

Sailing Theory Guide

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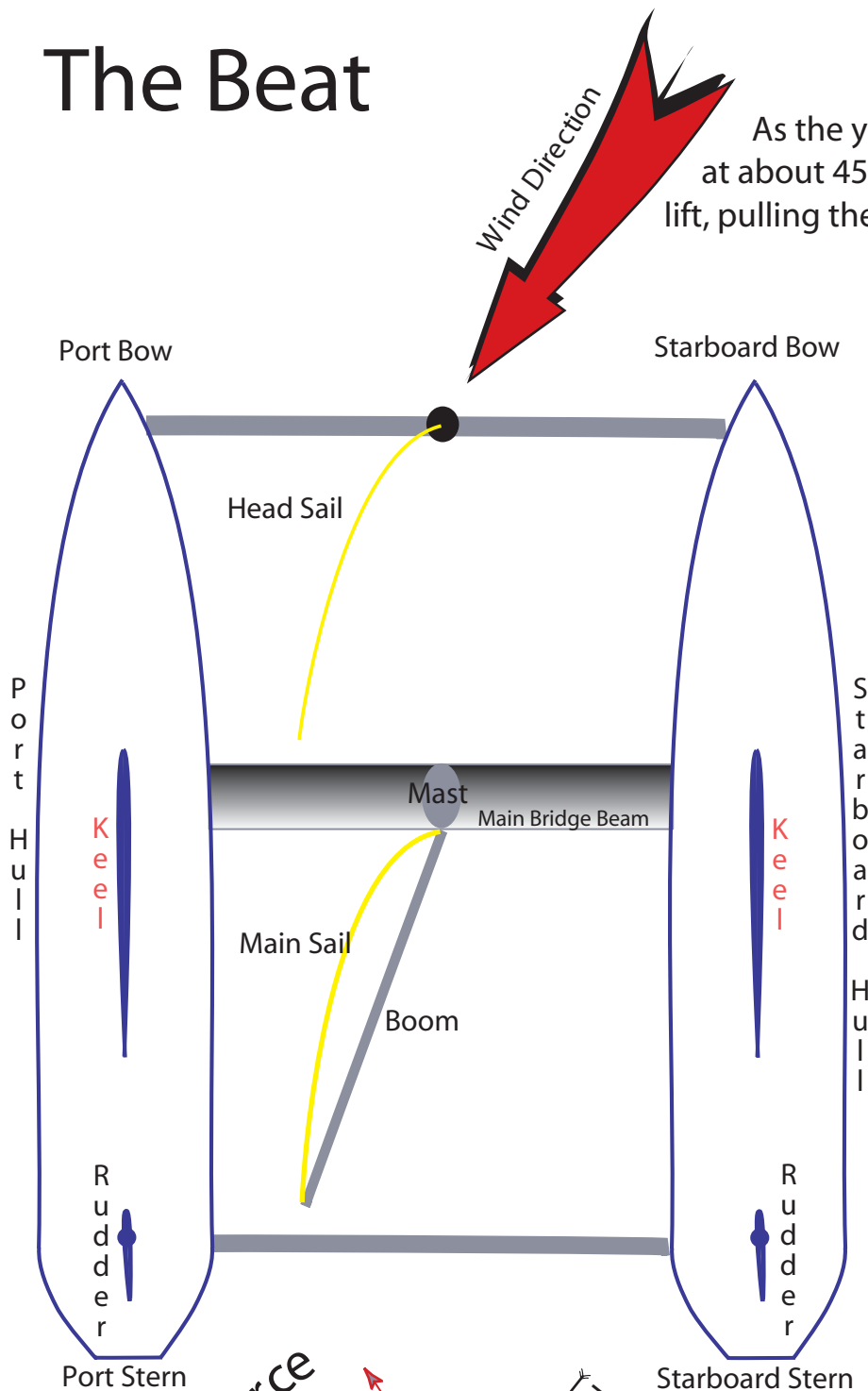
Catlanza

