

## DOWNWIND SAILING TECHNIQUES

*Hawk* lies under bare poles in the Southern Ocean. But it's not what we expected. We are smack in the middle of a high pressure ridge, absolutely becalmed with large swells rolling in from the southeast (from a low that has just passed) and from the southwest (from an approaching low). We managed to keep sailing until the wind dropped below 4 knots, and then the swell started rolling the wind out of the sails, making everything inside slam and crash around and causing the whole boat to shudder from masthead to keel. We had to drop the main and roll up the jib to keep the rig from being shaken to bits. As this high pressure ridge moves away and a frontal system approaches, we expect the winds to slowly build over the port quarter (from the northwest), rotate over the stern to the starboard quarter (southwest) and continue to build a bit more.

### Light Air

A few hours later, I stand in the cockpit, sniffing the air and looking at small ripples in the water. I think we may have a couple of knots of wind, but it's hard to filter out the artificial 'gusts' caused by *Hawk's* rolling in the swell. I call Beth on deck, and she agrees the wind has finally begun to fill in again over the stern quarter. We raise the mainsail and prevent the boom to stop it from swinging with the boat's roll, collapsing the sail. Our preventer system consists of two long lines tied to padeyes at either side of the aft end of the boom and then led forward to cleats on the front of the boom where they are tied off, cleated and coiled when not in use. We uncleat the appropriate line (which can be done with the boom at any angle), run it through a snatch block on the toe rail in front of the stays and back to a winch.

The boat's already sailing, making two knots through the water, and we can see that we do indeed have enough wind to make some progress. We discuss which of our large light air sails to use. Though we agree that the 'right' sail for this wind would really be our 1,500 square foot asymmetrical spinnaker (in a sock), we eventually hoist our Code Zero (1,000 square foot masthead reaching jib on a Vectran luff furler) for three reasons. First, if the wind continues to build as it's supposed to, the slightly smaller Code Zero will be the right sail in a few hours. Second, in very light winds with a big swell we have found the Code Zero to be a more stable sail, less likely to collapse. Third, if this is a false call and the wind dies again we can just roll up the Code Zero and leave it hoisted until the wind actually comes versus dropping the spinnaker in its sock down to the deck and then hoisting it again.

Our desired course would take us almost dead downwind, but with below 5 knots of true wind speed our best option is to bring the apparent wind to about 100 degrees, just behind the beam. In light winds, this offers both the most comfortable and fastest way to get dead downwind. The sails stay full with the apparent wind on the beam and as *Hawk* accelerates she brings the wind even more forward allowing us to bear off while still keeping the apparent wind on the beam.

The wind continues to build as forecast, and over the course of the next two hours we bear off further. We try to keep the apparent wind speed at a very comfortable 8 to 10 knots by bearing off a bit if it gets above this and coming closer to the wind if it falls below. Three hours after we raised sails, we have been able to bear off enough that we are right on course with 10 knots of apparent wind at a 140 degree wind angle.

## Building Wind

Two hours later, the wind starts gusting up to 15 knots and then dropping back to 10. A short time later, the wind has built to a fairly steady 13 knots (15 to 20 knots true depending on our sailing angle) with higher gusts. At that point, Beth calls me on deck to drop the Code Zero. She uses the autopilot to turn the boat until we're sailing at about 120 degrees to the wind. At that angle, some wind pressure stays on the sail so that it furls smoothly. If we leave the sail up too long and the wind gets too strong, we have to sail deeper and blanket the sail with the mainsail to furl the Code Zero, but then it tends to furl very unevenly.



We are now running with over 15 knots of true wind, the point at which *Hawk's* polars show that sailing dead downwind becomes more efficient than tacking downwind. At this point, we drop the mainsail and switch to a double headsail rig. Many cruisers sail "wing and wing" in these conditions, with a poled out jib to windward and the mainsail prevented to leeward. We will do that if we will be running for only a short time. However, if we will be running for any significant length of time, we prefer the double headsail rig because it is better balanced and easier for the autopilot/wind vane to steer, and there is no opportunity for the mainsail to chafe on the stays. We start with the working jib poled out to windward and a 'blast reacher' set to leeward. The blast reacher is a high cut sail, just a bit larger than the working jib, flown using the same vectran luff furling system as the Code Zero.

