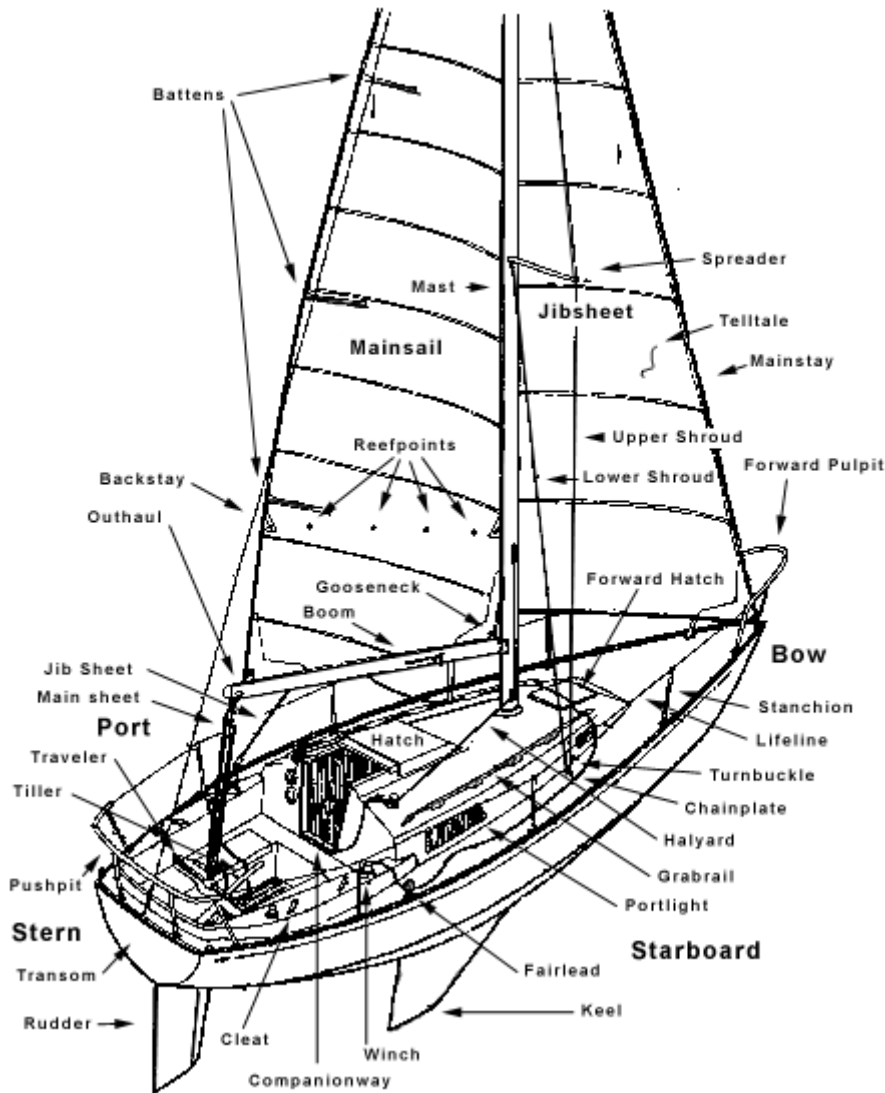


Sailing Course

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Nomenclature



Basic Sailboat Terms

Rudder: A spade-like object at the back of the boat that steers the boat by deflection of the water.

Tiller: The lever that controls the rudder.

Winches: A mechanical device used to increase pulling power on a line. (purchase)

Fairleads: Eyes or blocks that guide lines in a desired direction. Usually they are used for jibsheets.

Gooseneck: The fitting that connects the boom to the mast. It works like a swivel allowing the boom to move up and down and swing from side to side.

Keel: The weighted fin at the bottom of the boat that keeps the boat from slipping sideways through the water.

Bow: Front end of the boat.

Stanchions: Vertical posts that hold lifelines in place.

Pulpit: Safety rail at the bow of the boat.

Stern: Back end of the boat.

Port: The left side of the boat when facing forward.

Starboard: The right side of the boat when facing forward.

Basic Standing Rigging

Mast: The large vertical spar that supports the sail and boom.

Boom: The horizontal spar used to hold and extend the foot of the main sail.

Forestay: The wire (cable) that supports the mast from the bow and prevents the top of the mast from moving aft.

Backstay: The wire that supports the mast from the stern and prevents the top of it from moving forward.

Shrouds: The wires that support the mast from the sides and prevent it from moving athwartships. (sideways)

Turnbuckle: Device for adjusting tension on shrouds and stays.

Chainplate: Fitting that connects shrouds to hull.

Tang: Fitting that connects shrouds to mast.

Basic Running Rigging

Halyards: Lines or wire rope used to hoist the sails.

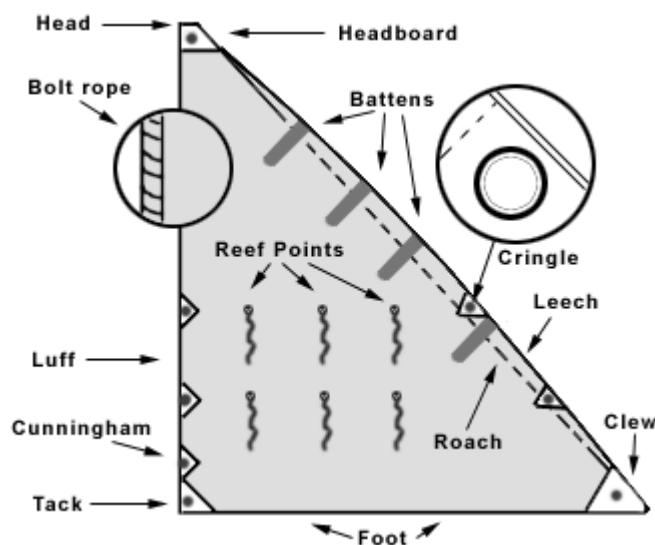
Sheets: Lines used to control the sails. Trimming is tightening the sheet to move the sail towards the centerline of the boat and easing is letting it out.

Outhaul: Line used to tighten or tension the foot (bottom edge) of the sail.

Downhaul: Line used to tighten or tension the luff (forward edge) of the sail.

Boom Vang: Line used to pull the boom down. It prevents the boom from lifting which causes the top part of the sail to twist.

Topping Lift: Holds the end of the boom up and prevents it from falling into the cockpit when the main sail is lowered.



Basic Sail Terms

TERMS APPLYING TO BOTH MAIN AND JIB SAILS

Head: Top corner. (Where halyard connects to sail)

Tack: Bottom forward corner.

Clew: Bottom back corner.

Luff: Forward edge.

Foot: Bottom edge.

Leech: Back edge.

Cringle: Metal reinforcement ring.

TERMS THAT USUALLY APPLY TO MAIN SAILS

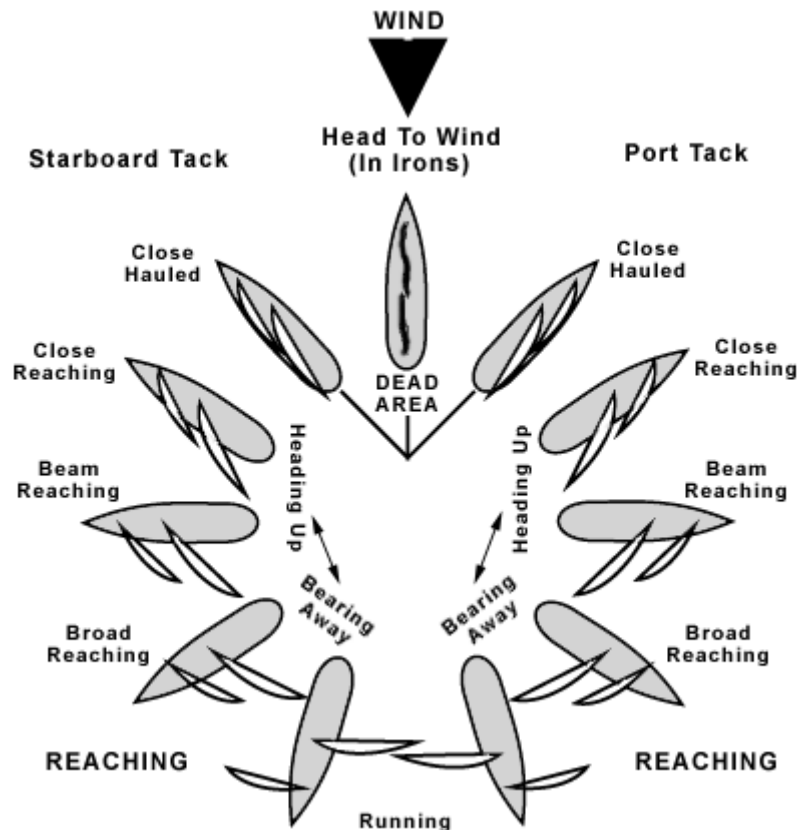
Battens: Wood or plastic strips that act as stiffeners for the sail. They help keep the leech from fluttering.

