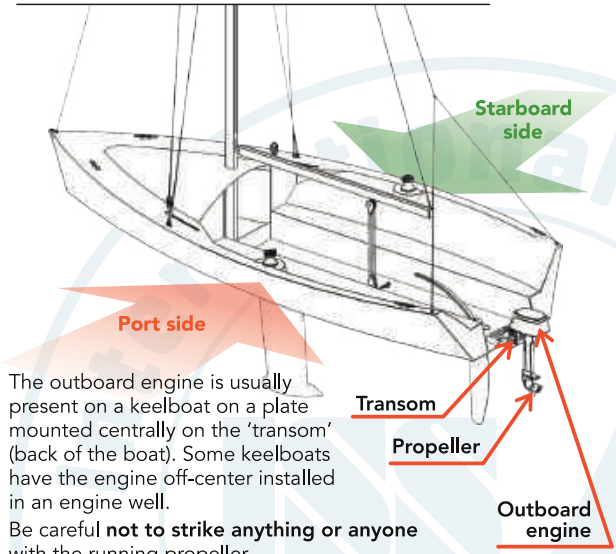
TYPES OF KEELS

The hull is the body of the vessel, its shell, and the keel is the backbone of the hull. Every sailboat has it, even multihulls like catamarans or trimarans. Although their need for a keel is minimal. Keels provide ballast for stability and improve the yacht's lateral plane, reducing leeway. The centerboard is a lightweight keel that can be retracted in shallow waters. Centerboard vessels are used mainly in inland waters. The hydrofoil also has a retractable lightweight keel, and its "wings" allow the yacht to produce lift in the water, thus making the hull hover over the surface.





SIDES OF THE BOAT & OUTBOARD



The yacht does not have the right and left side, but the starboard and the port side. You always determine the sides of the boat looking from stern to bow. Those names have an interesting origin. In ancient times central rudder was too difficult to mount. So, it was mounted on the right. Why on the right? Because most of us are right-handed. This kind of boats has always moored port side to the quayside so as not to damage the rudder.

Right = GO = Steer = Starboard

Left = STOP = Port

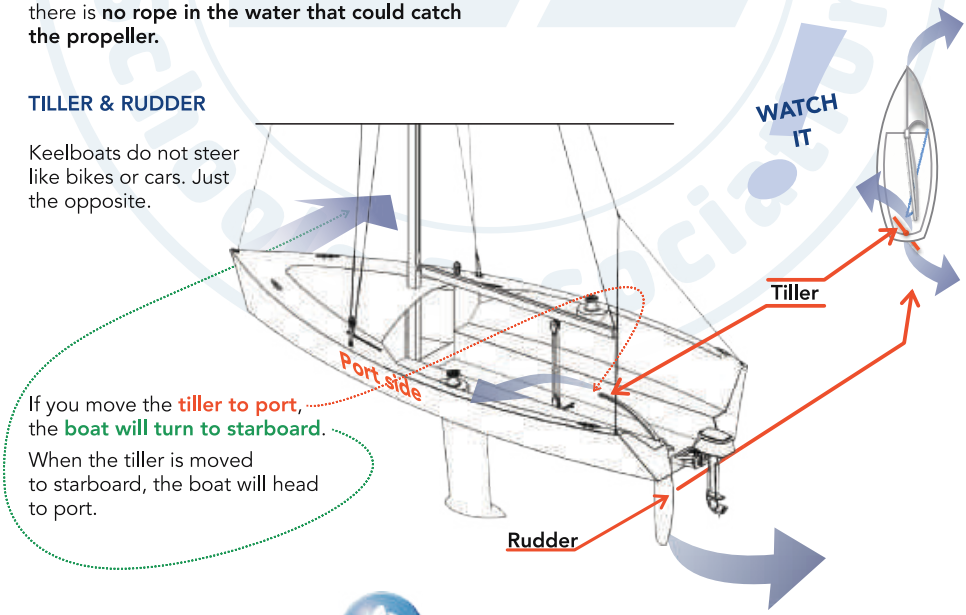
The outboard engine is usually present on a keelboat on a plate mounted centrally on the 'transom' (back of the boat). Some keelboats have the engine off-center installed in an engine well.

Be careful **not to strike anything or anyone** with the running propeller.

When the engine is running, also make sure there is **no rope in the water that could catch the propeller.**

TILLER & RUDDER

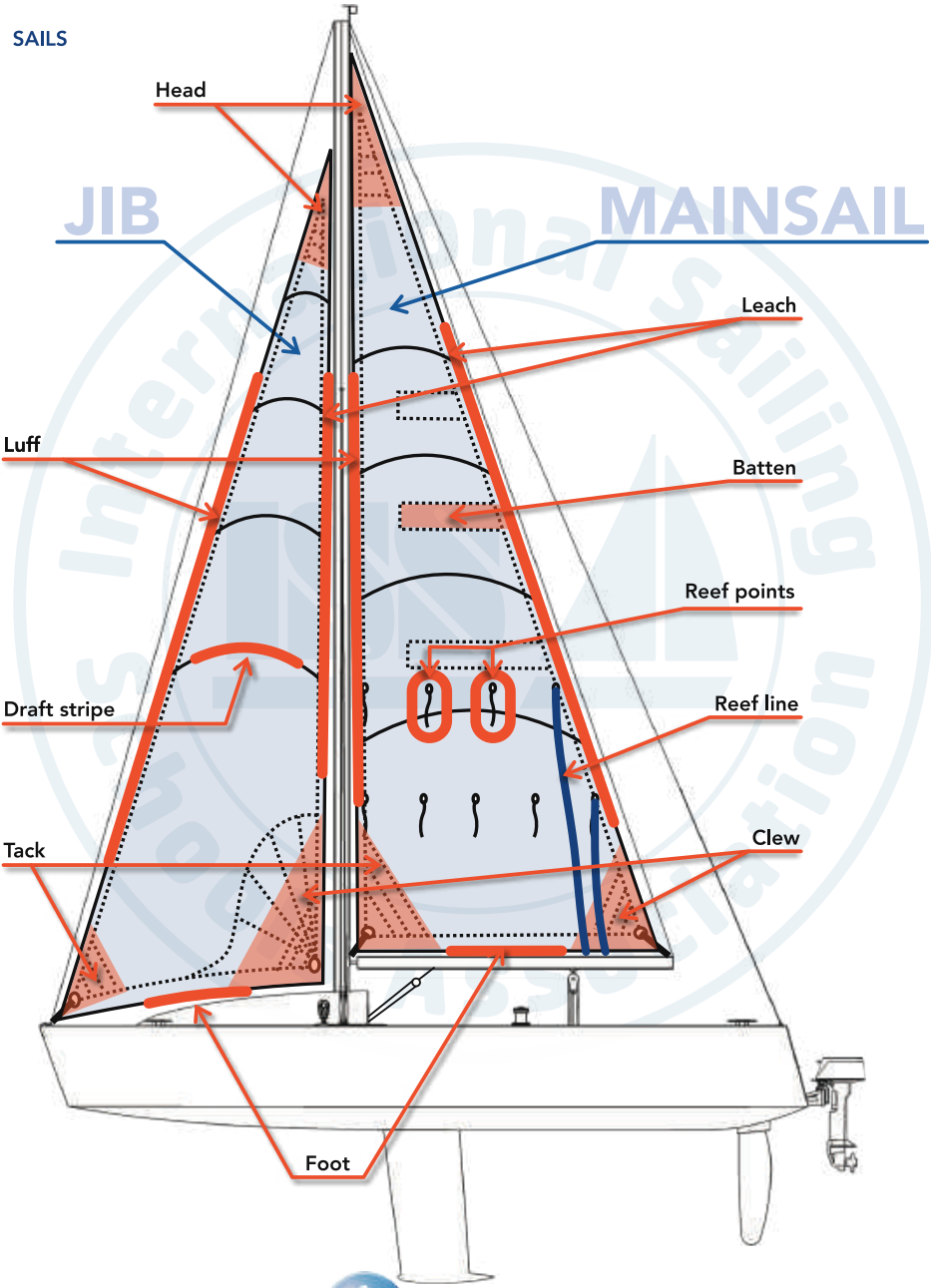
Keelboats do not steer like bikes or cars. Just the opposite.



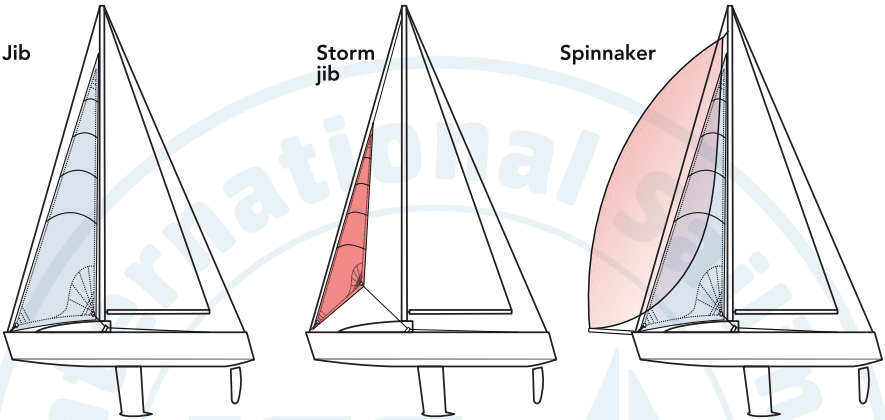
If you move the **tiller to port**, the **boat will turn to starboard.**

When the tiller is moved to starboard, the boat will head to port.

