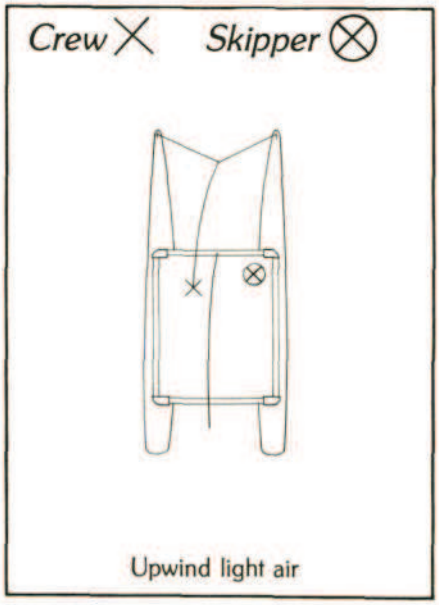
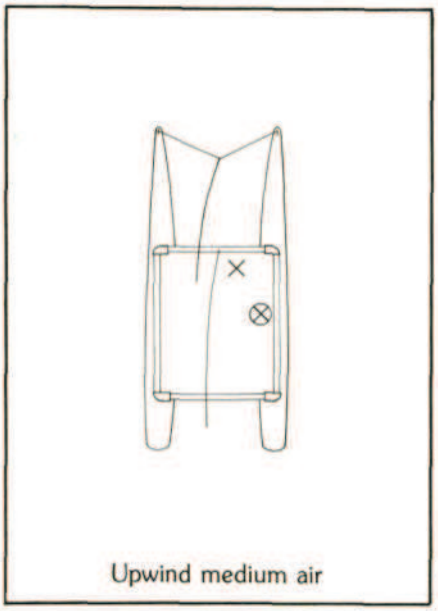
Crew Weight Distribution

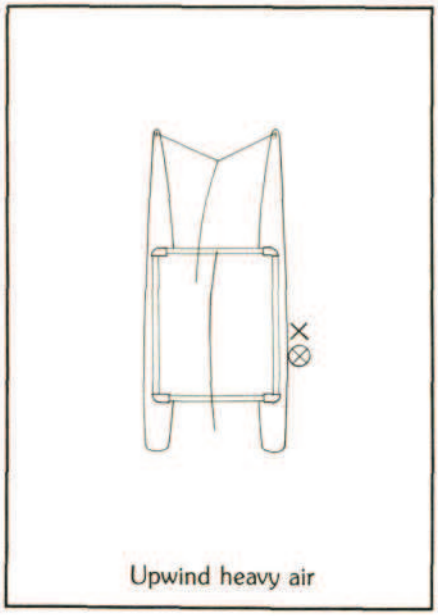
A basic course in proper weight placement for the beginning Hobie 16 sailor.

by Scott Ward



Upwind light air


Upwind medium air


Upwind heavy air

Crew weight distribution is very important for racing. The crew and skipper should be moving constantly to maintain boatspeed in all types of wind.

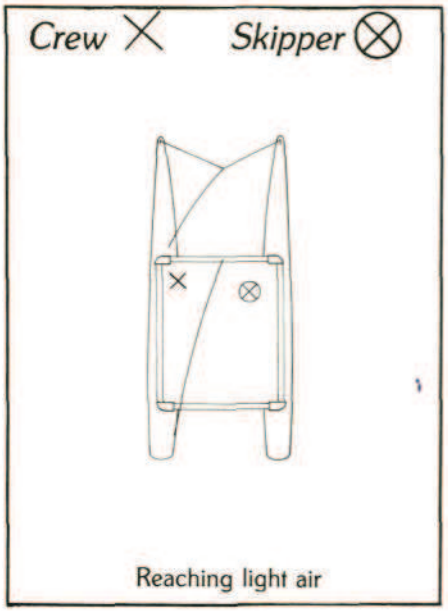
Upwind

Sailing upwind in light air can be exciting and challenging for the racing skipper; it entails a lot of thinking, strategy and patience. With good crew weight positioning, even in light air, you can generate boat speed and get a jump on the competition. Crew weight (meaning skipper and crew) should be forward and leeward for three reasons. First, the waterline is reduced, causing less friction by lifting the windward hull out of the water. Second, lateral resistance is increased. And last, the center of effort is moved forward giving more power. The skipper should be forward on the windward side and the crew forward on the leeward side of the mast, sitting low, so as not to disturb the airflow in the slot between the main and jib.

