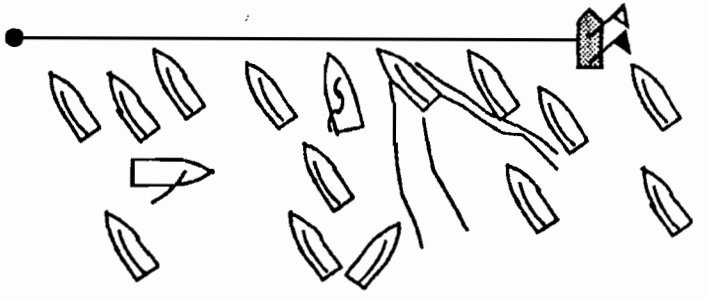
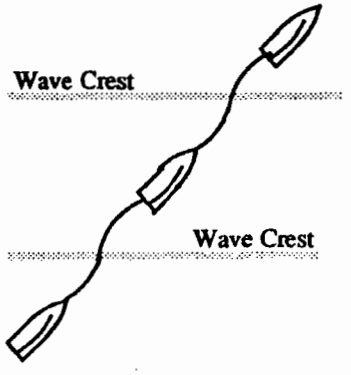
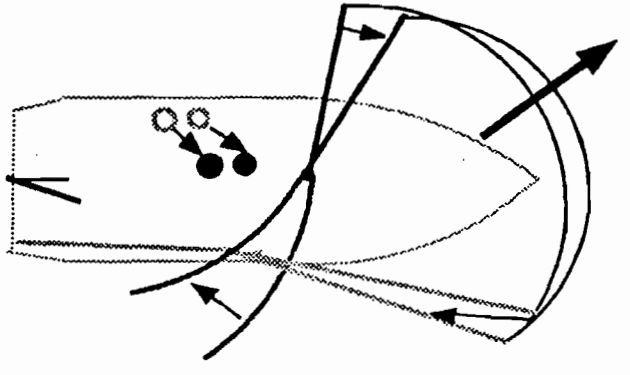
# Chapter 6 - HELMSMANSHIP







## Chapter 6 - HELMSMANSHIP
## 6.1 INTRODUCTION

**The most important & least tangible element to racing success. This chapter will look at the particulars on each part of the course.**
**One key is the ability to concentrate on driving. You are not fast when you are looking around at the fleet or talking through the spinnaker hook up. You must leave tactics & boathandling to your crew, (or you must get off the helm).**

## 6.2 STARTS
**fig. 1 - Make a plan, do a dry run, and sail your boat. Ignore the chaos around you. Sail fast and leave it in your wake.**

## 6.1 INTRODUCTION

Helmsmanship. One of the most important and least tangible elements of boat speed. Experience and concentration are important peformance factors. The ability to stay calm in situations which scream out for panic is another trait. The truly excellent helmsman not only drives fast, but is also able to call trim through the feel of the helm. The helmsman is often also the skipper. In that role the helmsman must surround him/herself with trusted crew. The helmsman must be confident in those around him so he can concentrate on sailing fast.

In this chapter we will discuss helmsmanship around the course and in various conditions.

## 6.2 STARTS fig. 1.

From the frenzy of th starting line the helmsman must create order by locking attention onto factors affecting his own start: Positioning against boats to windward and creating a hole to leeward; keeping his nose in clear air and judging timing, trim, speed, and acceleration. Starts are no place for the timid or easily distracted.

A well organized crew and a charging attitude can help avoid the most common mistake - being late. A well planned approach and a dry run can also help in judging time and distance on the final approach.