SAILS

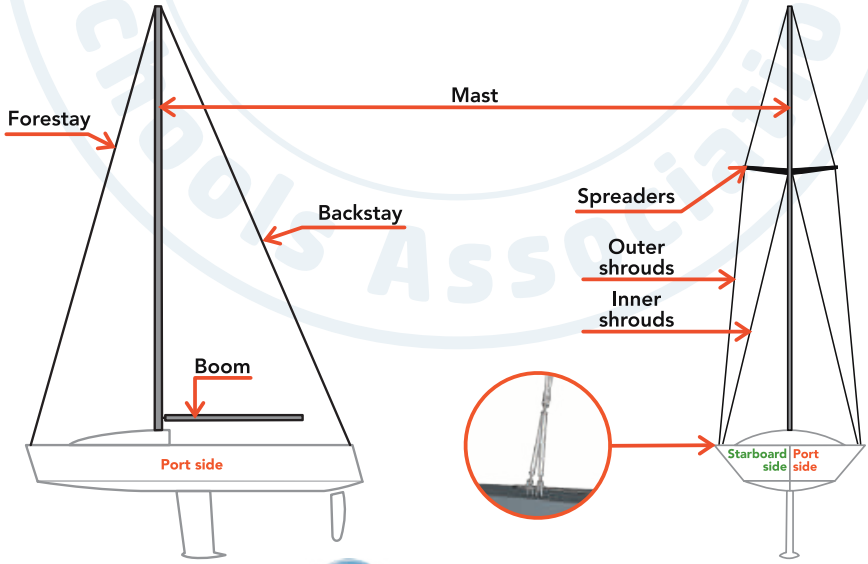


SAIL IN ASIA

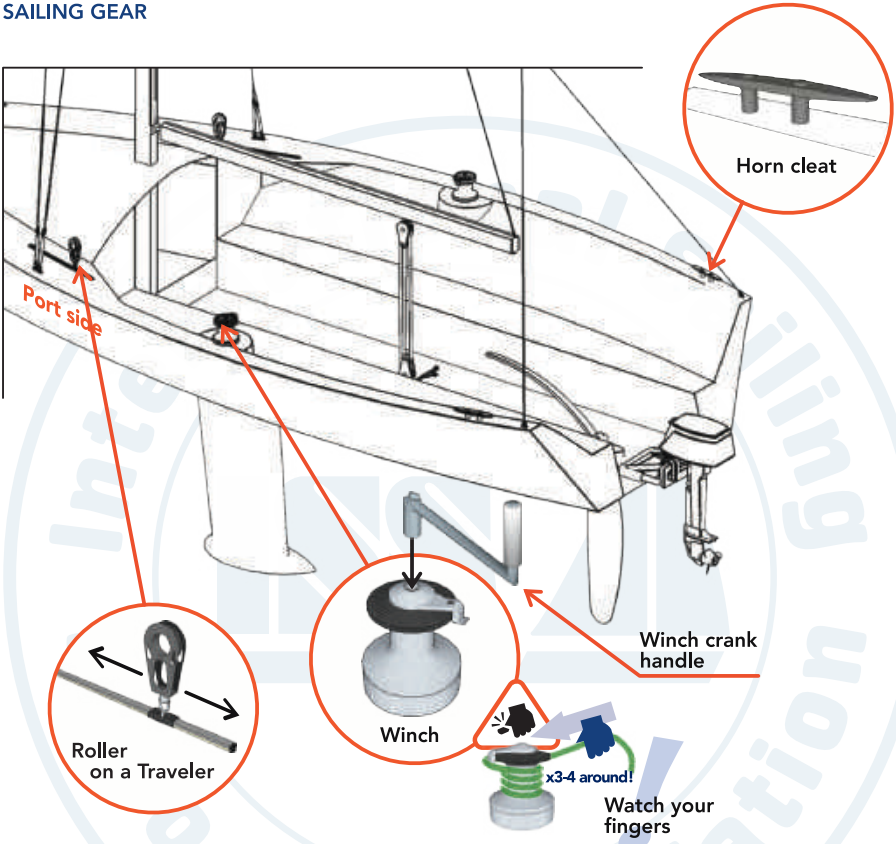


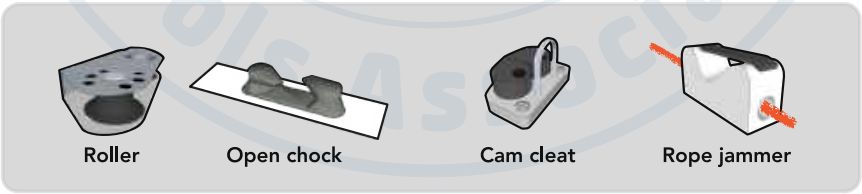
MAST & FIXED RIGGING

The standing rigging supports the mast with spreaders. The spreaders are used to resist bend or induce bend. Keelboats used for racing require specific settings for different conditions.

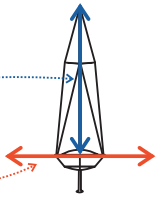


SAILING GEAR





All this equipment is used to guide the ropes around the deck. All ropes used to raise, and lower sails are called **halyards**. Those used to control the operation of the sails are called **sheets**.

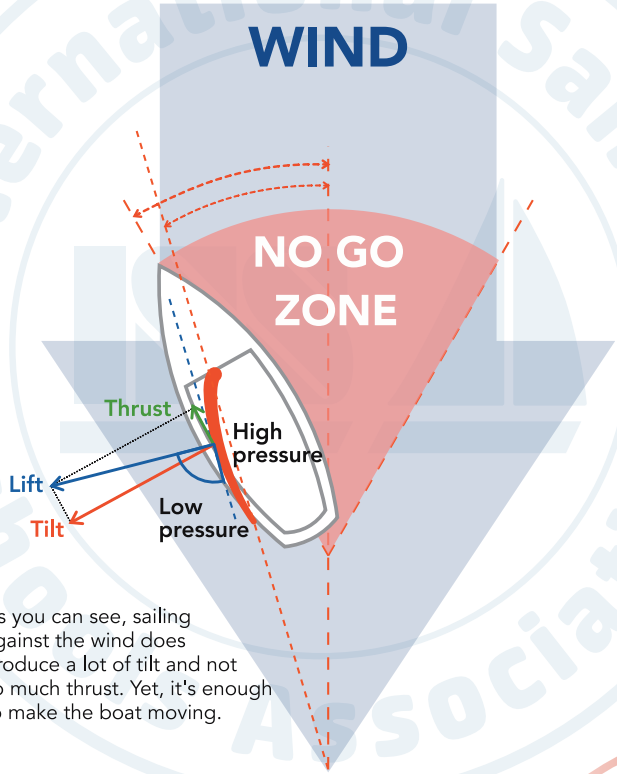


SAIL IN ASIA

Handling Yacht Under Sails

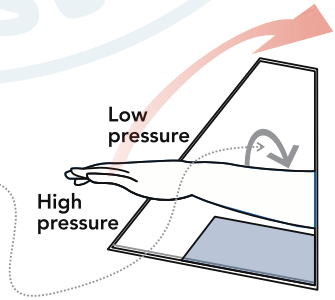
HOW SAILS WORK

A sailmaker makes the sail by cutting sailcloth and sticking panels together to form **an aerofoil** shape (like a wing). The sail generates power because **wind flows along one side of the sail faster** than the other side of the sail, creating a **powerful suction effect**. In essence, the convex side of the sail is a **low-pressure area**, and the concave side is **higher pressure**. You can alter the shape of the foil to make it flatter (less powerful) or fuller (more powerful) by using sail shape controls.

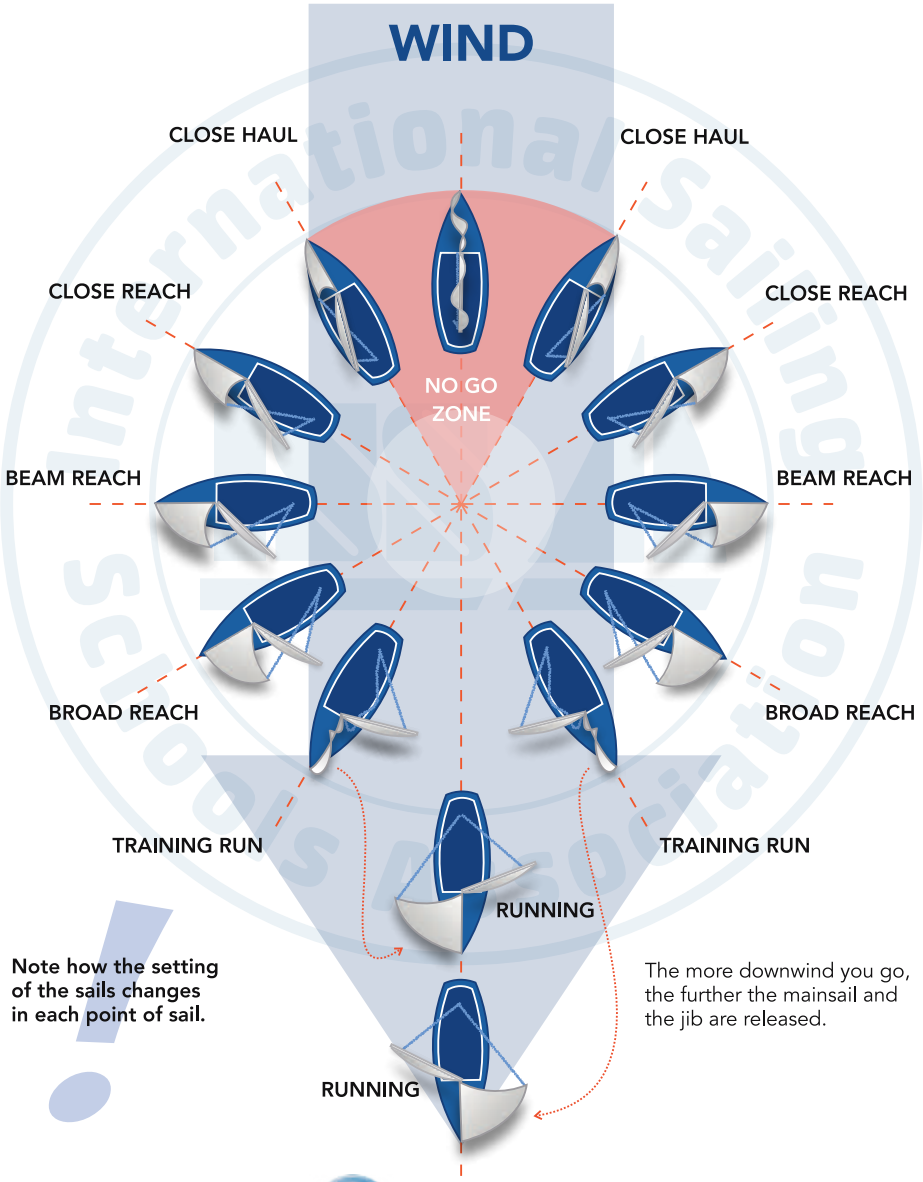


As you can see, sailing against the wind does produce a lot of tilt and not so much thrust. Yet, it's enough to make the boat moving.

The principle of how the sail works is a bit like putting your hand out the window of a moving car. **By tilting the palm counterclockwise**, in an axis perpendicular to the vehicle's movement, the momentum of the air generates lift, and the whole hand goes up.



