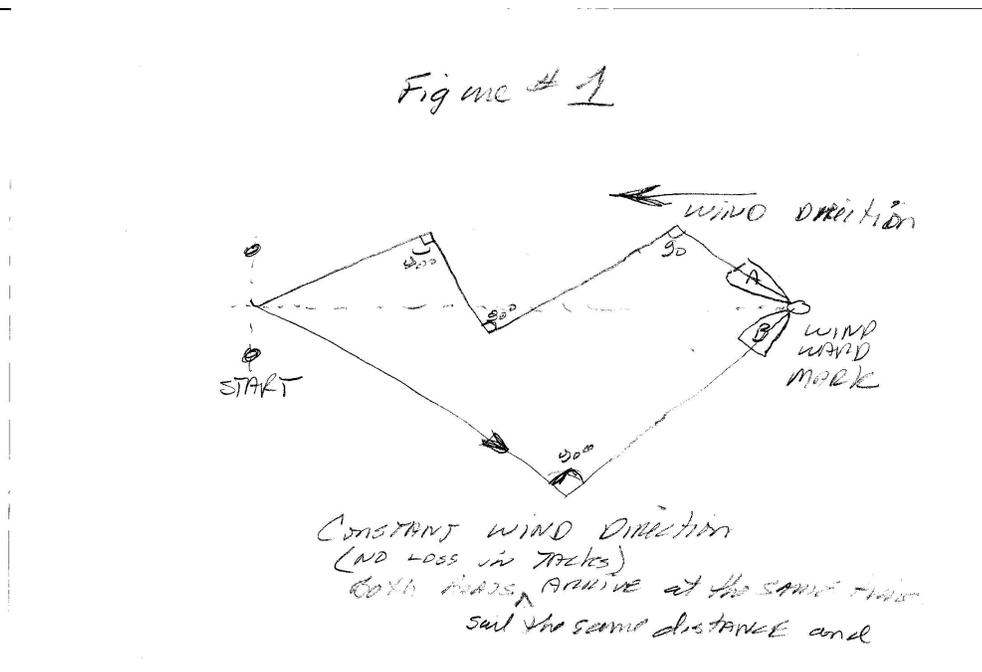


HOW TO BECOME A FAST GUY II (Upwind Racing Tactics)

By Bob Szczepanski

Racing Tactics

We learned in "Fast Guy" (issue #166) that performance sail trim can be achieved by managing power in the main and jib. Once the sails are set up and trimmed so that the boat is easy to sail upwind, going fast and pointing well, we have accomplished the first step in becoming a *fast guy*. The next step is deciding which way to point the boat. Going fast in the correct direction is what we want, but how do we know what direction that is? We all know much has been written on this subject. This sheer abundance of racing tactic information demands that we break them down into their two distinct components, so that they can be more easily understood and applied. The fundamental components are *boat to wind* racing tactics and *boat to boat* racing tactics. Our goal here is to only consider *boat to wind* tactics. Further, our focus will be limited to upwind racing tactics. Reaching, running and all boat to boat (or fleet racing tactics), will be left for another time. The place to start is with the first question: why are boat to wind tactics important? The answer, as you surely know, is that the wind rarely blows in a constant direction for more than a few minutes. If there were no wind shifts there would be no need for upwind tactics. See Figure #1.

