

Missionary Sailing School

“Offshore cruising is a lot like sex. No matter how many books you read, or how much expert advice you receive, before your first time there is really no way of knowing what it will be like, or even whether you’ll like it.”

[Denton Moore, Gentlemen Never Sail To Weather]

Video: Enjoy this 4 min. clip of one couple’s experience sailing around the Bay of Honduras, among its many islands. [The brightly colored sail in the opening shots is called a *spinaker*, which are used while sailing downwind]

<http://www.youtube.com/watch?v=inInfxjLvlw&feature=related>

Lesson 6: Basic Sailing - Part 3

1. Points of Sail – your heading & wind’s direction

So far we have covered sailing close to the wind [also referred to as *going to windward*, *beating*, and *sailing to weather*.] It is the most difficult **heading** to master, requiring careful co-ordination of **main** and **headsail(s)**. It can also be, in certain conditions, the most uncomfortable. Videos of sailboats charging through the waves, water spraying across the decks, crew bundled up and ‘hanging on’, are usually of those trying to **beat to windward**, against sea and wind [and getting ‘beat up’ in the process] No fun ...unless you enjoy bungee jumping off high bridges, tackle football in the mud, and ice fishing!! For this reason most offshore cruisers plan their routes to follow the ‘*trades*’ [tradewinds] and the ‘*rivers of the ocean*’ [currents such as the Gulf Stream]. That is the ‘genteel’ way [hence the title of the book I’ve been quoting from, Gentlemen Never Sail To Weather]

Before discussing how to sail with the wind on the **beam** [towards the side of the boat] or on the **stern**, let’s study a diagram of what is termed the *points of sail* [the angle of your boat to the wind and the appropriate position your sails should be in to take full advantage of that angle.]

Open this **webpage** in your browser:

<http://www.sailingusa.info/images/points%20of%20sail.gif>

Beginnng at the twelve o’clock position in this illustration, notice that a boat headed directly into the wind is said to be ‘*in irons*’. When this occurs the boat’s forward motion will stall and its sails will flag wildly

(depending on amount of wind.) There are reasons you may go in irons intentionally (such as to bring the boat to a quick stop or to lower the sails.) But if it should occur unplanned, you may actually experience the boat beginning to sail backwards. In this case, leave the sheets (main and jib) very loose and steer the boat backwards until it *'falls off'* [bow turns well away from the wind.]

Note: steering backwards is the same as steering forward. Turn the wheel in the direction you want the stern to go [a tiller would need to go in the opposite direction] Wait until the wind gets close to the beam, then begin to sheet in the main and sail off at 60-90° to the wind, sheeting in the jib as speed is gained. Return to your original, desired heading only in increments while maintaining sail trim.

For the other **points of sail** - note on the illustration the relationship of the jib to the mainsail. The exception is on a *run* [when the wind is directly behind or nearly so.] In this case the **main** would block the wind from reaching the **jib**, so the jib is moved to the opposite side (referred to as *'wing in wing'*.) More on techniques for *running* downwind in the next lesson.

Now, let's look at some photographs of how sails are trimmed for each of these 'angles to the wind.' Open this **webpage**: http://sailing.about.com/od/learntosail/ss/Pointsofsail_2.htm

Observe the photo and read the accompanying notes. Then click the "NEXT" button to see each of the successive pages. [There is a link on page 2 for "How to use telltales" – save it until later, we will get to that soon enough]

2. Changing 'heading' and changing 'trim'

Now, let's go sailing again. The next video will begin with our boat sailing 'with the wind' in the *stern quarter* [mostly behind us. Note what happens to the jib when the main begins to block the wind from it.] Afterwards, the boat is *'headed up'* through the various points of sail.

There will be a discussion about *telltails* - observe what is said but we will go into more detail about them shortly.

Video: <http://www.youtube.com/watch?v=SUwiJDnCjkY&feature=related>

Checklist:

- When heading downwind, if the jib begins to 'sag', turn back towards the wind a little until it fills again.
- As you turn towards the wind the main will **luff** [showing first a puffy 'bulge' near the mast, then becoming loose and 'shaky']. Turn away from the wind some or pull in the main sheet a little to 'harden' up the sail and remove the bulge. [Note: sometimes the main may be correctly **sheeted** but a 'bulge' is caused by the jib being pulled in

too tightly, thus funneling air into the backside of the main. You may need to try letting out the jib a little first to see if that removes bulge]

- In the video you saw the crew using **winches**. You may have noticed how they sometimes turned the handle in one direction and then the other. All winches ‘wind up’ the line in the same direction [clockwise, therefore you lead your line around them in a clockwise direction]. But many winches will be two-speed, meaning that when you turn in one direction the gearing will give you a 1:1 ratio (one revolution of the handle equals one turn of the drum). But the other direction, with the help of internal gears, changes the ratio to something like 3:1 or 4:1, giving you mechanical advantage (net result: you make more turns but with less effort - great when load is heavy)