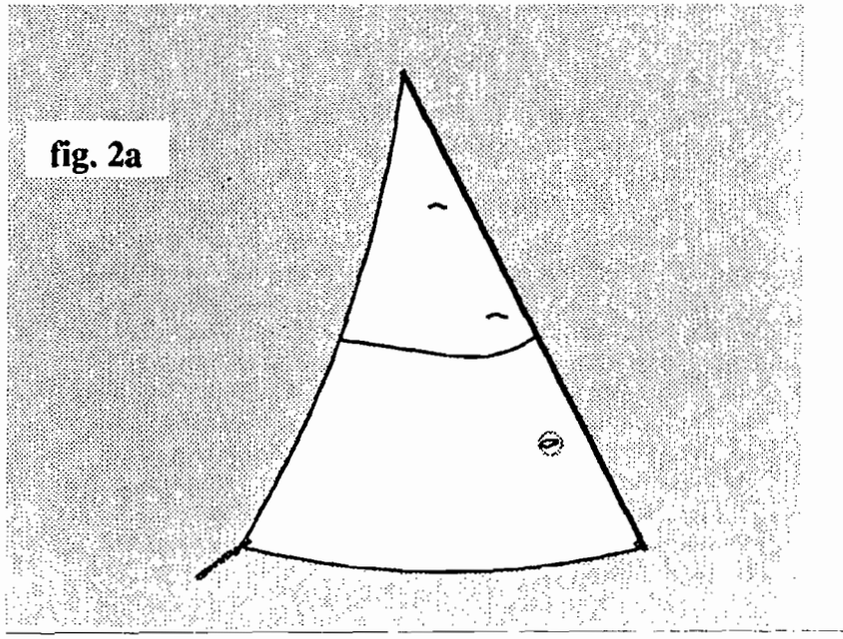
In heavy air use a simple approach to minimize boat handling tricks. In light air work to build up speed, and never slow down. At a crowded start stay in the front row, and be sure to get up to the line at the start.

Most of all, success at starts revolves around being comfortable in crowds and sailing your own boat.

## 6.3 UPWIND

**TELLTALES**

**Once you are sailing in the groove with the telltales flowing you can fine tune as follows:**
**fig. 2a - Sail with telltales flowing for power & acceleration.**
**fig. 2b - For extra pointing in smooth water let the telltales lift occasionally.**
**fig. 2c - When overpowered feather up and let the telltales luff to help de-power.**



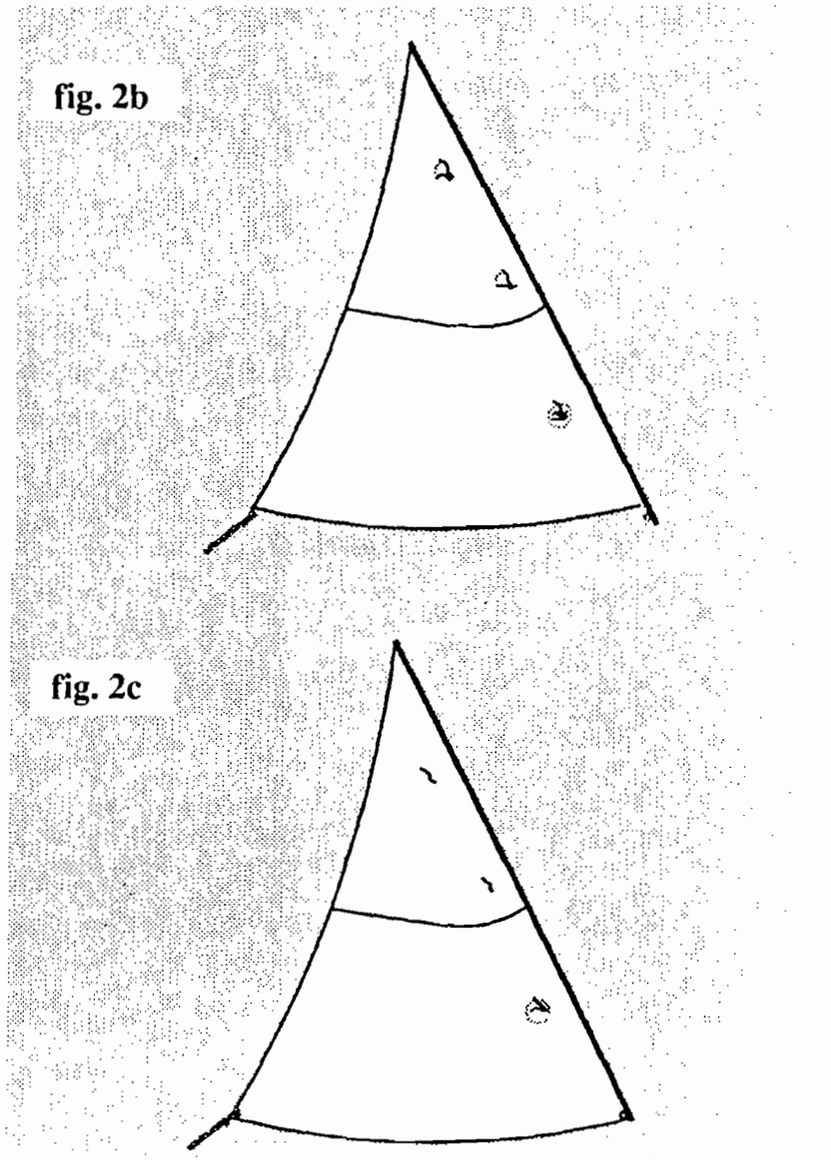
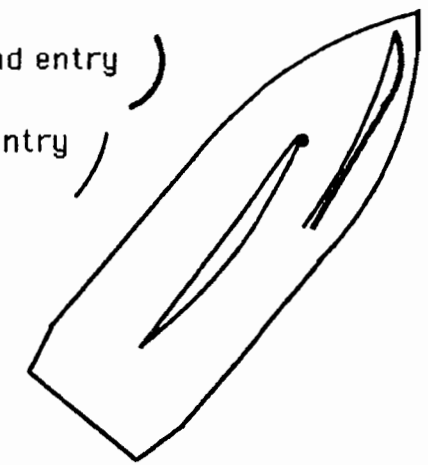



