

Fin Testing Report

By Stephen Fordyce, 22/4/18

Disclaimer:

The testing and this report were undertaken on my time and at my cost, with fins gratefully borrowed from others. There was no commercial involvement from any fin manufacturer or supplier. This report is mostly my personal opinion, so please don't be offended if it's different from yours.

Introduction:

There are a lot of fins available for technical divers to use - and it seems that variety has only increased in recent years. As well as power and comfort, the position of fins at the very end of the diver envelope plays a big role for trim (angle of the diver in the water), and the selection of appropriate fins can make a big difference in optimising setup for different types of diving.

The Focus:

For this testing, I concentrated on fins which are less negatively buoyant - with utility primarily for those wearing sidemount, rebreather, wetsuit, or other configurations that tend to produce sinking feet. So there are fins I didn't bother testing because I knew they were negatively buoyant, as well as others that weren't readily available (the "too hard basket").

Obviously(?) I didn't bother much with testing flutter kick, concentrating on frog kick and its derivatives. Helicopter turns and backwards finning were tried as well.

Fins List, and Buoyancy Testing Results:

Fins were first weighed dry using a luggage scale, then fully submerged in a (clean) wheelie-bin full of fresh water and their buoyancy force measured. Measurements were repeated to check their accuracy, at least as far as the cheap scale allowed. Where fins were in fact positively buoyant, weights were added to help them sink, and their buoyancy subtracted from the result. Saltwater buoyancy was then calculated using the assumption that saltwater is 2.5% denser than fresh water (weighing in actual salt water is surprisingly difficult, as even the slightest water ripple impacts a repeatable reading).



Figure 1: Buoyancy testing



It's very interesting to note how subtle is the buoyancy difference from "heavy" jet fins to some of the other "light" fins. Also interesting to note that the use of metal vs plastic buckles on the DiveRite XT fins makes a significant difference also.

Fin	Size	Notes	Dry weight of pair (g)	Freshwater buoyancy (g)	Calc'd saltwater buoyancy (g)
Tub-lid Elk fins	N/A (white)	Just for kicks	340	20	29
Tusa Liberator recreational	? (blue)	With inner tube on straps (rubber straps)	1500	85	125
No-name old rubber fins	XL	With SF spring straps, ~5 years old	2520	-475	-424
Scubapro Jet Fins	XL	~5 years old	3285	-660	-594
OMS Slipstream	XXL	With stock springs, ?? Old, seen some use	2750	-230	-167
Deep6 Eddy	L (orange)	With stock springs, pretty new	2105	5	58
Deep6 Eddy	XL (black)	With stock springs, pretty new	2260	10	67
DiveRite XT	L (red, metal buckles)	With stock springs, pretty new	2390	-205	-150
DiveRite XT	XL (grey, plastic buckles)	With stock springs, pretty new	2335	-115	-60
Pair of weights	-	SS304	165	-150	N/A

Foot Size and Testing Conditions:

I dived wearing a ~2 year old Otter Travelskin drysuit with neoprene socks and rock boots, with a 4th Element Artic (2-piece) undergarment, thin polypropylene thermals (2-piece), synthetic knitted jumper and explorer socks.

I also dived wearing a Seatec 7mm wetsuit, with Scubapro wetsuit boots over normal sports socks.

My feet are size 10.5.

My first test dive was in salt water in less than ideal surface conditions, and a 4km scooter run with too-small fins which pressed on my toenail to such an agonising point that I actually took my rock boot off to find the marble-size pebble which HAD to be in there (but wasn't).

Impressions:

First off, my old favourite Jet Fins. Well they weren't as heavy as I remembered, and I could keep good trim while swimming, and by gentle sculling while hovering. Still too negative for comfort though.

Unsurprisingly, the Deep6 Eddy fins (which are a similar size/shape to Jet Fins) were my favourite straight off, having the most similar characteristics while finning. They were also the only fin I used where I could hover motionless in good trim, without deliberately putting extra gas in my drysuit feet, or in my wetsuit. All other fins required variously subtle sculling to keep my feet up. The neutrally buoyant Deep6 Eddy fins felt strange - like not wearing any fins at all, and yet they were deceptively powerful, and I decided they had more power than the Jet Fins (I switched back and forth a few times), although required slightly different technique.