POINTS OF SAIL



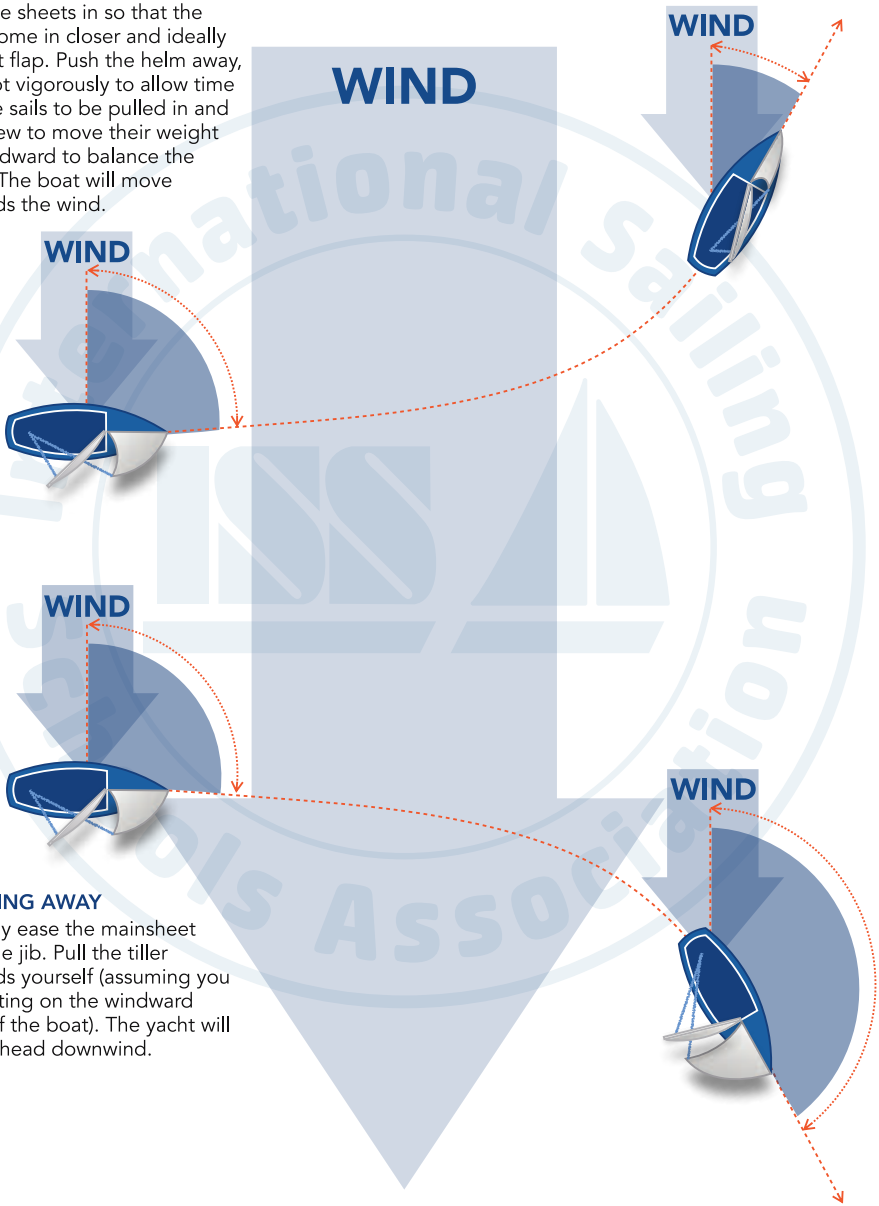
Note how the setting of the sails changes in each point of sail.

The more downwind you go, the further the mainsail and the jib are released.

SAIL IN ASIA

HARDENING UP

Pull the sheets in so that the sails come in closer and ideally do not flap. Push the helm away, but not vigorously to allow time for the sails to be pulled in and the crew to move their weight to windward to balance the boat. The boat will move towards the wind.

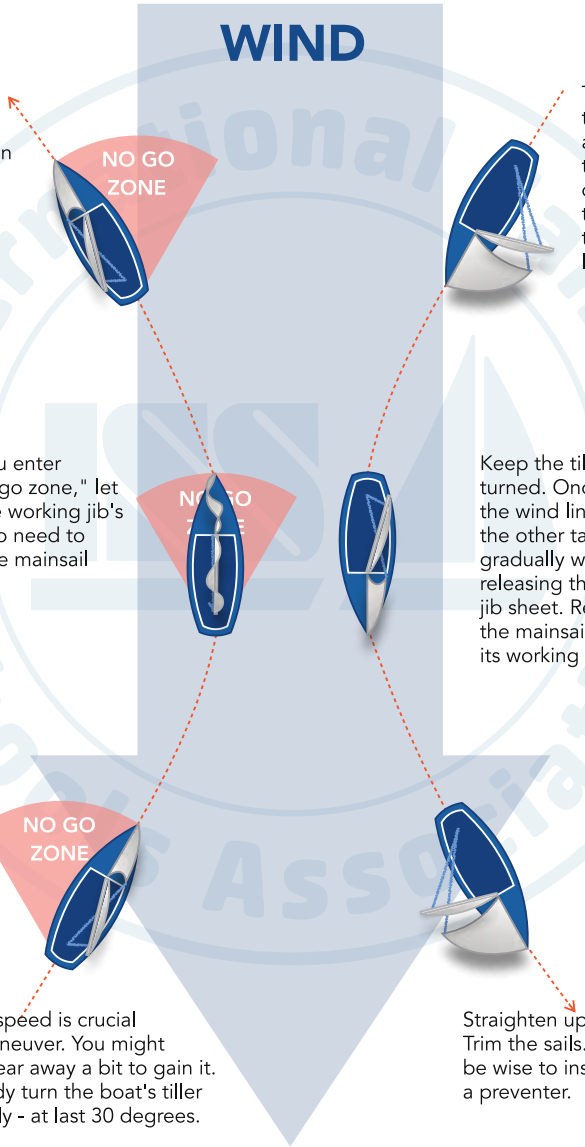


BEARING AWAY

Quickly ease the mainsheet and the jib. Pull the tiller towards yourself (assuming you are sitting on the windward side of the boat). The yacht will easily head downwind.

TACKING

GYBING



3

When you pass the "No go zone," the mainsail fills up with wind. Straighten the tiller and winch in the other tack jib sheet.

2

Once you enter the "No go zone," let go of the working jib's sheet. No need to adjust the mainsail sheet.

1

Sufficient speed is crucial for the maneuver. You might need to bear away a bit to gain it. When ready turn the boat's tiller distinctively - at last 30 degrees.

1

To start the maneuver turn the tiller gently and winch in the mainsail sheet quickly to bring the boom as close to the boat's centre line as possible.

2

Keep the tiller slightly turned. Once you pass the wind line, pull the other tack jib sheet gradually while slowly releasing the initial tack jib sheet. Release the mainsail sheet to its working position.

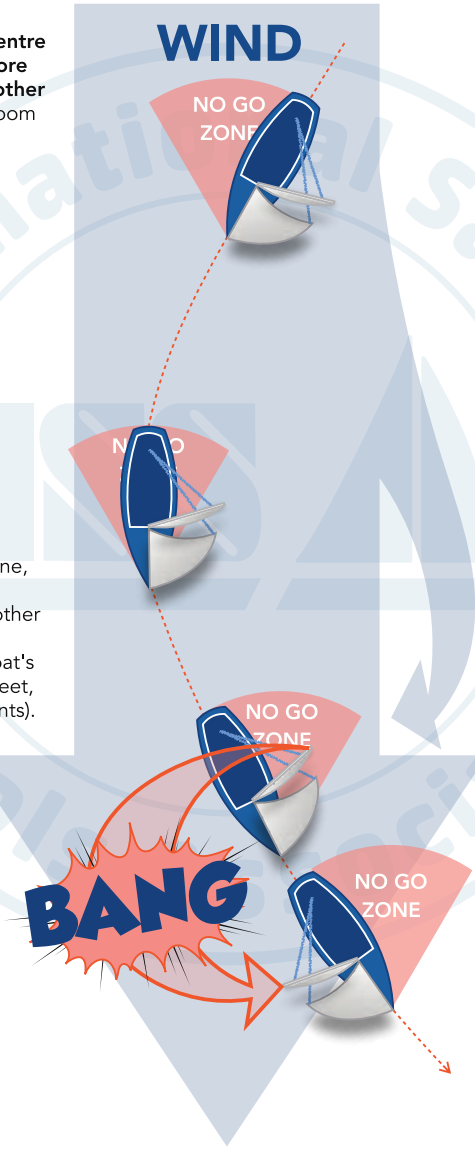
3

Straighten up the tiller. Trim the sails. It might be wise to install a preventer.

UNCONTROLLED GYBE

It is crucial to control the mainsail sheet. **The boom should be brought to the boat's centre as close as possible before the boat passes to the other tack zone**, leaving the boom as little room as possible to gain momentum.

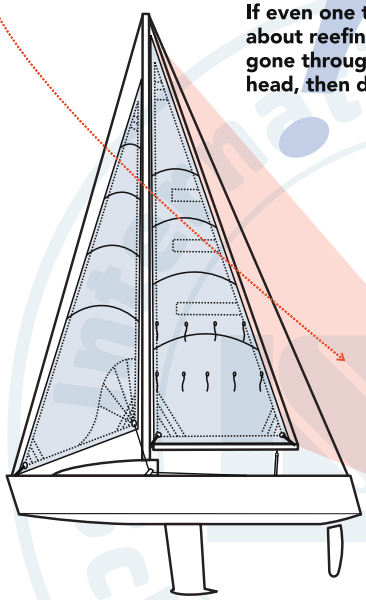
If the boom is away from the boat's center, when crossing the wind line, it turns into a doom tool. It will fly violently to the other tack zone putting a lot of dynamic tension on boat's construction (main sail sheet, shrouds, boom fixing points).

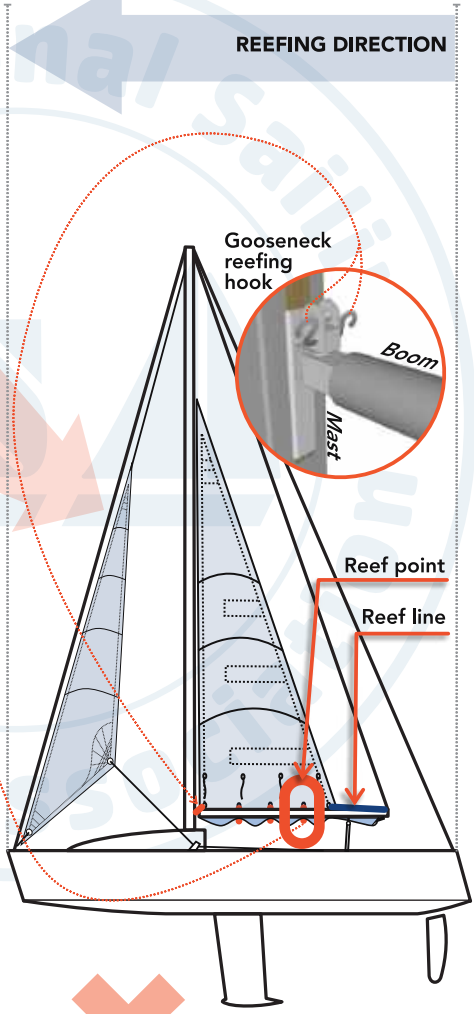


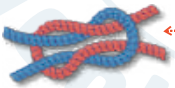
REEFING

Reefing is **reducing the sail surface** when the wind is too strong. A good rule about when to reef sails is: **If in doubt, then you have no doubt**. Reefing always takes place from the stern of the yacht. So the first sail to be reefed is the mainsail.

If even one thought about reefing has gone through your head, then do it.



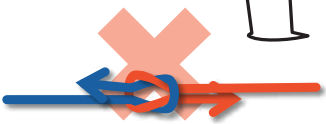




REEF KNOT

To reduce the sail surface, use the reef points and tie reef ropes around the folded sail with the reef knot.

