

Diagnosis OSMOSIS

Circumnavigators Neville and Catherine Hockley get a nasty underwater surprise, and a whole new bottom for their yacht *Dream Time*.

Words and photos **Neville J. Hockley**



Dream Time at Marquesas



Anchorage like this put all the hard work and expense into perspective.

World cruising on a small sailboat is full of surprises. Three years ago, my wife Catherine and I set off on a 10-year world circumnavigation on our yacht *Dream Time*, and since we left our land lives behind, we've certainly experienced our fair share of the unexpected.

Ironically, it's the unknown, the unpredictable, that we now look forward to the most, like finding an idyllic South Pacific anchorage not marked on the charts, making friends in a new country, an impromptu party with fellow cruisers, or just the thrill of not knowing what we'll be doing, or what we'll discover one moment to the next. It's exhilarating and we love it.

However, a few months ago, after sailing over 13,000 nautical miles, we made an unexpected discovery, one that literally stopped us in our tracks. You see, we had sailed from the tropical South Pacific Islands down to New Zealand to visit the land of kiwis and to wait out the cyclone season. For five glorious, adventure-filled months we explored both the North and South Islands by boat, car, bikes, plane and helicopter, from hiking

over Franz Josef Glacier to racing down the Shotover River in a jetboat at 80kph. We did it all.

But a month before the end of cyclone season, while preparing *Dream Time* and planning for our passage north back to the tropics, we were hauled out for a routine clean and a few fresh coats of bottom paint – and that's when we made a most unfortunate discovery: osmosis!

About osmosis

Now some might argue that osmosis – trapped moisture inside the layers of fibreglass under the waterline – is not a terribly serious discovery, and boat owners all seem to handle the problem in their own way. Some choose to ignore the weeping blisters (a tell-tale sign of



Weeping osmosis blister



The team from Osmosis Solutions Ltd (from left) Stuart Fitzpatrick, Tony Fishlock, Mike Gibson with Neville and Catherine Hockley and OSL owner Nick Saull

osmosis), others simply grind and spot-fill each blister, which is a temporary fix, but certainly no long-term solution.

Then there are those who choose a full bottom treatment, a procedure that if done properly will remove all the trapped moisture completely, sealing your hull and preventing the dreaded blisters from ever returning again.

A lot of variables can influence an owner's decision: the age and value of the boat, for example, the style of sailing you do (day-sailing, racing or offshore cruising) and, of course, money. For us, after we got over the initial shock of our osmosis diagnosis, the decision was relatively easy. *Dream Time* has been our home for over three years since we left New York in 2007, and as we'll be sailing around the world for another eight years at least,



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we want our hull to be in the best shape possible. Then there was the fact that we were berthed less than an hour north of Auckland in Gulf Harbour Marina, which just happens to be home to Osmosis Solutions Ltd, a company which has been treating osmosis for over 20 years. Well, it seemed we had landed in one of the best places in the world to solve our problem, so that's precisely what we did.

Osmosis process

For 12 weeks *Dream Time* was planed, dried, glassed, faired, filled and finally painted. Watching the process was fascinating.

I must admit, to save a little money I was contemplating doing the work myself. After all, I thought, how difficult could it be: a little scraping, sanding and slapping-on some goo, I could do that, right?

But after watching the Osmosis Solutions team working together in a carefully choreographed performance, it made me appreciate just how skilled they are and, more importantly, what a complete mess I would have made if I tried to do it myself. No, some things are best left to the professionals.



speed things along, Osmosis Solutions use a HotVac system where large blankets are attached to the hull and heated to temperatures exceeding 70°C, which exposes any weak areas and literally sucks all the remaining moisture from the hull, a great idea if you're eager to get back into the water.

Step 3

Re-glass the hull. New fibreglass laminate is applied to the hull to replace what was removed, adding strength back to the hull and providing the best barrier against further moisture incursion, while ensuring you have a solid foundation for Step 4.

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So if you ever make an unfortunate osmosis diagnosis on your fibreglass boat, here's a breakdown of the process used by the professionals.

Step 1

Remove the contaminated laminate. An industrial-sized shaver is used to plane off about 2-3mm from the hull under the waterline. If the osmosis is severe, a second, deeper plane may be necessary to remove all the trapped moisture.

Step 2

Let the boat dry. Use a moisture reader as you don't want to proceed to Step 3 until the hull is thoroughly DRY. This can take months, longer if the atmospheric conditions aren't favourable. To help

Step 4

The barrier coats. Osmosis Solutions uses an exclusive two-part epoxy vinylester system, one so successful that in all their 20 years of business, not a single customer has returned with recurring problems.

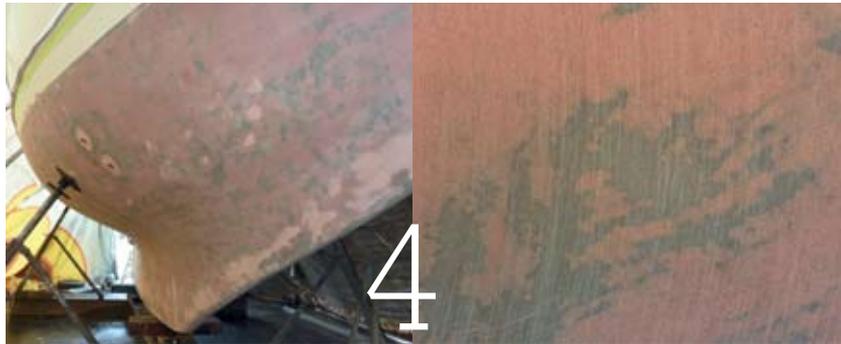
The first coat is thick, extremely sticky and applied with large trowels (it's a little like icing a giant cake, only with gooey epoxy vinylester). The layer is about 2mm thick and skillfully smoothed across the hull before it sets.

What makes this coat so successful is it's compatibility with polyester, allowing it to bond chemically and mechanically to the laminate, melding into the hull and drying to an extremely tough barrier finish.



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“Osmosis Solutions Ltd. . . has been treating osmosis for over 20 years.”



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The second coat, a fairing compound, is plastered over the hull with a little less finesse, but then carefully sanded away to a smooth finish, restoring the hull's shape.

Step 5

The paint. Now the hard part is over, you're practically finished. Just slap on some epoxy primer, perhaps fill and fair a few spots to get the hull shape just right, and then you're ready for the antifouling.



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Whether you're a racer, cruiser, or a boat owner who is perhaps thinking of upgrading, treating your osmosis professionally is an investment that will give you peace-of-mind, a stronger boat and a bottom you'll be proud of. ■

Step 6

Launch and enjoy. Certainly no yacht owner ever wants to make an osmosis diagnosis, but if you find yourself discovering blisters on your bottom, there is a solution.

Neville and his wife Catherine are from New York and set sail in 2007 for a 10-plus year circumnavigation of the world on *Dream Time*. Read more about their sailing adventures on their website www.zeroXTE.com



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