

“Like a Virgin”

Beginners Sailing Class

A Sailor's Important Relationship with the Wind

If you have ever spent any time water in a sailboat your interest in on or near the water, you have experienced a whole new world. Winds can whip up the water's surface into foamy waves in no time. Or lack of wind can leave the surface as smooth as glass. Out on the water in a sailboat your interest in wind and weather grows. Your ability to accurately sense changes in the wind, its speed and its direction will improve as you learn to sail. This is an important change that will occur as you become a sailor.

By Feeling the wind on your face you can tell its direction.

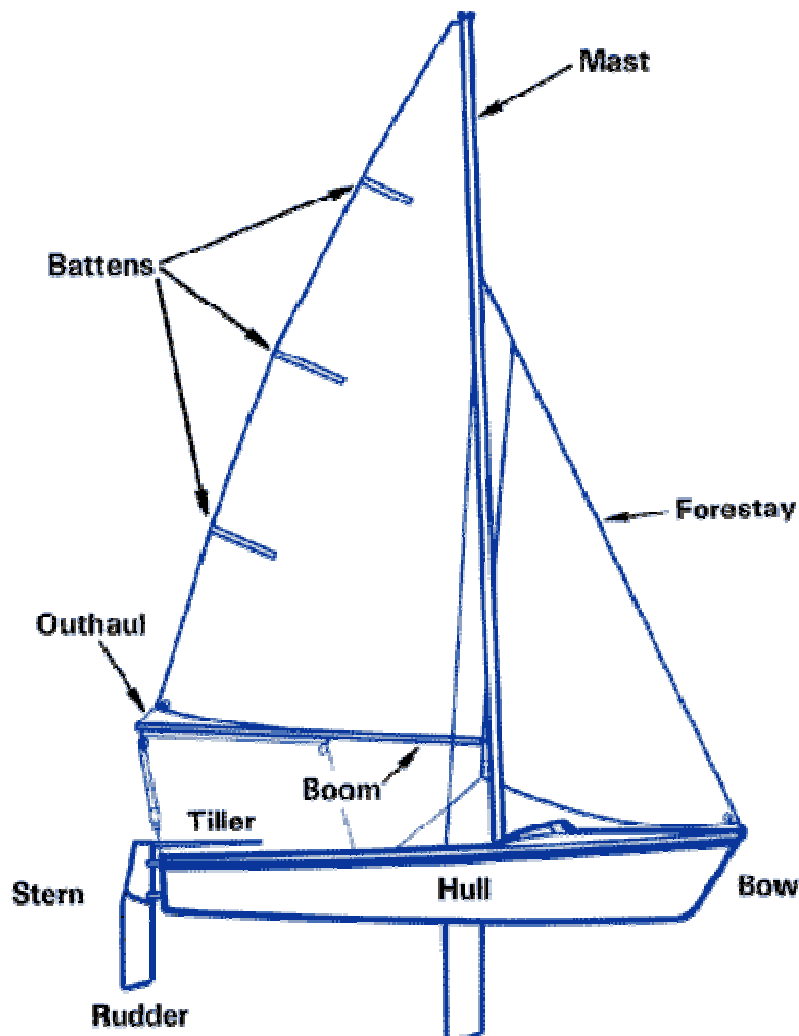
Because your boat is so dependent on the wind, your ability to assess its direction and speed is important. In fact, the first step in learning to sail is to increase your sensitivity and awareness of the wind. I wish my first sailing instructor had impressed this point upon me. The most direct way to track the wind is simply to feel it. Your body, especially your exposed face, can feel the exact direction of the wind if you concentrate. Practice "*feeling*" the wind whenever you can. There is probably no more important first step in learning to sail.

Visual aids can be used to determine the wind direction. By looking at the water we can see waves or maybe tiny ripples. This water motion is caused by the wind and you can determine the wind direction by

looking at the ripples which are generated at 90 degrees to the wind. Once you gain more experience, you will be able to assess the wind speed by looking at the water. For example, white caps begin to form on waves at 12 knots of wind speed. Strong water flow or current can also create waves.

Other visual signs include anchored boats which will point into the wind unless there is a strong current. A flag or wind vane on the top of a mast can show the wind; so can a flapping sail which will wave in the wind like a flag. On your own boat short pieces of yarn or cassette tape tied to the wire rigging can provide that critical wind information.

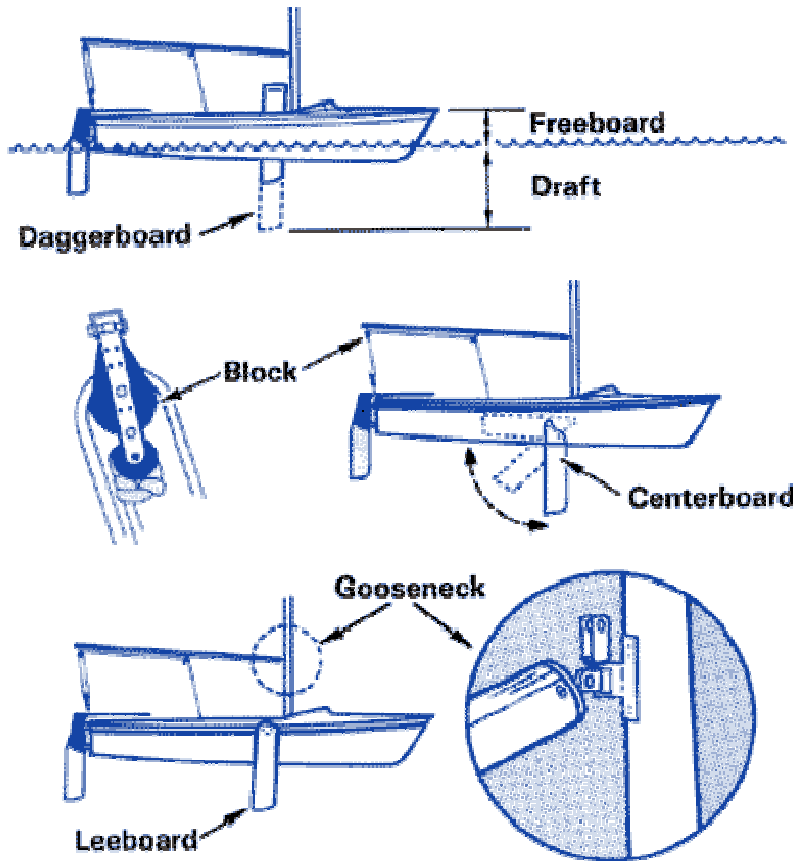
The bottom line is that assessing the wind's direction is of utmost importance to sailors. When you are just starting out you may feel as I did, so inundated with this new world of sheets and sails and bows and reaches, that it is easy to lose track of the all important wind direction. If this happens, relax, and just feel the wind on your face because a sailor's world revolves around the wind and you are



going to become a sailor. In this manual I will try to keep extraneous information to a minimum. Sure, in time you will learn a lot more than you do in your first few sails; but you have plenty of time and your goal is to learn to sail first.