Watch out. A correctly tied knot has short rope ends on the same side. **If the short ends are on opposite sides, then the knot can break loose.**

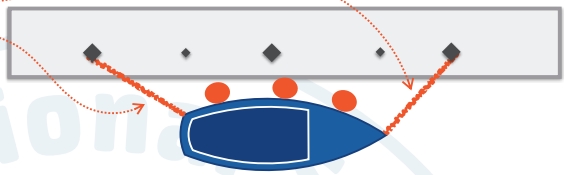


Berthing Basics

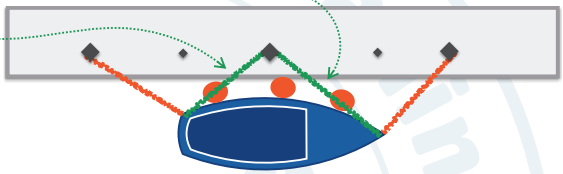
DOCK LINES

Each line used for docking a boat has a different function.

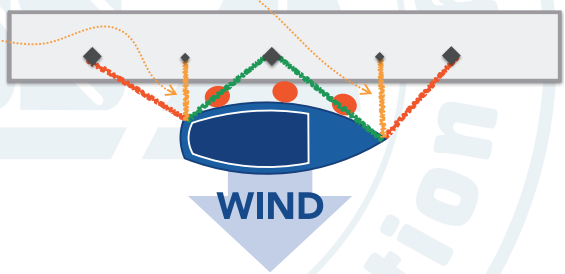
1 **Bow line** & **stern line** are the main docking lines. They keep the boat from running away from the dock but **DO NOT STOP the boat's FORWARD and BACKWARD** movement.



2 **Bow spring** & **stern spring** are additional docking lines. They keep the boat from moving forward and backward. Always use them when leaving the boat longer at the dock.

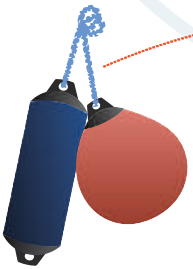


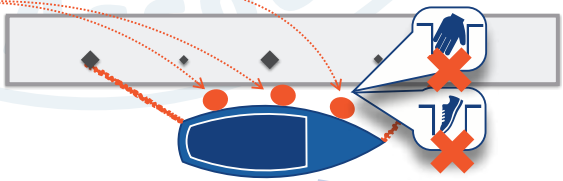
3 **Bow breast** & **stern breast** keep the bow and stern close alongside, particularly in case of a strong offshore wind. They are not essential when bow and stern lines and springs are also used.



FENDERS

Fenders are usually made of plastic and are hung from the guardrails or lifelines over the side of the boat to prevent it from making contact with the bulkhead, dock, or another boat alongside. They are made in a variety of shapes to suit different situations. When berthed alongside, You should use at least three fenders.



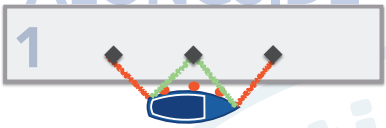


NEVER twist the fender rope around your hand when handling fenders.

NEVER Use your hands or feet to push away the boat from the bulkhead.

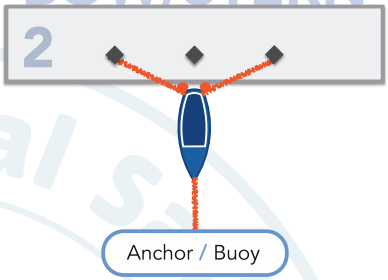
TYPES OF BERTHS

ALONGSIDE



The most typical type of berth. Use at least a bow and stern line. Adding just one spring line will better stabilize the boat.

BOW/STERN

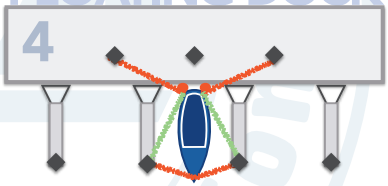


To berth with your bow or stern, you will need to catch the docking buoy (if there is one) or to use your anchor to stabilize the boat.

DOLPHINS

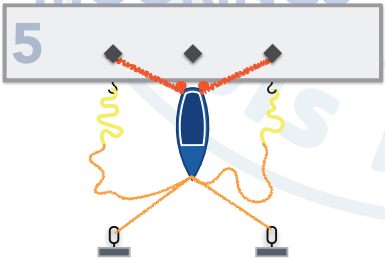
In some marinas, you might encounter docking piles, called dolphins (large wooden or metal stakes driven into the seabed). When approaching the berth, first fix the lines on the dolphins and then ashore.

FLOATING DOCK

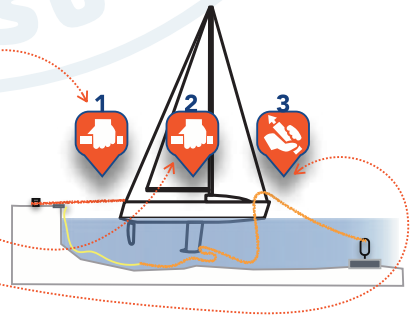


Modern marinas offer platforms or ramp supported by pontoons that are called floating docks. They allow a convenient berth. Ramps are usually shorter than the boats. Use spring to prevent the boat from hitting the bulkhead.

MOORINGS



Usually, there is a lazy-line secured to an underwater mooring. The lazy-line is **picked up from the shore side** on arrival and **led to bow** (**or stern**, depending on how you want to dock) and **fixed from the open waterside.** Twin moorings secure the boat.

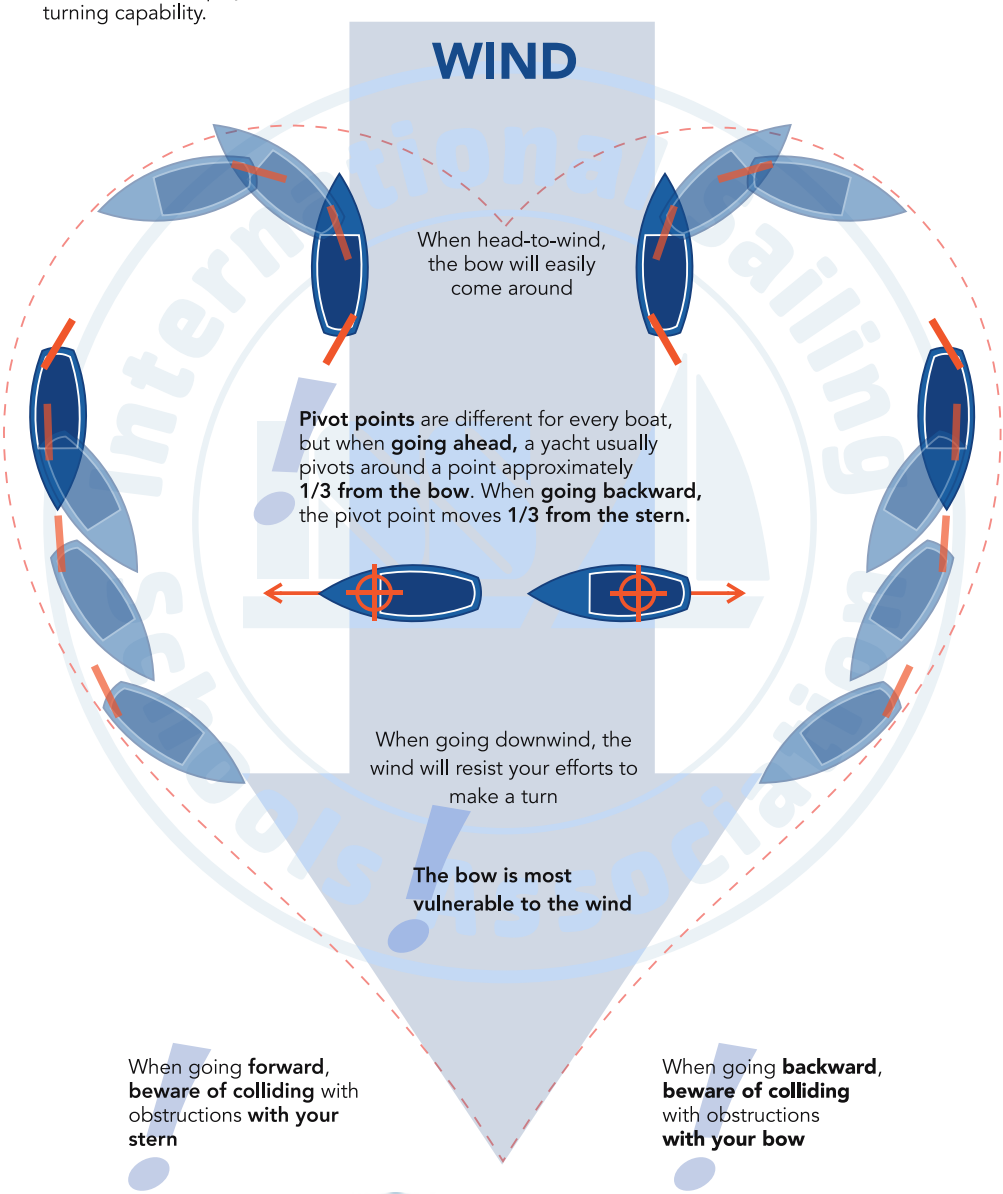


SAIL IN ASIA

Handling Yacht Under Power

TURNING CAPABILITY - THE HEART RULE

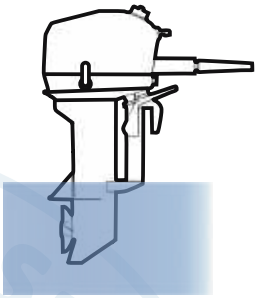
Wind and stream play a substantial factor in the boat turning capability.

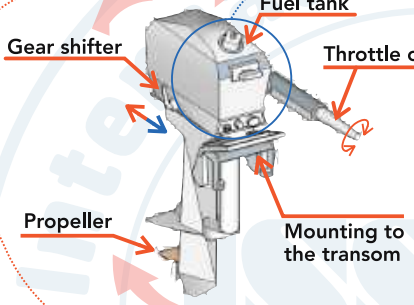


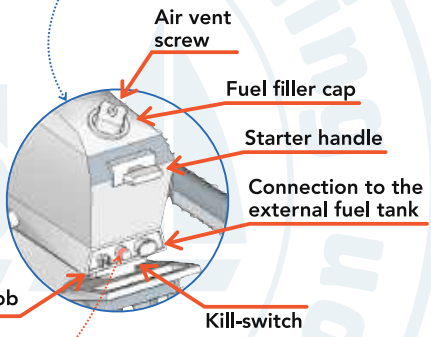
OUTBOARD ENGINE

An outboard engine is a self-contained unit that includes engine, gearbox, propeller and sometimes a fuel tank. It is designed to be mounted to the boat's transom.

Apart from propulsion, outboard engine provides also **steering** and **trim control**, as it allows to control the direction of thrust through pivoting over its mountings.





