

THE DESIGNERS GREG ELLIOTT



# NEED for SPEED

## — THE GREG ELLIOTT MANTRA

In July this year, the world's largest racing monohull – the 45m *Mari Cha IV* – was launched in Cherbourg, France. Although much larger, she bears a striking resemblance to a New Zealand racing legend – the 16m *Primo*. Surprised? Don't be. Both are from the drawing board of Auckland designer Greg Elliott. Lawrence Schäffler reports.



**E**lliott's involvement in *Mari Cha IV* is a reaffirmation of his reputation as a designer of super-fast boats. The yacht is an out-and-out racer – built for speed and smashing records. Constructed from carbon fibre with an ultra-spartan interior, she weighs in at 60 tonnes. At the time of writing, she was lying in Newport, Rhode Island, her owner waiting on a "weather window" for an attempt on the transatlantic sailing record.

Despite the obvious size difference, a careful analysis of *Mari Cha IV* and *Primo* reveals very similar hull shapes – a shallow draught and a broad beam. The classic Elliott light-displacement, "dish" profile. The most obvious similarity, however, is the schooner rig. "Unconventional for a racing yacht," Elliott concedes, "but logical. It allows a huge sail area with a low centre of effort. It's pragmatic, and it works."

As *Primo* attests. Now in Japan (and renamed *Cocarin V*), she was built by Elliott in 1993 and quickly developed a reputation as the "fastest fifty-footer in the world". She holds a number of New Zealand records, including the monohull record for the 120-mile Coastal Classic, (nine hours and 22 minutes – an average speed of over 13 knots). She's also won numerous events in Australia, the US, Hong Kong and Japan.

Unconventional. Logical. Pragmatic. Words that neatly sum up any Elliott boat. They're also a fair description of the man himself. He's renowned for pushing the design envelope in unusual ways. The rotating carbon masts on *Primo*, for example, are even today considered unorthodox. But however bizarre, his design philosophy always manages to accommodate vital speed ingredients: low friction, a small wetted surface and a large sail area. With spectacular success. Even the most casual analysis of the Australasian blue water racing scene over the last five years shows a remarkable winning consistency (see sidebar).

With around 1000 boats, he is one of New Zealand's most prolific yacht designers – and examples of his work can be found in any part of the world. Racers, cruisers – even a few motor launches. Some of the designs, such as the fabled



Elliott 5.9, the Elliott 7 and Elliott 770, have evolved into established, international classes, with around 100 of each of the two smaller yachts. In Australia, the Elliott 7s have won virtually every title in their class. In their debut year in Auckland, the first three E770s achieved 40 guns in 40 races. Larger yachts hold long-standing records – such as the Elliott 55 *Future Shock* – whose 1989 run between Auckland and Fiji is still unbeaten.

**I**mpressive. And perhaps all the more surprising given the building apprenticeship at Auckland's Chas Bailey & Son in the late 70s.

"Most of the work entailed maintenance and repairs on yachts, ships

and an awful lot of fishing vessels. I can still pick up a caulking iron today and repair a carvel-planked boat, Elliott says. "I only built two boats in the entire 10,000-hour apprenticeship, but in hindsight, the broad experience was invaluable. Even though there was no 'design' element in the training, I saw the worst of everyone else's ideas."

Keen powers of observation and analysis paid dividends. While completing the apprenticeship, Elliott designed and built a 7.8m sloop (*Outsider*) at home. Constructed from three diagonal skins of kauri planks over oregon stringers, she proved to be the launch-pad for a meteoric design career.

"Her maiden voyage was a North Island





Terry Fong / AFA Photography



**Elliott on rules: "I've always elected to use a natural, fast hull shape, rather than bending and twisting the hull shape to meet some racing rule."**

circumnavigation – with my brother as crew – and when we got back we modified her slightly and began racing. We quickly won about 20 races around the Hauraki Gulf. She was surprisingly fast."

What made her so quick? "She was a relatively light boat for her day, but I think the key was the hull shape. The shallow draught was pretty revolutionary for the time, as was her bulb keel. At the height of her racing success, I was commissioned to design something along the same lines by

## POISED FOR SMASHING RECORDS

*Mari Cha IV* – the biggest boat Elliott has worked on – has been designed for speed, and her owner, Bob Miller, has already proved her capabilities with a new World Speed Sailing Record and transatlantic crossing.

Miller has reclaimed the transatlantic record (for monohulls using man-powered winches) – an honour he holds again after holding it for three years with *Mari Cha III* (which he also owns). In 1998 she covered the course – between New York's Ambrose Light and Lizard Point – in eight days and 23 hours. Miller's new boat, *Mari Cha IV*, slashed two days off the 2925-mile crossing, completing the passage in six days, 17 hours, 52 minutes, becoming the first monohull ever to cross the Atlantic Ocean in under seven days. The previous

record, held by Switzerland's Bernard Stamm aboard *Armor-Lux*, stood at eight days, 20 hours, 55 minutes and was set in February 2001. A prerequisite for the attempt on the record was "manual operation" – the yacht may not use powered winches. That, says Elliott, was a significant factor in *Mari Cha IV*'s design. "Splitting the sail plan over a schooner rig makes it a lot easier for the crew and manual winches. Having said that, she still carries five enormous sails. He points out that the schooner rig also offers the advantage of a large sail area with low centre of effort. *Mari Cha IV*'s upwind sail area is 904m<sup>2</sup> and 1415m<sup>2</sup> for downwind runs. Elliott was always confident the yacht would easily break the transatlantic record. He

was aboard for the maiden Atlantic crossing (to Bermuda) and says while the passage was dominated by very light airs, she did manage to cover 412 miles in one 24-hour run. "The Bermuda-to-Newport leg was also served up light airs, but we covered the 650-miles in 47 hours." The boat's design team comprised Elliott, French architect Philippe Briand (designer of *Mari Cha III*) and American engineer Clay Oliver. It was a full-time, four-year project that included an extensive wind tunnel programme at Auckland University. The 45m yacht (9.5m beam) was built by France's JMV shipyard. She's constructed entirely in prepreg carbon/Nomex and is fitted with a 6.5m keel that cants some 40 degrees. She carries 10 tonnes of water ballast.