Watch this short **Video** about how a simple winch is handled:

<http://www.youtube.com/watch?v=aQlawiqsZ-w&NR=1>

Now take a break and enjoy this funny **Video** about how to not forget to use the winch: <http://www.youtube.com/watch?v=uld11HVkIb8>

- (Quote from the video...) “Trim the sails in the direction of whichever telltales are luffing.” Not all cruising boats have these nifty telltales on jib and main [mostly because their sails are worn and the telltales have long since taken to the winds!] But understanding their use can be helpful, so consider the notes and illustrations on the following **webpages** [don’t forget to advance through the pages]:

<http://sailing.about.com/od/learntosail/ss/Jibtrimmingtelltales.htm>

- (Quote from the video...) “The biggest trim problem is that people have the sails in too tight...When in doubt, let it out...Err on the side of being conservative with the trim, strive for more ‘shape’ in the sail.” These words are very practical for the average cruiser with the average boat. We who just want to get there safely and with the decks ‘salt free’, find that sail trim is really not such a complicated thing.

The fine art of ‘fine tuning’ the sails is for those who need to take off a few seconds to nose into first place during the next race. The rest of us (who sail on all the other days besides just Saturdays) have other things to do onboard to pass the time than just watch colored ribbons while our next landfall slowly creeps into view over the horizon.

So, set the sails in their ‘usual positions’. I have actually made markings on my sheets with a Sharpie or duct tape so that, for each change of ‘point of sail’, I just pull in or let out to the mark, glance at the sails, decide “*it’ll do*”, and go back to other things. Do remember that wind will make slight shifts of direction throughout the day (and

major ones as weather begins to change). It will also 'appear' to be 'shifting' as your boat speeds up or slows down [we call this '*apparent wind*' – more on that in lesson 7]. So, don't neglect your sails or your "three hour tour" may turn into something that feels like a Gilligan's Island rerun marathon!

My simple approach to sail trim is to adjust the main first until the sail is firm (the 'luff bubble' is gone), then bring the jib in until the 'luff bubble' reappears (meaning the jib is blowing into the main, not along its backside), and finally I let the jib back out until the main looks good once more. Works well with my worn out sails and probably will for you, too. I have a wind vane on my masthead for knowing the wind's direction, but also have found that tearing the handles off plastic grocery bags and tying one to each **shroud** at eye level from the helm gives me a quick reference to any changes that take place (use white ones, they show up better at night). Then, if the windward 'telltale' is pointing at me (while seated at center of the wheel) I know I am about as close to the wind as I can get (boom is probably just overhead.) As the wind moves towards the beam the telltale will turn inward pointing more towards the center of the main. On my boat, if the telltale points near the end of the boom then the sail is trimmed well enough. Has worked for me (though I do try to remove them before entering harbor – got a reputation to keep you know.)

Now, let's go sailing once more with our 'crew' as they again demonstrate sail trim according to points of sail:

Video: http://www.youtube.com/watch?v=AoWUhb_5eM&feature=channel

Did you hear the comment about how the boat would begin to *heel* as it is '**headed up**' [wind on the beam - sails pulled in tighter.] On a monohull this can not be avoided entirely, but you do have some options for making the trip a little more comfortable [besides, of course, always sailing downwind! Problem with trying to do that is - to get somewhere upwind you would have to go the other way all the way around the world! Captains, use that excuse for less than perfect conditions when the crew is threatening mutiny if you don't stop 'heeling'!]

Watch these two short videos with some practical suggestions for minimizing **heel** [the first is in a small daysailer, the other an average size cruiser]:

Video: <http://www.youtube.com/watch?v=5iZlvcKeVa0&feature=related>

Video: <http://www.youtube.com/watch?v=vq3biOsajak&feature=related>

3. 'Broad reaching' and 'running'

Now, one more sailing video about heading downwind. As you watch notice how flat and relaxed the boat seems. There is little or no heel. This is why most long range sailing plans strive for as much 'running' as possible. The trade off is, since going with the wind is actually moving away from it, the strength of the wind is diminished by at least your forward speed (thus slowing the boat a little.) In the video watch how the boom tends to get 'sloppy' on a run .

Video: <http://www.youtube.com/watch?v=5qj1GYQT400>

We will be discussing various techniques for downwind sailing in the next lesson. But, before signing off here, let me suggest one good solution to the problem of the 'sloppy boom' – apply a *preventer*. A line tied to the middle or the end of the boom, led forward, and secured to a cleat will work to pull in an opposite direction of the mainsheet and thus restrict the boom's movement. See this demonstrated in the following short **Video**:

<http://www.youtube.com/watch?v=Y8u6MyT0ZCE>

4. The 'Gybe' – changing directions downwind

One important sailing maneuver we have not yet covered, called a *gybe* [also spelled 'jibe'] involves changing the boat's heading while the wind is directly astern. This is a necessary but potentially risky procedure, and should be understood and mastered early on.