**fig. 3 - Match you genoa entry shape to the condiditons and to your steering style.**
**A flat genoa entry gives a high pointing groove which is narrow and unforgiving.**
**A round entry creates a wider groove preferred for steering in waves.**




## 6.3 UPWIND

If you want to be a tactician don't drive upwind. Dennis Conner had Tom Whidden and Peter Isler to tell him where to go so he could concentrate full time on going there fast.

An upwind helmsman must focus attention on the jib, jib telltales, mainsail, heel, waves, and weather helm. The boat should sail on her lines, neither flat nor overpowered. There should be a few degrees of weather helm, no more. The genoa telltales should stream back. Don't pinch. More time, speed, and distance is lost through pinching than through any other flaw in trim or helmsmanship. Keep the boat moving.

TELLTALES fig. 2 a-c

Once the telltales are streaming the sensitive helmsman can fine tune within the groove for extra power or pointing as needed.

At the low end, with the outside (leeward) telltales near a stall the jib will deliver extra power, good for acceleration out of tacks or extra punch through waves.

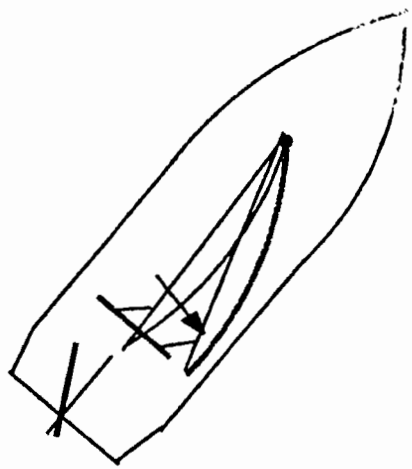
With the telltales streaming straight back the boat reaches an optimum mix of pointing and speed for most conditions. Slightly higher and the inside telltale will start to rise. This setting offers a touch of extra pointing at a slight sacrifice of power. In a fresh breeze and smooth water this can be fastest. (See Turbo Sailing below).

Head up a little higher and the inside telltales dance as the luff of the jib starts to go soft. This high pointing position is a good way to de-power in a breeze or take a bite to windward in a puff; but in light air this is pinching.