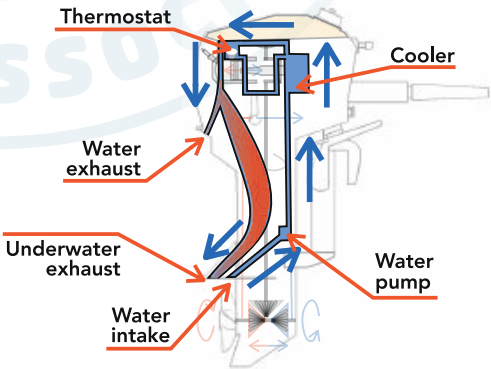


KILL CORD

It is also known as the safety lanyard, and it cuts off the electricity if detached from the kill- switch, thus shutting down the engine. Kill cord should be red and has a **clip** to attach to your clothing or to loop around your wrist and a **plastic fork** that must be attached to the kill-switch. If the fork is not connected, the engine won't start.

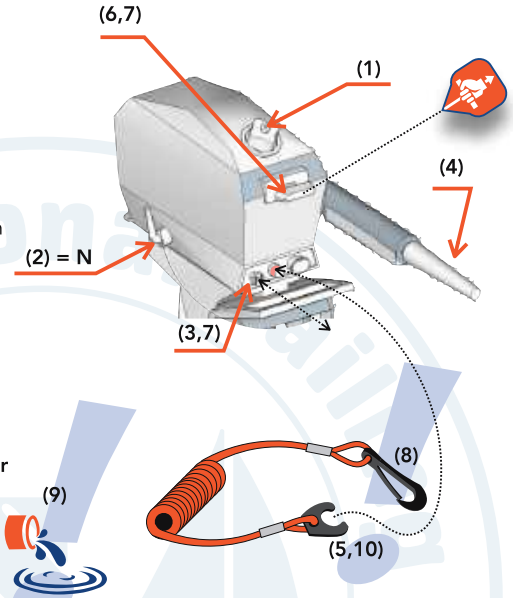
ALWAYS ATTACH THE KILL CORD TO THE DRIVER'S BODY. IF HE FALLS OVERBOARD, THE ENGINE WILL STOP.

COOLING SYSTEM



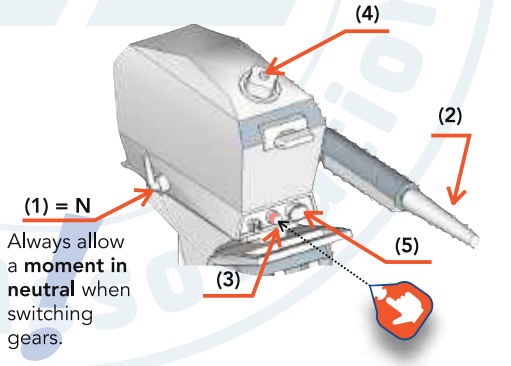
START PROCEDURE

1. Check the amount of fuel and open the air vent screw).
2. Put in neutral gear.
3. Open the choke (at the first start of the day).
4. Give a small amount of throttle.
5. The kill cord is connected to the kill switch but not yet attached to the driver.
6. Check you are clear to pull the starter handle, use the left hand to pull.
7. Pull the starter cord once. Pull it again if the engine did not start at the first go. (If it was the first start of the day, **SWITCH OFF THE CHOKE).**
8. **Attach the KILL CORD to yourself.**
9. **Always make sure that the cooling water is coming out of the engine's cooling system.**
10. **Always make sure the KILL CORD switches off the engine.**



STOP PROCEDURE

1. Check engine is in neutral.
2. Check the throttle is idling.
3. **Push the KILL-SWITCH** until the engine stops or disconnect the kill cord.
4. In case you're using the built-in engine fuel tank, close the air vent screw.
5. In some cases, you might also need to disconnect the fuel.



Always allow a **moment in neutral** when switching gears.

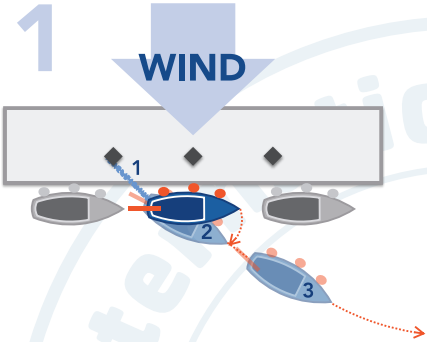
INERTIA

The behaviour of the boat on the water resembles ice skating a little. The boat will never stop at once. It also won't turn so precisely as a car.

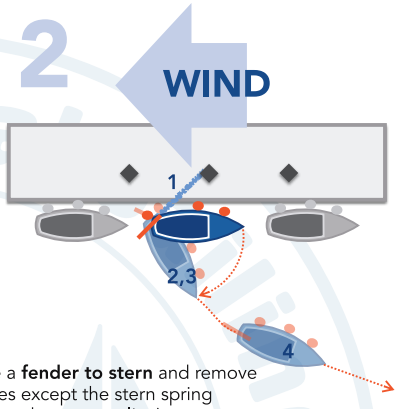
Always bear in mind that the **boat is heavy** and has **a lot of inertia.**

LEAVING THE DOCK

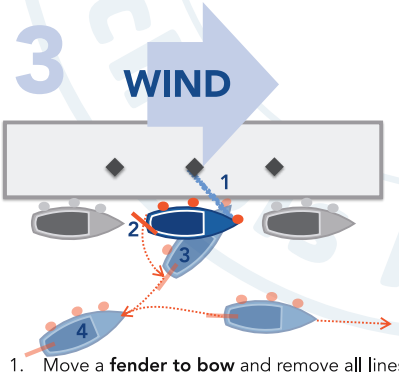
Always **brief the crew** before leaving the dock. **Check** the forward and reverse **gear** of your engine. **Plan it, try it, and have an escape plan.**



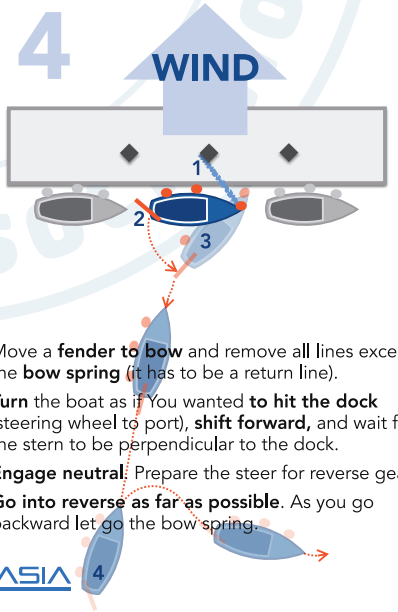
1. Remove all lines except the **stern line** (it has to be a return line) and possibly pull it slightly.
2. The bow will be blown away.
3. When clear, **shift into forward** gear and remove the stern line.



1. Move a **fender to stern** and remove all lines except the stern spring (it has to be a return line).
2. **Turn** as if You wanted **to leave** (push the tiller to port), **go into reverse,** and wait for the stern to reach 45-60 degrees from the dock.
3. **Engage neutral**. Wait, adjust the steer for going forward
4. **Engage forward gear** and move at possibly slow speed (depending on tide and wind). As you go forward let go the stern spring.



1. Move a **fender to bow** and remove all lines except the **bow spring** (it has to be a return line).
2. **Turn** the boat as if You wanted **to hit the dock** (steering wheel to port), **shift forward,** and wait for the stern to move away from the dock.
3. **Engage neutral**. Prepare the steer for reverse gear.
4. **Engage reverse**. Centralize the tiller. Add power. As you go backward let go the bow spring.

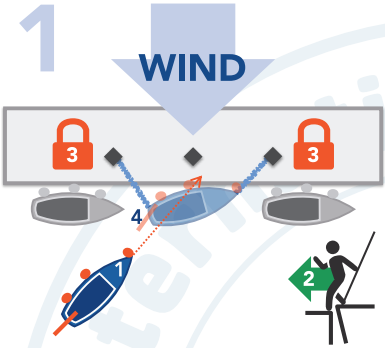


1. Move a **fender to bow** and remove all lines except the **bow spring** (it has to be a return line).
2. **Turn** the boat as if You wanted **to hit the dock** (steering wheel to port), **shift forward,** and wait for the stern to be perpendicular to the dock.
3. **Engage neutral**. Prepare the steer for reverse gear.
4. **Go into reverse as far as possible**. As you go backward let go the bow spring.

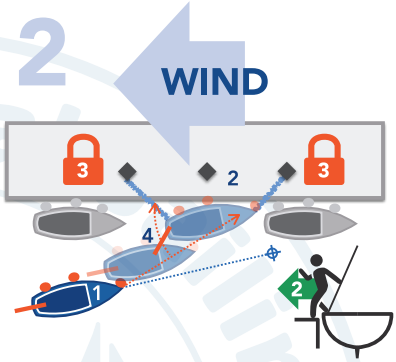
SAIL IN ASIA

ARRIVAL AT THE DOCK

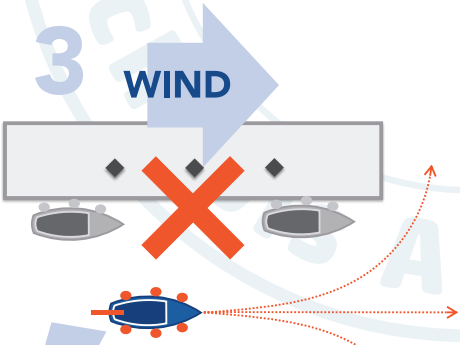
When approaching the marina, prepare your **fenders on both sides** of the boat. Move slowly and **do reconnaissance**. You don't have to dock at once. It's not a race. **Plan it, try it and have an escape plan**.



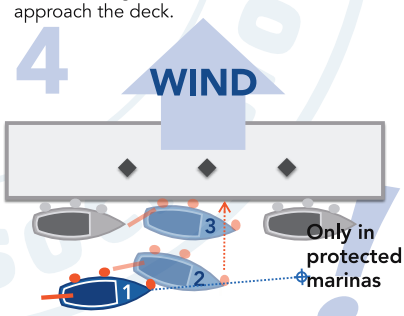
1. Come into the dock on a **~45° angle, targeting the middle of the spot** to berth. Move a **fender to the bow**. The yacht must **glide into the berth in neutral at a very slow pace**.
2. When **fenders hit the dock** and the **boat is stopped**, crew member **throws a bow line and then steps onto the pier** from the bow holding a forstay.
3. **Fix the bow line and the stern line**
4. **Turn** as much as possible **to starboard.** Keep the **forward** gear. Wait for the stern to approach the deck.



1. Come into the dock on a **gentle angle**, **targeting ahead** of the spot to berth. Move a **fender to the bow**. The yacht must **glide into the berth in neutral at a very slow pace**.
2. When **fenders hit the dock** and the **boat is stopped**, crew member **throws a bow line and then steps onto the pier** from the beam holding a shroud.
3. **Fix the stern line and bow line**
4. **Turn** as much as possible **to starboard.** Keep the **forward** gear. Wait for the stern to approach the deck.