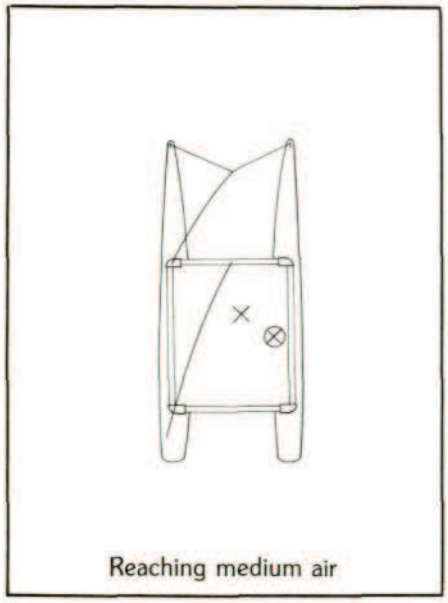
As the wind increases, if neither the skipper or crew move, they will feel the leeward hull start to bury, stalling the rudders and slowing the boat down. To counteract this, depending on how much the wind increases, the crew should begin to move straight back toward the skipper on the windward side. When the wind reaches 8 knots and up, the skipper and crew sit together about a foot back from the crossbar on the windward side. As the wind increases more the skipper and crew will be thinking about trapezing. The object of sailing now is to keep the boat flat, driving the boat forward at a high speed and angle if possible.

An old controversial question is, "Who should go out on the trap first, skipper or crew?" A basic answer is whatever works for you. The weight between most teams varies to the point that sometimes the skipper is lighter than the crew or the crew is lighter than the skipper. Depending on the wind velocity, the skipper will decide who is best suited (weight wise) for the conditions. In my situation, I am still growing at 128 lbs. My crew (my father) is 167 lbs. I am always the first one to go out. I like the feel of the boat better from the trap and usually my dad is just a little heavy for trapezing in the medium air conditions.

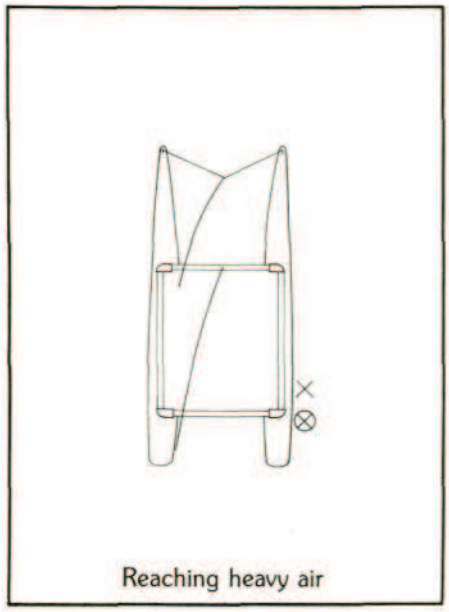
If the skipper is trapezing first, the crew should be concentrating on the sails. If the wind dies a little, the crew will move toward the center, always remembering to be back far enough so as to not bury the leeward bow and slow the boat down. If the wind increases, he or she should move to the windward side and hook up, ready to trapeze. At 13 to 18 knot winds, when the skipper decides the crew should come out, they will both be back far enough to keep the bow out of the water and have the



Reaching light air



Reaching medium air



Reaching heavy air

weight on the rudders. As the wind picks up to survival potential, move the weight far aft, with both very low on the trapeze adjustment, lying flat out.