The Sailor's Language

Your next step is to feel comfortable and at home on your sailboat. As anyone who has read *Mutiny on the Bounty* or *Moby Dick* knows, sailing has its own language; terminology that makes it easier to sail a boat. It will take some time before you are comfortable with all of these new terms. Don't force it or get too involved in learning every little name for every little piece on the boat right away. You want to sail the boat, not talk about it. With time and practice you will assimilate this new language and it will become your own.



We will now introduce the major words for parts of the boat and sailing terms that you will be exposed to on your first sail. They will become old friends soon, so just review them every so often until you are comfortable with them. You should know that every sailboat is slightly different in the way it is constructed and designed. *You will find that the boat you are learning to sail on has its own special systems or parts that will vary from the generic boat we are learning on.*

Parts of a Boat

Hull: The body of the boat

Bow: The front end

Forward: Direction towards the bow

Stern: The back end

Aft: Direction towards the stern

Waterline

Length: Length of the boat in the water

Beam: Sailboat's maximum width

Freeboard: Height of the hull above the water

Draft: Distance from the water's surface to the bottom of the boat

Cockpit: Inside of the boat where the crew sits

Centerboard: A pivoting fin that can project down into the water to counteract the force of the sails, preventing side slip or leeway

Centerboard Trunk: Housing for the centerboard

Daggerboard: Same as a centerboard except it slides up and down a vertical slot instead of pivoting

Leeboard: Similar to a centerboard, mounted on the side of the hull

Thwart: A structural cross beam in the cockpit

Rudder: A movable steering fin at the back of the boat

Tiller: The steering arm that moves the rudder

Mast: The vertical main pole supporting the sails

Boom: The hinged, horizontal pole supporting the bottom of the mainsail

Forestay: Forward wire supporting the mast

Shrouds (or side-stays): Side wires supporting the mast

Standing Rigging: Forestay, shrouds, backstay

Mast Step: Fitting in boat upon which mast stands

Gooseneck: Hinged attachment point for the boom on the mast

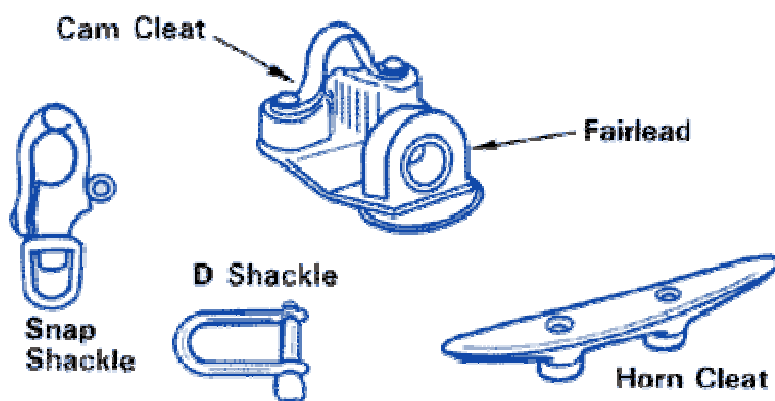
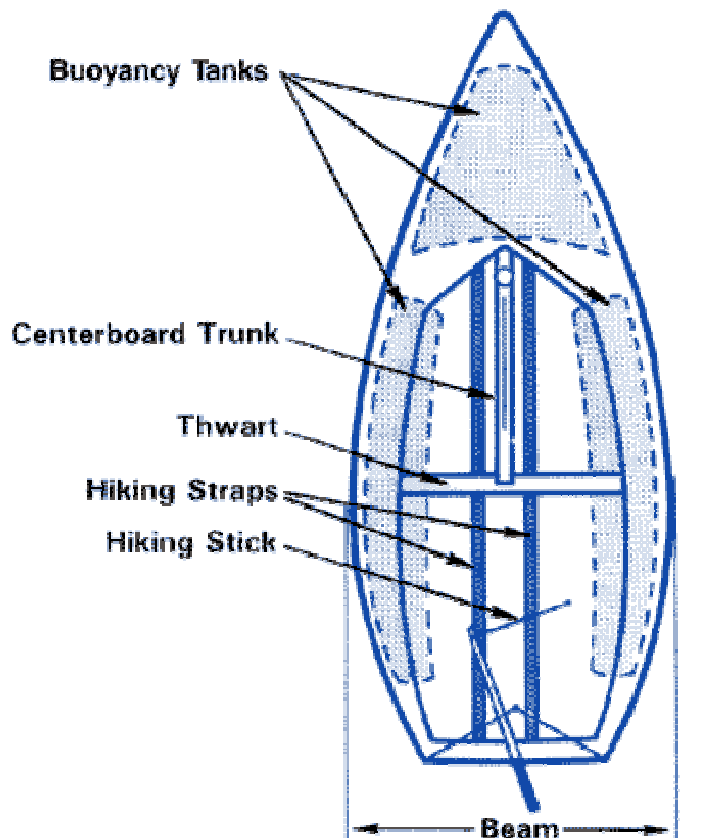
Chain Plate: Attachment point for shrouds and headstay on hull

Hiking Straps: Foot straps used to lean out (hike out) over the side of the boat

Buoyancy Tanks: Airtight compartments that provide flotation in the event of a capsize

Hiking Stick: A tiller attachment allowing for easier steering from a variety of seating positions