A fine touch is required to maintain ideal steering angle within the groove since the entire groove width is only a few degrees.

**fig. 4 - Weather Helm**
**You should carry 3° to 5° of weatherhelm upwind. Any more than that and the rudder is being dragged through the water.**
**To reduce weather helm reduce heel. Flatten the sails. hike out, and lower the traveller.**
**To add more life to a mushy helm add power and heel.**

**The helmsman should call trim by giving details of the feel of the boat to the trimmers. Too much weather helm? Too narrow a steering groove? etc.**



NARROW OR FORGIVING fig. 3.

If the steering groove is narrow and the telltales won't settle down then the entry shape of the jib may be too flat for the conditions (or the helmsman). To widen the steering groove add shape forward in the genoa. Tighten the halyard or sag the headstay. This will create a rounder, more forgiving entry shape. If the trouble persists and speed is erratic the slot may be to narrow. Ease the jib sheet and/or move the jib lead outboard to open the slot for a wider groove.

If the steering groove is wide andthe boat is not pointing well try a flatter entry shape and narrower slot. In smooth water you will be able to steer to a narrower groove than in wavy conditions. Tighten the headstay, ease the halyard, and sheet the jib further inboard to improve pointing.

WEATHER HELM fig. 4.

Boats sail best with 3° to 5° of weather helm. Anything more than that and the rudder is being dragged through the water like a brake. Measure you tiller or wheel to mark the degrees of helm, and keep it within limits.

To reduce weather helm reduce heel. Flatten the sails, lower the traveller, and hike out.

If the helm is mushy and there is no helm add power throughout the rig and move crew weight to leeward. A mushy helm is as bad as excess helm.

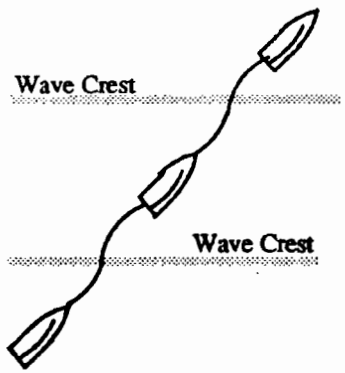
CALLING TRIM

The helmsman has the most direct feel of how the boat is performing. He must help call trim by giving details of the feel of the boat. Is the groove to narrow or too wide? Do you have enough punch in the waves? Do you feel you should be pointing higher? Is the helm properly balanced?

For the trimmers to trim properly the helmsman and trimmers must communicate and understand the relationship between trim, helm, and performance.

fig. 5 - Wind & Waves
**In heavy air & waves steer up on the faces and bear off on the backs of the waves. Use weather helm to help you head up and lower to traveller to bear off.**

**In short chop there may not be room to steer the waves. In that case just power through as best you can.**




## SPECIAL CONDITIONS

There are a number of special conditions which call for special techniques. One special case is heavy air and waves. Another is ideal smooth water moderate air conditions. Lets take a look at each.

### WIND & WAVES fig. 5.

Steering in heavy air and waves the goal is to steer around the waves, heading up on the faces and bearing off on the backs. We want to keep the boat in the water and prevent it from pounding through the seas.

Weather helm can be used to head the boat up for each face. Rather than force the boat up with the helm the boat should be trimmed with enough weather helm that it heads itself up for each wave. In order to bear off the weather helm will have to be relieved for a moment by lowering the traveller. To head up the traveller will have to come up again. Steering with the sails and using the natural weather helm of the boat is much faster than pushing the boat around with the rudder.

Angle of heel is an excellent guide for steering in these conditions. The proper angle of heel will create appropriate weather helm to match the size and period of the waves.