“ There is no sense in sitting out on the ocean plodding along when you don't have to ... I use the BMW analogy for my cruiser design philosophy: it's all about comfort and performance – they're not mutually exclusive. ”

a chap who'd seen the boat in action. And that's how it started – word of mouth.

Where is *Outsider* today? Haven't a clue – but I think she's still in New Zealand.”

Some 25 years and hundreds of winning boats and performances later, no one is more surprised with the way things have turned out than Elliott himself. “It's been bloody hard work, but I never imagined I'd be where I am today – sometimes I still think I'm in some sort of dream.”

With the remarkable racing record, word of mouth has remained Elliott's most

effective marketing tool, and – perhaps sadly for New Zealand – the vast majority of his work ends up offshore. Most of the designs are one-off commissions, typically for foreign clients. But even those that are designed for a production environment end up with international manufacturers.

“New Zealand – and even Australia – is a very small market, so our construction arm, Elliott Marine, builds the moulds and ships them to whatever country wants to use them.”

This arrangement has seen Hungary, for example, become the European distribution centre for the Elliott 7, the 770,



Left, the 16m *Primo* with the same rig configuration as *Mari Cha IV*. Above, the Elliott 45 *Kiwi Coyote*.

and the 935. The 935s are also built in Japan, while the 770s are also built on the East coast of the US. Elliott 7s are also built in Australia.

**E**lliott works from premises in Auckland's Birkenhead and is something of a design enigma. At 45, he is relatively young for the reputation he carries, and yet has crammed more design and blue water racing into that time than many of his predecessors have managed in a lifetime.

He's typically juggling 10 or 12 projects at any one time, and despite the vast





Ivor Wilkins

output, he is still a one-man design team. And when he confesses to occasional, mild frustration during the designing process, it's easy to imagine workload is the issue.

"No, I'm not talking about fundamental creativity. It's trying to balance new ideas and concepts with client specifications. People are reluctant to venture 'outside the square' and invest in an untried concept – they'd prefer to 'protect their investment'. And I can understand that. Boats are expensive and in every way live up to their reputation as 'holes in the water into which you pour money.' Still, I'm

interested in optimising boat performance, and a conservative specification can be inhibiting."

Inhibiting specifications notwithstanding, Elliott's track record for designing cruisers is also littered with very quick sailboats. And he makes no apology for that. "There is no sense in sitting out on the ocean plodding along when you don't have to. Apart from the frustration, a slow boat exposes you to danger unnecessarily. A faster boat gives you an opportunity sail out of trouble, away from bad weather, if need be. I use the BMW analogy for my cruiser design philosophy:

it's all about comfort and performance – they're not mutually exclusive."

For a man obsessed with coaxing the best performance from a yacht, Elliott has a somewhat ambivalent view of international measurement codes and design rules: not to put too fine a point on it, he thinks the authorities have "lost the plot".

"We've gone through so many rule permutations – IOR, IMS, IORC – and there's still a lot of confusion. I've always promoted the idea of a simple, basic 'length' rule. Hull shape inherently affects the balance of the boat, and some shapes make a boat difficult to handle. I've always





Terry Fong/AFA Photography

The successful Elliot production Design 1050 and below, Elliot's offshore flyer Hydroflow.

elected to use a natural, fast hull shape, rather than bending and twisting the hull shape to meet some racing rule."

He's happier about what he calls the emergence of the "box rule" – with five or six parameters such as mast height, draft, and beam within the box determining yacht design. "It seems to be growing in popularity, and is already used for classes such as the new Volvo boats, the Open 60s, and even the America's Cup yachts."

So, what underpins Elliott's success? In the absence of a "formal" background in naval architecture, how does a design flair simply emerge? Is there an "X" factor?

Elliott doesn't know exactly, but doesn't think he's any different from most New Zealand designers. "I think our collective success is a function of a peculiar kind of backyard-tank-test-industry. We have a long tradition of people building boats in back yards, trying different ideas, and as a result we've developed a huge pool of experience and knowledge. The continual process of

refinements – effectively, it's been one big 'tank test'. It's been an excellent breeding programme."

Relaxation is not a word used often in his vocabulary. "There's not much time for it – it's pretty full on boat design. But I do a lot of sailing – even though I don't own a boat."

Designing, he emphasises, is a continually evolving game, and to stay abreast of all the innovations and development in materials, sails and design – he has to be "out there" – racing and sailing. Observing and analysing.

What's ahead? Any ambitions for being part of an America's Cup syndicate? "Perhaps. I could well be interested, but it's difficult to walk away for three years when trying to run and build your own business. Ethically, I couldn't just turn my back on my clients. Would they still be there when I returned?"

Clients be damned. Greg, if Team New Zealand does call in the next few weeks, could you promise to at least consider it? Please? ■