Sail and Control Terms



Jib: Front sail hoisted on the forestay

Main: Primary sail set on the mast and boom

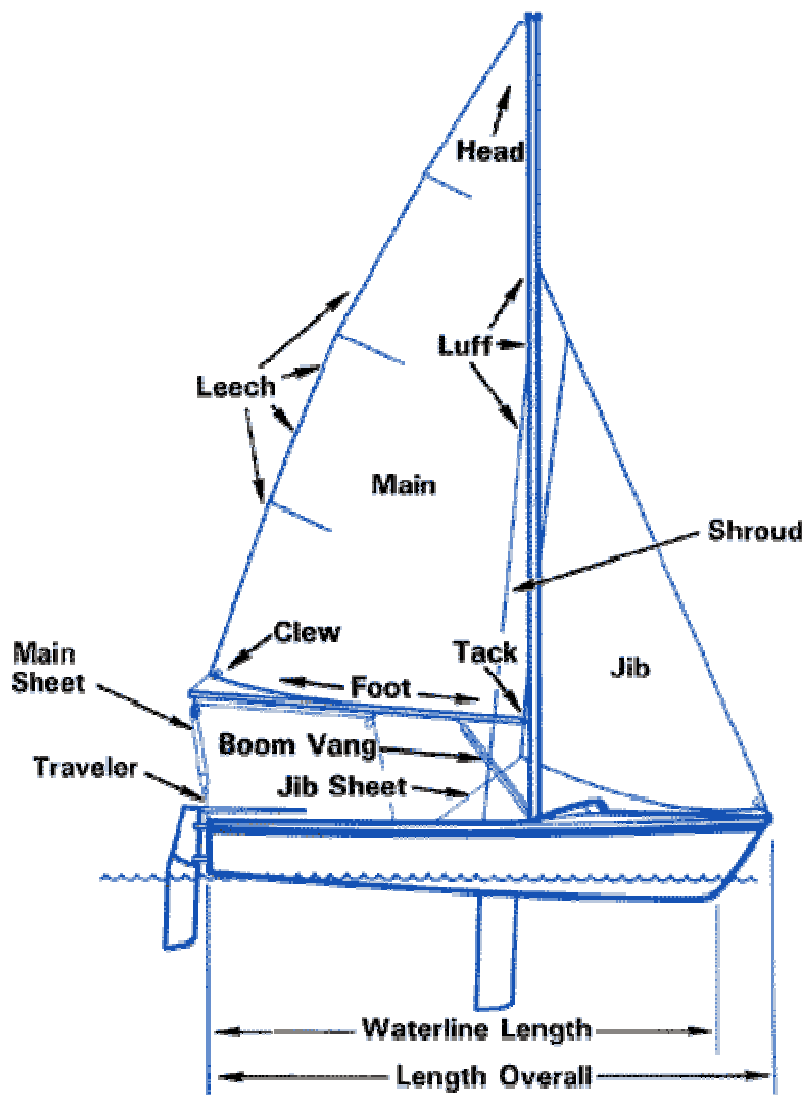
Genoa: A large jib that overlaps the mast

Spinnaker: A balloon like sail used for downwind sailing

Head: Top of sail

Tack: Front lower corner of sail

Clew: Back lower corner of sail



end of boom securing the main sail clew. Used to adjust the tension on the foot of the sail

Downhaul or Cunningham: Rope or mechanical system near the gooseneck used to adjust the tension of the front edge (luff) of the mainsail

Luff: Front edge of sail

Leech: Back edge of sail

Foot: Bottom edge of sail

Battens: Wood or fiberglass slats inserted into pockets on the sail's back side (leech) to help control sail shape

Sheets: Ropes used to control the adjustment or trim of a sail (eg., mainsheet, jib sheet)

Halyards: Rope or wire used to hoist sails on masts or on wire stays

Lines: Another name for rope

Cleats: Fittings of various designs used to secure ropes

Blocks: Rope or wire pulley

Traveler: Adjustable system upon which the mainsheet block(s) can slide

Fairlead: A block or eye used as a guide to fix the point of trim for a jib sheet

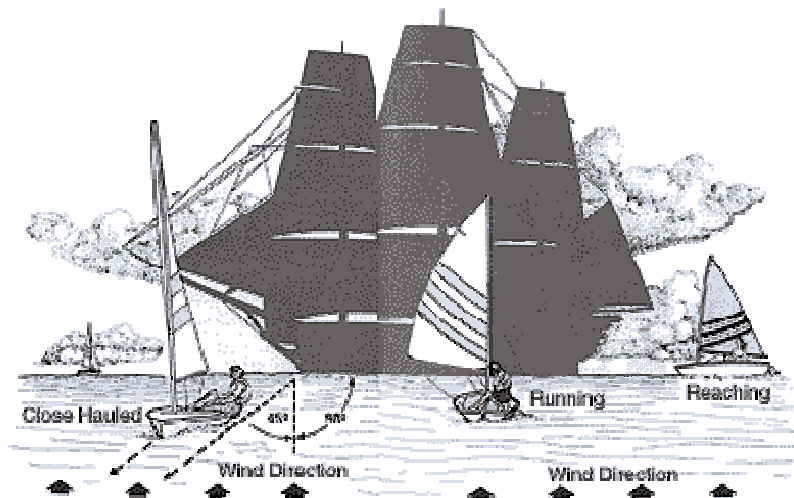
Running Rigging: Movable rigging, including sheets, blocks, halyards, lines, etc.

Outhaul: Adjustable system at aft (rear)

Shackle: U-shaped metal device used to fasten sails and fittings

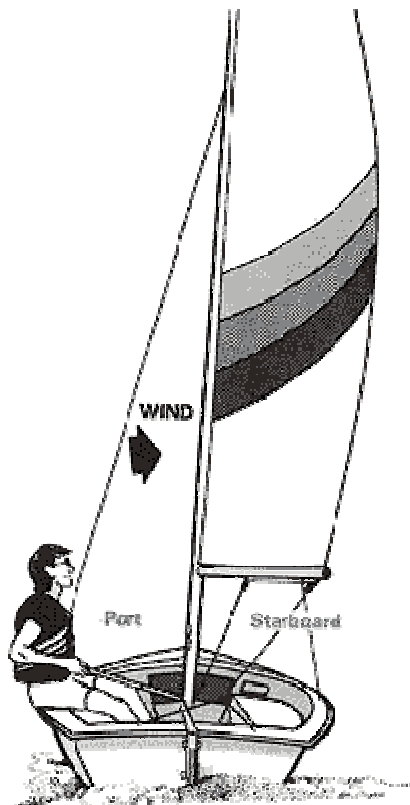
Boom Vang: Rigging from the boom to the bottom of the mast that stops boom from lifting when reaching and running

There, that's not so bad. Remember, it will take you some time to master this terminology. But as you spend time on the boat these terms will become very familiar. So let's leave these terms to review later and get on to what we are really here for - **sailing**. If you forget an item's name while you are sailing, don't worry about it. You will have plenty of time to learn these new names.



Sailing Terms

Let's go back to the basics - the boat, the sails and the wind. In case you did not know a sailboat cannot sail directly towards the wind. But by using the lifting forces created by air and water flow over the wing-shaped sails and centerboard a sailboat can sail remarkably close to the wind. On average a modern sailboat can sail within about 45 degrees of the wind direction. This is a big improvement over the square riggers which had a hard time sailing any closer than 90 degrees to the wind.



It is not necessary to understand how a sailboat can sail "upwind" (45 degrees to the wind) to be able to get out there and do it. If you want to learn more about the physics of sailing, take a trip to the library. For the most scientifically inclined there are two books by C.A. Marchaj that explore the subject of the aerodynamic and hydrodynamics of sailing in great depth.

