

# Hull. design

IF IT DOESN'T GO FAST ENOUGH, GET OUT THE CHAINSAW. THAT SEEMS TO BE THE MOTTO OF THE 12FT SKIFF CLASS, AS ROGER MCMILLAN REPORTS.



**T**HE more things change the more they stay the same. So it is in that most insane of all yacht classes, the 12ft skiffs.

The 12s are a true development boat, restricted only by three simple rules - a length of no more than 3.7m, a beam of no more than 1.8m and a minimum hull weight of 45kg. There is no restriction on the rig, hence my use of the term "insane".

The tiny hulls can be seen loaded with enormous rigs, including a 55m<sup>2</sup> spinnaker on a massive, skywards-pointing 5.5m long bowsprit. I asked current National 12ft skiff champion, Brett Hobson, what the wind range was for the class. He replied that with the smallest rig they can handle up to 35 knots... "then carnage!"

Every 12ft skiff sailor will tell you that the rig is key, and hull design is only about 10% of the equation. Nevertheless, in recent years 12s sailors on both sides of the Tasman have taken chainsaws to their hulls and experimented with narrower and narrower

shapes. The more things change, the more they stay the same. This pursuit of speed has been going on for over 100 years.

No-one seems to be quite sure when the first 12ft skiff emerged, but it is thought they were quite common on Sydney Harbour in the late 1890s. Early records of the present class date back to 1916 when the Lane Cove Sailing Club first recorded an open boat that set the parameters for future 12s. It seems that ever since that time, someone, somewhere was tampering with his hull to find that extra tenth of a knot of boatspeed that can make all the difference.

In the 1930s and 1940s, the Sydney and Brisbane skiffs had a row-boat hull with a very fine bow. Then some of the river clubs experimented with a pram bow like a modern Optimist or Sabot. In New Zealand, the class was developed by a breakaway group from the Pennant class, which had already designed the Cherub. Hull innovation was constant during this period but it wasn't until 1956 that the first

Interdominions was held and sailors on both sides of the Tasman could steal ideas from each other.

In the early 1970s the hulls finally began to resemble their current form. Two reasonably well-credentialed yacht designers, Bruce Farr and Iain Murray, had more than a little bit to do with this.

Farr was the 1970 Interdominion champion in a self-designed boat that introduced a flat U sectional shape and a tacking bowsprit that was pivoted to reduce the sheeting angle upwind without narrowing the slot.

In Australia, the class was dominated at the time by Dignam hulls (the first fibreglass hulls, designed with a round bilge and flat stern sections), Bowler (skinnier and deeper than the Dignams) and Stephenson/Kulmars (skinny hulls cut with darts that acted like broadseams in sails). According to class historian, Chris Thompson, the Stephenson and Kulmar designs were "short, skinny, flat and veed, they had little hull volume



## When Iain Murray came into the class, he designed the first of the “big and safe” hulls.

ABOVE: Brett Hobson and Alex Johnson won the 2009 Interdominions in Garde.

and were not good at displacement speeds because they dragged huge amounts of water behind the deeply-immersed transom”.

However, when Iain Murray came into the class, he designed the first of the “big and safe” hulls. Writes Thompson, “The ‘big fella’ designed big boats; beamy, powerful and safe, with very flat U shapes. He brought the old double chine back. The double chine allowed the boat to heel without dragging a corner of the transom, and the flat between the chines created a good planing surface when the 12s were heeled under their big spinnakers. Like most of the Australian boats of the time, the Murray designs had a large planing area, which meant that they planed earlier than the skinny Stevenson/Kulmar designs.”

This battle between “narrow, fast and unstable” and “stable but able to carry a bigger rig” has raged ever since. The

next trend was to narrow, with the Nash and Bollard hulls bringing the modern “displacement” look to skiff hulls. These hulls were very quick in light air and also handled chop well but they were less stable in maneuvers than the older, flatter hulls.

The next development was for Michael Nash to experiment with removing the chines and narrowing the stern to create a round bilge boat that wouldn’t dig its transom in when planing. This Aero design is the basis for most modern 12ft hulls.

The next design change, and the one that has dominated the class for the past 10 years, was the Woof design, created by engineer Jim Walsh and naval architect Brendan Egan. The rounded chine had increased rocker under the mast to maintain volume at the narrower waterline.