What makes the **gybe** such a critical task is that the wind will be trying to 'throw' the main and boom across the boat (from one side to the other) with tremendous force and speed. We have already warned of injuries to crew should they be struck by the boom, but there is also a possibility of damage to the rigging or even a *de-masting*. None of these things need happen, however, if a few careful rules are followed.

- Rule #1: When 'running'- use a preventer! There are a number of reasons why an *accidental gybe* might occur [the helmsman may have gotten distracted, a wave lifted the stern and tossed you to the side, the wind had been light then shifted some degrees in the direction of the boom.] When any of these happen unexpectedly there will be considerable chaos as the boom violently swings (hopefully) over everyone's heads, then slams against the limits of its mainsheet (and anything else that gets in the way.) You don't want that to happen – use a preventer! I use a preventer often anyway, even on a broad or beam

reach, because offshore the seas may tend to create a momentary 'slack' in the mainsheet while rolling the boat from side to side (especially if the winds are light) resulting in the boom 'free swinging'.

Watch this *Video* of a cruiser experiencing an accidental gybe: <http://www.youtube.com/watch?v=w2UGu2LODSk&feature=related>

And this *Video* where the instructor is explaining the dangers of accidental gybes [notice how, as the boat rolls through the swells, the mainsheet slackens and the boom begins to 'bounce'. Also, that the luffing of the headsail is a warning that a gybe may soon happen] http://www.youtube.com/watch?v=oDxQsr_RvDc&feature=related

A very important warning is given at the end of this video: that, after an accidental gybe, the helmsman may over-react resulting in yet another gybe! Remember, maintain your composure at all times when on the helm! Each move must be made deliberately and with restraint. Never just 'spin the wheel' or let it go – use the hand over hand method every time!

A *controlled gybe* is actually not too difficult a task if you follow a few simple steps. So, don't be too apprehensive as this fellow was in this funny *Video*: <http://www.youtube.com/watch?v=5RqBoXu1nb0&NR=1>

Here is our 'crew' once more to take us through a **gybe** the right way - *Video*: <http://www.youtube.com/watch?v=pRKTHw1equ0&feature=related>

Checklist: Steps for a controlled gybe

- Helmsman announces, "Prepare to gybe", waits for all hands on deck to acknowledge "ready", then "Gybe ho."
- The mainsheet is brought in until the boom is nearly center, spilling the wind.
- Helm to turned to bring wind gradually to the opposite side of the stern and mainsail.
- Once boom has crossed to new side, mainsheet is let out slowly [Important: always maintain control of the sheet – never just let it run as knotting may occur, as well as objects can get caught up in the rapidly running line.]

I strongly recommend that you practice **gybing** in light winds and flat seas. Once learned, you will find it to be just one more routine of the sailing experience. Since gybing is done while **running**, sea conditions will be moderately comfortable [unlike tacking, which requires 'heading up' into the waves] and the wind's strength is deceptively lighter [I say 'deceptively' because you don't want to underestimate how much power is being applied to sails.]

One other note about the use of the ‘**gybe**’: there have been many times on my trimaran when under sail only and attempting to **tack** in strong winds and seas (or against a contrary current) that I was unable to bring ‘the bow across’ [complete the tack.] It takes quite a bit of forward speed and quick maneuvering in the trough of waves to pull it off. There were days when it just couldn’t be done, especially on those trips when the motor wasn’t working! If the motor was available we would often ‘motor tack’ – my term for turning on the motor long enough to ‘**come about.**’ Without a motor my only choice was to gradually ‘**fall off**’ [away from the wind], complete a gybe, head back up, and re-establish my new heading. Trust me – a good bit of work, and it never will win a race but a “sailor’s got to do what a sailor’s got to do!”

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Wow. Such a long lesson this time. Don’t really want to put you through a review – I just ask that you work at learning the new terms [the ones in **teal**], cover the **Checklists** several more times, and especially take to heart my personal ‘**Notes**’ [often the product of many years of trials and errors - lots of errors!!] Our next lessons will cover a variety of other things you would need to know for long range cruising [called “Advanced Sailing”] but for now you know the ‘basics’ and can safely, successfully sail a boat.

Now enjoy a last **Video** of one man’s solo sail from Rhode Island to Key West. It is a great look at the variety of sea conditions and unique experiences awaiting anyone who unties the dock lines and ventures out.

http://www.youtube.com/watch?v=5lj0_SWtCEE&feature=related