So let's start with the wind direction to orient ourselves and then learn the Points of Sailing.

Close Hauled: Sailing "upwind" as close as possible to the wind (usually about 45 degrees)

Reaching: A reach is any point of sail between close hauled and running.

Reaching can be divided into three finer points of sailing:

Close reach: Closer than 90 degrees to the wind

Beam reach: Sailing 90 degrees to the wind

Broad reach: Between beam reaching and running

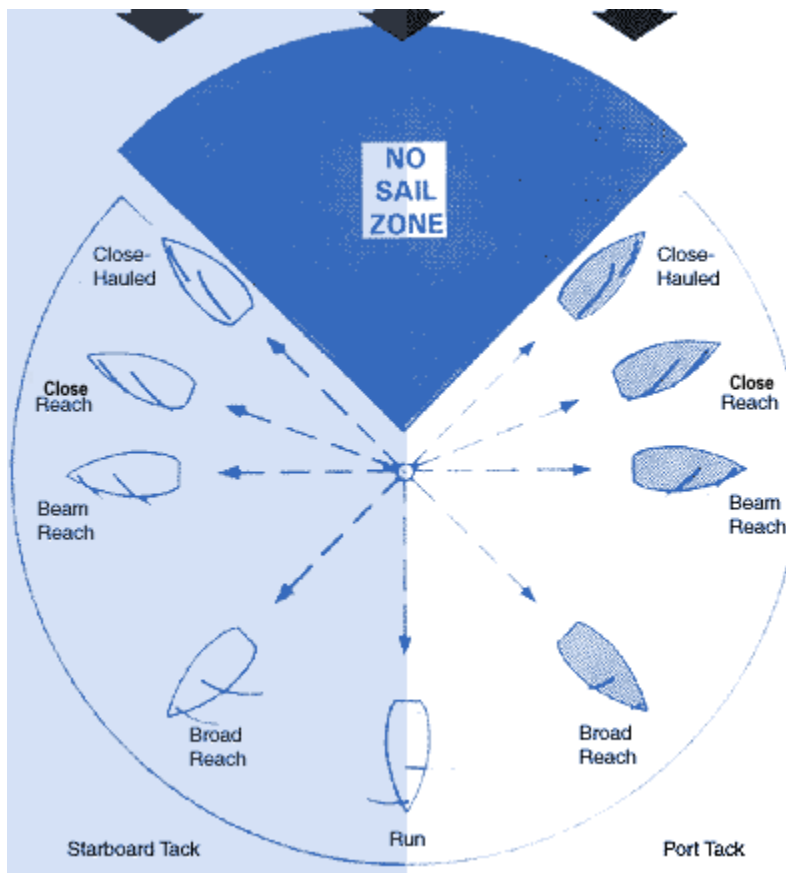
Running: Sailing directly downwind with the wind coming from straight

behind

Points of Sail

On paper (depicted by a diagram), the points of sail are easy to see. The challenge is to apply this diagram to the real world on the boat. This is when your ability to feel the wind will be very valuable. As you can see, there is really only a 90 degree sector bisected by the wind direction where you cannot sail a boat (no sail zone). Traveling in any other direction is possible and really quite easy. The main key remains to be aware of the wind direction.

The easiest way to remember port and starboard is that the word "left" has fewer letters than "right" and so does its nautical term "port" compared to "starboard". **Port:** left side (facing towards bow). **Starboard:** right side



between being tight and perpendicular to the boat.

Broad Reach

Here the wind will be coming from behind you at an angle over either the port or starboard rear quarter of the boat. Ease the sails so that they are almost perpendicular to the boat. It will seem as if the wind has dropped, this is because you are now sailing with the wind, so it will feel as if there is less wind, although the wind speed will have remained the same. This is a comfortable point of sail with no heeling, but it is slower than a close or beam reach.

Running

This is when the wind is directly behind you. This is a very difficult point of sail as you will need to put the main sail out one side and the headsail out on the other side. This is called sailing wing on wing. It is a very

Close Hauled / Close Reach

As can be seen in the diagram on the left, this involves sailing INTO (toward) the wind at an angle. This is a very fast point of sail, and will make the sail boat heel more than any other point of sail. Set your sails as tight as you can. Crank both the mainsail and the headsail as tight as you can.

See how far over you can steer the sailboat toward the wind, you will know that you have gone too far when the headsail starts to flutter (luff) now fall slightly off the wind until the sail fills again. This is as close to the wind as you will be able to get.

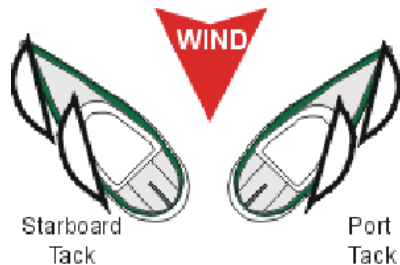
Beam Reach

This is where the wind will strike the sailboat perpendicular to your direction of travel.

This is an easy comfortable point of sail. Ease both the headsail and the mainsail out half way. That is the sails should be pointing toward the back corner of the stern, half way

difficult position to maintain, because any slight deviation off course will cause either the headsail to collapse and back the wrong way, or will send the main sail crashing over to the other side. **Extreme caution should be used when sailing wing on wing as the boom swinging across the boat at speed can cause grave injury.** If sailing wing on wing it is important to set a preventer on the boom to prevent it from moving – this is covered in detail in the intermediate sailing class.

CHANGING A POINT OF SAIL



Tacking – when sailing on a close haul or close reach, you adjust your point of sail so that the wind moves across the bow as you turn from one tack to the other. This will result in a zigzag that will ultimately take you to a destination that is upwind.

As this will mean moving the headsail from one side to the other, prepare to tack by looping the lazy sheet (the sheet that is not working holding the sail) around the winch a couple of times (clockwise).

The helmsman will spin the wheel into the wind. As the bow comes around the headsail will begin to flap and then just as the wind starts to fill the sail from the other side, release the working sheet completely and haul in on the lazy sheet as fast as you can bringing the sail over. Trim until tight. You will now be sailing at a 90 degree angle to your previous direction.

There is no need to be concerned about the mainsail, because in a close haul it will be trimmed very tight and will hardly move.



Jibing – this is the opposite maneuver to tacking. Here the wind will cross the stern. This is used when on a broad reach when the wind is off say the starboard quarter, and then switching to the opposite broad reach moving the wind to the port quarter. This also results in a zigzag and used for sailing downwind when sailing wing on wing is not desirable because of its inherent dangers.