The poled out jib can be kept full up to about a 120 degrees apparent wind angle. Since we're running very deep and the swell still causes the boat to roll hard every few minutes, we clip a snatch block onto the end of the boom, prevent the boom right out, and then lead the blast reacher's sheet through this snatch block. This stabilizes the reacher and prevents the swell from rolling the wind out of it.



**Preventer stowed on boom**

(white line running from aft end of boom forward)



**Preventer in place**

### **Strong Wind**

The afternoon weather forecast calls for the winds to build up to 40 knots, so we eat an early dinner while we're still under this comfortable sail combination. By the time I start my evening watch, the true wind has built to 25 knots with gusts into the thirties. *Hawk* is flying along at 10 knots under perfect control with only 15 to 20 knots of apparent wind over the deck. These conditions offer some of our fastest and most comfortable miles aboard *Hawk*, and I get to enjoy them for most of my watch. But around midnight the wind builds beyond this, and I call Beth to change sails between our watches. We roll up the blast reacher, drop it and bag it. We leave up the poled jib to windward and hoist a staysail genoa (a deck sweeper staysail that completely fills our inner triangle) to leeward in place of the blast reacher. Some of our friends call this sail combination 'bat's wings.'

Beth takes the watch, and as the wind and waves continue to build, she slowly rolls up the jib to maintain easy steering for the autopilot/wind vane. The wind reaches 35 knots of true wind (25 to 30 knots over the deck) near dawn. At this wind speed, we have two options. We can continue with the two headsails and slowly roll up more and more of the jib or we can drop the staysail and run under the working jib alone. The first option is the most comfortable and easiest for the self steering to handle, and Beth does this until the end of her watch.



But we don't like leaving the pole set in real storm conditions, and it's clumsy handling it in really big waves. Given the forecast for even stronger winds, when I get up we decide to take the pole down and stow it away in its chocks on deck before the working conditions get too bad. We drop the staysail, remove it from its stay and hank on the storm staysail without raising it. Then we jibe the furlled jib and drop the pole so we are running under working jib alone. Our normal jib sheets lead inside the stays, providing a poor lead for reaching and running angles. So we clip a running sheet (a short length of sheet with a large snap shackle on one end) to the jib clew and lead it through snatch blocks clipped to the toerail. This really opens up the jib, making it both more stable and faster.

Coastal cruising down the Beagle Canal we ran with full jib in 50 knots of true wind, hand steering and surfing along at 10 to 12 knots. But we are far more conservative passagemaking with the self steering in control. Over the course of the morning, the wind continues to increase, and we slowly roll the jib up until at about 40 knots true it's furlled halfway and the sail area has been reduced by about two-thirds. At noon, we decide it's time to switch down to the storm jib. We roll away the jib completely and while the boat continues to sail at about six knot under bare poles, we hoist the storm staysail. Some cruisers continue rolling up the jib, but we don't like to abuse the jib material that way nor subject the furling gear to the forces in that much wind. The storm staysail sets much better than a partially furlled jib and nothing much can go wrong with it. Finally, the wind starts to die as the gray day fades to evening, and over the next twenty-four hours we reverse this whole sail change sequence.

If the wind had continued to build, we have an even smaller storm sail, which we call 'the hurricane jib', but we have never used it. The few times we've been in such strong winds, we've just dropped the storm staysail and run under bare poles. So long as the

waves are regular and not too steep, we've found the boat quite comfortable and under control under bare poles in these conditions. However, the steering needs some extra help with very steep or very irregular waves, and we then trail either warps (a minimum of 300 feet with 12 feet of chain at the end) or one of our two drogues. Both these options help keep the stern from being pushed around by the waves.

There are easier ways to run downwind. One alternative would be to run wing and wing, reefing the main as the wind built until dropping it completely and running under the jib alone, and then rolling the jib up until the boat was running under bare poles. However, for us, the extra sail handling work involved in the system described above has proven to be the most comfortable system with the least sail damage (both chafe and flogging) and the most easily controlled steering aboard *Hawk*.

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