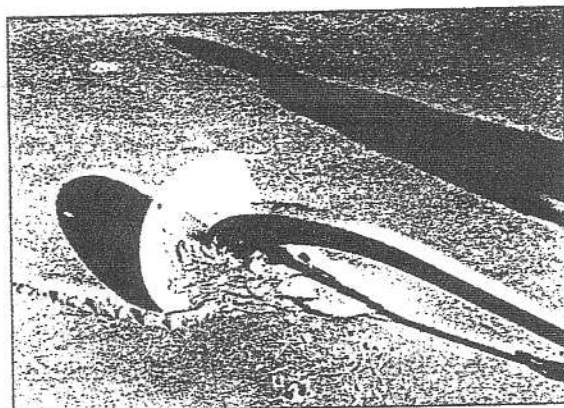


# Practical Sailor<sup>TM</sup>

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## 5 15 Anchors Tested for Holding Power in Sand

*After updating our set test data, we pulled 15 anchors through two types of sand. Highest loads were recorded by the new aluminum Spade and the strange looking Bulwagga.*



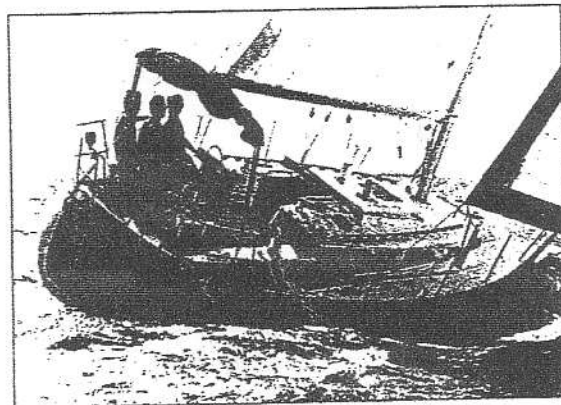
Anchor tests...page 5

## 8 Offshore Log

*Before leaving Venezuela, Calypso gets mast steps and thorough maintenance of the salt-filled winches and weather-worn Lewmar rope clutches.*

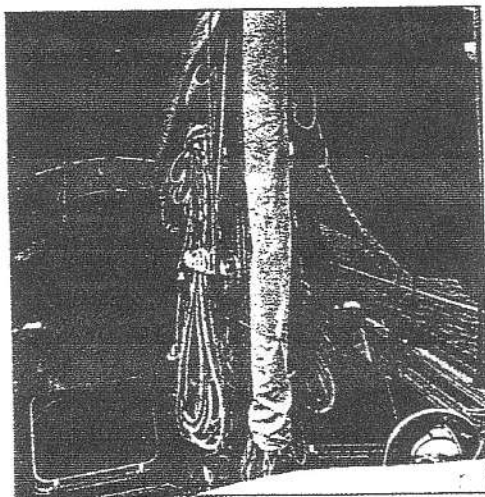
## 16 Used Boat Survey— The Sabre 362

*This Jim Taylor design has won its class in the Annapolis-Bermuda race and is one of the few production boats left with an all-wood interior.*



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- 23 Gear Graveyard. ABI Mast Step. Nicro Shackle.
- 24 PS Advisor. Cutting Rope. SA/D Ratio.

# In Sand, The Spade and Bulwagga Rank at the Top of 15 Anchors

*Anchors that failed our 400-lb. minimum were the Bruce, Claw, Danforth, Vetus and NE lightweights, the Box and Hans-C Anchor.*

**R**ound 2 of *Practical Sailor's* continuing series of anchor tests produced some surprising results. The holding-in-sand tests revealed that:

1. Two relatively unknown anchors—one called a Spade, the other a Bulwagga—put all others to shame.

2. So-called lightweight, big-fluke anchors may not have the tremendous holding power generally attributed to them.

3. Dirty sand containing some rubble provides better holding than clean, loose sand.

4. Although some observers claim it's old-fashioned and over-priced, the CQR still is an outstanding anchor.

5. As stated by Earl Hinz, the respected anchor authority, after he previewed data from *Practical Sailor's* latest tests, "...we don't know everything about anchors yet."