Reaching

Starting in light air, reaching from B mark to C mark in a race, with 0-6 knots of wind, it is again essential to have the crew weight forward with the skipper just to windward of the mast, and the crew leeward of the mast. This keeps the center of effort forward and decreases the amount of waterline. The crew and skipper should both watch the leeward bow closely for burying. It is especially critical to keep the bow way out of the water to eliminate any chance of pitchpoling as the wind picks up.

As the wind builds to 7-12 knots, the boat begins to handle very well and lightly, tending to pitch forward. To counteract this the skipper should move to windward and back, the crew right with him to windward, two feet back from the front crossbar. Watching the hulls constantly is the crew's job now, he or she can correct the bow problem by moving weight back and forward with the skipper on the windward side, as well as working the jib.

As the wind increases to 13 plus, the skipper will think seriously about trapezing. Until the velocity increases enough to double trap, the crew's best position is back on the rear crossbar casting. This may get a little awkward with the trapezing skipper's foot on the hull between the casting and rudder and his upper torso flat and both legs extended. If the wind has picked up and it is time for the crew to come out on the trap, judge this one carefully. Trapezing on a fast reach can be difficult. If he or she does trapeze, have the crew as close to the skipper, as far back as possible. Several good skippers I know don't have their crews trapeze at all when it really starts blowing. At that point *steerage* and controllability are the issues.

Downwind

Starting with light air, sailing from the windward mark (A) to the leeward mark (C) with a 0-6 knot wind, again the best position is forward. Again, the skipper should be forward to windward of the mast, and the crew sitting to leeward of the mast, concentrating on the jib and rotating the mast. As the wind picks up, to 7-13 knots, the skipper can stay where he is, but the crew will want to move to windward of the mast. By this time both the skipper and crew should be watching the leeward hull for burying.

As the wind increases to 14 knots, both the skipper and crew are on the windward side of the boat toward the back, and keeping an eye on the leeward bow. In stormy conditions the skipper may want the crew to move to the center of the tramp to keep the bow from going under. Both should pay attention to the bows and correct trim to keep the boat moving under control and fast!!

Gusty Conditions

Now we come to a very important subject, sailing in gusts, or puffy winds. Sailing in heavy air with gusts takes good skipper/crew coordination and relies heavily upon a knowledge of what is happening in the area around them. Once they see a gust, they should be able to react instantly taking measures to keep the boat under control with good speed.

When sailing upwind, look for puffs. When spotted, if the crew has come in off the trapeze in a lull they should gauge the velocity of the puff and either come back out or stay in. When both are out on the trapeze and they spot a lull, the crew should come in imme-

diately. Depending upon the conditions, the crew may want to just squat, come in all the way or even move to the center of the boat to prevent the skipper from being dumped in the water. This can be applied to reaches also. *Watch for lulls!*

Downwind sailing in puffs is especially exciting because the skipper and crew will both be moving to the front or back depending on the puffs. As the puff hits, the skipper and crew should be at the back of the boat on the windward side. As it passes and the lull sets in, they move to the front of the boat. This helps retain the momentum and speed caused by the puff. Weight movement is always in conjunction with the skipper and crew trimming the sails in accordance to the puffs.

Mark Roundings

Other important times that weight distribution is critical is tacking, jibing and rounding marks. When rounding the weather mark (A) in light wind, it is important for both the skipper and crew to remain forward on the boat for good speed. In medium air, have the crew forward working on the jib, while the skipper stays back with his weight on the rudder to insure good handling ability. After the rounding is complete, the skipper will move forward, while watching the hulls for burying and the other boats to insure a good place to sail his boat into, with control, speed and safety.

The crew generally comes out on the trap first, in heavy air, and sits on the rear crossbar. As the boat completes its rounding, he or she jumps forward and windward. The skipper then comes in and turns the boat properly, sitting about the middle of the boat at the side crossbar. Rounding the leeward mark in light air entails the skipper and crew be forward. In heavy air, both will be out on the trapeze as soon as the boat's rounded the mark and on the new course.

