

# Testing Fins

## *turbo, grooves, jets, or hydros, picking the best*

Is a fin just a fin? Maybe so, but that doesn't explain why my twenty-year-old pair of hefty black Scubapro fins are buried at the bottom of my closet while my Plana Avantis always find their way into my dive bag when I head out on a trip. However, although I prefer my Avantis, I've never been convinced that all the "hydro" this and "jet" that add much to a fin's performance. Some of the more basic design differences—size, stiffness—may make more of a difference, but how much? The British dive pub, *Diver*, decided to find out by doing a study testing various brands of fins to see which performed best in the water.

Except for a few unusual designs like the Force fin, the main difference in fin design is still slipper-style and open-heel. While slipper fins have less weight and drag and hence often gave better results, as a practical matter strap fins are so much more comfortable that they're usually chosen hands-down. (Of the fins evaluated below, the Mares Plana Avanti Quattro Power was the only slipper-style model; all the rest are strap-style models.) Other basic design differences included a larger blade size with some models (especially when selecting a larger foot pocket to accommodate drysuit boots) and fin flexibility, with flexible fins scooping water away from the diver and rigid fins creating more of a flicking action.

Despite testers' efforts to create as much consistency as possible in the testing parameters (see sidebar), at times the same fins produced a wide range of results while others gave identical results

each time they were tested. The difference probably stems from small variations in the diver's finning technique, with subtle changes in technique creating large disparities with some brands and minimal differences with others.

The results of the study itself were often surprising. Here's an evaluation of some of the major brands:

**Apollo Bio-fin Pro; Test Thrust: 39 lb 2.5 oz - 37 lb 6 oz; Weight: 13 lb .74 oz**

These odd-looking fins utilizing Apollo's "Nature's Wing" design will have you digging deep into your pocket, and at first glance you may wonder what for. Out of the water these fins seemed floppy, heavy, and not much to look at, but their in-water performance was exceptional, placing them among the top finishers.

**Beuchat Activa; Test Thrust: 28 lb - 35 lb .9 oz; Weight: 11 lb 8.4 oz**

The Activa's top performance matched its looks and comfort, but their output varied widely, an effect chalked up to the unforgiving, near-rigid fin blade.

**Beuchat Contact Pro; Test Thrust: 32 lb 15.5 oz - 33 lb 15.2 oz; Weight: 8 lb 12.8 oz**

The Contact Pros were good in-water performers, though the on-off process was hampered by the fins' lack of quick-release buckles.

**Cressi-sub Frog; Test Thrust: 34 lb 2.8 oz - 36 lb 6 oz; Weight: 11 lb 5.3 oz**

The Frog was the first fin designed to put the load on top of the foot, an idea that's since been picked up by other manufacturers. The plastics used in the Frog make them the most flexible of all Cressi's designs, and these high-quality, well-finished fins were also the best Cressi performers.

**Cressi-sub Master Frog; Test Thrust: 33 lb 11 oz - 34 lb 2.8 oz; Weight: 9 lb 8 oz**

A cut-down, scuba version of Cressi's extra-long free-diving fins, the smooth, broad blade angled away from the foot pocket reduces side-slip, but strong thigh power was required to get the most out of these fins.

**Cressi-sub Space Frog; Test Thrust: 30 lb 13.8 oz - 32 lb 3 oz; Weight: 10 lb 8.6 oz**

The Space Frog's foot pocket is integrated into the blade, and the polymer mixture is designed to make them somewhat more forgiving than the Master Frog.

**HOW THE TEST WAS CONDUCTED:** The test positioned a neutrally buoyant test diver just below the surface of the water. Readings in which the diver's fin broke the surface or the diver sank below the test range were disqualified. Given the human variable, there was no way the study could be perfectly uniform and consistent, but the diver was first asked to kick gently using about 4-5 kg. of thrust and then to fin as hard as he could for several seconds to get a maximum thrust. Thrust was measured with a spring balance connected to the diver by a line and pulley, and the test diver was given a break between each pair of fins he tested. Two or three different pairs of fins of each brand were tested to try to take manufacturing variances into account, and models were retested at different times throughout the day to factor in fatigue.

They're also smaller, and their blades have little flex across the width. This was one of the fin designs where finning technique seemed important to maximize the fins' effectiveness.

**Dacor Pursuit; Test Thrust: 32 lb 3 oz - 34 lb 2.7 oz; Weight: 9 lb 4.5 oz**

The Pursuit's blade is very similar to Mares' Rapida. Though they were the plain-Janes of the collection, they were adequate, but not stellar, performers.

