



# Boat Handling and Sail Trim

**While this seminar series was originally produced for the benefit of the Harbor 20 Fleet, the topics and information conveyed are applicable to any sailboat racing, be it one-design or handicap. EVERYONE IS WELCOME!**

What do you see when you look up at your sails? Do you use your controls such as the outhaul, cunningham, boom vang, and backstay adjuster to maximize your performance as conditions change?

Perhaps one of the most interesting things about sailing is that our power source is invisible. But, to get maximum performance out of your boat, you need to be able to see what is happening. While you may have heard the expression “sailing by the seat of my pants”, especially from very experienced sailors, expressing exactly what one is feeling in order to help someone else learn how to sail is almost impossible. So, while I cannot effectively tell you what I feel, I can tell you what I see. (Feeling what is right does come naturally at some point.) Subtle changes in sail shape or angle to the wind can have dramatic effects on performance. The better sailors are making adjustments constantly. But, what are they doing?

This seminar is about learning how the boat works. It begins with an explanation of how energy can be extracted from the wind, using an airplane wing analogy to establish the principle of aerodynamic lift. The wing is then tipped vertically, the bottom surface removed, and attached to a mast on a sailboat. From here, we will see how the force generated by the sail interacts with other forces such as that generated by the keel (yes, the keel works like an underwater wing generating lift when sailing upwind). We will also learn the difference between “apparent” wind and “true” wind. When we are done with this discussion, it should be clear why a beam reach is the fastest point of sail, and why running is slower than close hauled.

We will learn that there is a difference between sail shape, and sail trim, although both are generally lumped under the term “sail trim”. Some controls are used to shape the sail for given conditions (such as deep in light wind and flat in heavy wind), and other controls position the sail in the wind coming across the boat. We will learn how to see sail shapes such as draft position, draft depth, and leech twist, and how to use the cunningham, outhaul and backstay adjuster, and the boom vang to control these shapes. And we will learn how to use the telltales to position the sail in the wind. Telltales are very aptly named. They tell the tale about what is physically happening. They clearly and unambiguously indicate how well are sails are extracting power from our invisible power source. Telltales tell the skipper how to steer the boat, and the crew how to trim the sails.

We will learn how to shape the sails to extract as much power as possible in light winds, and how to depower that sails as the wind increases to the point that the boat becomes overpowered. Have you ever experienced an uncontrolled turn into the wind in a big puff? Do

you know why the boat can “spin out” like this? It is because there are more things that control steering other than the rudder. In windy conditions, both the sails and the hull can affect steering more than the rudder. We will see how flattening the sails and easing the main sheet can greatly reduce the tendency to spin out. This is important, because spinning out puts you at a great disadvantage because basically, the boat stops! Although having extra crew weight certainly helps in very windy conditions, knowing how to depower the sail plan to the point that control is always maintained is even more important. Have you noticed some of our single handed skippers handling their boats without problems while boats with 3 or 4 people aboard are still spinning out? Knowing how to depower is important, and for those really windy days, we will learn how to easily reef the mainsail.

Having established an understanding of how the boat works, we will then focus on how we make the boat perform the best it can. When you tack, do you just turn ninety degrees? If so, you are probably being beat by those who turn a bit further, ease the sails slightly, accelerate by footing, and the head back up going fast and pointing high. The reason this is important is that the sail shape and trim when going full speed before the tack are not appropriate for accelerating back up to full speed after the slowing which occurs while tacking. The shape needed to accelerate is different than the shape needed to point high. To maximize performance of your tacks, you need to be able to “shift gears”. The boat which gets up to full speed fastest after each tack has a clear advantage.

Did you know that where you sit in the boat, and how you move around is important? Have you noticed crews sitting far forward going downwind, and further aft going upwind? Are you able to tack and gybe easily and consistently, or do things happen differently each time? Do you make adjustments to outhauls, cunningham and backstay as part of each mark rounding? One of the things that makes racing sailboats so interesting is that little things matter so much, and winning is often a matter of making the least mistakes.

Do you know these knots: bowline, proper cleat, clove hitch and rolling hitch? These four knots can serve one through a lifetime of sailing, and every sailor should know them. If you don't know these knots, you will.

This seminar is directed at all skill levels, and information will be conveyed in a way that anyone can understand. Information is presented using animated PowerPoint. There will be a lot of information covered, and to some, it may seem like “drinking from a fire hose”. But, that is why these seminars are repeated periodically. So, if you attended the last seminar but do not think you absorbed it all, come on back! Also, if you know someone who could benefit from this seminar, please pass along this information. And, while examples of sail controls are shown for the Harbor 20, the concepts are applicable to ALL RACING SAILBOATS.

If you have questions or suggestions regarding this program, please contact:

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