

## Heel For Speed

One simple way to have better and more consistent straight-line speed in any wind condition is to focus on maintaining the right heel angle.

By Steve Hunt



In the last race of the 2008 Etchells Worlds, as we were sailing upwind, I was trying my best to keep our heel angle consistent in the puffy offshore winds. In addition to my main-trimming duties, I was also calling tactics, so, while looking around, I missed a few gear changes that would have kept us at our desired heel angle. Our speed started suffering, at which point my skipper, Bill Hardesty, said to me, “Steve, I need you to trim and call tactics really well right now!” With the regatta on the line, I concentrated on keeping the boat heeled right and going fast. It worked immediately, reminding me once again how important heel angle is to speed.

Observe the leader at your next regatta, and you’ll notice their boat always looks the same as they sail upwind, even as conditions change. In light air, they’re powered up with a consistent heel angle; in heavy air they look flatter than the competition, and their masthead is unwavering. They don’t tip over in puffs or stand upright in lulls—they’re rock steady and in total control of their boat.

When your heel angle is steady, flow stays attached over your boat’s blades and sails, allowing it to move through the water efficiently. A consistent angle is also a sign that your boat setup is correct and your sails are trimmed well, allowing you to sail the boat with ease. The ultimate beauty of focusing on your heel angle, though, is that it simplifies your thinking on the racecourse: it will force you to steer, trim, and hike well.

Every boat has its optimal heel angle, but as a rule of thumb, dinghies should be sailed dead flat, and keelboats anywhere from 10 to 30 degrees. Ask your class experts what the angles

should be in different conditions. Once you've got this information in hand, going fast is only a matter of keeping your boat on its lines as the wind changes.

The first step—yes, it's obvious, I know—is setting up your rig for the racing conditions. Get your hands on your sailmaker's tuning guide and don't be afraid to ask your class champions for advice on baseline setups for specific conditions. Once you know the proper boat setup, you'll be able to control your heel angle with weight placement, steering, and trimming.

### **Weight for heel control**

Weight placement is the most important factor when the crew is not fully hiking. Until this point, using the crew to compensate for puffs and lulls by moving inboard and outboard helps adjust heel angle and reduces the amount of steering and trimming that needs to take place. As a skipper, you should communicate target heel angle to your crew based on the amount of helm you're feeling. In other words, let them know if the boat feels balanced. Relating the optimal heel gives your crew a working target. Comparing the forestay angle to the horizon is a great way for the crew to judge heel angle and adjust their weight placement as necessary. It also helps to have someone calling the puffs and lulls so the crew can anticipate their next movements and work together to keep the boat level.

Once everyone is fully hiking, the hardest-hiking team is usually the fastest—there's no way around it.

### **Use your power tools**

Both wind and waves change the power of the boat and thus the heel angle, so, as the wind changes, steering and trimming are the primary tools you'll use to keep that consistent angle you're looking for. They're similar in that they control the amount of power in the boat: with steering, the helmsman can head up slightly to depower the boat, and bear away slightly to power it up for micro heel changes.

Trimming your sails to add power or reduce power is especially important in controlling heel angle. Different boats, however, react differently to certain controls. For example, a 470 sailor mostly uses mainsheet and vang to control heel angle. Etchells sailors rely mostly on traveler and backstay, while multihulls often play the cunningham to control heel angle. FJ sailors use mainsheet and jib sheet in combination.

Tuning guides and other sailors can help you determine the best approach for your boat if you're unsure which combination is the most effective for a given condition. Regardless of the specific combination, using these tools in conjunction with steering and weight is crucial. Recently, I was trimming main during an Etchells regatta in San Diego for Dave Ullman. The breeze was a puffy 16 knots with 8-foot swells, and the variable wind and waves changed the power in the boat often, affecting our heel angle every few seconds. We were sailing upwind on starboard tack, the boat felt good, and the heel angle was where we wanted it (slightly flatter than the competition).

### **Then a puff hit.**

Dave headed up slightly, and I dropped the traveler a few inches to prevent the boat from heeling more. As the puff disappeared, I pulled the traveler back up, and Dave bore away slightly. During this whole sequence our heel remained constant.

But let's say the puff was a long-term increase in pressure. At the onset of the increase, I would lower the traveler. Then, as the pressure builds, I would depower the boat with the backstay, then pull the traveler back up to our sweet spot. If I happen to see a lull coming, I start easing the backstay to power up the boat as the breeze dies. The key to all of this is a keen focus and awareness of the boat's power and heel angle, and adjusting steering and sheeting to keep it constant.

With the above example, you can see that it helps to be able to anticipate the puffs and lulls, and even anticipate their magnitude and duration. If they are brief, we can take short-term

actions to keep the boat stable, such as traveler changes. But if they are large enough, or last long enough, we can make bigger changes for the long haul, such as backstay.

All of our actions were a result of our singular focus of sailing at the proper heel angle. Keeping the heel angle correct, with telltales streaming a majority of the time, is very fast. Work on improving a consistent heel angle next time you race, and I guarantee you will get around the racecourse faster, and have more fun.