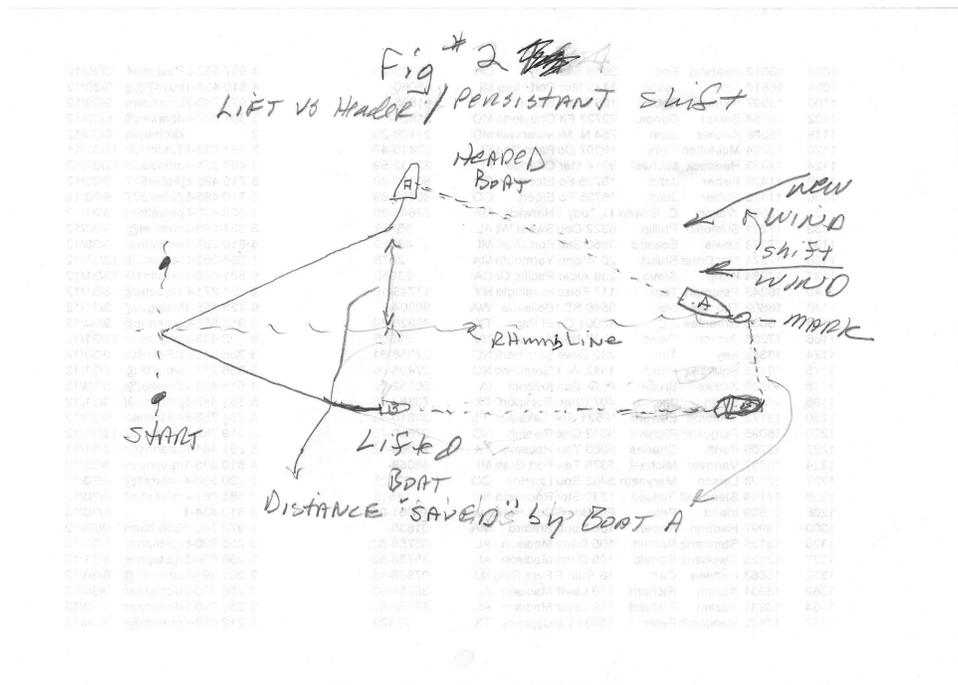


The fact that the wind does change creates the opportunity to take advantage of the wind shifts to sail the shortest course possible to the windward mark. Please note, **that is the entire purpose of upwind racing tactics – sail the shortest course possible**. Since correctly trimmed one design boats sail at similar speeds (at, or near, their hull speed when going upwind), the boat that sails the shortest distance will be the first one to round the weather mark and will dramatically increase the likelihood of winning the race.

Lifts verses Headers

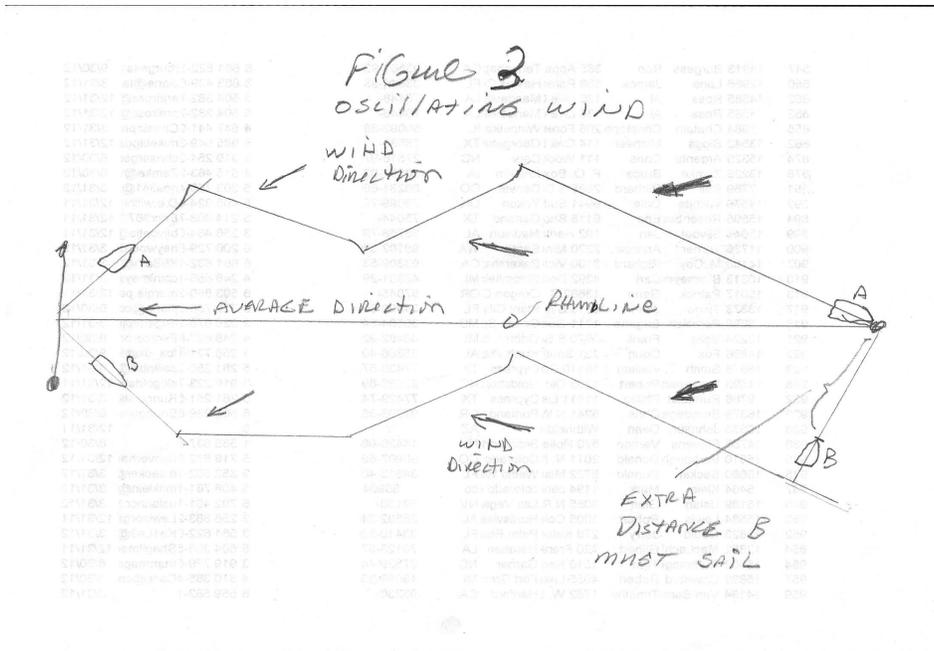
A lift is said to occur when the wind shifts so that a boat can sail a new course closer to the

windward mark. A header is said to occur when the winds shifts so that a boat must sail a course further from the windward mark. If you gather up a group of skippers and ask which is better, or ask, would you rather be lifted or headed, the overwhelming answer is always – lifted! Many have heard or read about the “beneficial” lift or the “harmful” header. All this notwithstanding, those that answered “headed” are the “fast guys”. But how can a wind shift forcing you to head away from the mark be good? The answer is tacking on the header shortens the distance you have to sail to reach the weather mark. The lifted boat can sail closer to the mark, but the distance doesn't significantly change, unless you are very lucky and the wind shift is unusually dramatic. See Figure #2. When all else is equal, skippers that always manage to sail into a header(s) will win the most races. This means you always need to sail toward the direction the wind will shift to. Being lifted means you were sailing in the wrong direction.