Chris Thompson writes that the

Australian class rules that encouraged an upper chine were changed at the same time, allowing the Woof lines to take up a straight line from waterline to gunwale, as the Kiwis had been doing for years. “It’s still got flare because they were designed when the rules said that they had to be open boats” explains Walsh. “The topsides flares is a safety issue. As the boat heels, it gets wider and more stable very rapidly, like a dory.”

Reading between the lines of Chris Thompson’s excellent history of the class, there is a recurring theme. A wider, safer hull will be developed and it will win most major events because it is more consistent and can carry a bigger rig. But because of the “experimental” nature of the class, someone will come along with a narrower, faster but less stable design that will beat the wider hulls in certain (but usually limited) conditions.

## Sailing in and out of gusts smoothly was near impossible.

Kiwi 12ft skiff sailor Alex Vallings is a case in point. Looking for that tiny bit of extra speed he tried a very narrow hull, just 700mm across the chine, for his Nuplex boat. It was slow in lumpy conditions and downwind, so in desperation between two weekends during the NZ Nationals he cut down the chine and added a wedge, forming a spray rail and adding about 50mm each side to the chine, which tapered in over 1.6 metres.

He sailed the boat like this for the next two years. The additions gave him more speed downwind but made fore and aft trim upwind harder. As the boat speed increased and decreased, the crew would have to move forward and aft constantly to give good trim.

The next alteration was to make the boat even wider (900mm) across the chines at the stern as well as fairing the topsides more at the back by cutting the chine and top under the gunwale and also stripping the skin off the floor to flatten the stern sections. Alex says this was done by “pushing the boat down over a short stringer mould, forcing the shape out, adding wedges, carboning the outside, removing from the mould and then carboning the inside”.

While this might sound like radical surgery, it seems fairly typical of 12s sailors through the ages. The result? A very wedge-shaped boat that is “challenging” to sail but has good speed in all conditions both upwind and down. It was certainly fast enough for Alex to win the Interdominions in 2005/06 and 2007/08.

Others to recently tinker with the shape of their hulls were Queenslander Brendan Matthews and Kiwi Hamish Hey. Brendon debuted his Wingman hull at the Brisbane Nationals in 2007 and Hamish launched his Nice Action Too at the 2007/08 Interdominions in Wellington.

Nice Action Too is a skinny hull with 14ft skiff-style wings. It is a good design for heavier sailors and is very quick upwind in light airs. But it is a heavy hull and doesn't have the speed downwind because it can't carry the same size rig as the wider hulls. Hey finished fourth at the 2009/10 Interdominions, indicating that he may now be getting the boat under control after 10th and 16th place finishes in previous years.

James Francis is another with a fixation on “narrow”. After long discussions with Phil and Andrew Stephenson, James launched his Brett Van Munster-built skinny hull in 2006. It is a hull based very much on Moth lines with a moth-style pintail, a retractable spinnaker pole, a 49er-style floor that runs from front to back with no foredeck, and a spinnaker sock/ retrieval line.

Sailing with a left-over rig that included just one mast, one main, two jibs and two spinnakers (most 12s have three or four

complete rigs) James sailed at the 2006 Abbotsford nationals. He finished every race in the gusty westerly, but the boat was “way too hard to sail!”

Says James, “It was fast in a straight line in consistent breeze, but sailing in and out of gusts smoothly was near impossible, let alone gybing or setting the kite! Oh well – worth a try!”

The following November, James turned the boat upside down and ‘cut the hull off’ where the cockpit floor is located. He then spent some time with boatbuilder Julian O’Mahony who had previously designed and built successful Cherubs and skiffs.

“We sat in front of his computer on several occasions and he helped come up with a ‘warped plane’ style hull with U-shaped sections under the bow before



chines in the aft section, and the maximum flair at the transom – because whenever you need the flair you're down the back anyway!”

It was now three weeks before Christmas and James was planning to sail the international skiff regatta in Melbourne in January and didn't even have a hull.

“I figured the quickest way to make the thing would be to build it over the bulkheads (to form the hull), so Jim Walsh (Woof hull designer) plotted the frames out 1:1 scale for me and I didn't sleep for three weeks while I built it.

“I sailed the regatta with Will Chapman. I thought the hull was a success but the breeze was well beyond the range of our rigs so we got fairly punished!

“The next time I sailed was the Brisbane nationals at Easter time 2007 with Rob Bell. Same old story: The breeze was 25 knots minimum each day...well and truly fourth rig conditions and our smallest rig was somewhere between a second and a third rig. Punishment. But good fun!”