Puerto Calero ■ Corralejo

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The Beat

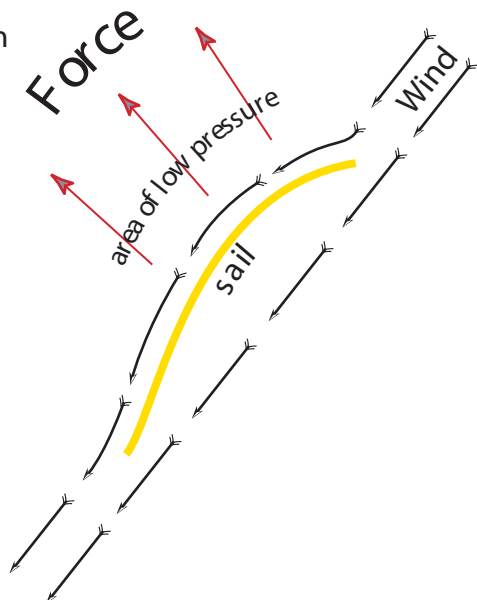
As the yacht sails into the wind at about 45 degrees the sail creates lift, pulling the ship in a forward direction.



What makes a ship go when heading into the wind?

Wind flowing past an air foil such as an airplane wing or sail must travel further along the curved side than the straight side creating an area of low pressure. This low pressure sucks the ship along or lifts the airplane into the sky.

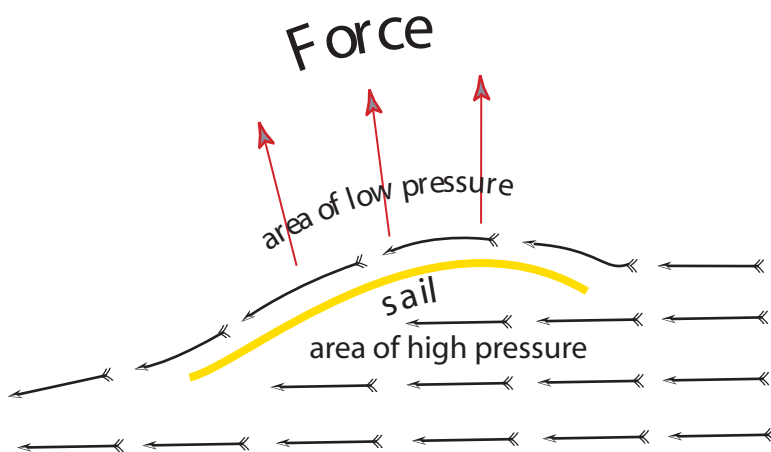
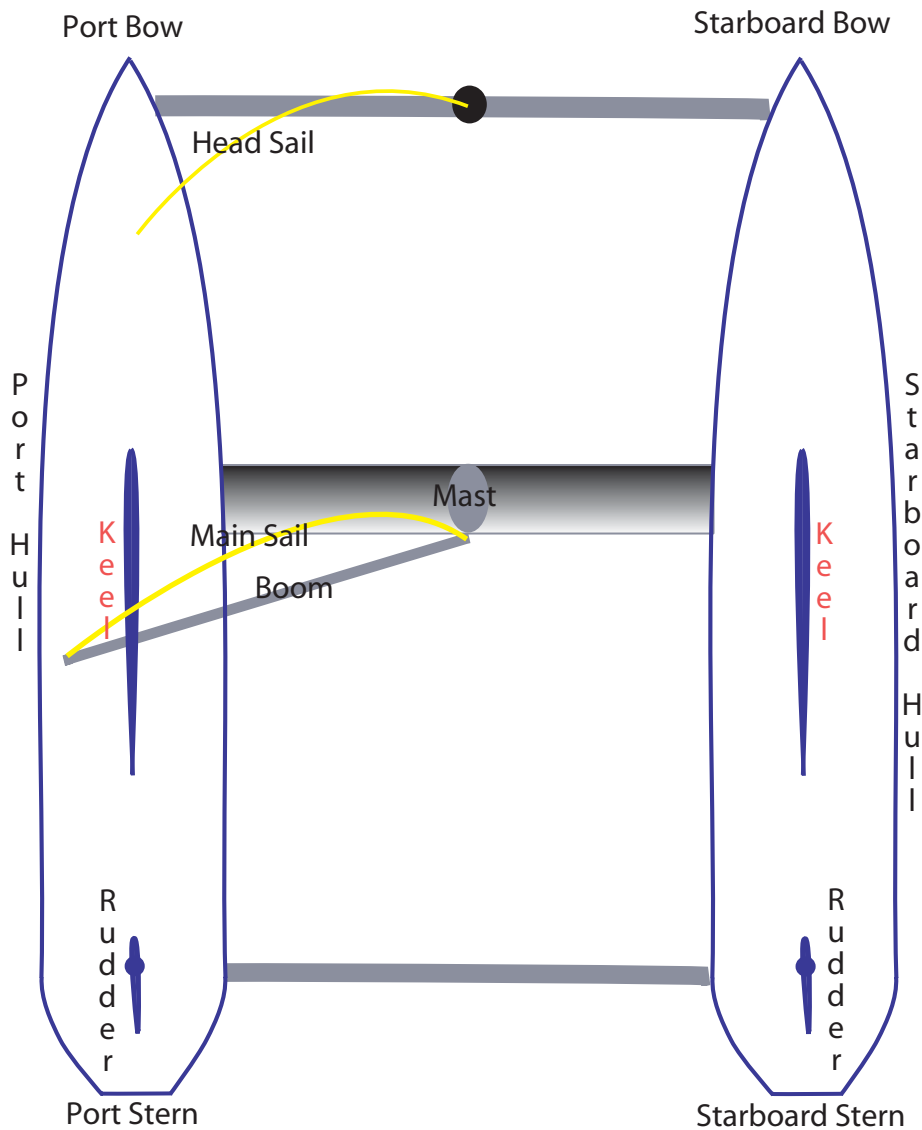
As you can see the force is not exactly in the direction we want to go. The keels and the rudders guide the ship in the direction you desire to go. The angle of the sails are adjusted along with size and shape in order to get the most force from then wind without breaking the sails or rigging.