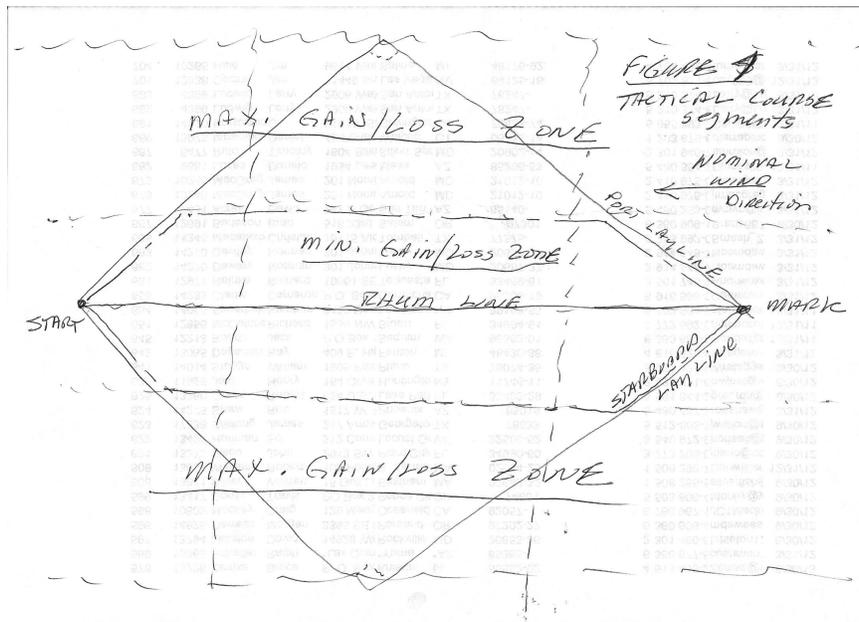
Oscillating and Persistent Shifts

The wind typically changes back and forth (shifts) around an average direction. Called oscillating winds, opportunity for gains are present on each shift. The boat that stays “in phase” (sailing toward the upcoming shift) will always sail the shortest distance. A persistent shift is a change in the average direction. The boat that sails toward the new average wind will substantially shorten the distance sailed. See Figures 2 & 3.



Course Segments and Laylines

Sounds easy right? Sail to the new wind, yet all you have to do is sail in one race and you will soon realize wind shifts have a nasty habit of being erratic. This is especially the case on the small lakes and ponds we typically sail in, where many obstacles (trees, hills, buildings, etc) influence what the wind does. To protect what was gained in shortening the course and provide opportunity for further gains, it is useful to divide the weather leg into tactical segments. See Figure 4.

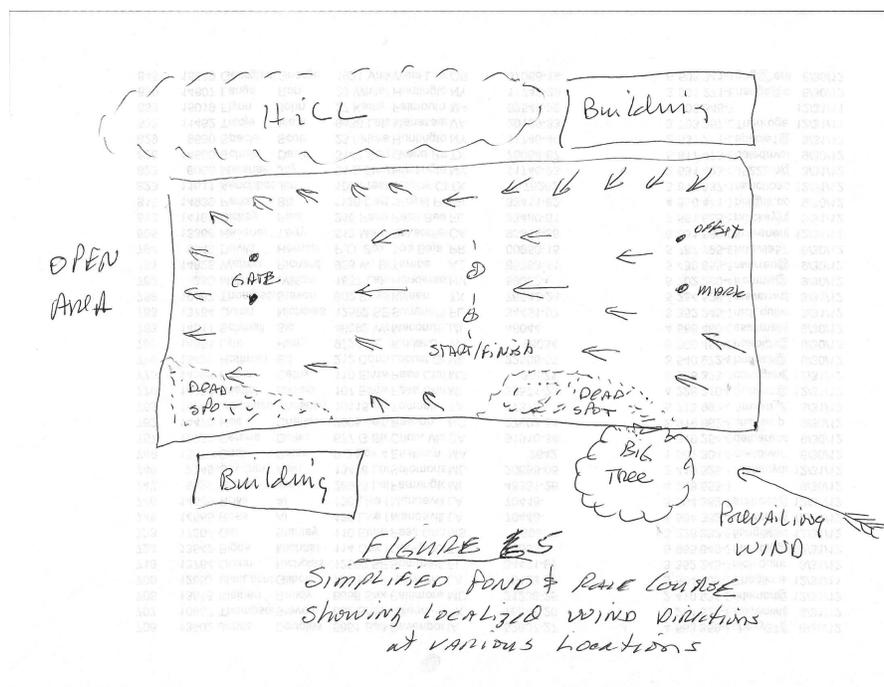


You can quickly see, the further a boat sails from the rhumb line the larger the gain, or loss, will