A jibe is performed the same way as a tack, but much slower. The helmsman swings the wheel, but this time AWAY from the wind.

Once again prepare for the jibe by looping the lazy sheet around the winch. There is one more step to remember which is very important: because the mainsail on a broad reach is much looser than on a close reach, tighten it up before jibing. If you do not do this, then once the sailboat comes around, the boom will swing across the boat as the wind grabs it and it could cause bodily harm to anyone in its path. Even if there are no crew members who could get hurt, a boom swinging fast can cause damage to the rigging.

After the helmsman has spun the wheel, the sailboat will come around slowly, the wind will switch from the one quarter to the other and the headsail will start to back, as soon as it backs to the other side of the boat, release the working sheet and haul in on the lazy sheet bringing the sail over to the other side of the boat. Once the new direction is set, ease out the mainsail again.

Other point of sail changes – almost any change in course of more than 30 degrees will result in some form of sail change, although none as dramatic as a tack or a jibe. If you are on a close reach and turn the wheel slightly failing off the wind onto a beam reach, simply ease out the sails. If on a beam reach and falling off even further onto a broad reach, ease out the sails more. Likewise if on a beam reach and turning up into the wind, tighten the sails.

Remember the basic rule of sailing: The closer to the wind you sail, the tighter the sails need to be, the further off the wind you sail, the looser the sails need to be.

Terminology:

Falling off – turning away from the wind. **Coming up** – turning toward the wind

Trim the sails (sheet in) – tighten the sails. **Ease the sails (sheet out)** – loosen the sails

How to Heave to

What is "Heaving to"? (No...NOT throwing up!!!)

Did you ever notice how all that pounding into the waves goes away when you come about? For the brief moment that you are directly into the wind the boat pauses. In fact, if you forget to release the head sail, it will be blown backward and the boat will almost stop. "Heaving to" starts that way.

When a sailboat is set in a heaving to position, she slows down considerably and keeps moving forward at about 1 to 2 kts, but with a significant amount of drift. The drift creates some turbulence on the water, and that disturbance decreases significantly the sea aggressiveness. The pounding felt when going upwind in strong seas almost miraculously disappears and the boat does not heel as much. This is MUCH more comfortable. It's a little bit like "parking" the boat on idle speed. The limitations of this technique are: a) you need enough sea room because of the important drift; and b) beyond a certain level of wind, other measures need to be taken. (In winds over 40 its better to drop all sails and power slowly straight into the wind, absent obstructions of course.)

How to do it

Let's say you've been beating hard upwind for quite a while on a port tack in 4 to 6ft. seas, no reef on your sails, the wind is about 16kts. You're the only one on board to be able to steer and you want to take a break. Or you're hit by a squall with 30kts wind gusts, and you would be more comfortable waiting until it passes. Here is what to do:

a. Sheet in the main sail tight. You're already going upwind so you may just have to give the main sheet a few turns on the winch.

b. Tack the boat but do not touch anything on your head sail, jib or genoa (I know, this is the weird part.) It is a good idea (unless you know exactly what you are doing) to make the initial tack very slowly: head into the wind until the speed has really come down before finishing the tack.

c. When you finish the tack, you're now on a starboard tack, your main has switched side (normal) but your headsail is now in a position you have not seen before: the head sail is set against the wind with its clew is to windward instead of leeward as usual, meaning that even though you're now on a starboard tack, the clew is on the starboard side of the boat.

d. Lastly, turn your steering wheel all the way to windward and lock it. To make things clear, since you are now on a starboard tack, turn your wheel all the way to starboard. If your boat has a tiller, push the tiller all the way toward your main sail and lash it.

You now notice an uncanny change in the boat attitude (obviously!): the pounding against the waves has stopped and the boat is slowly moving and drifting in a smooth and comfortable behavior, at about 45° off the wind. Isn't this the greatest thing since sliced bread?

Now, one bit of caution: not all boats react the same way to a heave to position. So if you intend to use this technique, we suggest you try it in smooth waters with moderate winds.

How to get out of it

When you are ready to resume your normal course:

- a. Unlock your wheel or unlash your tiller.
- b. Turn it all the way to the other side (it was locked to starboard, so turn it all the way to port.)
- c. The boat will turn almost 180° and you will find yourself back on the port tack you were on before the beginning of the maneuver.

Should you wish to simply resume sailing on the current heave to heading:

- a. Unlock your wheel or unlash the tiller.
- b. Release the backed Head sail and take it in on the opposite side.
- c. The boat will sail ahead as the Head sail is sheeted in on the leeward side.

Notes

Right of Way

Rules of the Road

There are two sets of navigation rules; inland and international. A nautical chart will show you the demarcation lines where the rules change from international to inland and vice versa. In general, these demarcation lines follow the coastline and cross inlets and bays. On the seaward side of the demarcation lines international rules apply. We will concentrate on the inland rules, since most of your recreational boating will occur on the landward side of the demarcation lines.

The Nav Rules are written with the understanding that not all boats can maneuver with the same ease. Therefore, Rule 18 states that certain vessels have the right-of-way over other vessels by virtue of their ability to maneuver.

A power driven vessel underway must keep out of the way of the following:

1. A vessel not under command broken down (nuc).
2. A vessel restricted in ability to maneuver (ram) such as a dredge or tow boat, a boat engaged in work that restricts it to a certain area, or a vessel transferring supplies to another vessel.
3. A vessel constrained by draft (cbd) such as a large Carnival cruise ship or oil tanker. They must stay in the channel in order to maneuver.
4. A vessel engaged in commercial fishing, who's fishing equipment restricts its maneuverability. This does not include a sport fisher or party boat.
5. A sailing vessel, under sail only, and vessels propelled by oars or paddles. (Note: when a sailboat has its motor running, it is considered a power driven vessel).
6. A powered vessel underway.
7. A seamplane (but they really don't count!)

"New Reels Catch Fish, So Purchase Some"

Each of these vessels must keep out of the way of the next vessel in the hierarchy. For example, a sailboat must keep out of the way of a vessel engaged in fishing, which in turn must keep out of the way of a vessel with restricted maneuverability. And everyone must keep out of the way of a vessel not under command.

When two power driven vessels are in sight of one another and the possibility of collision exists, one vessel is designated by the rules as the stand-on vessel and the other is designated as the give-way vessel. The stand-on vessel, the boat with the right of way, should maintain its course and speed. The give-way vessel must take early and substantial action to avoid collision. If it becomes apparent that the actions taken (or not taken) by the give-way vessel are dangerous or insufficient, the stand-on vessel must act to avoid collision.