On standard sailing yachts or monohulls a heavy weight such as lead is used to counter balance the force of the wind and keep the ship somewhat right side up. On the catamaran the width of the yacht makes the stability rather than weight. The advantages are several ie: the "cat" does not lean over making it much easier to keep your beer when you set it down.

The Reach

This is the fastest point of sail because the wind is creating lift (pulling) in the front of the sail and high pressure (pushing) on the back of the sail. The force is in the direction the boat is traveling reducing the amount of pressure needed on the keels and rudders which reduces drag. In this configuration the "cat" can actually sail faster than the wind.

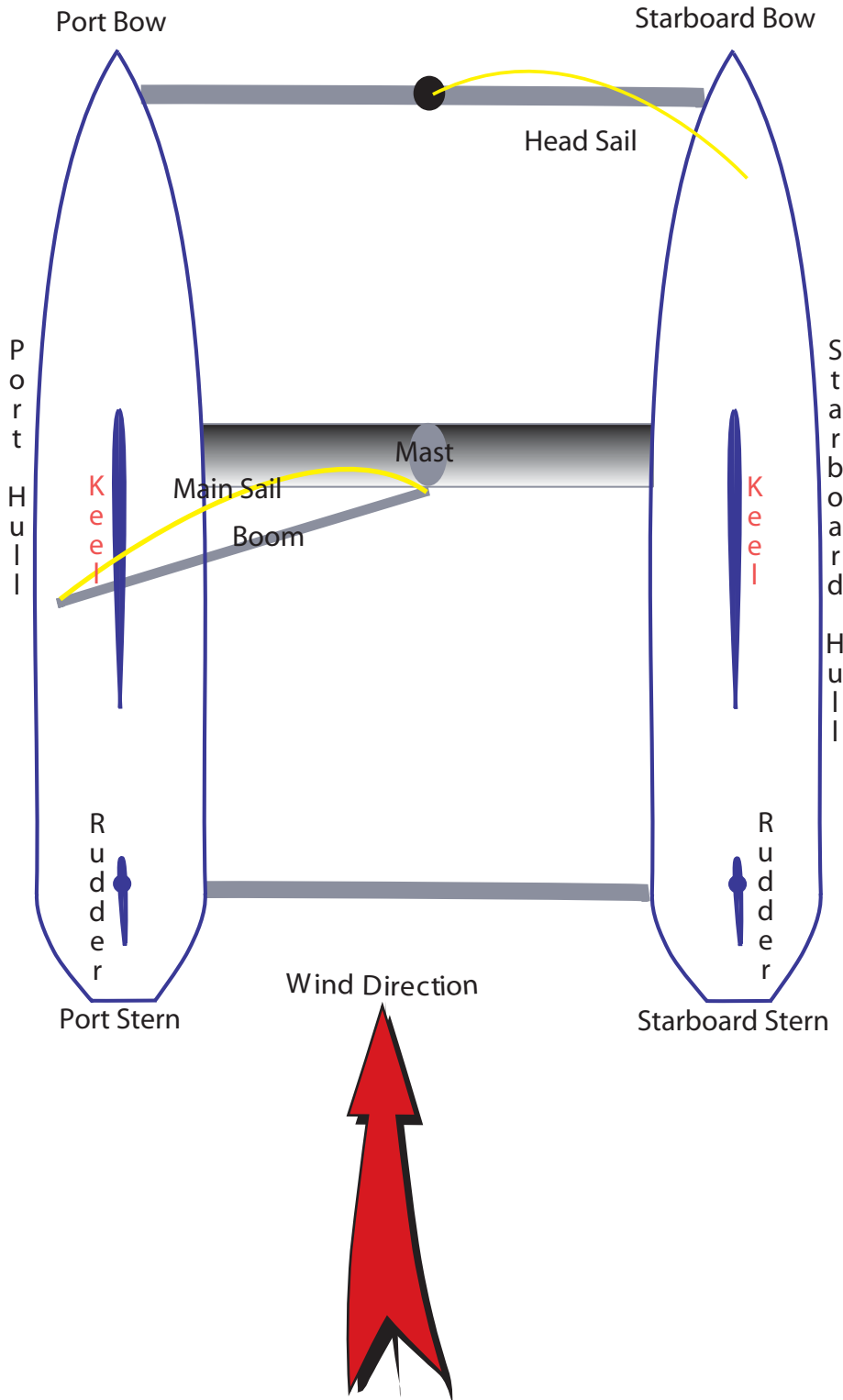


The reach has several positions ranging from the close reach to the broad reach. The close reach is when the wind is slightly forward of the beam (directly from the side) of the vessel. A broad reach is when the wind is behind the beam. The important thing is that the wind is more or less coming from the side of the boat.