Batten Pockets: Pockets sewn into the trailing edge of the sail to hold the battens.

Roach: The unmeasured Sail area along the back edge of the Sail.

Cunningham: The cringle (grommet) on the luff of the sail used to achieve luff tension for draft control. (sail shaping)

Reef Points: The row of points where the reef ties (gaskets) are attached to the sail.



SAILING TERMS UNDERWAY- Refer to above Sailing Quadrant

The following six terms are points of sail:

Close Hauled: Sailing as close to the wind as possible. (pointing)

Close Reach: Sailing between close hauled and beam reach.

Beam Reach: Sailing so that the wind is on the beam. (90°)

Broad Reach: Sailing so that the wind is behind the beam.

Running: Sailing so that the wind is directly astern. The jib and main sails will be on opposite sides. (wing and wing) **By the Lee:** Sailing so that the wind is on the same side

as where the main is carried. When running, this could happen if there is a wind shift to the side of the boat where the main is. Sailing by the lee is discouraged because it could result in an accidental Gybe.

Tacking: Turning the bow of the boat through the eye of the wind.

Gybing: Turning the stern of the boat through the eye of the wind.

Luffing: The fluttering of a Sail when a boat is pointed too close to the wind or the sail is eased out too far.

In Irons: The condition when the boat is pointed directly into the wind without steerageway.

Windward: The direction from which the wind is coming.

Starboard Tack: When the starboard side of the boat is windward.

Port Tack: When the port side of the boat is windward.

Leeward: The direction to which the wind is going.

Head Up: Turning the bow of the boat towards the eye of the wind.

Bearing Away: Turning the bow of the boat away from the eye of the wind, also referred to as bearing off or falling off

Helms-A-Lee: Notification that the tiller has been put to leeward to cause the boat to come about. (tacking)

ADDITIONAL SAILING TERMS

Trim: To pull in... as in trim a sheet. (line)

Ease: To let out... as in ease a sheet. (line)

Overtrim: A condition where the sail is trimmed in too tightly for the wind direction.

Undertrim: A condition where the sail is trimmed too loosely for the wind direction. The Sail will luff if undertrimmed more than a slight amount.

Beat: Sailing to windward by means of a Series of tacks.

Reefing: Reducing the area of a sail due to strong wind.

True Wind: The wind speed and direction as seen by a stationary observer.

Apparent Wind: The wind speed and direction as seen by an observer who is moving across the water.

Weather Helm: The tendency of a sailboat to head into the wind if the helm is released. (letting go of the tiller)

Lee Helm: The tendency of a sailboat to head away from the wind if the helm is released.

Header: Change in wind direction towards the bow of the boat.

Lift: Change in wind direction towards the stern of the boat. A header for a boat on port tack is a lift for a boat on starboard tack.

Beam: The widest section of a boat, generally across the middle.

Abeam: The direction to either side of the boat. (90° from the bow)

Underway: When the boat is neither at anchor, made fast or aground.

No Way: When the boat is stopped.

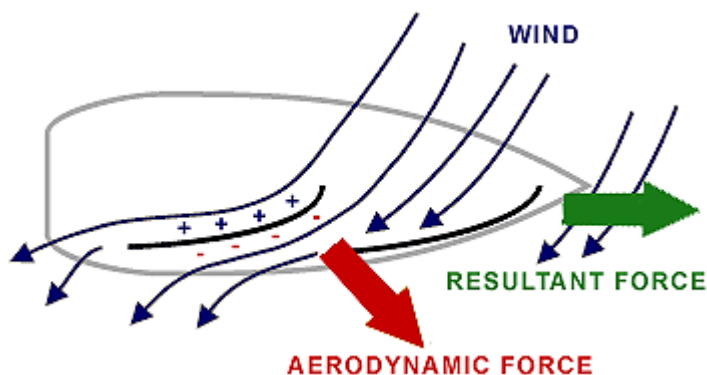
THE SAIL AS AN AIRFOIL - SAILING UPWIND

As a boat sails into the oncoming wind, the sail splits and bends the air stream. As long as the boat does not turn too close to the direction of the wind (the eye of the wind) the sail can bend the flow of air towards the stern of the boat. The wind's energy is utilized when the flow of air is bent this way resulting in forward movement of the boat.

As the wind stream separates at the leading edge of the sail, (the luff), the flow of air passes along both the windward and leeward sides. While the flow of air tries to go straight, it is forced to follow the contour of the sail. The wind blowing across the windward side produces a pushing force referred to as drive. The wind flowing across the leeward, (back side) tries to pull away from the surface of the sail creating a lower air pressure area along the back of the sail. This pulling effect is called lift. The lifting force accounts for as much as 70% of the sailboat's power when sailing to windward.

The jib in the illustration is used to increase the flow of air across the back side of the mainsail, helping to create even less pressure. This produces more lift, increasing the pulling force to windward. The use of the venturi principal in this way on sailboats is called the slot effect.

A strong aerodynamic force is exerted in a sideways direction by the wind as shown in the illustration. The keel, situated under the boat, prevents the boat from moving sideways by creating a lateral resistance force. These two forces combine to create the resultant force which moves the boat in a forward direction. The interaction of forces is what propels the boat up wind.

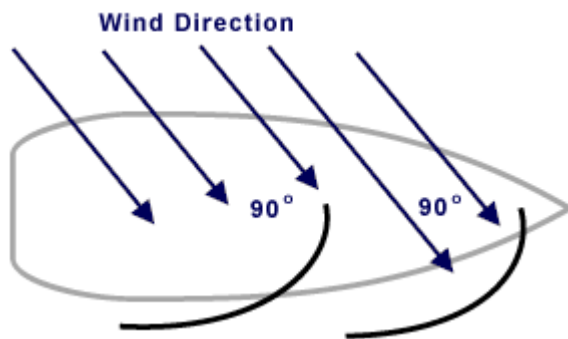


The sails should be trimmed so as to create the maximum lifting force. (See Trim) If the sail is out too far, the flow of air will not be bent as much as possible. If the sail is in too far, the flow of air will break away from the back side of the sail. Either case will result in less than maximum lift and less than optimum performance for the boat.

Sailing Downwind

A different set of forces come into play when the boat is sailing downwind with the wind aft of the beam. The lifting effect is minimized since little wind travels across the leeward

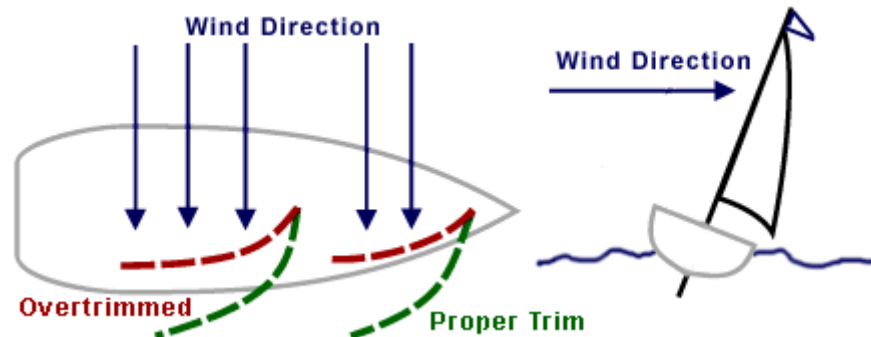
side of the sail. Most of the drive now comes from the wind acting as a pushing force on the sail.