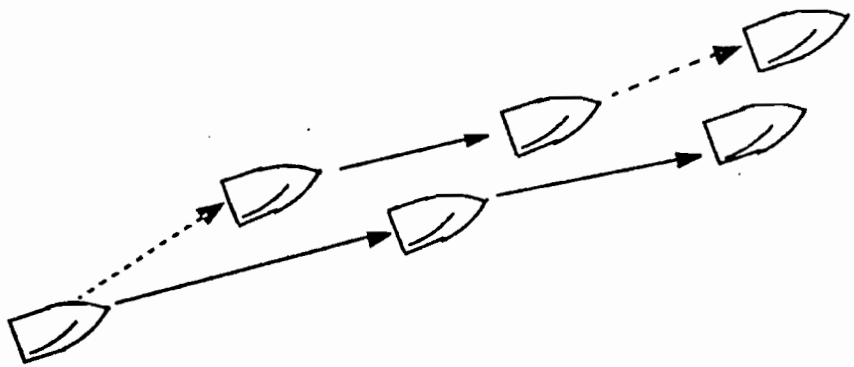
### TURBO SAILING fig. 6.

Point higher without giving up any speed! Enjoy the rewards of Turbo Sailing!

In smooth water beating with the crew on the rail try forcing the boat to point higher. It will, without any loss of speed. Turbo Sailing works best in ideal sailing conditions - smooth water and enough breeze to get the crew fully hiked without being overpowered. Get your boat sailing at normal speed and angle, and then head up slightly. Turbo Sail until the first sign of diminished speed or power; then bear off immediately to power up and rebuild speed. Experiment with trim to find out if extra mainsheet tension or flatter shapes helps you hold the higher angle. And beware the first sign of a lull or chop. Nothing is as slow as trying to Turbo Sail in Non-Turbo conditions.

Turbo Sailing offers improved performance in special conditions. The next time you're racing upwind in smooth water with the crew on the rail give it a try. But don't try to force it when the conditions aren't right.

**fig. 6 - Turbo Sailing**
**In ideal smooth water conditions with the crew fully hiked you can squeeze up and get extra pointing at no loss of speed. Trim hard & flat; & stick the boat up a degree or two.**
**Bear off if you start to lose speed, & don't try to turbo sail in non-turbo conditions.**



## 6.4 DOWNWIND fig. 7.

Steering downwind requires a coordinated effort between the helmsman and spinnaker trimmer. In light to moderate conditionsthe helmsman should work up and down as necessary to maintain speed while holding a good average course. The spinnaker trimmer often has as good a feel for performance as the helmsman, and together they can coordinate trim to take advantage of changes in conditions as they happen

Tactically on a reach there are times when the helmsman must the head up abruptly, either in an effort to pass another boat or to defend his position. By alerting the trimmers the helmsmans efforts can succeed. An abrupt course change without warning to the trimmers will usually doom the tactic to failure.

In heavy air the helmsman is at the mercy of his trimmers. On a close reach the spinnaker sheet and main must be eased in a puff or the boat may round up and broach. Even if the helmsman can prevent a wipe out it is slow to fight the puffs. By easing the sails as the puff hits the force of the puff is translated into speed rather than heeling force.

A heavy air run can lead to "death rolls" and broaches. To control rolling avoid sailing dead downwind, trim the spinnaker directly in front of the boat - don't let it float out to windward, and choke down the sheet and pole.

A word of caution on boom preventers. In a heavy air broach they tend to break after providing a false sense of security (or the boom breaks). The preventer can also cause a broach if the boom hits the water on a roll to leeward and the preventer holds the boom in place. And once you do broach, if the preventer holds it can keep you pinned until someone finds a way to release it.

Helmsmanship in heavy air conditions must be forceful to keep control of the boat. But remember, every jerk of the helm slows the boat. Smooth is fast.