- **Avoid berthing with the wind behind you** and carefully look for some other place in the marina.
- **Alternatively**, you can **turn the boat around** and approach the berth **or try on the reverse gear.**



1. **Approach** the dock at a gentle angle, moving **almost parallel to the berth**.
2. **Stop** in the front of the place selected for a berth **with the bow a bit to the wind**.
3. **Wait** until the **wind pushes the boat** into the berth.

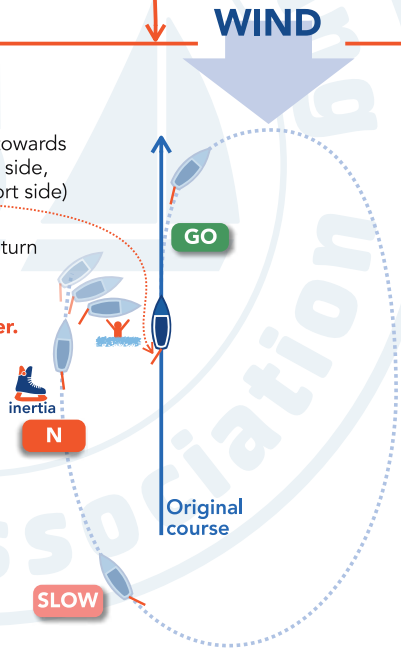
MAN OVERBOARD PROCEDURE

In case of a man overboard (MOB) situation, remember to **KEEP CALM**. It is essential not to lose sight of the person and recover him/her up as quickly as possible. Here's a simple procedure to follow:

1. Alert the crew.
2. Drop the sails, shift to neutral, and start the engine.
3. **DO NOT LOSE SIGHT** of the MOB. You can designate a crew member to watch the person.
4. Throw a ring or horseshoe buoy.
5. When close, maneuver to approach the person into the wind or into the current, whichever is stronger.
6. Bring the boat alongside to recover the person.
7. Provide first-aid if required, and monitor the person.

TURN FOR MOB

1. If already sailing under power, turn the boat towards the person (e.g., if a person fell over the port side, make a rapid and **strong turn** towards the port side) to move the propeller away from MOB).
2. When clear of the person, go ahead, make a turn to recover the person as quickly as possible. **KEEP CALM**.
3. **Brief the crew on their role in the maneuver.**
4. After making almost a full circle slow down.
5. When close to the person shift to neutral and **use inertia to position the boat upwind of the MOB**
6. Slowly **drift down** onto the MOB. **DO NOT HIT THE PERSON**.
7. Recover MOB



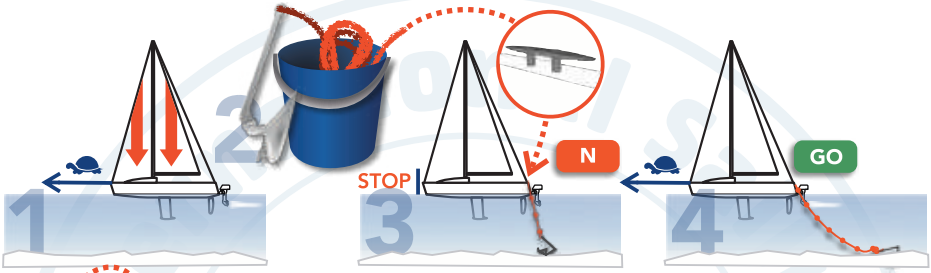
This maneuver is suitable for vessels in which, due to high bow, you can easily lose the sight of the MOB when going into the wind.

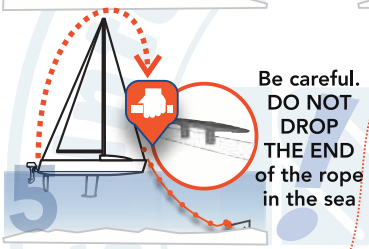
Case: MISSING PERSON

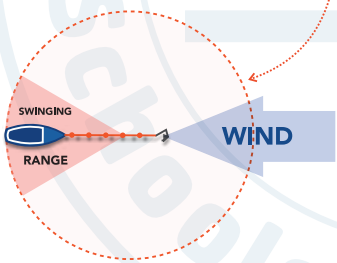
1. Alert the crew and search the boat well.
2. Slow the boat.
3. Turn on a reciprocal course.
4. Make a distress radio call **(MAYDAY)**
5. Put the crew to muster stations.
6. Search.

ANCHORING A KEELBOAT

This procedure is the simplest and most straightforward for the anchoring of a small vessel. It requires having a suitable weight anchor with about 5-10 m of chain or 30-50 meters of small rope. It's best to have the chain and the line in a bucket. Anchoring from astern rather than trying to balance on the narrow deck at the front of a keelboat is a much safer solution for small sailboats.







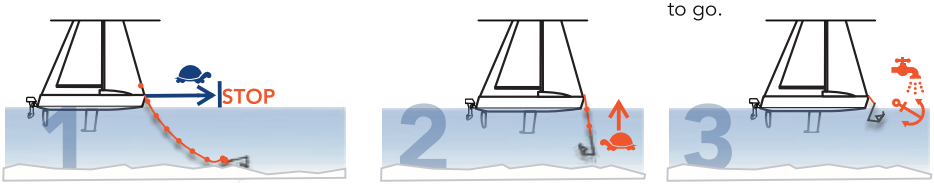
1. Choose a suitable place to anchor (consider the **depth and swinging circle**). Ensure the **sails are down** and the **engine is on.** Approach the anchorage at a slow speed.
2. Prepare the **bucket** with the anchor and put it at the back of the boat. **Attach** the bitter end of the **rope to the stern horn cleat.**
3. **Stop the boat** where you wish to drop anchor. **Drop the anchor** carefully over the back of the boat and feel it hit bottom.
4. Put in **forward** gear and give a **very slow ahead.** Slowly release the rope until it is **7-10 times the depth** of water that the vessel is sitting in (if using **chain** decrease the ration to **x3-5**). **Use the engine to dig in the anchor**. The vessel should stop and the skipper should use transit to determine that the boat is not moving.
5. The **rope** on the stern cleat **can then be moved to the front of the boat** and secured on the bow cleat.

RAISING THE ANCHOR

Slowly move towards the anchor. **Watch for the chain/rope not to get beneath the hull.**

When near vertically above, start pulling the anchor.

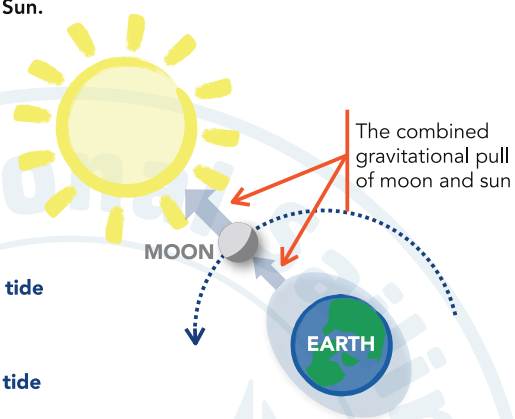
Rinse it and carefully get in aboard. Secure the anchor aboard, and you are free to go.



Tides

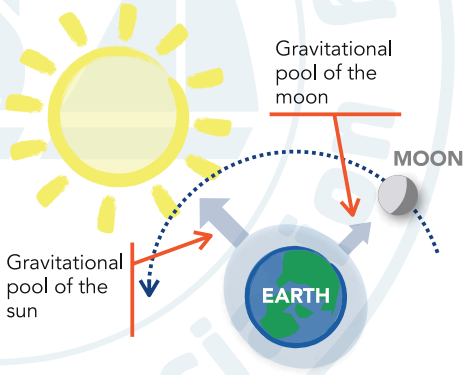
Tides are the movement of water around the coast caused by the gravitational effect of the Moon and, to a lesser extent, the Sun.

Spring tides are especially strong tides (they do not have anything to do with the season Spring). They occur when the Earth, the Sun, and the Moon are in a line, and therefore the gravitational forces of the Moon and the Sun both contribute to them.



Spring tides occur during the full moon and the new moon. They result in a very high tide and a very low tide and therefore have a large tidal range.

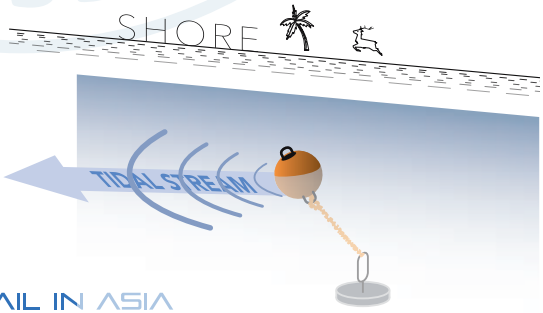
Neap tides are especially weak tides. They occur when the gravitational forces of the Moon and the Sun are perpendicular to one another (with respect to the Earth) and are working in different directions.



Neap tides occur during quarter moons. They result in low high tides and high low tides and, therefore, a small tidal range.

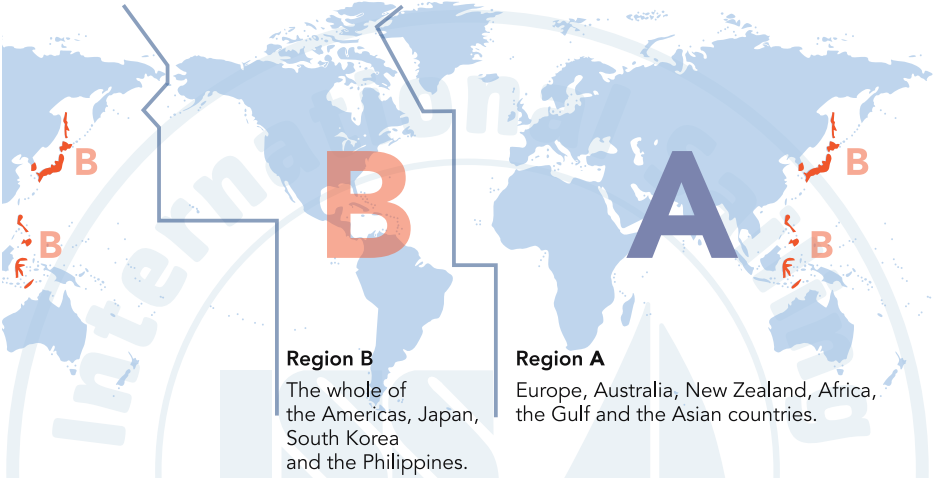
TIDAL STREAM DIRECTION

The simplest way to tell the tidal stream direction is to pass close (but safely) by an anchored object and **observe the waves behind it**. In the ilustration you can see the tide acting on a buoy.