SAIL TRIM

Whether sailing up wind or down, the boat's performance depends on Sail trim. To achieve correct trim the Sail must be adjusted so it is neither over trimmed or under trimmed. Over trim and under trim are explained here so they can be avoided.

Over Trimmed

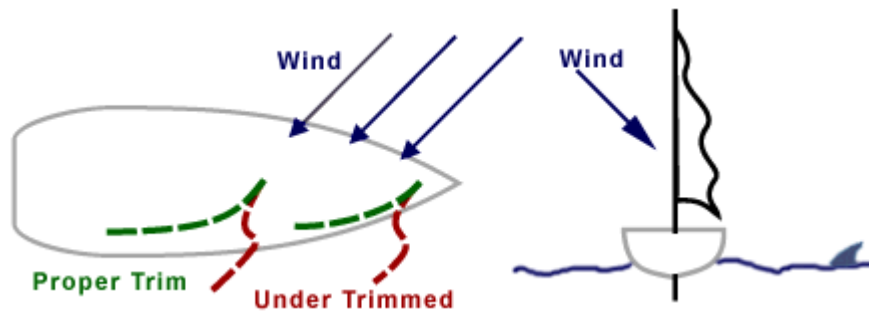


In the illustration the wind is coming directly across the beam. Here the Sails are in too tight resulting in a condition called overtrimmed. The wind is creating a pushing force against the sails but very little lift is created because the air can't flow smoothly across the sail's back side. As a result, the forces tend to heel the boat and push it sideways but do not provide much drive to propel the boat forward.

The sails should be eased out so that the air can travel across both sides of the sail smoothly. Then they will be able to generate lift and the boat will perform properly. The way to find the right trim is to ease the sails until they begin to luff. (The luff or forward part of the sail will start to puffin.) Then trim back in just enough to fill the sails and stop them from luffing.

Another way to correct for an over trimmed situation is to head up. When you get the boat pointed in the right direction, it will accelerate and heel over a bit more. This is due to the increased lift generated by the sails. Correct by heading up if you are beating. If you're reaching in the direction you want to go, ease the sails.

Under Trimmed



The sails are under trimmed when they are eased out to far. The sail will luff (flutter) and the boat will slow down, standing up straighter in the water. Here the sails need to be trimmed in, to be filled, in order to get the boat moving. Luffing the sails can be done to slow the boat if desired, but should not be done too much or too long. Sails are damaged by extensive luffing.

Sailing Trim Guidelines.

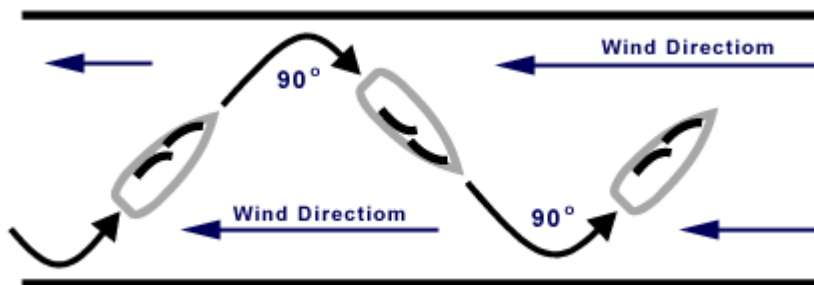
Sailing Upwind: "When in doubt, ease it out."

Sailing Downwind: "Sails ninety degrees to the wind."

TACKING TO WINDWARD (BEATING)

The only way a sailboat can reach an upwind destination is through a series of tacks referred to as beating, or beating to weather. Tacking, or coming about, is changing the boat's direction so that the bow comes through the eye of the wind.

Since 45 degrees is about the best a sailboat can point into the wind, tacking requires a turn of about 90 degrees.



Procedures For Tacking

1. Helmsman gives the command: "Prepare to tack." This gives the crew a chance to get ready and set up for the maneuver.

2. Helmsman puts the tiller over towards the mainsail, (leeward side) and gives the command: "Helms-a-lee". This notifies the crew that the boat is being turned.

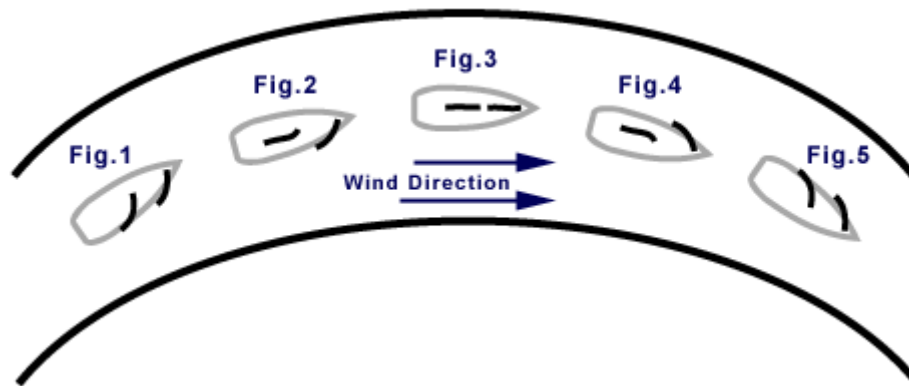
3. The bow comes up through the eye of the wind, the sails come across to the other side of the boat, and as the sails fill, the tiller is brought back to the middle of the boat, the new heading is assumed.

Note: When sailing close-hauled, the mainsail is sheeted in tight so little or no adjustment of the mainsheet is necessary when tacking. As the boat begins turning up through the eye of the wind, the sails begin to luff. When the main fills on the other side, the tiller is straightened, and the boat assumes the new heading.

GYBING DOWNWIND

Gybing is the maneuver of changing tacks downwind it involves taking the stern of the boat through the eye of the wind. As the boat turns and the stern comes through the eye of the wind, the sails must be brought across to the opposite side of the boat.

Gybing is a maneuver that must be controlled! As the boat is turned, the boom must be controlled as it passes over the boat. If there is more than very little wind, the boom can swing across the boat with tremendous force. Crew members could be injured or the rig could be damaged in an uncontrolled situation. You can prevent mishap simply by pulling in the mainsheet and easing it out again as the boom passes from side to side.



Procedures for Gybing

Figure 1. When the boat is on a broad reach, (wind off stern quarter) the boat will be turned to where the centerline of the boat will pass through the eye of the wind. The helmsman gives the command: "Prepare to Gybe."

Figure 2. On that command, both main and jib are sheeted in close to the centerline of the boat.