**Force Pro Force; Test Thrust: 33 lb 1.1 oz - 36 lb 2.5 oz; Weight: 8 lb 8.9 oz**

It's hard to categorize a fin that's so "different." Divers report that their solid cast, durable polyurethane often neither looks good nor feels right. Though their high efficiency has moved them into the mainstream, it often takes divers some time and effort to adapt to them. But the pricey Pro Force was perfect for a rapid flutter kick and was one of the front runners in the test, though it may be less of a standout at a more leisurely pace.

**Genesis Aquaflex; Test Thrust: 32 lb 3 oz - 34 lb 2.8 oz; Weight: 8 lb 13.1 oz**

Though it lacks Mares' ABS buckle system, the Aquaflex is similar to the Mares Plana Avanti in price and design. However, the Aquaflexes gave a better performance than the Plana Avantis, a fact the test diver attributed to their smaller foot pocket. The test diver also noted that the fit on the regular size Aquaflexes was one he'd soon be fed up with, but he found the XL size comfortable.

**IST Pro-Power; Test Thrust: 28 lb - 29 lb 15.7 oz; Weight: 9 lb 15.7 oz**

Though the Italians are masters at the art of injection molding with combined plastics,

the Taiwanese are apparently still learning the ropes. These fins looked cheaper than most others tested, had a weak-looking strap, and performed at the low end of the scale.

**Mares Plana Avanti; Test Thrust: 29 lb 15.7 oz; Weight: 10 lb 10.7 oz**

Mares' time-honored basic fin, the Plana Avanti, is a highly finished model featuring two rubber flutes that scoop water away from the diver and maintain the fins' flexibility across their width. Deep side rails keep the fins firm lengthwise, and the

Advanced Binding System (ABS) found in all Mares' strap-fin models provides a snug, quick-release fit and eliminates foot-pocket suction. Though the Avanti was a ground-breaking design when it was introduced and performed consistently in the test, other newer designs have pushed ahead and outperformed it by a generous margin.

**Mares Plana Avanti Quattro ABS; Test Thrust: 37 lb .6 oz; Weight: 10 lb 13.6 oz**

Mares' top fin, the pricey Quattro ABS was beautifully made

### ***Consumer Alert*** ***Aeris & Oceanic*** ***Computer Recall***

Aeris and Oceanic have announced the recall of several dive computer models because of problems with computer shut-down and loss of dive data. The recall affects the following Oceanic and Aeris models and serial numbers: Oceanic Datamax Pro Plus, serial nos. 000100 - 001289 purchased 7/99-8/99; Aeris Savant serial nos. 0001 and 1779; and Atmos Pro, Atmos Sport, 100S and 300G computers serial nos. 0001 - 5999.

Units with larger serial numbers are not affected and are not subject to the recall. Modified Aeris units that are not affected by the recall can be identified by a black dot located on the lower left edge of the instrument face decal; modified Oceanic units not affected by the recall can be identified by a manufacturing date decal located in the upper-left hand portion of the display.

Problems apparently occur between dives when computers with a defective or low-power battery have reverted to the "fly" mode and the user then reactivates them by pressing the activation button. They can also occur at random if the user happens to reactivate the computer when it has spontaneously entered a periodic self-diagnostic voltage check. In either event, the reactivation will cause a voltage dip that shuts the unit down and erases any calculations. If a diver who has made recent dives with the computer then restarts it and uses it on subsequent dives, the diver's subsequent dives would be calculated by the computer as if he had not been diving and therefore had no accumulated nitrogen, which would leave the diver at risk for decompression illness.

Divers with affected units should return them to the dealer from whom they were purchased or to Aeris or Oceanic directly. If divers opt to return units directly to the manufacturer, they must first call the Aeris/Oceanic numbers shown below to receive a Return Authorization number. Product return forms that will assist divers in completing their returns can be downloaded from manufacturers' websites. For more information, contact:

Aeris Corporate Headquarters, 14212 Doolittle Drive, San Leandro, CA 94577  
Phone: 800-647-0605 (Ext. 10) or 510-346-0010 or Fax: 510-346-0015, E-mail: info@diveaeris.com, Website: www.diveaeris.com

Oceanic USA, 2002 Davis Street, San Leandro, CA 94577, Phone: 510-562-0500, Fax: 510-569-5404, E-mail: service@oceanicusa.com, Website: www.oceanicusa.com

and exceptionally comfortable, and it also was consistently the best overall performer in the test, a rank the fin has held through several years' studies. The Quattro ABS incorporates Mares' ABS binding system and has four rubber flutes that scoop water instead of the two flutes found in the Plana Avanti.