The Run

At this point of sail because the wind is creating high pressure (pushing) on the back of the sail.

The force is in the direction the boat is traveling reducing the amount of pressure needed on the keels and rudders which reduces drag. In this configuration the "cat" can sail only as fast as the wind less the friction the vessel has in the water.



The run or downwind sailing has the wind coming over the stern. The sails can be set so that one sail is on one side of the boat and the other on the other side. This catches the wind. This is how most people think sail boats work. It is a relaxing way to sail because the wind speed over the boat is reduced by the boat speed.

Wind speed 20 kts
 - Boat Speed 15 kts
 =
 Aparent wind Speed 5 kts

The important thing is that the wind is more or less coming from the back of the boat.

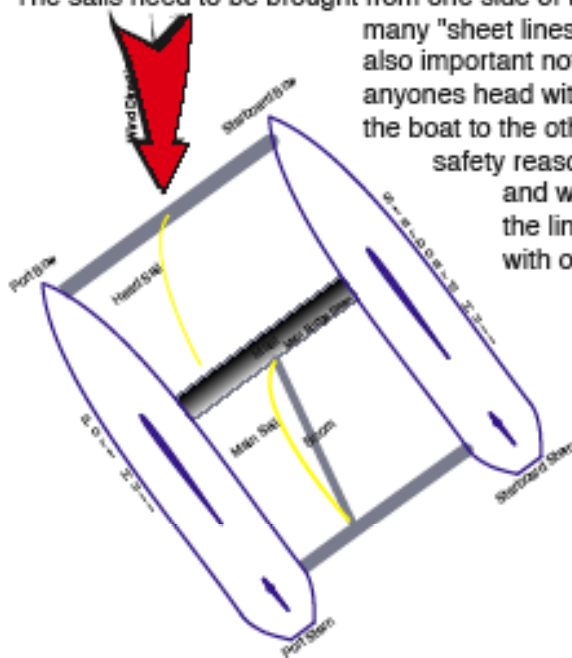
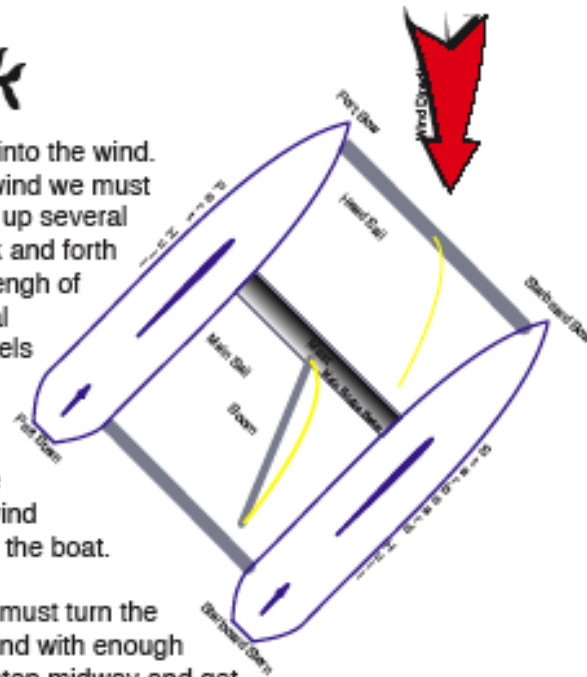
The Tack