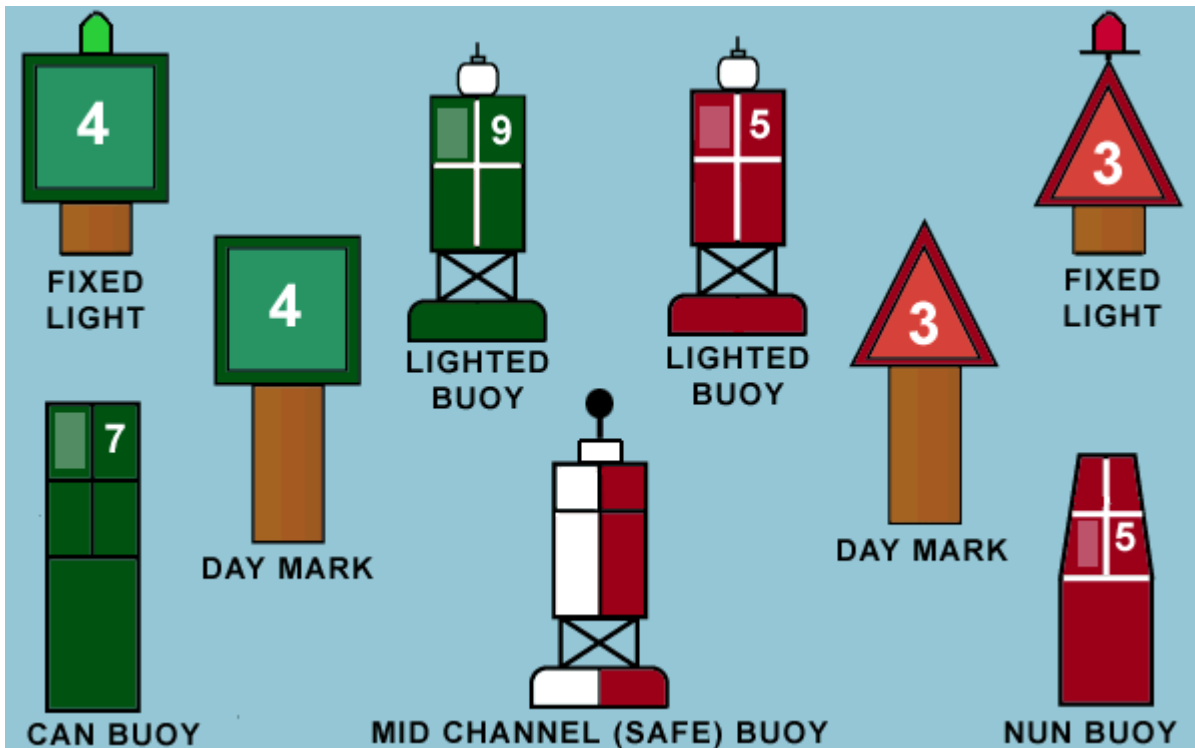
Figure 3. As the boat turns further, the wind crosses to the other side. The sails are carefully eased out to their proper position for the new heading in **Figures 4 and 5.**

Note: As the boom nears the centerline, the helmsman commands: "Gybe Ho." This alerts the crew that the boom will be crossing over.

Caution: The sails should be controlled while crossing over the boat. They should not be allowed to swing on their own.

Aids to Navigation

Just as in driving on the highway, signs are sometimes needed to direct traffic and show where it is safe to go. Signs on waterways are called aids to navigation. They can be buoys or fixed markers like street signs.



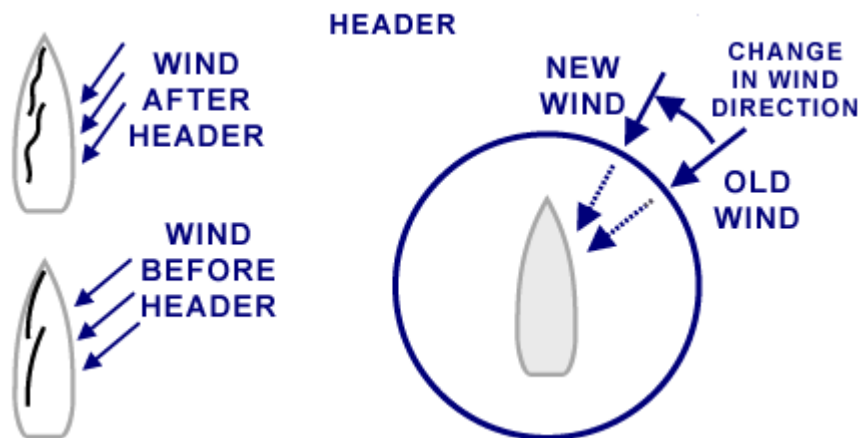
In the lateral system of buoyage the markers designate the sides of the channel. When returning to a harbor from the sea, red markers with even numbers mark the right hand side of the channel. Green markers with odd numbers mark the left hand side. Red fixed markers are triangular with apex upward. Unlighted red buoys are called nun buoys. They are tapered with the small end up. On the other side of the channel, green fixed markers are square and the buoys called can buoys have flat tops. In channels where traffic must stay to the right, mid channel buoys mark the center of the channel. They are vertically striped red and white.



When two channels branch, junction markers are used. They horizontally banded with red and green. The band on top represents the color of the marker as it marks the primary channel. Special non-lateral buoys are white with orange. They mark hazards without reference to a particular channel.

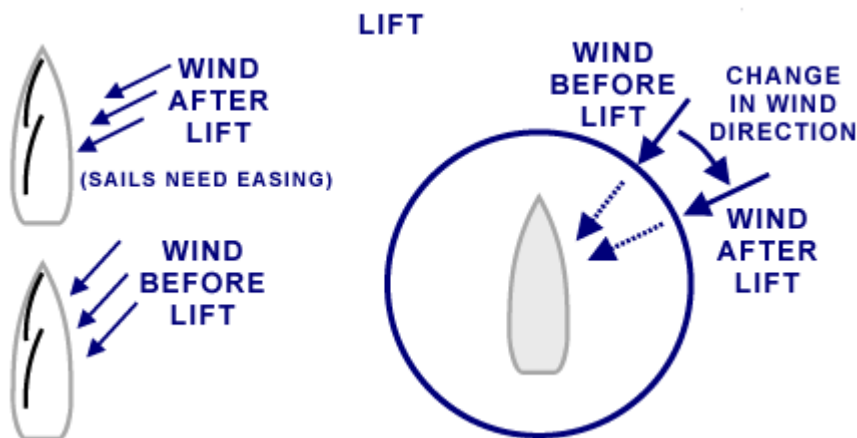
Wind Shifts

As you learned on lesson 1, it's important when sailing to be aware of the relative angle of the wind to the boat so that you can keep the sails in the right configuration for the particular wind angle. Sometimes you can have everything right but then the wind changes direction. When this happens, you will have to re-adjust. Understanding the two kinds of wind shifts will help you adjust to them easily.



When the wind changes to a direction more to the bow of the boat it is called a header. A header will usually cause the sails to luff. You can do either of two things to adjust for a header. One is to bear away until the boat has the original wind angle again. The other is to trim the sheets so that the sails are correct for the closer wind angle. If you are already sailing close hauled when you get a header, you can't trim any more. In this case, you can either bear away or come about.

Lift



When the wind shifts to a direction away from the bow, it is called a lift. When a lift happens, the sails will become over trimmed for the new wind angle. An over trimmed

situation is more difficult to detect than a luffing situation. The way to be ready for a lift is by keeping an eye on the telltales so if a lift does occur, you will notice the change. You can adjust for a lift either by easing the sheets or by heading the boat up to meet the new wind angle. If you're not sure whether a lift has occurred, try easing the sheets anyway. When they are out too far, the sails will begin to luff. Then you can pull them back in to stop the luffing. Lifts are beneficial when you are beating to windward. They enable you to change your course to a direction closer to your destination.

Adjusting Sail Area for Changes in Wind Conditions

When sailing, there is continuous interaction between wind and sails. This interaction is what generates the power to move the boat. Speed, performance, and control are greatly influenced by the amount of sail area exposed to the wind. When the wind is light, the boat requires more sail area in order to perform properly. When there is strong wind, the boat requires less sail area if there is too much sail area the boat will be over-powered. In different wind conditions, the main sail is reduced by a technique called reefing. The area of the jib is usually adjusted by changing to a different jib. A boat with too much sail area exposed for the wind condition Will become hard to handle, and may even be forced out of control. The boat will also heel excessively. Excessive heeling forces more of the boat's hull surface area into the water. This also creates more friction and drag, slowing the boat. As the boat heels, less keel is presented to the water and this increases leeway. (sideways drift) Leeway greatly will affect upwind performance and pointing ability. Overpowering can also force the boat off course. The helmsman must compensate by holding the tiller to one side. The increased rudder angle will act as a brake, slowing the boat down and affecting control. A boat with too much sail area for the wind conditions will move slower, make the crew work harder, be less comfortable since it is heeling over more, and will be harder to keep on course. When the sail area is reduced, the excess wind pressure is relieved. The boat will sail easier, faster, and be easier to keep on course. Using reduced sail area does not make the crew "less able" sailors. There is nothing embarrassing about reducing the sail area.

