

Greater NY District Championship at Cedar Point, August 2006

Notes from the Crest of the Square Wave Easterly on LI Sound
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When the wind comes from the east on the Long Island Sound, be ready to hike, surf, and change gears rapidly. When the wind shifts, the waves remain constant for a while, creating a challenging situation. Never underestimate the inertia set up by a 120-plus-mile fetch.

The following are some boat-handling and sail-trimming techniques that we use on *Yertle* (FS 4969) when the going gets rough in large waves.

Background sailing conditions: The wind shifted over the course of the three races, starting at ~60° early, later moving to 90°-110° by race 3.

On the way out as we sailed upwind on port, Christian Cremer (our middle crew) inquired how we would be affected by the waves coming from directly ahead. We immediately recognized that we could not be “flat” going head-on through the waves.

These conditions were similar to sailing on port tack in a southwest breeze on Great South Bay at Sayville, NY. In Sayville the waves come from a more westerly direction than the wind in a southwest breeze. Out-of-towners have referred to these large square waves as sailing upwind in a “sea of dumpsters.”

At Cedar Point the conditions varied greatly on opposite tacks. On port tack, where the waves were directly on the bow, the boat needed 10° to 15° of heel. The heel helps the helmsman turn to keep from landing the bow squarely in the trough. On starboard tack, the waves came at an angle; passing under the boat without need for change at the helm, we could sail very flat. As the day went on, the wind moved right and the angle to the waves changed, but the principles remained the same.

- Heel is needed when waves are head-on to assist turning, in contrast to the ability to sail flat when waves are coming from an angle, i.e. 25° to 30°.

Hiking the boat flat out of the tacks is another technique that we have learned to accentuate. The boat feels best when the forward crew is the first to hike, flattening the boat. The weight of the forward crew turns the boat down against the helm.

- It is most effective to have the forward crew hike first out of a tack to help flatten (bear off) as the main comes back in.

We use a 2:1 jib trimming system for fine-tuning under load. This advantage comes at a price, which is the additional line to haul in when tacking. A technique for rapid jib trimming is required with the 2:1 jib trimming system. Here is how we deal with the extra-long sheet. Matt Cottrell, our forward crew and jib trimmer, describes the motion as similar to a smooth, exaggerated “pull start” on a lawn mower. The technique is a single pull on the sheet in one continuous motion until the sheeting hand is behind the trimmer’s head. This one-handed approach proved to be much faster than gathering the jib sheet hand-over-hand. Trust us, we’ve tried both. ☺ When the jib trimmer extends his body out to the rail while performing the “pull start” technique, the jib comes in even faster and applies additional weight on the rail, right when it is needed most, when coming out of a tack hiking in breezy conditions.

Finally, we were able to put it all together when the helmsman actively trimmed the main through the tacks. First, the main was trimmed to initiate the tack. After crossing the wind, the main was then eased to maintain neutral helm. The main was trimmed once again as the boat was flattened by crew weight on the rail in full hiking position.

- The most effective tack is accomplished in three steps by: (1) trimming the main in (to turn into the tack), then (2) easing as much as necessary (often several feet) to leave the helm

balanced as the crew flattens the boat, and (3) trimming back to the upwind setting so that the helmsman can trim in, balancing the weight of the crew and the wind on the sail.

One additional note on tacking is the spatial relationship of the waves, the bow, and the boat's angle of heel. As you tack, the boat becomes flat when it passes through the wind. With the same concept in mind as discussed above, it is imperative to cross the wind at a time when the boat is not about to come off a wave, as it is undesirable to land the bow in the trough "flat."

- A good time to cross the wind is on the near face of a substantial wave, which naturally allows the boat to change heel, setting it up for the trough at an angle.

Everyone has questions about sail trim, but one of the most prevalent is "how to trim using the top batten of the jib." Honestly, I don't look at the top of the jib for sail trim adjustment, at least not while racing. The reasons are that I trust that my jib is a well-made sail and that the settings we use are simple. My rule of thumb is to trim the clew to the center of the seat with the lead forward unless we are overpowered or there are some unusual sea/wind conditions requiring the slot to be open. Finally, depending on the jib, the conditions, and the position on the course with respect to competition, we use an inch or two of windward sheeting. The following is the process I envision for trimming the jib through the tack.

