INFO@ASPCNC.CO.NZ 03 384 2604

ASP TRICKYBITS

ISSUE 1 SUMMER 2011/12

FANCY A 2012 WAKA?

A TWENTY-FIRST CENTURY EVOLUTION OF TRADITIONAL CRAFT

BY JOHN MILLER

Quentin Roake (centre) testing the smallest of their three waka sizes, a three-person waka that is nicely accessible for education centres and regular whanau and Iwi.

It began after the tragic loss of two dozen yachts and almost as many lives in the Fastnet race of 1979. The disaster triggered the largest peacetime rescue operation in history, and years of scrutiny into boat design. Living in the UK was Christchurch's Quentin Roake, a designer, architect, keen sailor and voracious reader of yachting magazines.

During the post Fastnet Disaster era, designers were tank-testing scaled-down versions of racing yachts in an effort to improve stability. An interesting phenomena triggered Quentin's curiosity. Hulls tank-tested with masts towering high above them were more stable than those without the mast.

This flew in the face of intuition and the prevailing physics of the time, and led Quentin to a process that he calls experimental anthropology... observing the behaviours of traditional craft developed hundreds of years ago.

The mission was to create the motion characteristics of traditional craft in a modern version that is durable, portable and economical

Traditional carved canoes have certain characteristics that could be desirable in modern craft - particularly around the stability and character of handling motion. Carving techniques that developed over hundreds of years of trial, error, and improvement, have evolved into the way that a craft sits in the water, how it paddles, how it performs under load and behaves in response to the movements of those on board.
A decade ago, Quentin decided to sell his Tudor home in England, buy a coastal spot in New Zealand and build a 48 foot ketch to sail around the coast. The day after committing to that plan, George Bush Jr entered Iraq. The value of Quentin's English manor began to sink, as did his savings of Euros. At the same time, Kiwi 'safe haven' value went up. This sea-change meant the ketch plans were down-scaled like a wool sweater in a hot wash. Quentin built a strip-plank Canadian canoe.

More contemplation about indigenous craft, and the way surfboards evolved over the years using foam fibre, eventually inspired a twenty-first century incarnation of the waka.

The research into the ways carvings work, how they lend stability and motion to a craft, led to a collaboration with Tainui's waka programme. With a desire to know more about 3D modelling, Quentin talked with with Aaron Smith and Steve Palmer at ASP Limited in Christchurch. The mission was to create the motion characteristics of traditional craft in a modern version that is durable,

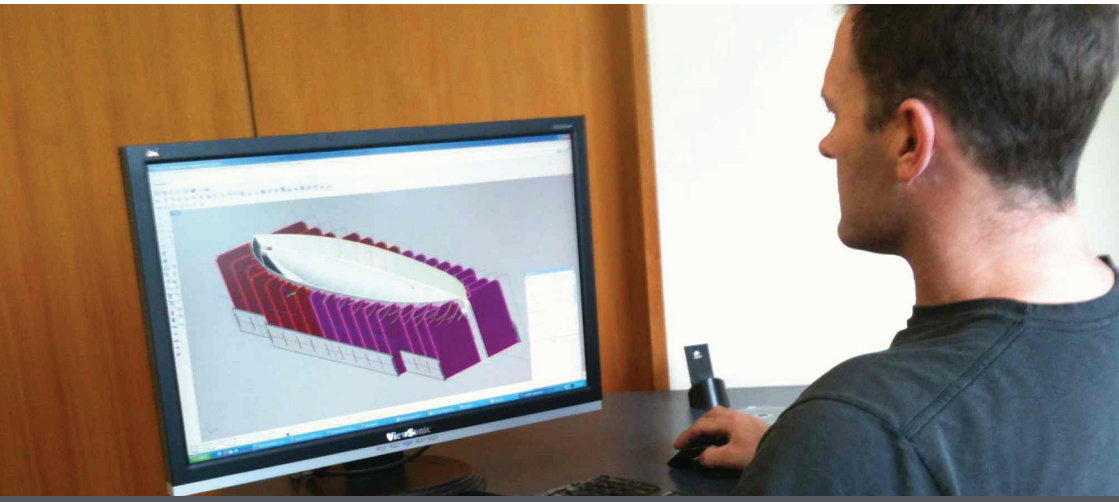
portable and economical. Traditional carved waka have a very thick underside to the hull, and proportions that give them unique displacement values and feel. They are also incredibly heavy on land, so difficult to move from place to place by foot or vehicle.

The encounter with Aaron and Steve brought some fresh options, and a three-layer concept. Ballast water is contained between the outer hull and central layer, and an inner shell provides the shape and function of a carved inner hull. “Bonded together we get the three things we needed - sturdiness and light weight, with buoyancy and ballast in strong traditional lines” says Steve Palmer of ASP. “The result is an easily carried waka that ‘drives’ like a real one”. Novel as the idea was, Quentin Roake was aware that the three curved composite components required absolute precision in the design and mould making phase, and had worked with the ASP guys before. “They have a great kiwi way of doing things, they’ll think of different ways of doing something, but they also have the absolute precision that’s required for the manufacturing process”.

The team agreed that the most inexpensive research technique was to go ahead and build three live prototypes. This helped to test variable inputs like differing crew weights, and ensured that the design was one that was practical for manufacture. Composite waka have been developed in three sizes: 7.5 metre (3 adult) waka for Iwi, schools, tourism and whanau use; 10.5 metre (11 adult); and 15.25 metre (21 adult). The 15.25 metre

(50 foot) waka is the longest possible length to transport on the road using a ute with a turntable on the deck. “The waka is able to be paddled and sailed as a single hull or outrigger” says Quentin. “Two outrigger canoes may also combine to become a small voyaging canoe. Prow and stern are designed to take traditionally carved tauihu and taurapa”.

A Pakeha and Maori collaboration, these waka have social, sporting, tourism and unique identity potential for New Zealand. Could waka become a common sight on our waters? It’s a craft that evolved over centuries and has properties that helped it travel journeys across thousands of kilometres of the Pacific. It’s wonderful to see another natural phase in its evolution.



ASP Limited design and fabricate moulds for manufacturers of composite products. Owners Aaron Smith and Steve Palmer undertake jobs from concept to reality, including design, CAD modelling, CNC machining and production. Quick on their feet and innovative, ASP will develop solutions to ensure your composite project is realised and cost effective. Feel free to contact them for a chat about your requirements - phone 03 384 2604 or email info@aspcnc.co.nz.

Website www.apscnc.co.nz

The Tricky Bits is produced by PSMM Publishing on behalf of ASP Ltd to showcase novel composite projects in New Zealand. The Tricky Bits is distributed with Composites Technology magazines in New Zealand with compliments of ASP Patterns & Moulds.