The crews of Hawk *and* Wind Horse *(top photo) deploy a Series drogue for testing in calm waters. The Series consists of many small cones made from parachute material tied into a long warp (center). Tightly bundled, the Series can be easily stowed (bottom).*

Lessons from the Field

Bluewater cruisers offer their storm tactics and gear preferences.

There are so many varying factors to consider when preparing for heavy-weather sailing, it's impossible to say that one method or one piece of gear tops the others. So we sought input from a handful of veteran sailors to find out which tactics and gear work for them.

GALERIDER ASTERN

Shingebiss II, Larry and Maxine Bailey. Larry and Maxine have just completed a 14-year, 93,000-nautical-mile circumnavigation by way of the Aleutian Islands, Cape Horn, the Baltic Sea, the Cape of Good Hope, Tasmania, and New Zealand. They used their Galerider once between South Georgia Island and the Cape Verdes and once between Tasmania and New Zealand.

"The effect of using it was dramatic, and we truly enjoyed the… safe, stabilized ride that the Monitor (steering) vane could handle," Larry reported. "Wind conditions were 35 to 40 knots, with higher gusts, with 8- to 10-meter waves."

They carried a Galerider sized for a 30,000-pounds-displacement boat aboard their 43-foot cutter (cruising displacement about 25,000 pounds).

"I towed it with 200 feet of ¾-inch nylon line, rated at 12,000 pounds, enough to put the Galerider about two wave crests behind. In no case did it surface or skip. We use a bridle. In my opinion, any other way would invite disaster," he added.

In both cases, retrieving the Galerider took the *Shingebiss* crew an hour and a half of hard winching.

The first time they used it, the waves were incredibly steep, according to Larry. *Shingebiss II* was hitting 12.5 knots on her 36-foot waterline. "The resulting bow wave as we were sliding down those things was up around our ears while sitting in the cockpit. The Galerider reduced our speed to a comfortable 5.5 to 6 knots." In the Tasman Sea, they deployed it when broad reaching. This is when the wire rim snapped, just as happened with *Hawk*'s first Galerider. "The wire ring, not the swage, snapped clean, like a piece of spaghetti. It did seem to work just fine after that, however, as I had no idea it was broken until I retrieved it," Larry said.

GALERIDER OFF BOW

Morgan's Cloud, John Harries and Phyllis Nickel. John and Phyllis have cruised the North Atlantic for more than a decade with stops in Labrador, Greenland, Newfoundland, and Norway. They used their Galerider off the bow when they were hove-to to stop the boat from forereaching and to keep the boat's head to the wind, preventing her from being knocked down by the waves.

On his website, John writes, "While still heaved-to, I shackled 250 feet of 7/8-inch nylon line to our Galerider drogue. … After passing the bitter end through our well-rounded bow fairlead, I cleated it off and then slid the Galerider down the windward side of the hull some 10 feet aft of the bow and into the water (I did not want the drogue blowing off to leeward where the boat could reach over it)." The drogue ended up to windward and slightly aft of the boat, at an angle of about 130 degrees to the bow. "As soon as all the line paid out, the result was immediate and miraculous. The boat slowed to a virtual standstill from the 1-2 knots she had been making, and the bow no longer fell off to leeward when a gust hit after a lull. We lay heaved-to like this for 18 hours very comfortably with no further wave strikes." For a full account of this technique and a diagram, visit *www.morganscloud.com*. Note that deploying the Galerider off the bow is not recommended by the manufacturer, Hathaway, Reiser, and Raymond.

TRAINING & FOREREACHING

Mahina Tiare III, John Neal and Amanda Swan-Neal. John and Amanda do sail training aboard their Hallberg-Rassy 46, *Mahina Tiare III*. They have logged more than 250,000 offshore miles and have seen their share of storm-force winds. As

Photos (center and bottom) courtesy of Ace Sailmakers

part of the heavy-weather training they put their students through, they deploy and retrieve the Galerider. Yet they have never used it in earnest.

"We've deployed our Galerider at least 100 times, but never needed to at sea—always finding other tactics that worked well," John said. His preferred tactic is forereaching, which he has used successfully in quite extreme conditions including in a hurricane aboard a 31-foot Hallberg-Rassy.

HAWK'S OTHER OPTIONS

Warp only: On *Hawk*, we have tried using a 300-foot line trailed off the stern without the Galerider. This helps to keep her tracking downwind, but it does not slow her down by more than a knot or so, and it will not keep her from surfing.

The Galerider, however, lets us keep moving in conditions where we would have been safe hand-steering but where our autopilot will not maintain complete directional control. That means gale- to storm-force winds with regular seas, even if large, that are not breaking. For a boat with a modern underbody like *Hawk* that surfs relatively easily, those conditions require more drag than can be provided by a warp alone, but less drag than the Series drogue would create.

