

Aussie yacht design to challenge world speed record

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A new sailing theory has produced a craft that can sail faster than the wind – US and Aus patents

“My aim is to challenge the world speed sailing record,” says Adelaide-based Fresh Innovator Stephen Bourn of his revolutionary patented sail craft design. “The design is suitable for both racing and exciting recreational sailing.”

Stephen’s new sail craft design can sail upwind and downwind faster than the wind. It has the potential to shatter the performance expectations set by conventional yachts, skiffs, catamarans, sailboards and kites.

“I decided to take a fresh look at the principles of sailing and the absolute limits to performance. What I came up with was a design that results in a much higher maximum speed,” says Stephen.

His theoretical breakthrough was written up as a prize-winning paper and international patents have been granted for the sail craft design.

Stephen’s work won him a place at Fresh Innovators – a national initiative that brings the work of 16 early career innovators to public attention. Following training in Sydney, the sixteen are now talking to the media, schools and business about their ideas. One of the 16 will win a study tour to the UK courtesy of the British Council Australia.

“We have proved the design concept on a number of radio-controlled models. We’ve also undertaken thorough analysis and computer simulation and are now seeking sponsorship to construct a full size craft”

The craft looks like a cross between an airplane and a sailing boat. Picture a catamaran where there is no trampoline, just a beam, and the second hull is much reduced in size. Underneath this smaller second hull is a scythe-like hydrofoil that lifts completely out of the water with sufficient speed.

A single wing-like sail is attached to the central beam or mast that is not central to the boat, but rather sticks out at an angle on the opposite side to the hydrofoil.

The single hull is where the pilot, oops, sailor sits controlling the height, speed and direction of the craft by two joysticks.

“The positioning of the wing, hull and hydrofoil is inherently stable meaning, unlike conventional craft, there is no risk of capsizing as the sail force increases,” says Stephen. “It can be launched from the beach and the cloth wing collapses quickly and easily for transport by trailer.”

As well as creating the next thrill-seeking toy for sailors and kite-surfers, Stephen plans to challenge for the World Speed Record. The record is currently held by an extreme purpose built craft that only sails in one direction on a unique flat-water course.

The design won second place in the Amateur Yacht Research Society (AYRS)-Hogg Memorial Prize at the London Boat Show in January 2002. It has been patented in Australia and overseas and a technical paper was published in the AYRS Catalyst Journal in January 2002.

About the Inventor

Stephen Bourn has a degree with honours in mathematics from the University of Adelaide. He has completed studies in computer science and leadership and is currently completing a PhD in pure and applied maths. He has thirty years of experience in sailing and has some experience in speed racing as a member of the current record holding Macquarie Speed Sailing Team. His invention has been developed in his spare time – his working hours are spent with Australia’s Defence Science and Technology Organisation on computer based war-gaming and simulation of logistics.

Photos: High resolution photos, technical specifications and a short video are available on request. Prototype available for viewing.

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