A sail boat can not sail directly into the wind. To advance the yacht into the wind we must take steps. Kind of like walking up several flights of steps that weave back and forth to stay on a certian path. The lengh of these steps depends on several things such as land, other vessels currents and destination. This is called "tacking".

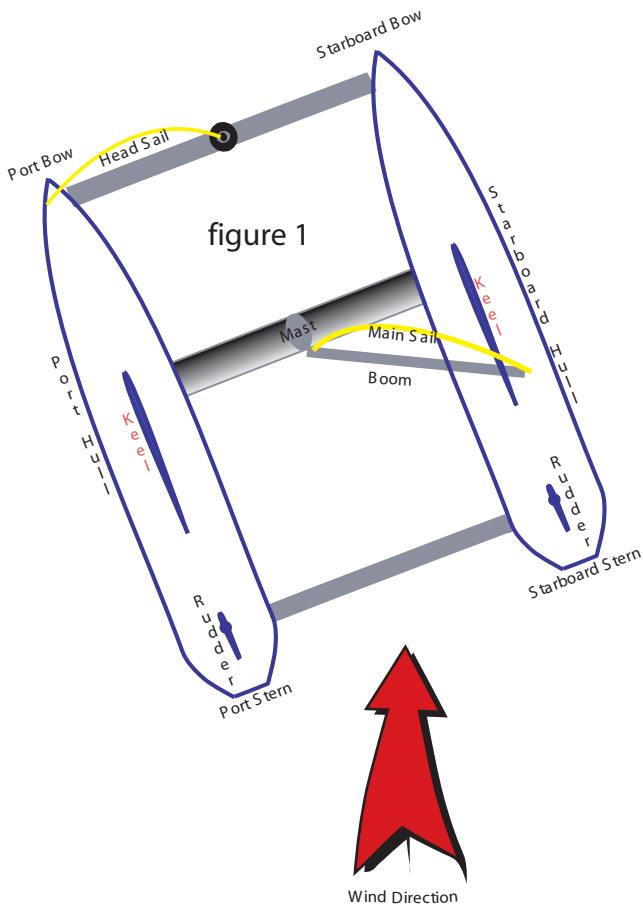
Tacking is when we change the direction of the yacht and the wind passes over the bow or front of the boat.

To tack a yacht, the helmsman must turn the wheel hard over towards the wind with enough speed that the yacht does not stop midway and get "locked in irons" or stuck. The capitan and his crew must work together quickley in order to complete this manouver.

The sails need to be brought from one side of the boat to the other without tangling the many "sheet lines" or ropes as land lubbers call them. It is also important not to tangle any one of the crew or bump anyones head with the "boom" as it travels from one side of the boat to the other. (our boom is above every one for safety reasons) Tacking is a very fun part of sailing and we encourage all who want to help pulling the lines and cranking the winches to get involved with our experenced crew.



The Jibe



The run or "downwind sailing" has the wind coming over the stern. Often times you can not sail directly down wind. If you must change your course in relationship to the wind, causing the wind to come from the other side of the stern it requires a "Jibe". If the wind is coming all most directly from behind the sails can be set so that one sail is on one side of the boat and the other on the other side. This catches the maximum amount of wind. If the wind is more from the side of the rear then both sails can be set on the same side of the boat (see figure 3). In this point of sail the main sail does not block the wind from the head sail. While Jibing the crew must be especially careful because the boom comes across the boat very fast and with a tremendous amount of force. Careful planing and timing by the captain and crew are required for this maneuver to be executed properly .