Double drogue: We pulled the Galerider from a wave face on one occasion. This is likely a function of *Hawk's* ability to surf easily, which creates much higher peak loads than a steady 5 or 6 knots of boat speed. If a drogue had two elements instead of one, the odds would be that one element would always be engaged with the water, stabilizing the boat so that she could not get surfing.

We carry a second speed-limiting drogue, the Delta drogue (made by Para-Tech), which we have never used. Our 96-inch Delta consists of a three-cornered "diaper" of heavy plastic with specially designed vents that allow water to flow through it when it is being towed. We have modified it by running a Spectra strop through it.

We can now deploy it on a 300-foot line attached to the forward end of the Spectra strop with another 300-foot line and the Galerider off the back end of the strop. We have yet to try this in the field, but we believe it would be a good alternative for our boat in somewhat stronger winds and larger waves than those where we have used the Galerider alone.

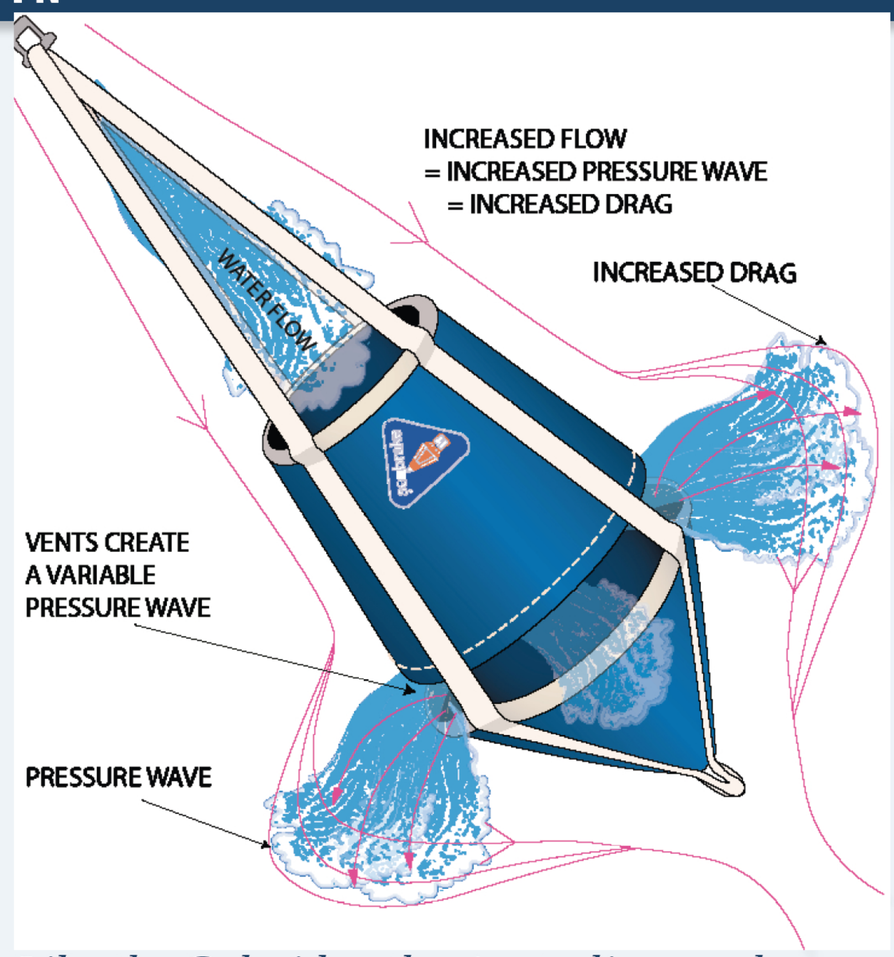
GALERIDER vs. SERIES

Wind Horse, Steve and Linda Dashew. Circumnavigators, the Dashews have sailed more than 200,000 miles and are respected yacht designers and builders. We joined them on their 82-foot powerboat, *Wind Horse*, to test a variety of drogues. When deploying the drogues, the boat was motoring at 7 knots in calm conditions with a moderate swell. We found that the Galerider sized for *Wind Horse* slowed the boat by 30 percent, comparable to our experiences aboard *Hawk* in storm conditions. By comparison, the Jordan Series drogue designed and built for *Wind Horse* slowed the boat by 60 percent.

SERIES DROGUE

Hawk's Series drogue consists of 138 small cones of sail material strung together on a long line that is streamed from the stern and designed to create enough drag to slow the boat to 1 to 2 knots. Spreading the resistance over many small cones prevents the drogue from being pulled out of wave faces and creates a great deal of holding power.