Once I'd tasted the DiveRite XT and OMS Slipstreams I must admit the Deep6 Eddy were a little disappointing in terms of power. The size L fitted my drysuit boots but was snug and had a tendency to squash my big toenails. The size XL fitted better and was very comfortable. Surprisingly, size XL still fit my wetsuit boots and were pretty comfortable (even more so with just a little padding in the toe pocket), and size L still squashed my toes a bit. Using the same fin for both wetsuit and drysuit diving is great.



As I'd been warned, the OMS Slipstream fins were stiff! Here I was thinking I was pretty hardcore, but a few minutes in those and the muscles in my lower legs were complaining. They were certainly powerful, and despite being a similar shape to the Jet Fins, they felt vastly different. After some less enthusiastic swimming they grew on me a bit, but with sufficient negative buoyancy to keep my feet sagging, so I set them aside before getting too attached.

The DiveRite XT fins came with a particularly glowing and longstanding collection of endorsements from various experienced tech divers. They are also stiff, and powerful - less stiff than the Slipstreams, and noticeably lighter, although they still eventually let my feet sag down. I think this fin would be more forgiving on my legs over a long swim than the Slipstreams, but I still noticed favouring the muscles in my lower legs. The size L is pretty big, and is what I wore on the 4km scooter run (leading to my phantom pebble), with size XL seeming gigantic but probably the best fit for my drysuit if adjusted properly. The size L fitted my wetsuit boots, but wasn't spectacularly comfortable. The buoyancy difference from the metal/plastic buckles was noticeable, and the length of these fins was noticeably greater than the others - possibly a factor for turning around in tight caves, or hauling through dry caves on the way to a sump.

My Pick:

Well, I'm not completely convinced, but enough to buy a pair of Deep6 Eddy XL fins and use them for the time being. They were the only pair which were perfect in terms of trim, which was a big factor. Maybe it's just because I'm used to Jet Fins, but I also felt like they did a better job of spreading the load and better utilising the big muscles in my legs - for long swims, etc.

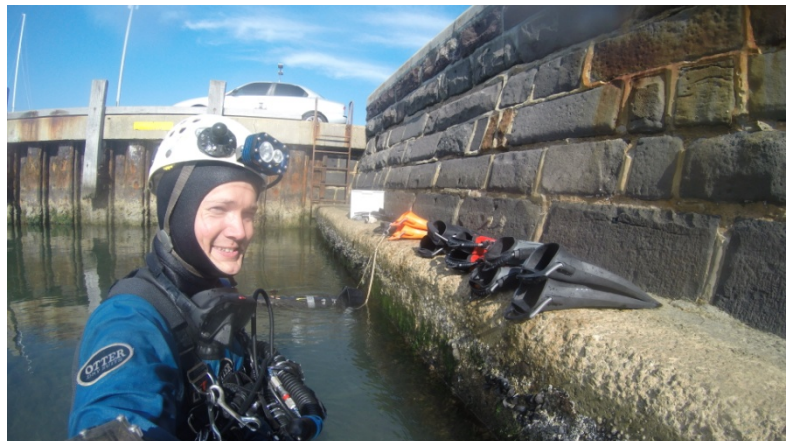


Figure 2: Some of the fin lineup

Final Word:

I hate shoe shopping, and unsurprisingly found fin testing equally annoying. However I'm glad the time was taken to find out what worked well for me. The more I dive, the more I find that setting aside a day dedicated to trying, tweaking and testing new gear is a very valuable exercise. It gives you the opportunity (with a bit of self-discipline) to focus entirely on getting things right - rather than worrying about the dive itself. This does mean cutting a potentially silly figure at your local pier in full cave diving regalia, but better to get it right the first time!

I would like to thank those who generously lent me their fins to try and offer mine up for anyone who would like to try them.