Meeting Situations

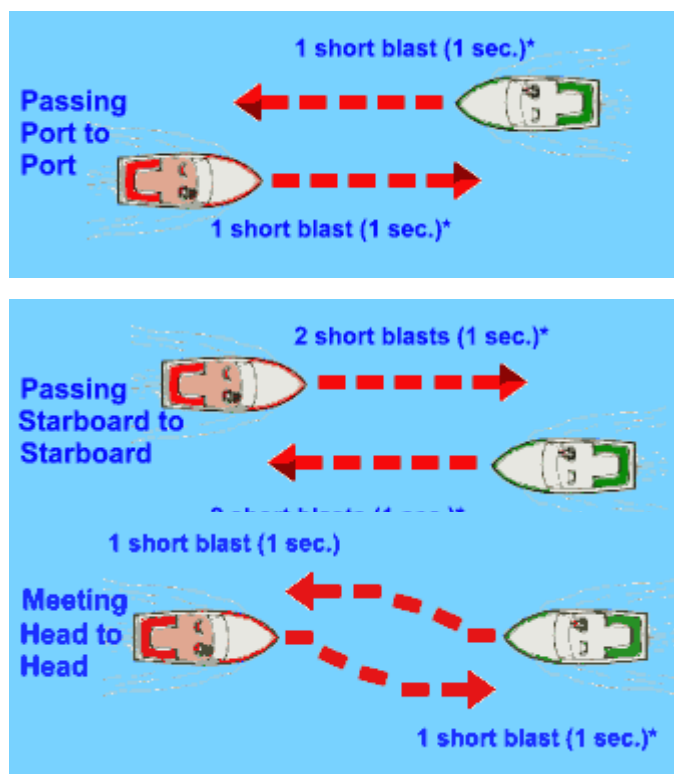
In the following situations, the give-way vessel must take action to keep well clear. The stand-on vessel should maintain its course and speed. If it becomes apparent that the actions taken (or not taken) by the give-way vessel are dangerous or insufficient, you should take action to avoid collision.

Meeting Head-On

When two power driven vessels are approaching head-on or nearly so, either vessel shall indicate its intent which the other vessel shall answer promptly. In a meeting situation neither vessel is the stand-on vessel.

It is generally accepted that you should alter course to starboard and pass port-to-port. The accompanying sound signal is one short blast. If you cannot pass port-to-port due to an obstruction or other vessels, you should sound two short blasts to indicate your intention to pass starboard-to-starboard. Make sure the other vessel understands your intent before proceeding. The other vessel should return your two-short-blast signal.

Overtaking



the overtaking vessel might not)

"I intend to pass you on your port side"

2 short blasts (1 sec.)

"Agreement"

2 short blasts (1 sec.)

"Doubt or Danger"

Respond with 5 short blasts

International Rules:

"I intend to pass you on your starboard side"

2 prolonged blasts/1 short

"Agreement"

1 prolonged/1 short/1 prolonged/1 short

"I intend to pass you on your port side"

2 prolonged blasts

"Agreement"

2 prolonged blasts

When two vessels are moving in the same direction, and the astern vessel wishes to pass, it must initiate the signal to pass as shown in the diagram. The vessel passing is the give-way vessel and should keep out of the way of the vessel being passed. The vessel being passed is the stand-on vessel and must maintain its course and speed. If the stand-on vessel realizes that the course intended by the give-way vessel is not safe, it should sound the danger or doubt signal.

If you are the overtaking vessel, remember that you are the give-way vessel until well past, and safely clear of, the passed vessel. Do not cut in front, impede or endanger another vessel.

Inland Rules

"I intend to pass you on your starboard side"

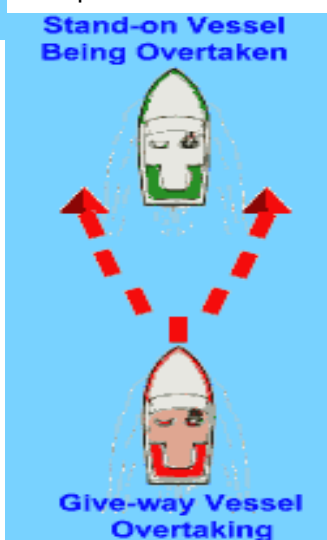
1 short blast (1 sec.)

"Agreement"

1 short blast (1 sec.)

"Doubt or Danger"

Respond with 5 short blasts (this is if the vessel being overtaken sees a danger that

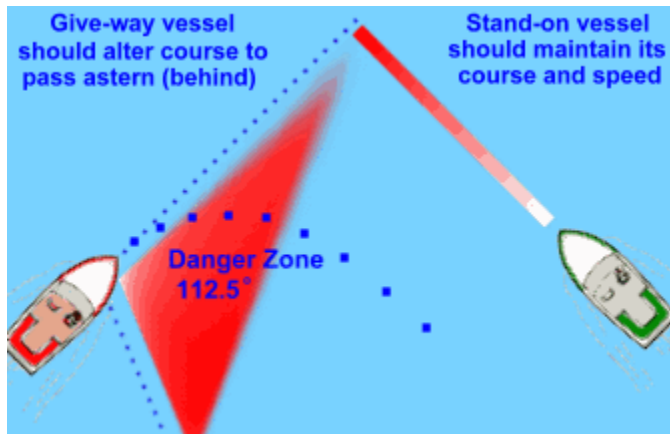


"Doubt or Danger"

Respond with 5 short blasts

The difference between international and inland rules is that inland rules assume that English is spoken and communication can be made through the VHF. International ships might not have an English speaking radio operator.

Crossing



When two power driven vessels are approaching at right angles or nearly so, and risk of collision exists, the vessel on the right is the stand-on vessel and must hold its course and speed. The other vessel, the give-way vessel, shall maneuver to keep clear of the stand-on vessel and shall pass it by its stern. If necessary, slow or stop or reverse until the stand-on vessel is clear.

In this example, the red vessel is the give-way vessel and should alter course and speed to pass behind the green vessel. If the skipper of the green vessel does not observe the red vessel taking action to avoid collision, then

he/she must take the required action to avoid a collision.