Reducing the Jib - In basic sailing, jibs can be changed by simply lowering and removing the existing jib, stowing it, and replacing it with the new jib. The fairleads may have to be re-positioned. Generally, the smaller the jib, the farther forward the fairleads have to be. Racers often have more complicated ways of changing jibs that minimize the amount of time under no headsail. But for now you can use the simple technique described here.

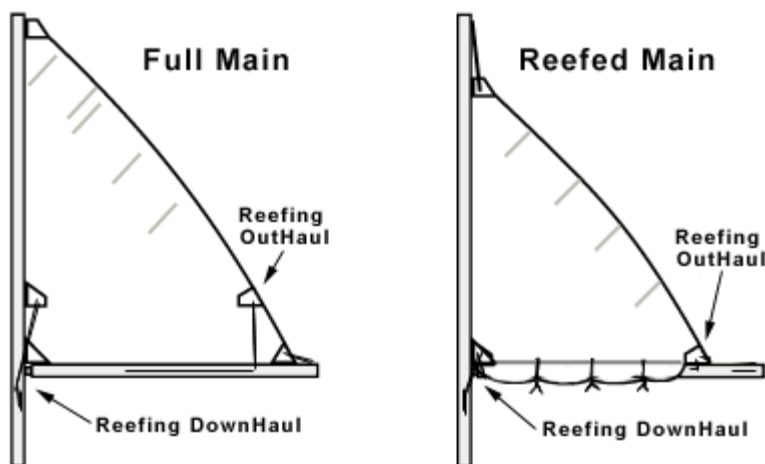
<i>STANDARD JIB SELECTION FOR VARIOUS WIND CONDITIONS</i>			
Light Airs	0 -10 Knots	110% - 150%	Genoa (Optional)
Moderate Airs	0 - 18 Knots	90% - 110%	Working Jib
Heavy Airs	20 or more	60%- 90%	Storm Jib

The jib can be changed on just about any point of sail. Here are the steps for changing the jib:

1. **Ease the jib halyard and lower the jib. Gather the sail on the foredeck making sure that the sail doesn't fall into the water.**
2. **Disconnect the halyard from the head of the jib. Secure the halyard. *Never allow either end of the halyard to hang free.***
3. **Stow the lowered sail.**
4. **Hank on the new sail.**
5. **Run the sheets aft, checking the fairlead position.**
6. **Put knots in the end of the sheets.**
7. **Connect the halyard to the head of the jib.**
8. **Hoist the new jib.**

Reducing the Main Sail

The area of the mainsail is reduced by a technique called reefing. This is much easier than changing the sail. Reefing is done by lowering the mainsail, establishing a new tack and clew using control lines, and hoisting the mainsail again with the bottom part no longer exposed to the wind. The two control lines are the reefing downhaul and the reefing outhaul some boats have a tack hook at the gooseneck instead of a reefing downhaul. Reefing Downhaul - The reefing downhaul line goes up through a cringle on the luff of the sail and is used to pull down and secure the forward edge of the sail to the boom near the gooseneck. Some boats have reef tack hooks instead of reef downhauls. **Reefing Outhaul** - The reefing outhaul line goes up through a cringle on the leech and back to the boom to pull down and secure the back edge of the sail.



Steps for Reefing the Main Sail

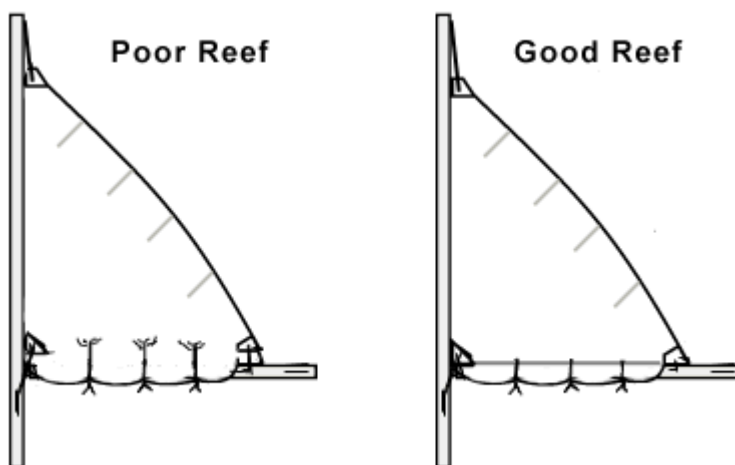
1. **Set course to a close reach. (Sails are in fairly tight)**
2. **Ease out the main until it luffs.**

3. **Ease off the main halyard. If reefing downhaul is used lower until reef downhaul cringle comes to about 6 inches above the gooseneck and secure halyard.**
4. **Hook reefing tack on gooseneck or pull in and secure the reefing downhaul to get the tack reef point as close to the boom as possible. On downhaul models this should tighten the luff, if not, raise the halyard a little more and try again.**
5. **On boats with reef hooks tighten main halyard to achieve luff tension.**
6. **Pull in and secure the reefing outhaul to get the clew reef point as close to the boom as possible. (A tight boom vang can prevent you from pulling in outhaul properly.)**
7. **Trim the mainsheet, roll up the left-over sail bunt, and tie it up with the reef ties. Once the reef has been set, the boat will be much easier to control. In addition to being easier to steer, it will heel less and move more efficiently through the water.**

Some main sails may have more than one set of reef points. If this is the case, you may have separate control lines. If there is more than one reef, the bottom one is called the first reef, the next one up is the second, etc.

The important thing to remember when reefing is to get both the tack reef point and the clew reef point as tight as possible to the boom. This is for two reasons.

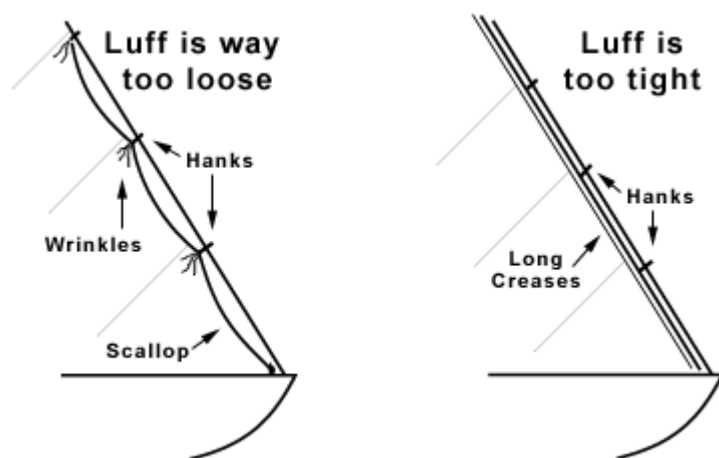
1. The tension at the bottom of the sail should be at the two corners. The corners are reinforced to hold the tension but if they are loose, the tension transfers along the bottom edge to the reef ties. The reef ties are not designed to take the tension. If too much is put on them, the sail distorts and can even be torn. The reef ties should actually be kept a little loose. 2. The other function of reefing besides reducing Sail area is Sail flattening. A flatter Sail shape will help to prevent the sail from catching too much wind. The sail is made flatter by having all three corners pulled tight. Flat sails help make the boat more controllable in heavy wind.



Sail Set - Even when you get good at Sail trim there is another kind of control that will make a big difference in the performance of the boat. It is sail set. Set is the curvature of the sail and is mostly controlled by adjusting luff tension. High tension makes a flatter

sail and low tension makes a fuller sail shape. Luff tension is a function of halyard tension or downhaul (Cunningham) tension. When the set is right, the luff of the sail has neither the tendency to have horizontal Wrinkles or a vertical crease. When there is too much halyard tension you can see a long vertical crease running up the luff. If the tension is a little loose, you can see small horizontal wrinkles along the luff. If it is very loose, luff scallops will appear on jibs that have hanks.