**Mares Plana Avanti Quattro**  
**Power; Test Thrust: 35 lb 1.1 oz - 36 lb 9.5 oz; Weight: 10 lb 15 oz**

These slipper fins with extra-long scooping blades were the largest fins tested. While they performed well, divers needed "short-limb leverage power" to get the most out of them.

**Mares Plana Avanti X3; Test Thrust: 31 lb 8.4 oz - 32 lb 3 oz; Weight: 10 lb 12.1 oz**

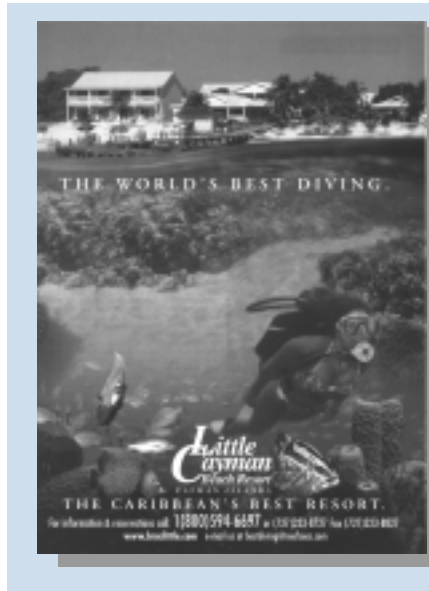
The new Plana Avanti X3 is a new design with three scooping rubber flutes and Mares' ABS binding system. With all the Mares fins, flexibility across the width seemed proportionate to the number of flutes incorporated in the design, and the fins' performance also followed this trend.

**Mares Rapida; Test Thrust: 29 lb 8.7 oz; Weight: 6 lb 11.9 oz**

While Mares' line emphasizes "scooping" fins, this entry-level model "flicks." It also includes Mares' ABS binding system. While the Rapida was easy to use, its flat blades didn't rank high on the thrust scale.

**Scubapro Jetfin; Test Thrust: 31 lb 15.5 oz - 34 lb 2.8 oz; Weight: 13 lb 5.1 oz**

The Jetfin's almost a retro model, harkening back to basic black rubber and also the heaviest fin by far. Though the revamped Jetfin was on the high end price-wise, they were otherwise indistinguishable from older Jetfin models. In spite of their weight



## Ad of the Month — Virtual Shore Dive

The "World's Best Diving" only exists in Photoshop's computer creations. Any diver who has been to Little Cayman knows that the scene depicted in this ad for Little Cayman Beach Resort is purely the product of computer enhancement, since there are no shore dives in front of any of Little Cayman's resorts. I guess it's some consolation that they plugged in Caribbean fish instead of the Pacific species we've seen in some ads.

and short foot-pockets, the Jetfins performed as well as many other brands.

**TUSA Imprex; Test Thrust: 33 lb 1.1 oz; Weight: 9 lb 8 oz**

The well-finished Imprex's blades are flexible at the center to provide plenty of scoop. The blade also dips away from the foot so that the "load" stays firmly under the sole, which gave them a consistent, middle-of-the-road thrust.

**TUSA Liberator X-Ten; Test Thrust: 33 lb 1.1 oz; Weight: 7 lb 12.9 oz**

A basic design popular on this side of the pond, the Liberator X-Ten was lightweight and consistently scored well in the test.

**TUSA Platina; Test Thrust: 26 lb .2 oz - 29 lb 15 oz; Weight: 9 lb 15.4 oz**

TUSA's top-of-the-line Platina's novel "Dual Acceleration System" combines a separate hard-plastic chassis covered by a softer fin blade. The Platina was one of the more expensive fins tested, yet both of TUSA's less-expensive models outperformed it.

**U.S. Divers Pulse; Test Thrust: 31 lb 15.5 oz; Weight: 10 lb 3 oz**

Though not a high performer, the Pulse is well-made and gave an extremely consistent performance.

## Our Summary

Though the Mares Plana Avanti Quattro ABS was the hands-down best performer in the test, Apollo Bio-fins, Pro Forces, Mares Plana Avanti Quattro Powers, and Cressi-sub Frogs were all strong contenders. All the fins tested gave more thrust than expected, boosting the tester's kick effectiveness from less than 3 kg sans fins to thrusts approaching 17 kg with them. Fin thrust is certainly a good measure of fin effectiveness in that it reduces finning effort so divers can cover longer distances using less energy (and hence, less air). However, getting there first with the most is hardly a coup if it comes at the price of fit and comfort. Hopefully once you find a brand that feels good on your feet, this comparison will give you a better idea what to expect when you finally get them wet.