In more moderate conditions *not* steering downwind is the goal:

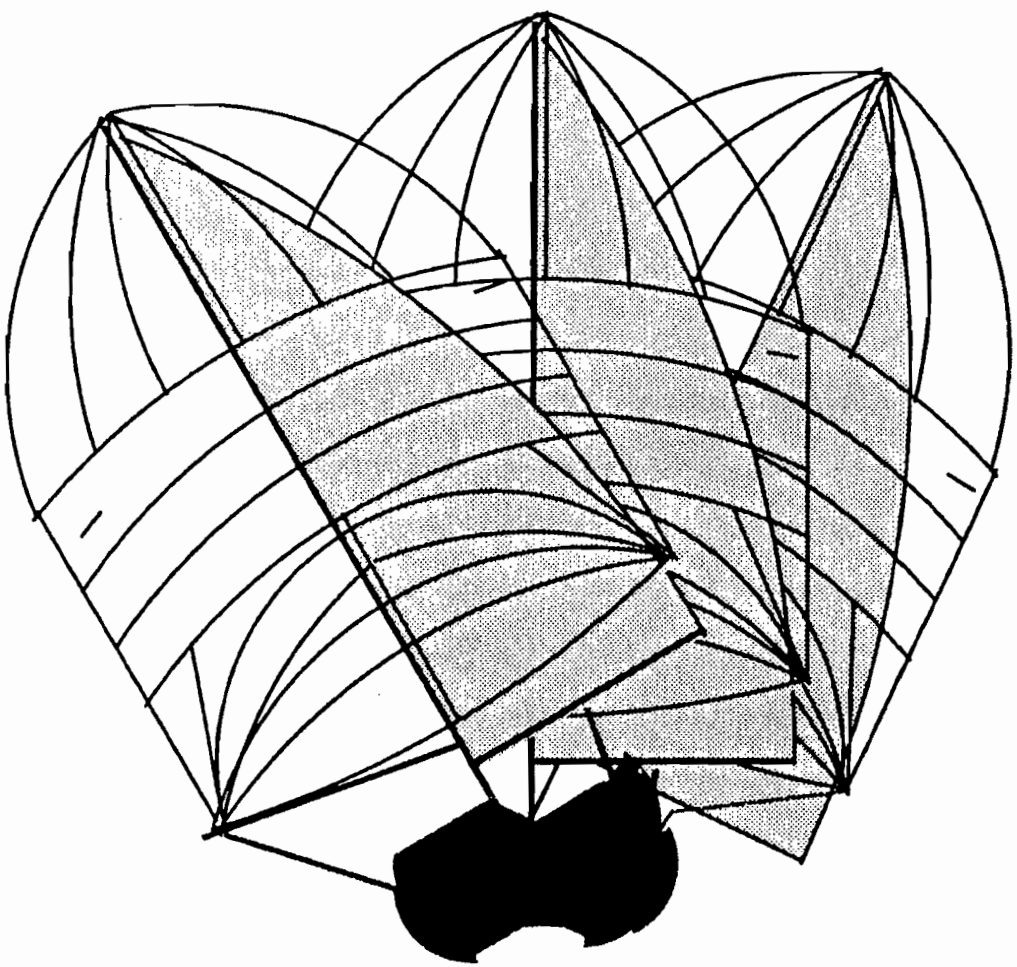
## 6.4 DOWNWIND

**Fast steering downwind requires teamwork between the helmsman and sail trimmers. The helmsman is powerless if the trimmers don't help out.**

**In moderate conditions the spinnaker trimmer & helmsman must work to keep speed as conditions fluctuate.**

**In heavy air they must work together to keep control. On a reach the trimmers must ease with each puff.**

**fig. 7 - On a run the trimmers must control the spinnaker or it will pull the boat into a death roll. Choke the spinnaker down & keep it on a short leash to keep control.**



## 6.5 Not Steering Downwind fig. 8 a&b.

*It happens almost without words. As the puff hits Jim and Ron move off the cabin top to the rail. Rob trims baci on the guy and Tom eases the spinnaker sheet. Russ raise the topping lift a few inches. Melanie eases the main. Th boat bears off slightly and accelerates.*

*As the puff fades Jim and Ron slide inboard, the pole goes forward and down, and the spinnaker sheet is trimmed. The main comes in. The boat heads up and carries speed.*