James sailed the next two nationals (2008, and 2009) with his 18ft skiff crew



Brad Phillips. Both events were sailed in very light conditions and James' biggest rig is a normal number two. He says that it seems to power up quite well. “We have led around the top mark several times before getting hammered on the downwinds!

“I really enjoy sailing my boat. For the time/money spent it wasn't a smart process in terms of trying to win. But the fun of the 12 class for me is being able to try ideas and learn about boatbuilding/design as much as sailing.”

This seems to encapsulate the spirit of the 12ft skiffs. If you are looking for a low-cost hull that carries an insanely huge rig and therefore goes extremely quickly both up and down wind, you could do worse than buy yourself a Woof hull, a small chainsaw and some fibreglass, and start experimenting...

### Footnotes:

Woof hulls are now being built in New Zealand and shipped to Australia as “flatpacks”. Landed cost is around \$14,000 complete and ready to sail. The NSW association also has a Woof mould that can



LEFT: Nick Press and Brett Yabsley on their way to success at the 2010 Interdominions.



ABOVE: James Francis undertook radical surgery on his (in)famous "skinny boat" in his own backyard.

ABOVE LEFT: The result of James Francis' three weeks of sleepless nights.

LEFT: Kiwi Alex Vallings narrowed then widened his hull in the search for ultimate performance.



be used free, and at time of writing Marty Johnson, who built Brett Hobson's latest hull, was putting together a price to build a complete Woof boat. Second-hand 12s are advertised on the class website, [www.skiff.org.au](http://www.skiff.org.au).

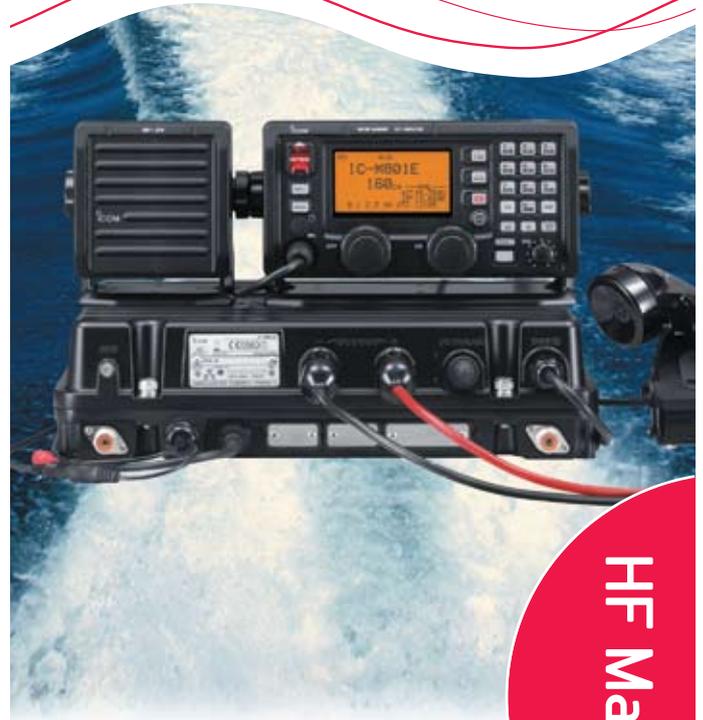
"Twelves" are sailed in Sydney, Brisbane,

Auckland and Wellington. In Australia, clubs sailing the class are Abbotsford 12ft Flying Squadron, Lake Macquarie Yacht Club, Lane Cove 12ft Skiff Sailing Club, Saratoga Sailing Club and Woollahra Sailing Club.

The 50th Interdominions in Auckland in 2010 saw a number of the fleet's "old boys" make an appearance. Notable names to have sailed 12s include Bruce Farr, Iain Murray, John Winning, Michael Coxon and Michael Spies. The Interdominions will return to Sydney next summer after six years, with the 51st event to be held at Lane Cove 12ft Sailing Skiff Club.

Contact for the 12ft Skiff association is the president, Nick Press, email [nicholas.press@gmail.com](mailto:nicholas.press@gmail.com). 

# It goes the distance



HF Marine

The **IC-M801E** is pre-programmed for Australian use, and features a water-resistant die-cast body.

  
**ICOM**

ICOM 438

To find out more about our latest products, call Icom on 03 9549 7500 or visit [www.icom.net.au](http://www.icom.net.au)