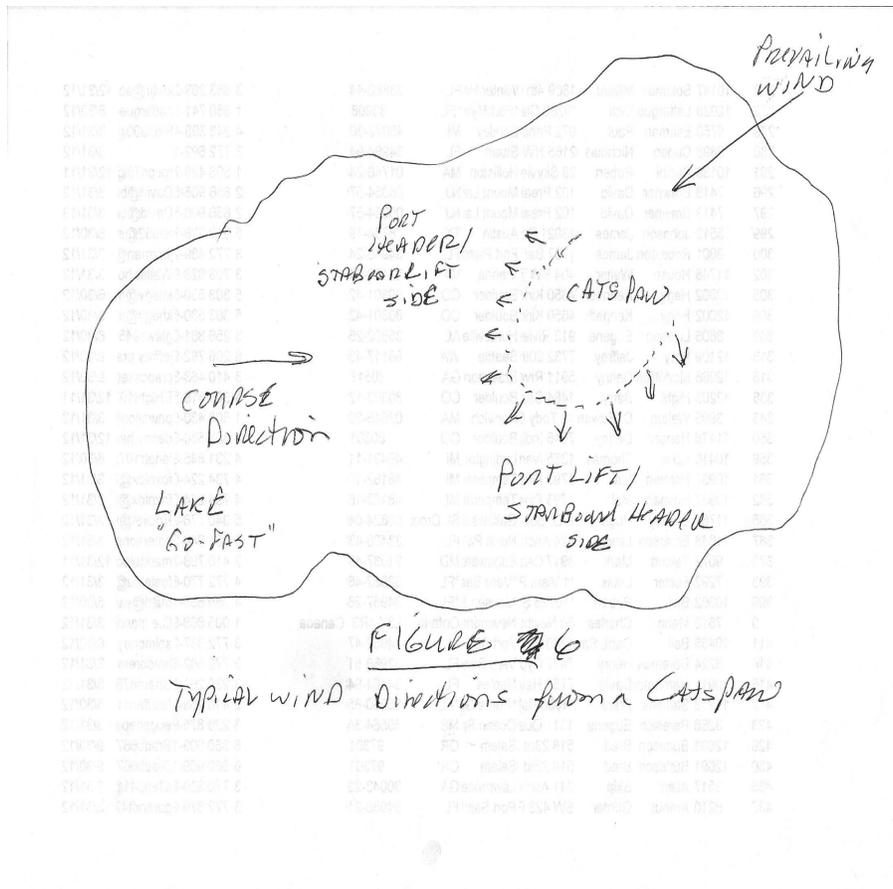
be. For example, if a boat sailed toward the port tack layline, and the winds shifts to the right, it must sail a much further distance than the boat that sailed toward the starboard tack layline. The distance from the rhumb line is equal to the distance saved, or the extra distance that must be sailed. This potential gain, or loss, repeats with each wind shift. This is how *fast guys* can sometimes lap the fleet! Also, note that the closer a boat gets to the windward mark, more distance from the rhumb line is very high risk. In fact, once a boat is on or past the layline, any wind shift is bad. Note: being headed means making two extra tacks. Being lifted means you have sailed too far. The lesson here is to avoid sailing up to the port or starboard laylines for as long as possible to minimize exposure to a wind shift. Referring again to Figure #4, sailing into the max. gain and loss zones is almost always unavoidable. The key, however, is to realize you are in that zone and then being alert to opportunities, or reasons, to tack back toward the rhumb line. A tack should only be made when there is a reason to do so. Taking this one step further, fluky conditions with random or unpredictable shifts demands staying in close proximity to the rhumb line in the min. gain loss zone. In fact, when you have no idea what the wind will do next, sailing back toward the rhumb line is always the correct direction. You may not gain much on the unpredictable shift, but you will not risk having to sail much additional distance either.

Local Conditions and Catspaws

"Fast Guys" always seem to know which direction to point their boats. One way they do this is by being sensitive to and observing wind patterns on the water. They take the time to visually inspect for wind irregularities and do a pre-race sail around of the course to see if and what structures, that are present around the lake, will influence the wind. See Figure 5.



They then know where headers or lifts tend to be present and can either sail toward them or away as appropriate. A feel for the timing between shifts can also be gained. If oscillations happen to be occurring every 2 to 3 minutes and you have been sailing in one direction for longer than 1 minute, a shift can be expected soon. Knowing the phase provides the opportunity to sail a shorter distance. Catspaws, which can be thought of as wind gusts or puffs can also be observed on the water. While they can vary enormously in size, their composition is always the same. See Figure #6.



You can see that boats will be headed, or lifted, depending on where they are relative to the catspaw. This provides the observant skipper the opportunity to sail at, or away, from the section of the catspaw that will best help to shorten the course.

Fast Guys

“Fast guys” know how to manage the power of the sails so that their boats go fast. They then turn their attention and concentrate on *boat to wind* tactics, by pointing their boats toward the next shift, so that they will have the shortest distance to sail. It is their constant objective: go fast in the correct direction. Another small but important point “fast guys” understand. One end of the finish line is always closer than the other end. They always sail to that closer end of the line and never finish in the middle of the line, or worse, the wrong end. Sail fast toward the headers and become a “fast guy” II.