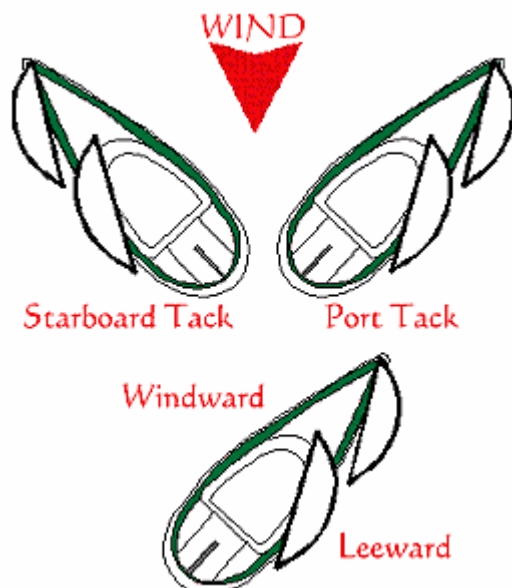
Sailing Craft and vessels propelled by oars or paddles



Sailing craft and boats propelled by oars or paddles have the right-of-way over power driven vessels. An exception to this is if the sailing craft or self-propelled vessel is passing a power driven vessel. In an overtaking situation, the overtaking vessel is the give-way vessel, even if it is not propelled by an engine.

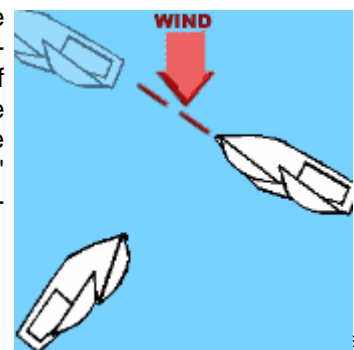
Sailing vessels have special situations when meeting and crossing each other.

In order to understand the rules of the road as they pertain to sailboats you must know a little more sailing terminology.



- Port tack - when the wind is coming over the port side of the boat
- Starboard tack - when the wind is coming over the starboard side of the boat
- Windward - in the direction from which the wind is coming (upwind)
- Leeward - in a direction away from which the wind is coming (downwind)

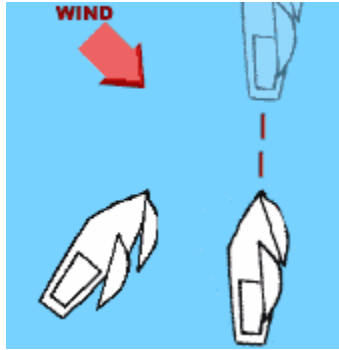
When sailboats approach one another under sail, the "give-way" vessel must stay clear of the "stand-on" vessel. The following rules determine which boat is the "give-way" and must yield the right-of-



way in any situation where the danger of collision exists.

If both boats are on opposite tacks, the boat on the port tack gives-way to the boat on the starboard tack.

If both boats are on the same tack, the boat to windward must keep out of the way of the boat to leeward. In other words the boat farthest from the direction from which the wind is blowing has the right-of-way.



Generally, sailboats have the right-of-way over power boats unless the sailboat is overtaking another vessel. In that case the sailboat becomes the "give-way" boat. Additionally, if a sail boat has mechanical propulsion and it is being used the sail boat, even while still under sail, is suddenly a power boat and must obey the same rules as other power boats.

Even though a sailboat may have the right of way over a power boat some common sense must be used. For instance, you should not impede the passage of large power boats and you should not change course when approaching power boats. Changing course only makes it harder for the power boat to pass safely.

Navigating Narrow Channels

The rules tell you to stay to the starboard side of narrow channels. Make sure that you do not impede a vessel that is constrained by draft, i.e. a large vessel that must operate within the channel in order to make way safely. When crossing a channel, do so at a right angle and in such a way as to avoid causing the traffic in the channel to make course or speed changes. Do not anchor in a channel unless you cannot make way (broken down, etc.).

If you approach a bend in a river around which you cannot see, sound one prolonged blast to alert vessels approaching from the other side of the bend that you are there. If another vessel is around the bend, it should answer with one prolonged blast. Conversely, if you hear a prolonged blast as you approach the bend, answer with a prolonged blast.

Notes

U. S. Aids to Navigation System (ATON)

Buoys and markers are the “traffic signals” that guide boat operators safely along some waterways. They also identify dangerous or controlled areas and give directions and information. As a recreational boat operator you will need to know the lateral navigation markers and non-lateral markers of the U. S. Aids to Navigation System.

Lateral Markers

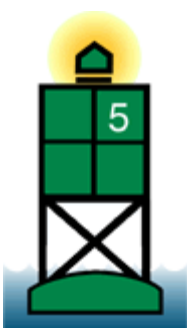
These navigation aids are used to mark the edges of safe water areas; for example, to direct travel within a channel. The markers use a combination of colors and numbers which may be applied to buoys or permanently placed markers.

Colors and Numbers: The colors and numbers mean the same thing regardless of what kind of buoy or marker on which they appear:



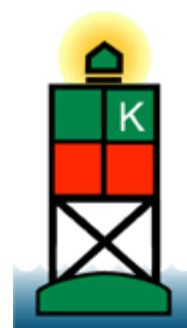
Red Colors, Red Lights And Even Numbers

These indicate the right side of the channel as a boater enters from the open sea or heads upstream. Numbers will usually increase consecutively as you return from the open sea or head upstream.



Green Colors, Green Lights And Odd Numbers

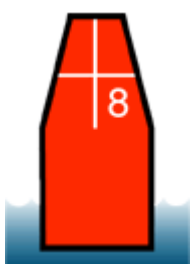
These indicate the left side of the channel as a boater enters from the open sea or heads upstream. Numbers will usually increase consecutively as you return from the open sea or head upstream.



Red And Green Colors And/Or Lights

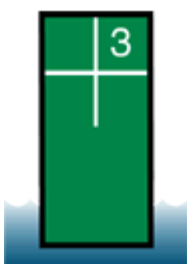
These are placed at the junction of two channels to indicate the preferred (primary) channel when a channel splits. If green is on top, the preferred channel is to the right. If red is on top, the preferred channel is to the left. These are also sometimes referred to as “junction buoys.”

Buoy Shapes:



Nun Buoys

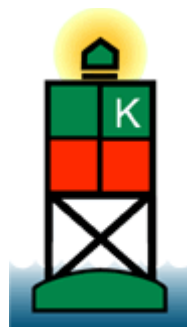
These cone-shaped buoys are always marked with red markings and even numbers. They mark the right side of the channel as a boater enters from the open sea or heads upstream.



Can Buoys

These cylindrical-shaped buoys are always marked with green markings and odd numbers. They mark the left side of the channel as a boater enters from the open sea or heads upstream.

Other Kinds of Buoys and Markers:



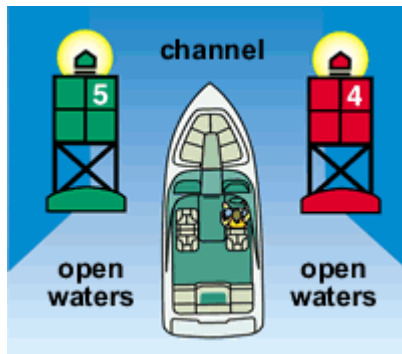
Lighted Buoys

These buoys use the lateral marker shapes, colors and numbers discussed above. In addition, they have a matching colored light.