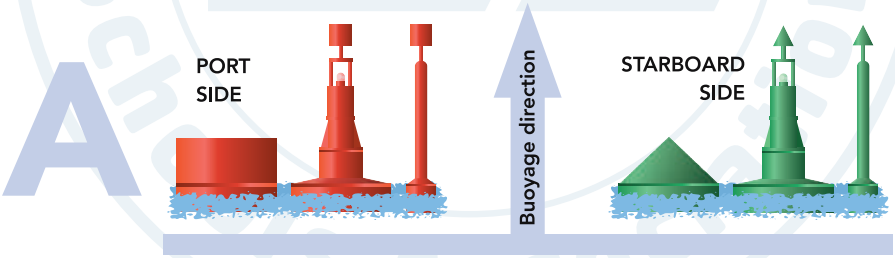
IALA Buoyage

Established in 1957, IALA (International Association of Marine Aids and Lighthouse Authorities) is a non-profit international technical association. IALA provides nautical expertise and advice. There are two IALA systems based on geographical location: Region **A** and Region **B**.



LATERAL MARKS

When entering a port or harbour, the LATERAL MARKS ensure you stay in the required channel. We show here marks for the IALA Region A.



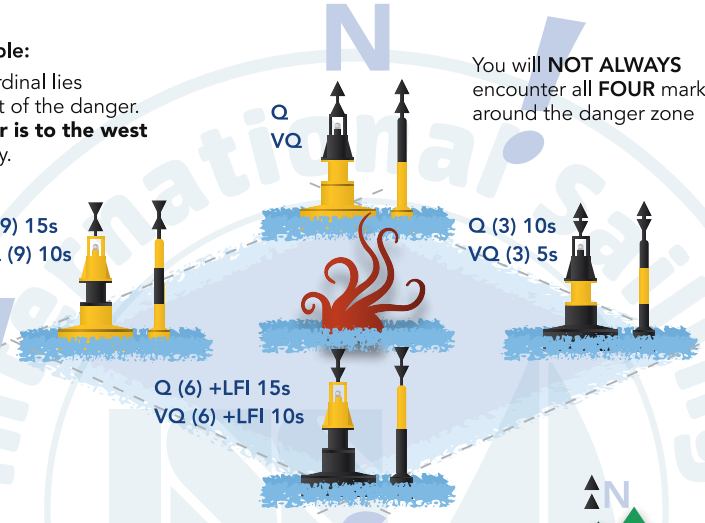
CARDINAL MARKS

Indicate the direction in which a particular danger lies, and the side on which it is safe to pass.

For Example:

A West cardinal lies to the west of the danger. **Safe water is to the west** of the buoy.

You will **NOT ALWAYS** encounter all **FOUR** marks around the danger zone

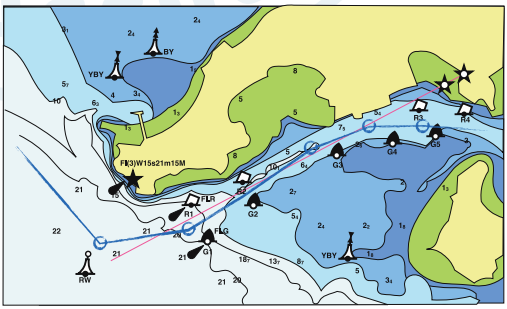


You might use those icons to memorize the cardinal marks better. The symbols refer to the arrangement of the cones.

Note that the tips of the cones always indicate the location of the black color on each marker.

PILOTAGE PLAN

You can use a pilotage plan to enter a harbour, day or night safely. Plot each leg on a notepad for easy navigation on deck. Include the distance and bearing for each leg.



Include in each leg of your plan:

- **Bearing (Compass)**
- **Distance**
- **Dangers and Risks**
- **Buoys (Colour & Number)**

SAIL IN ASIA

Collision Preventing Rules

The **International Regulations for Preventing Collisions at Sea 1972 (COLREGS)** are published by the International Maritime Organization (the IMO) and set out, among other things, the "rules of the road" or navigation rules to be followed by ships and other vessels at sea to prevent collisions between two or more vessels.

FUNDAMENTAL RULES

1 **KEEP A WATCH** by all appropriate means (look, listen, radar, AIS)

2 **NO ONE** has **'RIGHT OF WAY'**

3 One vessel is the give way; the other is the stand-on vessel.
BOTH remain **RESPONSIBLE** to avoid a collision

4 Travel at a **SAFE SPEED** for the conditions

5 In a narrow channel **KEEP TO STARBOARD** (right)

6 **GIVE WAY** = **EARLY & SUBSTANTIAL** action

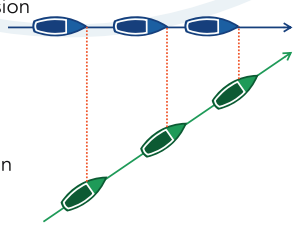
7 **STAND-ON** = **MAINTAIN COURSE AND SPEED**
until it is clear the other vessel is not taking action and only then take avoiding action

RISK OF COLLISION

When there is deemed to be a risk of collision

- One vessel is the **GIVE WAY** vessel
- The other is the **STAND-ON** vessel

If there is a **CONSTANT BEARING** between the two vessels that are approaching each other, there is a collision risk.



Collision on the water is much more dangerous than an accident on land. Even if you have the right of way, always try and avoid a collision situation.

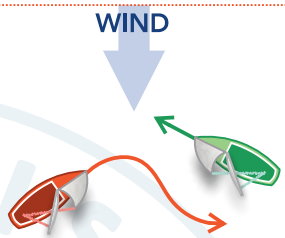
SEA SAILING RULES

UNDER SAILS

Starboard Tack Rule

Wind on the Starboard side of the vessel

- STARBOARD TACK boat is the STAND-ON vessel.
- PORT TACK boat is the GIVE WAY vessel.

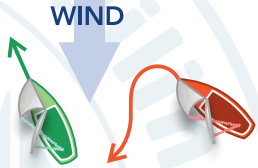


UNDER SAILS

Windward Rule

The boat nearest the wind is the Windward boat. The one furthest from the wind is the Leeward boat

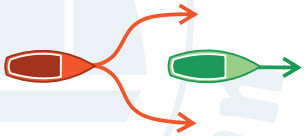
- LEEWARD boat is the STAND-ON vessel.
- WINDWARD boat is the GIVE WAY vessel.



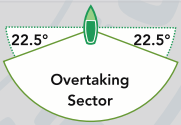
UNDER SAILS OR POWER

Overtaking Rule

- The vessel BEING OVERTAKEN is the STAND-ON vessel.
- The OVERTAKING vessel is the GIVE WAY vessel

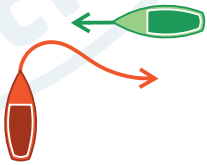


Overtaking is defined as coming from more than 22.5° abaft the beam (the angle a stern light becomes visible).



UNDER POWER

Vessel meeting at an angle but **not** when one is **overtaking** the other, give way to the boat on her STARBOARD BOW.



UNDER POWER

Vessels meeting head-on – both turn significantly to STARBOARD and pass Port to Port.

Meteorology

Keelboat Skippers should principally have meteorological information about their local sailing area. This means mainly the daily forecast, but can also be a week-long, regional, or global forecast. In general, the skipper would want information on the following:

- Wind Strength
- Wind Direction
- Precipitation
- Air Pressure
- Temperature
- Cloud Cover
- Seasonal Changes
- Sea State

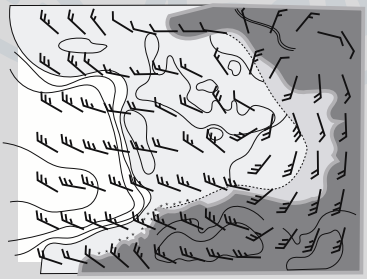
WEATHER FORECASTS

Weather forecasts are essential in planning a safe passage. They are available from a variety of sources.

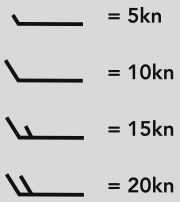
- Internet
  - windguru.cz
  - windy.app
  - windy.com
  - GRIB Files
- Navionics™
- Local Radio
- National Radio (Shipping forecast)
- Marina Office
- Appropriate National Meteorological Offices
- INMARSAT
- NAVTEXT

GRIB FILES

are the standard data format of the World Meteorological Organization. They are available to download and contain raw data based on the world's collected meteorological information.