Tacking

Tacking in light air is not a critical job to control. Both the crew and the skipper should remain forward and move as little and slowly as possible to keep up boatspeed and make a smooth tack. When tacking, the crew can move from leeward side to leeward side, and the skipper from windward side to windward side. The crew watches the jib slot closely to insure a clean air flow over the main, preventing choking of the sails and stopping the boat.

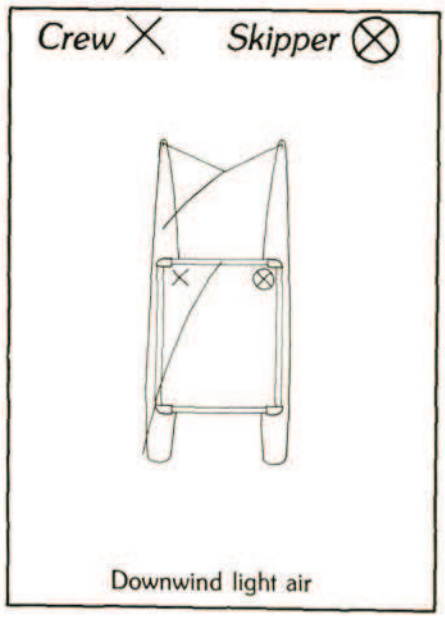
In heavy air, it is very critical for the crew and skipper to be quick about the boat handling. When they come off the trapeze, as the boat is turning, the crew should immediately jump to the new windward side and crack the jib. Otherwise, the jib can tip the boat over backwards if unattended. The skipper should quickly get to the windward side and out on the trapeze, as soon as he has good control of his boat.

Jibing

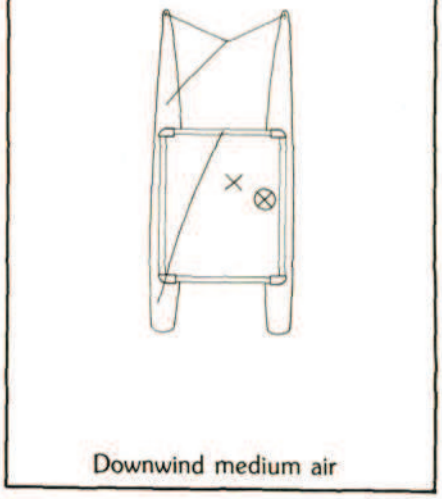
Jibing in light air entails the same basic strategy as tacking; keep forward, and move as little as possible. Heavy air is different, both the skipper and crew should remain at the back of the boat. The crew needs to be in the middle to work the jib across, while the skipper steers the boat in and out of the jibe. Once the jibe is complete, both can return to the windward side and back.

If you watch the bows and how the boat feels (is it sluggish?), proper crew weight distribution becomes second nature. These basic positions will get you started towards having the crew weight work for you.

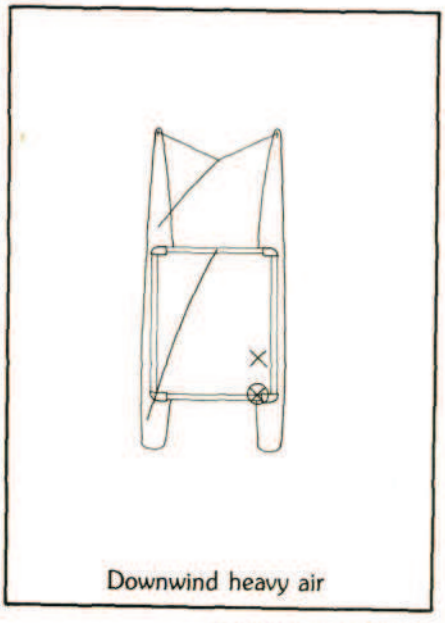
Scott Ward is an up and coming A Fleet skipper in Southern California.



Downwind light air



Downwind medium air



Downwind heavy air