The same principle applies to the foot of the mainsail. You should have enough outhaul tension to pull the wrinkles out of the foot of the main without actually pulling a crease into the foot. The outhaul will control the set of the bottom portion of the main sail. Other controls for sail set are the traveler (ease the traveler for flatter sails), and the backstay adjuster. (tighten the backstay for flatter sails)



Extreme Examples of Jib Luffs that are Too Tight or Too Loose On main sails and jibs that don't have hanks it's a little more difficult to see the wrinkles but they are still there and can still be used. As you tighten the halyard or downhaul watch the luff of the sail. At the moment the luff tape becomes smooth you have the right amount of tension. As the wind increases, it becomes necessary to flatten the sails a bit more by having tighter luff and foot tension. Many times sails will appear to be too tight when they are luffing or when there is a lull in the wind. Then, when sheets are trimmed or the wind builds back up, the vertical luff crease will pull itself out. m's should be kept in mind when raising sails. You may have to over tighten them just a little so that when you begin to sail, the set will be just right. Serious racers often re-adjust their sail set every time the wind changes in strength. This makes more work but gives them maximum sail efficiency at ail times.

SAFETY

Sailing can be safe as well as fun if you follow a few simple guidelines on and around sailboat. **Wearing a PFD (life jacket) can save your life!** If you have happen to fall in San Francisco the average water temperature is around 54 degrees. Not having to expend energy to keep yourself afloat will increase your chances of avoiding hypothermia. You don't have to wear one to be legal but it's a very sensible choice for newcomers to sailing. Whenever you go sailing, make sure to bring a clothes that can be layered to help keep you warm, dry and comfortable. When going forward or moving about while a boat is underway, keep your weight low, walk on the windward side, and keep a hold of something secure like a grab rail or shroud. These things will reduce the risk of going over- board. Be wary of going barefoot on a sailboat until you are used to where deck hardware and areas of good traction are. Be sure to bring comfortable shoes with white soles. Rigging is generally made of twisted stainless cable, and older rigging sometimes sprouts "meathooks". This occurs when a stainless strand breaks near a turnbuckle. These needle sharp protrusions can rip up a finger or palm quite nicely, so be on the look out. If you are feeling seasick, go below and don't look at the water or watch the horizon and keep busy.

When docking or boarding, don't jump from the boat to the dock. When docking wait until the boat is close enough to the dock so that you can step off. Most of the things involving safety are common sense. If you have any questions about safety, (or anything else about boating) ask a sailing instructor or an experienced sailing friend.

RIGHT OF WAY RULES

Whenever two boats try to occupy the same water at the same time, a right of way situation exists. When this happens, one boat is obligated to give way to the other. The boat that is supposed to give way is called the give way vessel and the other one is called the stand on vessel the stand on vessel should keep to its course so the skipper of the give way vessel can get out of the way without collision. There are specific rules to use in determining which vessel is which.

Motor vs. Sail: A motor boat is any vessel using an engine regardless of whether it is a sailboat or a motorboat. A sailboat is considered to be a motorboat even if the Sails are up as long as the engine is running. A sailboat that is sailing generally has the right of way over motorboats. But there are some exceptions.

1. Large motor vessels are given the right of way in channels where it is difficult for them to maneuver. In the case of ships, the whole San Francisco Bay is considered to be channeled so that ships always have right of way in the Bay.
2. In narrow channels such as Redwood Creek, motor vessels as small as 65 feet may be limited in maneuverability enough to make them the "stand on" vessel.
3. Motor vessels that are restricted in maneuverability due to the special job they are doing are "stand on" This could be anything from towing nets to dredging, pile driving, or tending buoys.
4. Motor vessels don't have to give way to sail boats that are motoring when the rules for motorboats give the motor vessel right of way. (When motoring, a sailboat is treated like any other motorboat.
5. If a motor vessel is experiencing some kind of difficulty restricting its maneuverability, it is given right of way.
6. If a sailboat is overtaking a power boat, the power boat has the right of way.

Passing - When any boat is passing another boat, the passing boat is the give way boat and the boat being passed is the stand on boat.

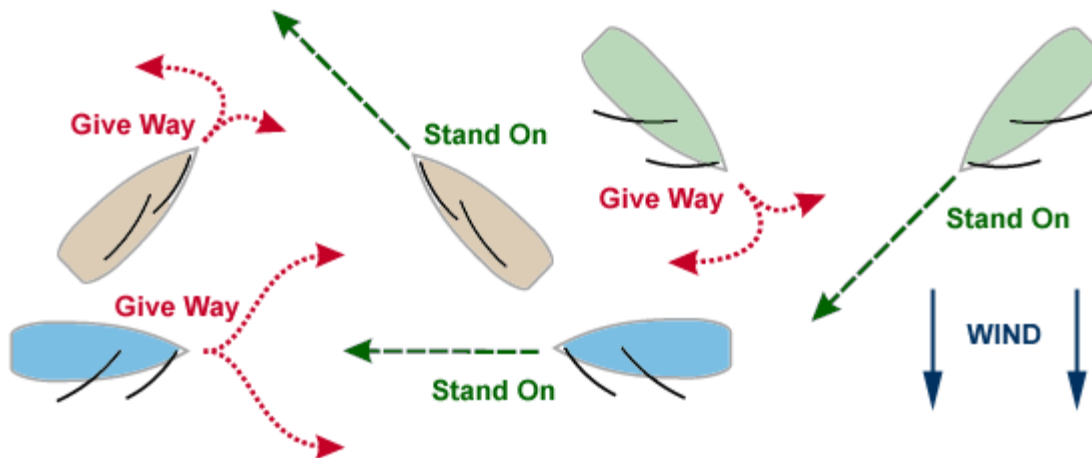
Head On - When two motor boats approach each other head on, both boats turn to the right and pass each other port to port.

Crossing - When motor boats paths cross, the boat on the other's right is stand on and the one on the other's left is the give way boat This is like two cars coming to a 4-way stop except that a give way boat would alter course to go behind the other boat

Sailboats When encountering sailboats that are sailing, motorboats generally should give way. If you are motoring in a sailboat, you should give way to sailboats that are sailing.

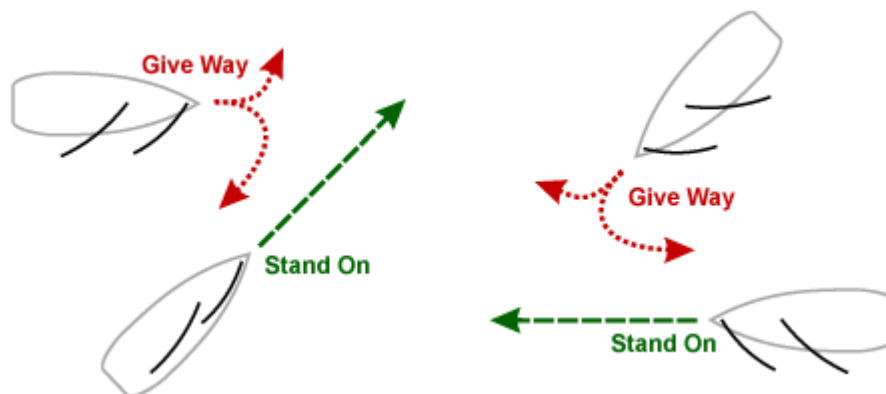
Rules for Sailboats

Port Tack vs. Starboard Tack



Anytime Two Sailboats Are On Opposite Tacks - The Boat on Starboard Tack Has The Right Of Way

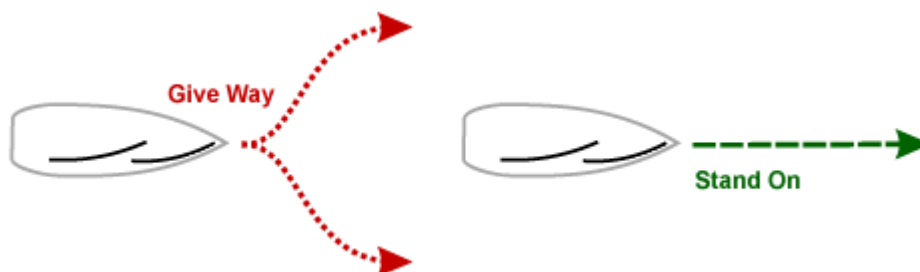
Windward vs. Leeward



Anytime Sailboats Are on the Same Tack The Boat Most To Leeward Has Right of Way

Overtaking - The overtaking vessel should give way regardless of tack or whether sailing or motoring. The notable exception to this rule is in the case of large vessels that are confined to the channel due to draft. Even at minimum speed, ships usually move faster than sailboats, therefore you should keep an eye out behind your boat as well as ahead.