- Out of a tack we look for A) jib trimmed about 80% to 85%, B) then enough windward sheet to slightly affect the angle of the clew, C) followed by the final trim as the boat becomes flat and the main comes in.

Jibing in breeze and substantial waves is always a challenge but not one to fear. Instead it is an opportunity to embrace the forces on the boat and let them work for you. The best time to jibe is when the boat is going fast or down a wave. You have to do it without hesitation or forcing the boat. Many people push the main sail or grab the vang to jibe. If there is substantial load on the helm or the sail, there is a drag and the boat is "telling you" it's not right. Conversely, going down a wave or jibing from a plane you will experience the sails becoming "light" and crossing effortlessly. Keep the boat under the spinnaker. When things get wild, the trimmer can over-trim both sheets, which increases control at the expense of slowing the boat. However, over-trimming to stay in control has an obvious short-term benefit when whipping out or swimming is the alternative. No doubt, *Yertle* has seen it all. ☺

Summarizing sail trim and boat trim:

- Use boat speed, sail trim, and reduced apparent wind to control the boat and execute maneuvers. Use weight placement (hiking most effectively ahead of the centerboard) to head the boat down. Specifically, weight to windward causes the boat to bear off, and weight to leeward or less on the windward rail tends to make the boat head up.
- The boat pivots (N, S, E, W) and pitches (bow up or down) around a position near the front of the centerboard. Weight is needed forward when you want the boat to "tilt forward" over the wave. Conversely, when the boat is surfing you want to keep the weight back and use it to help the helmsman avoid running into the wave face ahead.

Regarding crew weight and number of crew: Our crew weight was 500 lbs. (PJP 195 [back in the summer], Matt C 165, and Chris C 140). Crew weight is important in any boat and placement is vital. However, the most important aspect is that each crew member maintains his/her weight firmly attached to the boat for maximum effect on performance. Proper and sufficient weight placement helps the boat turn. There are definitely times that a Flying Scot responds very positively to crew movement. Sailing heavier can be a plus if the weight is used to turn the boat.

Having sailed Sunfish for many years as the "heaviest crew," I came to appreciate sailing Flying Scots with only two crew members and being one of the "lightest crews" on the course. My opinion (worth \$.02) is that you can get away with being light in breeze when the water is flat and the course is short. In light air you'll definitely have an edge out of a "stopped situation," i.e., starting, tacking, etc. Without question, a significantly lighter crew can plane earlier and faster (if in control). On the other hand, in planing

conditions a 500-lb. crew, which is more than half of the 850-lb. hull weight, has a distinct advantage keeping the boat flat, attached, and loaded going upwind. The net result is often a high and faster boat having better velocity made good, aka VMG.

In summary:

A lighter crew has an edge:

- When the boat transitions out of a “stopped situation,” i.e., starting, tacking, etc.
- In light and flat water conditions
- Off the wind, accelerating, and breaking onto a plane first.

A heavier crew has an edge:

- Using weight to turn the boat
- Flattening from the front first and in breezy conditions
- Handling sail control lines, e.g., vang
- Adjusting the pole, spin, jib
- Hiking while 3rd crew is off the rail
- Helping the helmsman keep his head out of the boat.

In general, I err on the side of sailing heavy, with three. The added weight is easily compensated by a talented third crew. Of course, the added weight of the third body must always stay firmly attached to the boat. This was a lesson reinforced by my experience sailing the Championship of Champions as a crew with Eduardo Cordero, with a weight of 520 lbs.

This is how we keep crew weight attached to the boat:

- Hike tight to the hull (as opposed to floating with the sheet or hiking line in hand).
- Never stand up without holding onto the boat going through waves.
- Wedge feet tightly under something like the seat, a tight line, or the rail.

Although all of the above points are important, keeping one’s head out of the boat and having a plan with a finish in mind are vital. A perfect example is the need to know where the finish is, like the writing of this article; having started in August, if I didn’t have a deadline, in this case January 15th (and today is the 13th), I’d probably never finish. Luckily sailboat racing is relatively slow-moving with a finish line in sight☺

☀ ~_/) ~ Sail fast, sail smart and always enjoy the course!