*Dave, at the helm, sits nearly motionless, the tiller extension moving in his hand as the crew steer the boat with weight and trim.*

*Gradually we pull away from the other 37 footers, lower and faster down the run.*

## 6.5 NOT STEERING DOWNWIND

**Steer with weight & trim, not the rudder. Using the rudder is slow.**

**fig. 8a - To Bear Off ease the sails, trim back on the guy, and move crew weight to windward.**

**fig. 8b - To Head Up reverse the process: Sails in, pole forward, weight to leeward.**

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You can use crew weight and sail trim to steer any boat downwind. Steering with weight and sails is not just for dinghy sailors. It is fast in big boats too. The less you use the rudder to steer the faster you will be. Here's how it works:

**To Bear Off**

We want to bear off with puffs. As the puff hits and we build speed we can sail lower and still keep target speeds. Bearing off will also help us stay in the puff longer.

To bear off move crew weight to windward and rotate the spinnaker to windward. Ease the spinnaker sheet in any puff. A puff will shift the apparent wind angle aft, and the sheet should be eased. Trim back on the guy as the sheet is eased to keep proper spinnaker shape and to rotate the spinnaker to windward. Raise the spinnaker pole slightly to help the spinnaker shape properly for the new breeze. Also ease the main for less weather helm.

You will need to move some crew weight to windward just to counter the heeling forces of the puff. It will take an additional increment of crew weight to actually help the boat bear off.

fig. 8a

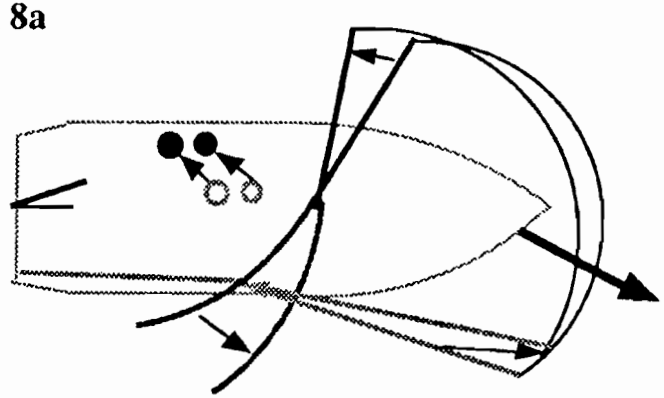
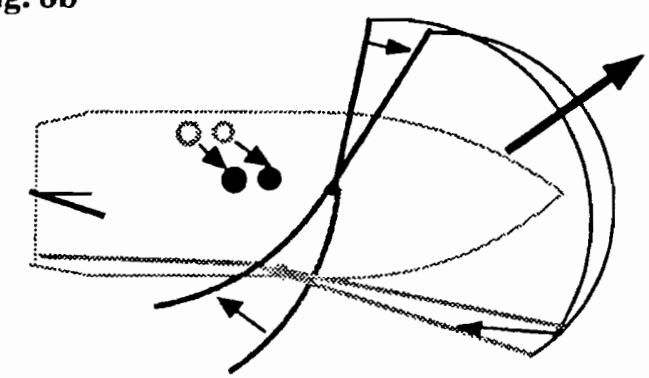


fig. 8b



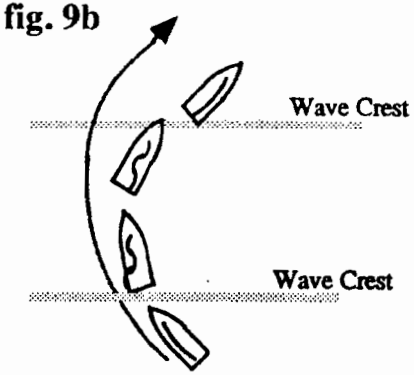
## 6.6 TACKS, JIBES, & MARK ROUNDINGS

**fig. 9a - Tacking. Start with a slow smooth turn and let the boat coast upwind. Turn faster in the second half & settle quickly to build speed on the new tack.**

**fig. 9b - Tacking in Waves. Waves require a quicker turn. First look for a smooth spot. Start your turn in a trough, & get the bow through the wind on the back of the wave, so the next wave pushes you onto the new tack.**

fig. 9a

fig. 9b




**To Head Up**

As the puff fades you want to head up to keep apparent wind speed. As the boat slows you will no longer be able to sail as low as you could in the puff.