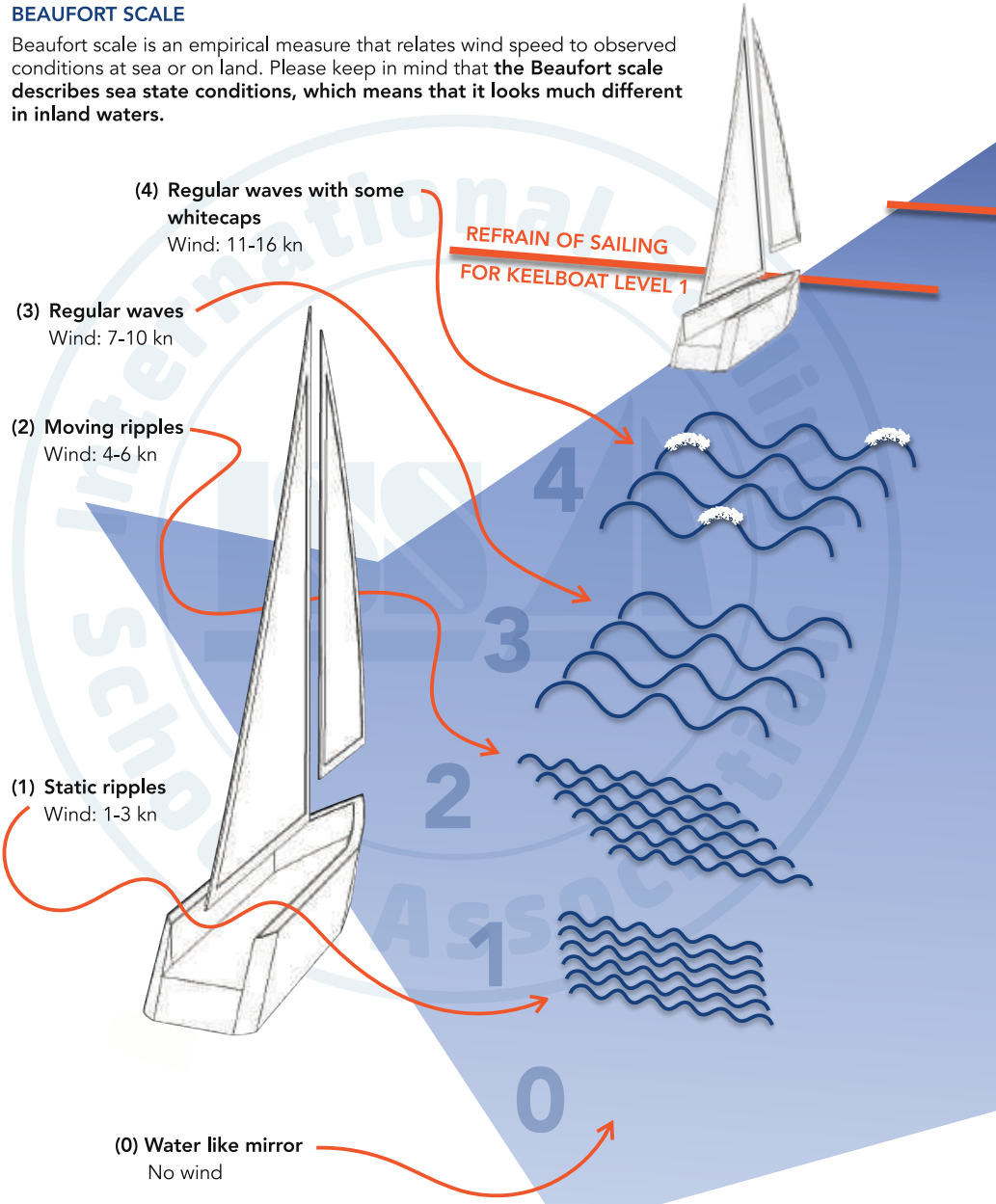


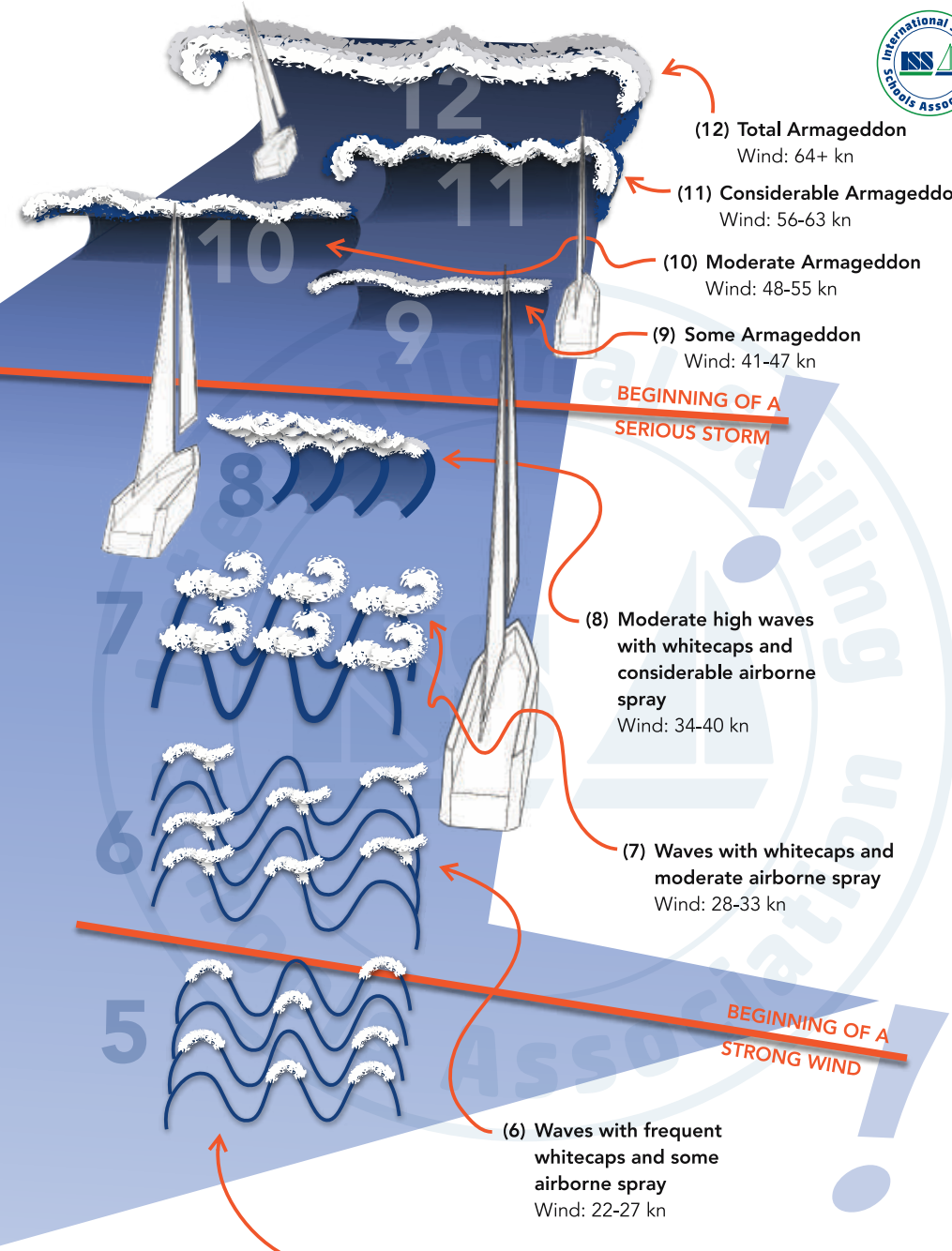
The direction of the arrows corresponds to the direction of the wind.



BEAUFORT SCALE

Beaufort scale is an empirical measure that relates wind speed to observed conditions at sea or on land. Please keep in mind that **the Beaufort scale describes sea state conditions, which means that it looks much different in inland waters.**




12
11
10
9
8
7
6
5
(12) Total Armageddon
Wind: 64+ kn
(11) Considerable Armageddon
Wind: 56-63 kn
(10) Moderate Armageddon
Wind: 48-55 kn
(9) Some Armageddon
Wind: 41-47 kn
BEGINNING OF A
SERIOUS STORM
(8) Moderate high waves with whitecaps and considerable airborne spray
Wind: 34-40 kn
(7) Waves with whitecaps and moderate airborne spray
Wind: 28-33 kn
BEGINNING OF A
STRONG WIND
(6) Waves with frequent whitecaps and some airborne spray
Wind: 22-27 kn
(5) Regular waves with frequent whitecaps
Wind: 17-21 kn

Environmentally Responsible Sailing

Holders of the International Sailing Schools Association **certificates** are the **elite** that knows how to sail safely and should also **care about the environment**. Help us promote Environmentally Responsible Sailing and preserve nature for future sailors generations **by applying these few simple rules**.

Segregate garbage for recycling purposes wherever possible

Recycling is an alternative to "conventional" waste disposal that can save material and help lower greenhouse gas emissions. Recycling prevents the waste of potentially useful materials and reduces the consumption of fresh raw materials, thereby reducing: energy usage, air pollution (from incineration), and water pollution. Search for segregated garbage bins in every marina.

Leave any beach or shoreline you visit cleaner than when you arrived

Leisure sailing can take you to many beautiful, paradise-like places. The community of sailors grows every year, and it is continuously harder and harder to visit places untouched by a human hand. Some people do not regard that as a value and leave their trash behind them there. React and help to keep those places safe.

Strictly enforce no waste being thrown overboard

It's not even a matter of ecology but personal culture. Oceans and seas are enormous, but that does not mean that Another piece of paper thrown into the water does not make a difference. It does. It is your attitude that matters.

Educate sailing guests on the ecology of the sea and shore

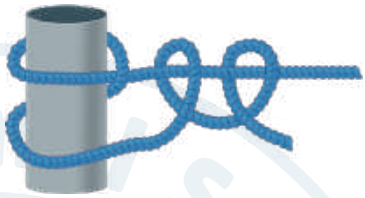
You are the skipper. It is your responsibility to educate your crew on how to behave during your leisure yachting experience accurately.

SAIL IN ASIA

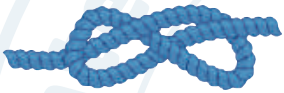
Knots & Sails Folding

KNOTS

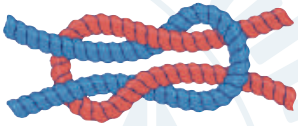
Bowline



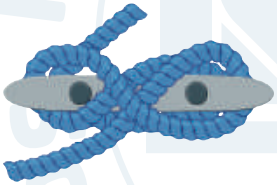
Round turn & two half hitches



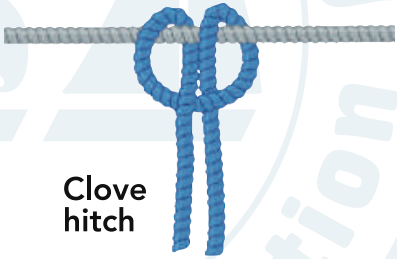
Eight



Reef knot



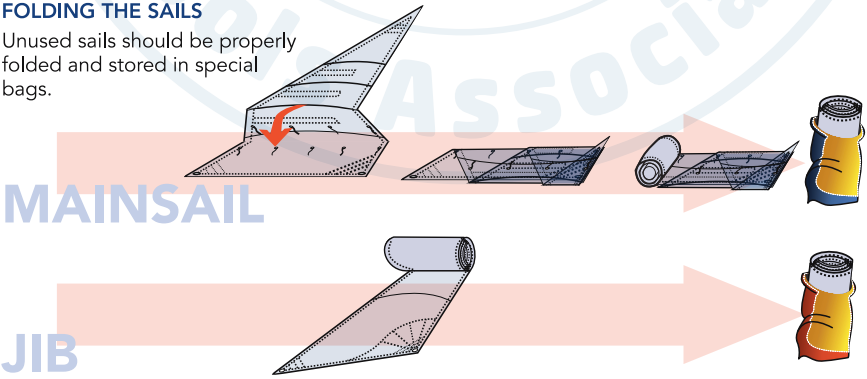
Horn cleat knot



Clove hitch

FOLDING THE SAILS

Unused sails should be properly folded and stored in special bags.



Topics Checklist
KEELBOAT CREW

THEORETICAL TOPICS

- ☐ Yacht Construction
- ☐ Engine Handling
- ☐ Lines And Springs
- ☐ Handling Sail Sheets And Halyards
- ☐ Handling Fenders
- ☐ Anchoring
- ☐ Safety
- ☐ Handling Yacht Under Power
- ☐ Man Over Board
- ☐ Handling Yacht Under Sail
- ☐ Collision Regulations
- ☐ Navigational Aids
- ☐ Electronic-Based Navigation
- ☐ Logbook
- ☐ Meteorology
- ☐ Other Skills (Ecology, Social Skills)

PRACTICAL TOPICS

- ☐ Basics of safe onboard operations
- ☐ Fuel supply system
- ☐ Elementary yacht sailing equipment and how to use it
- ☐ Operating the outboard engine
- ☐ Knots
- ☐ Lines handling
- ☐ Safe operations of sail sheets and halyards
- ☐ Safe fenders handling
- ☐ Safety issues when using an anchor
- ☐ Safe anchoring
- ☐ Handling emergency situations
- ☐ Safe handling of the yacht under power
- ☐ M.O.B. approach under power
- ☐ Safe handling of the yacht under sails
- ☐ Practical skills in meteorology

This is to certify that the student, NAME _____
has an understanding of the above topics and has achieved the level of KEELBOAT CREW.

Instructor NAME _____ Date DD.MM.YYYY _____

Instructor's signature _____

ISSA Logbook

The tradition of ISSA logbooks dates to its beginnings

From the very beginning, ISSA was setting standards in teaching sailing school students as well as training instructors. An international team has developed model patterns of seaman books (logbooks) that you can still find in many organizations in Europe and around the world - see photos below.

Also this new logbook in an unprecedented, but extremely convenient to fill in format 'horizontal A5' was created thanks to international cooperation.

www.issa.global

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