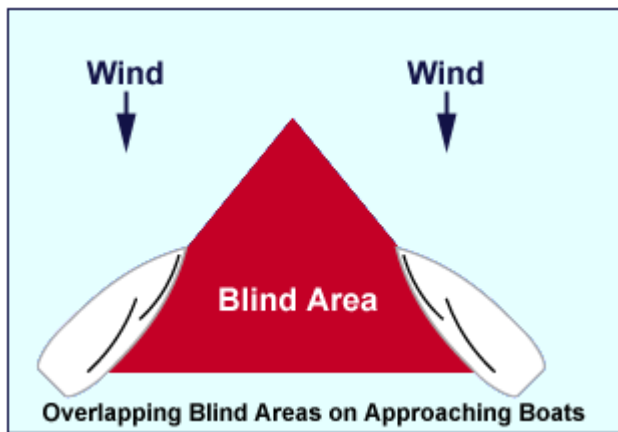
Overtaking Vessels



Overtaking Boats Give Way to Boats Being Overtaken

General Rules - Whenever there is a risk of collision and it appears that the give way boat is not taking appropriate action, it is the duty of the stand on boat to avoid the collision by altering course. Having the right of way is a poor excuse for having a collision - alterations in course to avoid a collision should be made obvious enough so that the other skipper can see what you are doing. Sometimes you can tell if you are on a collision course by the compass bearing to the other vessel. If the bearing remains steady, collision is imminent unless someone changes course.

Sometimes it is difficult to see in all directions on a sailboat, especially when sailing close hauled. The jib can block 25% of view from the cockpit. The area of obstruction occurs on the leeward side from straight ahead to abeam. It just so happens that when you are close hauled or close reaching, sailboats close hauled or close reaching on the opposite tack will remain within this blind spot sometimes right until the time of collision. It's important to have a crew member keep an eye out to leeward when ever the jib obstructs your view.



MAN OVERBOARD

The purpose of the man overboard drill is to help you and your crew practice the maneuvers that you will need to do in the event of a real man overboard situation. With practice, you will be able to react quickly and do the right things the first time. This can make the difference between a successful rescue and an unsuccessful one.

Procedures

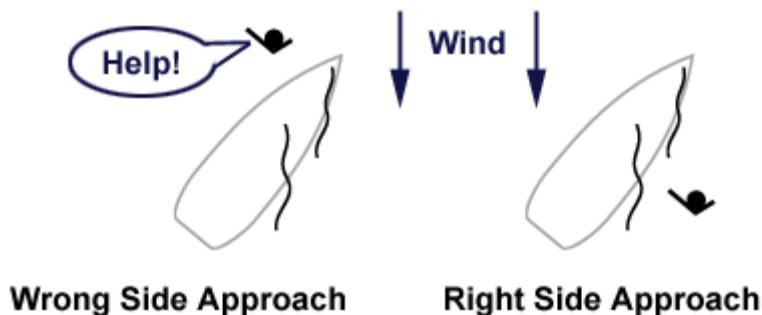
1. Shout "MAN OVERBOARD" to let the crew know what has happened so everyone onboard can help.
2. Throw some kind of FLOTATION into the water to help the victim keep afloat. You can use boat cushions, life jackets, life ring, or even a beer chest - whatever is handy. Extra flotation will not only make it easier for the victim to stay afloat, it will help you see the victim. It can be very hard to see someone in the water when there are waves or when visibility is poor. Try to throw the flotation as close to the victim as possible without hitting him.
3. Assign someone to be a spotter so that you don't lose track of the victim. This will give the skipper a chance to pay attention to what must be done onboard.
4. If it's going to be too much trouble to control the jib, LOWER THE JIB and secure it to the deck. This will also help the boat stay put while pulling the victim back aboard. In a real emergency you can let the jib flog by releasing the sheets. On large boats you will have to SECURE THE VICTIM with a line while getting ready to haul the victim aboard with a halyard or other line.

Objective - The primary objective is to get the boat situated so that you can make a final approach towards the victim on a close reach or close hauled. This way you can ease the sails and slow the boat down to a stop in order to get the victim aboard. It will take some practice to get the boat to stop where you want it to stop.

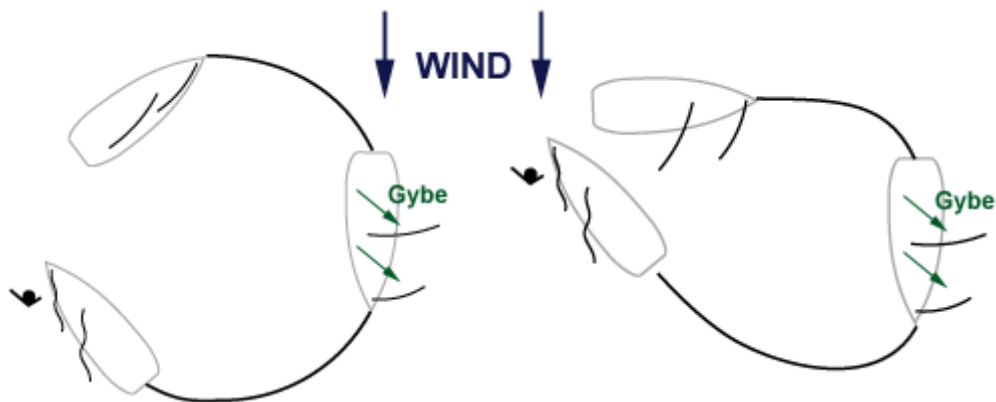
Always remain calm and orderly. Confusion will lead to mistakes that can make the difference between success and failure. Also you don't want anyone else to get hurt or go overboard.

Maneuvering into Position - First note the wind direction. Then pick the victim up on the leeward (down wind) side of the boat. There are three benefits to doing it this way.

1. This protects the victim from the wind and the waves.
2. The leeward side is usually the lowest side to the water. Using this side will make it easier to get the victim back onboard.
3. The boat will tend to drift toward the victim. If you don't get close enough to him on the first try, the boat will drift closer to him.

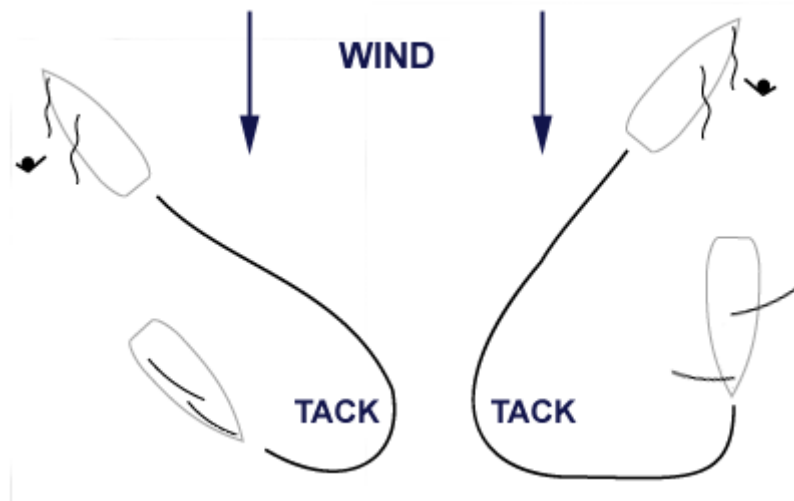


The Final Approach - The Gybe Approach The fastest way to return to the victim when sailing on a close or a beam reach is by Gybing. Continue going your original course for a boat length or so and then bear away into a Gybe. After the Gybe is completed, keep turning in the same direction until you can approach the victim on a close reach or close hauled. Before you reach your objective, ease the sails so the boat will slow down. By adjusting the sails on the final approach, you can bring the boat to a stop along side the person in the water. You may have to take the sails down so the boat won't try to sail away while you're working at getting the victim aboard. In heavy weather it may be too dangerous to attempt a Gybe. If this is the case you may have to use another maneuver such as the figure eight which will be described in this section.



