



Chesapeake Bay Soft Mud Anchor Test

12 different anchors evaluated

If you have ever spent a sleepless night making sure your anchor is holding or faced the same dilemma during a storm, you understand the importance of the right ground tackle. Selecting an anchor can be tough due to the variety of anchor shapes, sizes and claims. Plus, individual anchor performance varies depending on bottom conditions. And you can't take an anchor for a test drive. Testing anchors has been done a variety of ways. There is even an on-line video of a truck dragging three anchors on ropes across a beach. Interesting viewing perhaps, but far from a real-life anchoring situation.

REAL-LIFE TEST

In an attempt to produce a controlled, highly scientific test, Fortress Marine Anchors sponsored the Chesapeake Bay Soft Mud Anchor Test last fall. They combined a team of experienced talent with sophisticated technology to test 12 different anchors in the soft mud of Chesapeake Bay over four days.

Chuck Hawley, an accomplished marine industry consultant and former vice president of Product Testing for West Marine, served as the primary independent reviewer. He worked alongside several marine journalists representing publications that reach more than one million readers.

The first-rate testing platform was the Rachel Carson, an 81-foot aluminum research vessel owned by the University of Maryland Center for Environmental Science. With twin diesels that produce 2,410hp, a bow thruster and a sophisticated Dynamic Positioning System (DPS), it can maintain its

position within fractions of a meter.

The test procedure was to shackle the anchors to 20 feet of 3/8-inch chain that was connected to a 5/16-inch wire rope that ran through a large winch on the aft deck. The wire was also fed through a custom-built tensionometer that measured resistance in foot pounds of torque.

The anchors were lowered into the water until about an 8:1 scope was paid out. Then the boat would hold its position while the winch tried to reel in the anchor at 10 feet per minute for 10 minutes.

The resulting resistance measured by the tensionometer was recorded on computer graphs that also showed the elapsed time of the pull. After each test the boat would re-position on a 'spoke' off the previous location so the next test would be on an undisturbed bottom.

Each anchor was given five different tests. At times, there were some confusing results that caused the team to formulate some theories about what was happening on the bottom. But essentially the results showed how quickly the anchors set, the degree of firmness of setting, when and if they broke free and whether they reset.

At one point there was concern about whether the anchors were being set properly so they changed the protocol to follow the recommendations Fortress has for setting their anchors. The scope was paid out to 2:1 and then the winch pulled back until between 200 and 300 pounds of torque was achieved, which meant the anchor was set. Then the scope was increased to 8:1.



ANCHOR TYPES

The anchors fell into different groups – plow, claw and fluke. Included was the Danforth HT, Fortress FX-37 set at 45 degrees, Fortress FX-37 set at 32 degrees, Lewmar Claw, Lewmar CQR, Lewmar Delta, Manson Boss, Manson Supreme, Mantus, Rocna, Spade and Ultra.

When asked which anchor was best, one writer commented, “I’m not really sure we answered that question during these four days.”

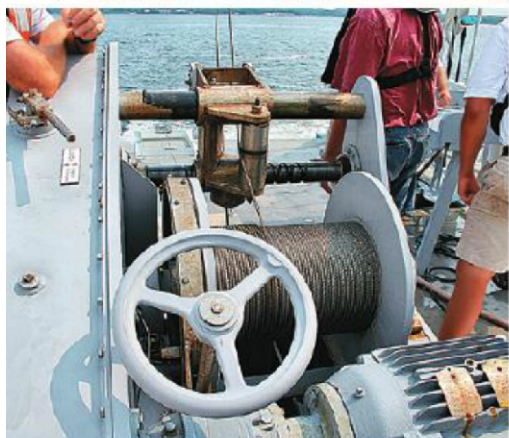
THE RESULTS

But some clear patterns did emerge. Overall, the fluke anchors, Fortress and Danforth, performed better than the others. The two Fortress anchors maintained a significantly higher load than any of the others. The most impressive and interesting test was after the protocol was changed to the setting at a 2:1 scope. When the FX-37 at 45 degrees was tested this way, its performance established the measured torque record that was far beyond other results during the entire testing.

But while retrieving it, the tension kept increasing until the wire line snapped. That led one writer to note it was “a testament that when set properly for the conditions, the Fortress digs in and stays.”

A big difference between all the anchors was weight. The aluminum Fortress was the lightest in the test at 21 pounds while the Danforth weighed 35 pound. The rest of the anchors averaged about 45 pounds. One writer concluded that “design is more important than weight.”

Because anchors tested differently in different locations, part of Hawley’s summation was that “where you anchor is, is really important as well as what kind of anchor you use.”



You can view video of the tests on YouTube by searching for Chesapeake Bay Soft Mud Anchor Testing. ■