To head up reverse the process of bearing off. Trim the spinnaker sheet and ease the guy. Lower the pole slightly. Trim the main and move crew weight forward and to leeward.

**Not Steering Downwind**

The next time you are steering downwind in light to moderate air use your crew weight and trim to help steer the boat. Better yet, let your crew do all the work and try *not steering downwind.*

## 6.6 TACKS , JIBES & ROUNDINGS

**TACKING fig. 9 a&b.**

A slow smooth turn intially, coasting upwind to carry speed; with a faster turn through the second half. Settle immediately and drive off slightly to accelerate. Work with your trimmers to quickly get back up to speed.

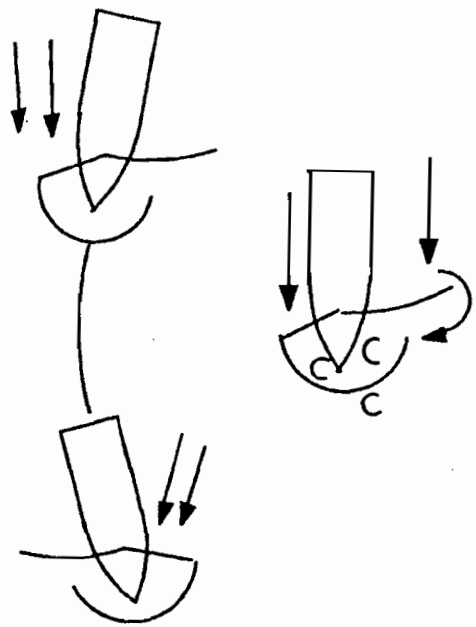
In waves a sharp turn is needed to get the bow around. First look for a smooth spot. Start the turn in a wave trough. The bow will pop out as you hit the crest of the wave and cross the wind before the next wave hits. This way the next wave helps you complete the turn rather than pushing you back onto the old tack.

**JIBING fig. 10.**

Turn at the pace of the crew work, keeping the boat under the spinnaker. Do not hold the boat dead downwind in mid jibe. When you are dead downwind the boat starts to roll and the spinnaker may wrap. Hold the boat on a very broad reach, and jibe to a broad reach, without hesitating dead down wind.

On reach to reach jibes start your turn early and coach the crew to rotate the spinnaker as fast as possible.

**fig. 10 - Jibing. Hold the boat on a very broad reach and turn smoothly to a broad reach on the other jibe. Do not hold the boat dead down wind, as this allows air to circulate around the backof the main causing spinnaker wraps. On reach to reach jibes coach the crew to rotate the sail as fast as they can.**



**Practice smooth wide-&-close turns to carry speed through mark roundings.**

## 6.7 CONCLUSION

**Helmsmanship requires practice & concentration. The best helmsman are surrounded by outstanding crew, leaving the helmsman free to focus all his attention on sailing fast.**

### MARK ROUNDINGS

Use a smooth turn to carry momentum. Learn the character of your boat and give yourself plenty of room to come in wide and finish close; without having to jam the helm over and kill speed.

At a leeward mark ronding find a reference to help you come to close hauled amidst the fury of the spinnaker take down. Divide the crew in half - work with the trimmers to sail the boat while the other half of the crew take down the chute.

## 6.7 CONCLUSION

Helmsmanship is a subtle skill requiring practice and concentration. A relaxed yet acute awareness is needed to be able to sense what is going on with the boat. As fatigue sets in sensitivity fades. Get off the helm and take a break. Be sure you have other sailors in your crew who can spell you from time to time.

If you want to be helmsman, tactician, and sail trimmer then race single handed. If you really want to look around and do tactics get off the helm.