To re-cap, when *PS* decided more than a year ago to start testing anchors, it started with the simple view that a sailor's regard for his anchor rests on three premises—setting, holding and re-setting when veered.

Four other less important factors also can influence anchor selection. They are (1) the difficulty of breaking out and retrieving, (2) weight aboard, (3) quality of workmanship, and (4) ease of handling and stowage.

*Practical Sailor's* first anchor tests (February 1, 1998) were designed to examine setting characteristics in sand. Setting is vital. If an anchor does not set invariably, or at least reliably, it is more worry than anchor. The field tests established that the Bruce was best, followed in order by the Super Max, Claw, Fortress, West Per-

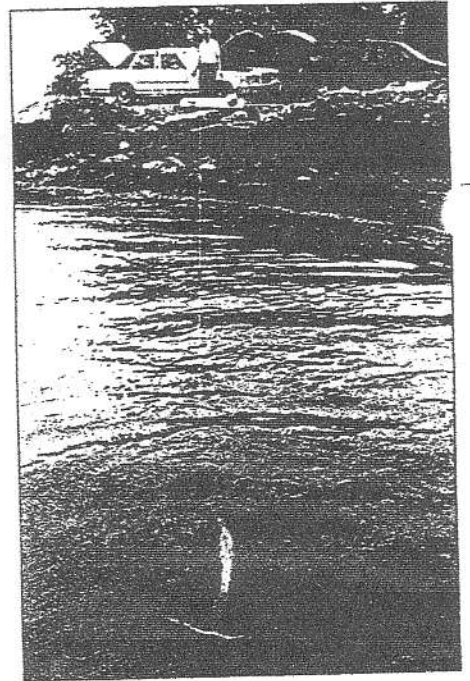
formance, Delta, Danforth and CQR. There were nine different makes of anchors in that first test.

The second in this continuing series of carefully designed and deliberately limited anchor tests has to do with holding power in sand. For the second round, 15 kinds of anchors were assembled. (The additional anchors required some revisiting of the first test to establish a complete list of comparative setting characteristics. For reference, an anchor had to hold at least 200 lbs. to qualify as "set.")

To attempt to provide something of immediate value to a sailor assembling or upgrading his anchor gear, the results of this hold-in-sand test could be considered with the updated set-in-sand tests to produce a "sand" ranking. If a boatowner expects absolutely NEVER to anchor in anything but sand in sheltered water in no more than 40 knots of wind, our first two anchor tests (setting in sand and holding power in sand) might be construed as recommendations.

Our long-term intent is to continue these tests, going next to other bottom conditions, perhaps eventually getting into the complex questions of how anchors perform when veered or when the boat induces shock loads.

Anchors have been tested *ad infinitum*, but the most recent ones are the so-called Seattle tests (conducted in Puget Sound in 1995) co-sponsored by the Safety at Sea Committee of the Sailing Foundation and West Marine, and the 1997 French tests conducted by the Ecole Nationale D'Ingenieurs de Monastir (ENIM). The Puget Sound tests involved only eight anchors—the Luke, Bruce, Davis, CQR, Delta,



*Above: The anchors were pulled with a Powerwinch secured to a seawall. A Dillon dynamometer recorded the loads. We feel that shallow water tests have a great advantage in allowing an observer to note burying characteristics and to identify problems like fouling.*

Max, West Performance and Fortress. The French engineering school's tests also involved only eight anchors—the Britany, FOB (a French fluke-type), Danforth, Fortress, CQR, Delta, Bugel (a fairly new German anchor) and a French Spade.

## Anchors Used

It is not absolutely essential in anchor tests to use anchors of equivalent sizes. A large anchor of a given design