The Tacking Approach - When on a broad reach or a run, the most direct method of returning to the spot where someone falls overboard is the tacking approach. On a broad reach, continue your course for two boat lengths or so and come about. This will leave you lined up for a close reaching approach. On a run you may have to come up to a beam reach before tacking. If you cover about as much distance on a beam reach as you did

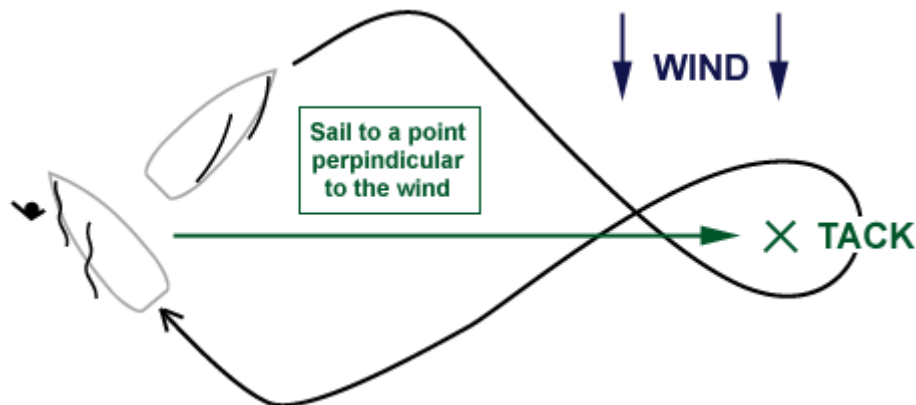
running, you will be set up for a close reaching approach again.



The Figure Eight or "Q" Turn.

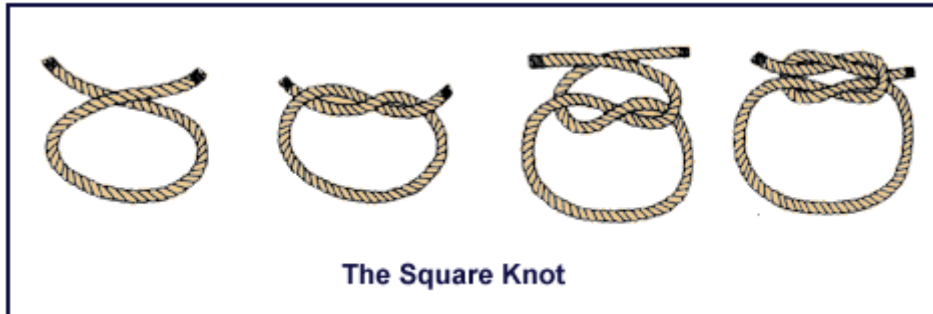
In heavy wind conditions or any time it isn't safe to Gybe, you can use the figure eight maneuver. This technique is also useful when you are short handed. If necessary you can release the jib sheets so you don't have to bother with the jib. Although this is hard on the Sail and should only be done in an emergency.

Bear away to a beam or broad reach until you are across the wind from the victim. Then tack and continue to bear away again until you can line up the boat to approach the victim on a close reach. Pick up the victim as you would in the other maneuvers.

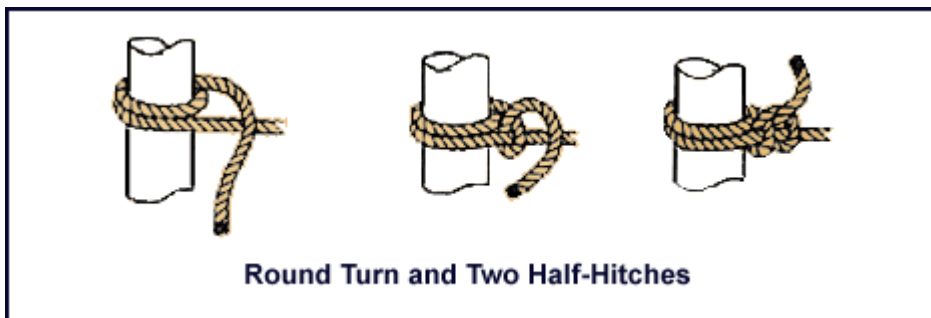


Knots

There are hundreds of kinds on knots that can be used on sailboats but you can do almost anything by learning six basic ones.



Reef Knot (Square Knot) - The reef knot is useful for Sail ties when reefing or furling the Sail. To tie this knot follow the steps in the illustrations from left to right.



Round Turn and 2 Half Hitches - This knot can be used almost any time you want to tie something to something else. It is often used to tie fenders to a stanchion or lifeline. Although it won't keep a line from slipping on a spar it stay tied even when jiggled. To tie this knot follow the steps in the illustrations from left to right.



Bowline - The bowline, called the king of knots, is used to tie an eye onto the end on a line. It is used for attaching the jib sheets to the jib. A correctly made bowline is very secure, yet easy to untie. To tie this knot follow the steps in the illustrations from left to right.

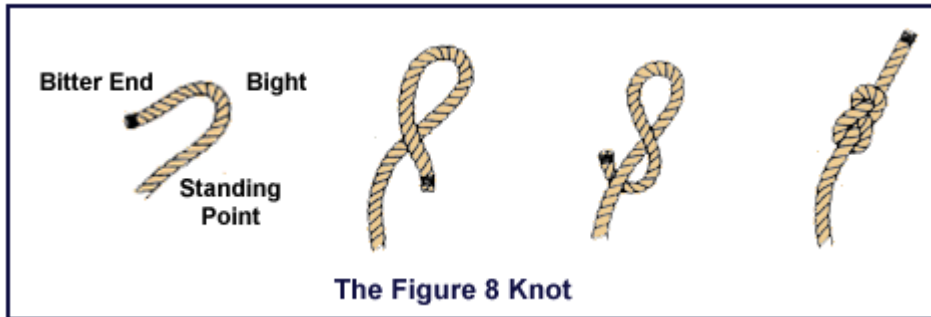
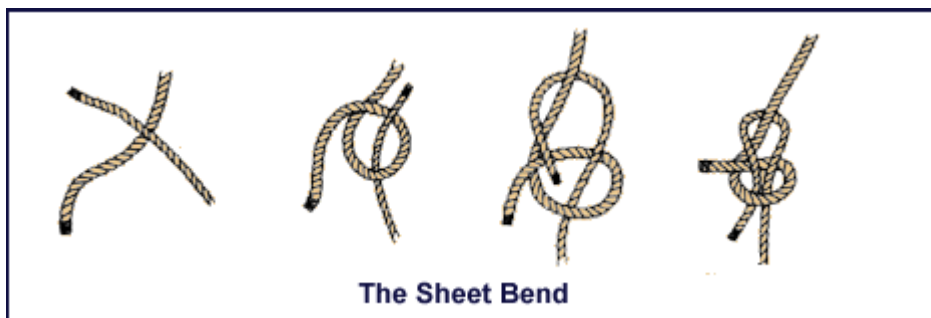


Figure Eight - This knot is useful as a stopper knot. Stoppers are put on the end of sheets to keep them from running through the fairleads. To tie this knot follow the steps in the illustrations from left to right.



Clove Hitch - The clove hitch is good for tying lines around solid objects. One use is in tying the tiller up to the main sheet. It may come undone if jiggled. To tie this knot follow the steps in the illustrations from left to right.



Sheet Bend - The sheet bend is used to tie two lines together, end to end. It is meant to be used when the lines are about the same size. If lines are very different or are slippery a double sheet bend is recommended. To tie this knot follow the steps in the illustrations from left to right.



Cleat Hitch - The cleat hitch is the way a line is secured to a deck cleat. To tie this knot follow the steps in the illustrations from left to right.