Daymarks

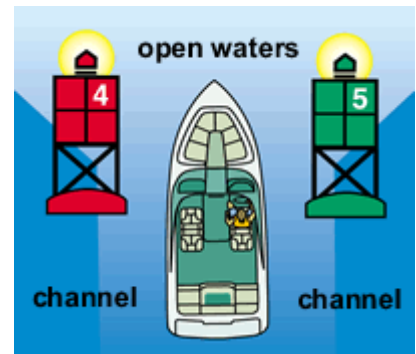
These are permanently placed signs attached to structures such as posts in the water. Common daymarks are red triangles (equivalent to nuns) and green squares (equivalent to cans). These may also be lighted.



Returning from Seaward

*In most circumstances you can use the term
"Red Right Returning"
 as a reminder of the correct course when returning from open waters or heading upstream.*

**"Red on the right,
 A sailor's delight,
 Because he is returning home for the night!"**



Heading out to sea

Variations On The U. S. Aids To Navigation System

Some waters of the United States have slight variations on the lateral navigation markers. You should be aware of these if you boat on these waters.

Intracoastal Waterway (ICW)

The Intracoastal Waterway (ICW) is a chain of local channels linked together to provide an inland passage along the Atlantic and Gulf of Mexico coasts. Channels that are part of the ICW are identified by yellow symbols on channel buoys and markers. Buoys and markers that bear these yellow symbols are serving a dual purpose -- they are navigational aids for both the U. S. Aids to Navigation System and the Intracoastal Waterway.

If following the Intracoastal Waterway in a clockwise direction starting from New Jersey and heading to Brownsville, Texas, then:

- Any marker displaying a yellow triangle should be passed by keeping it on the starboard (right) side of the boat.
- Any marker displaying a yellow square should be passed by keeping it on the port (left) of the boat.

This is true regardless of the shape or color of the channel marker or buoy on which the ICW symbols are displayed. When you are following the Intracoastal Waterway, the yellow triangles and squares should be used as guides, rather than the colors and shapes of the lateral navigation markers on which they appear.



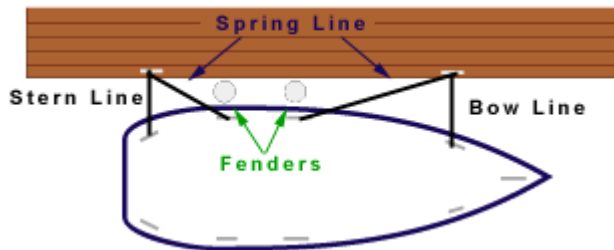
ICW symbols are most commonly found on daymarks.

Docking Techniques

SPRING LINES Static and Active

Boats should be secured with spring lines when left at the dock. The bow and stern lines will keep the boat attached to the dock but these will not prevent the boat from surging back and forth. Spring lines generally pull from the dock toward the middle of the boat. They can be set to pull the boat forward or back, or both ways at once. With the boat pulled as far as it can move, it will remain secure even when the current changes or another boat comes by leaving a wake.

Static Spring Lines

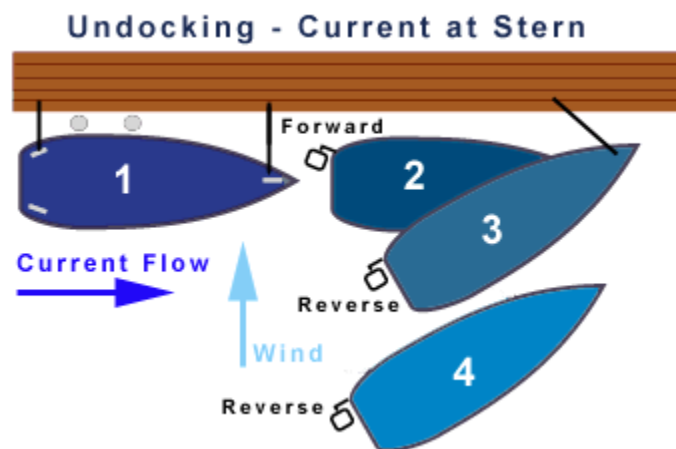


Usually only one spring line is necessary. The fenders should be checked after the spring line is set to make sure the fenders are protecting the boat. When the boat is tied to the dock the fenders should hang just above (not in) the water. When boats are rafted together fenders should be placed high enough to protect the edges of both boats.

SPRING LINES (Active)

Spring lines can also be used to help maneuver the boat at crowded docks. Use either the bow line or stern line to pivot the opposite end of the boat away or toward the dock. Use this technique when space at the dock is limited or when there is a current running along the dock that would otherwise cause the boat to drift where you don't want it to go. Engine power can be applied gently when springing on bow or stern lines if necessary to pivot the boat. Usually all you need is a nudge by hand to get the boat moving. The

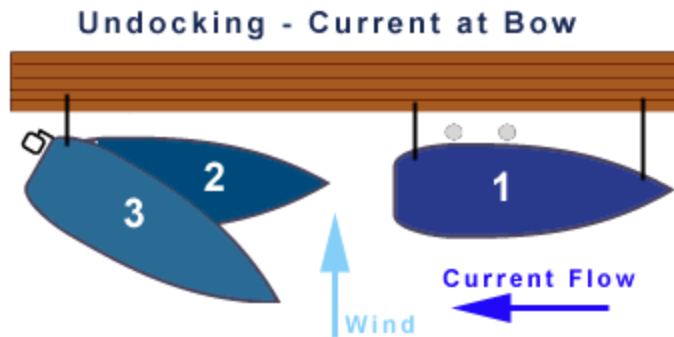
illustrations below show examples of how to spring off the dock.



When current is toward the stern:

1. Untie stern line.
2. Keep bow spring tight-place engine in forward and steer towards the doc.
3. The stern will pivot away from the dock.
4. Once the stern is 45 degrees out release bow line and back away from the dock.

When current is toward the bow:



1. Untie bow line while stern line has one wrap on cleat
2. Engine in reverse and steer stern towards dock.

When bow pivots out 45 degrees place engine in forward and away you go.

Bowline Knot

1. Make a small loop 18 to 24 inches from the end of the rope. This loop is called the hole.
2. Bring the end of the rope up through the hole, around the rope, and back down into the hole.
3. Pull the knot tight.

***Tips:**

- When the knot is snug, you'll have a loop that will not tighten and a knot that holds well but is easy to undo.
- Remember: The rabbit comes out of the hole, goes around the tree and runs back down the hole again.