We have yet to encounter conditions where we felt we needed the Series drogue, but we know several people who have used them with great success in Southern Ocean storms, in all cases after the tactics they normally relied on led to a knockdown.

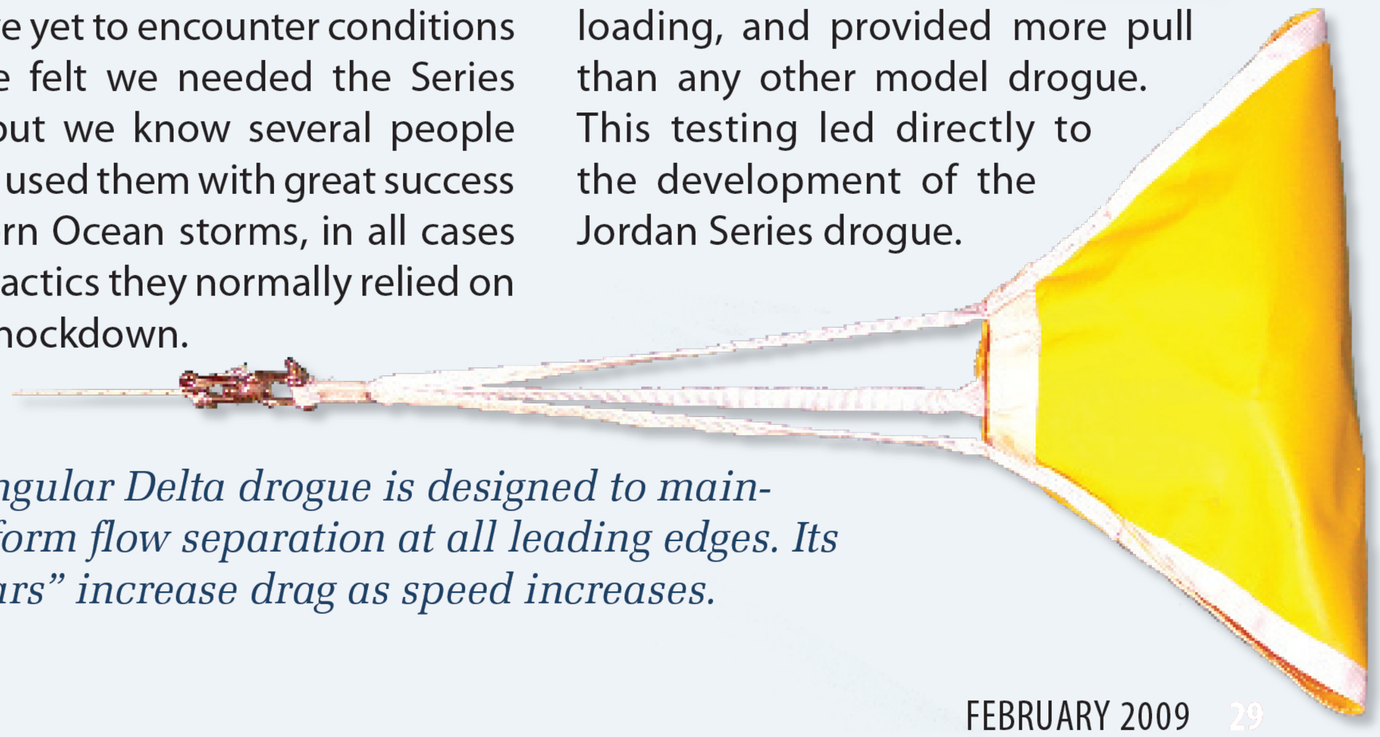


Like the Galerider, the Australian-made Seabrake drogue uses water flow and turbulence to put on the brakes. The greater the flow through the unit, the greater the drag effect. As the water is disbursed evenly through the exhaust ports at the Seabrake's base, it is designed to track with no rotation.

TESTS

Two organizations have tested how monohulls perform in varying conditions and evaluated different drogues: the Wolfson Unit at Southampton University and the U.S. Coast Guard. The Wolfson Unit (*www.wumtia.soton.ac.uk*) has been at the center of research on stability in sailboats since the Fastnet in 1979.

The USCG's 1987 testing is detailed in the report "Investigation of the Use of Drogues to Improve the Safety of Sailing Yachts," which is available online at *www.seriesdrogue.com/coastguardreport/*. The tests concluded that the Series drogue was the most effective in breaking wave conditions as it was easiest to deploy, prevented shock loading, and provided more pull than any other model drogue. This testing led directly to the development of the Jordan Series drogue.



The triangular Delta drogue is designed to maintain uniform flow separation at all leading edges. Its three "ears" increase drag as speed increases.