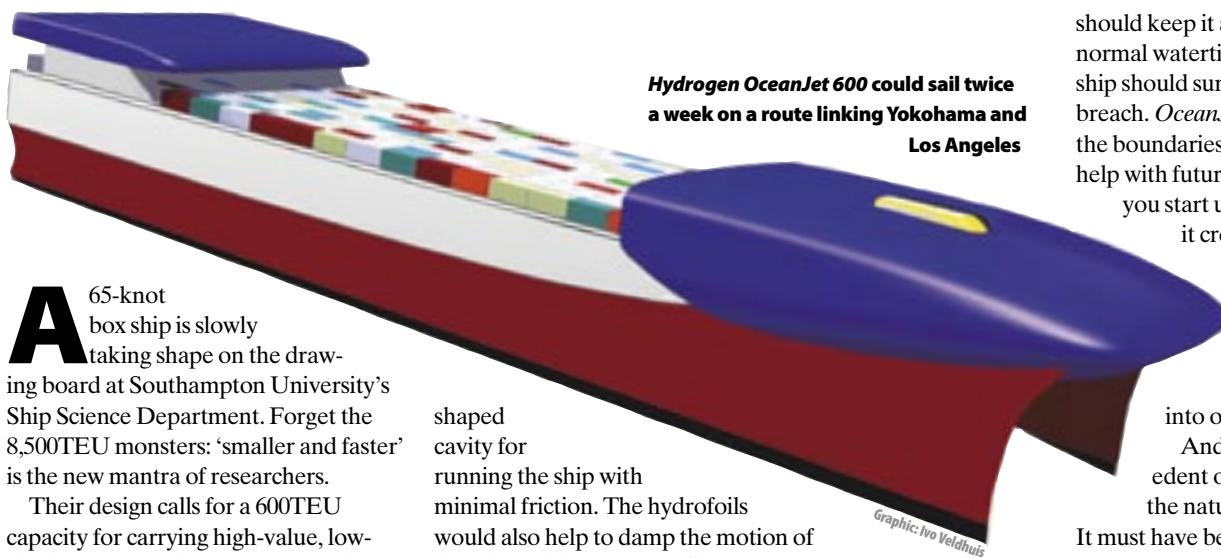


# Nought to 65 knots in 120 years



**Hydrogen OceanJet 600 could sail twice a week on a route linking Yokohama and Los Angeles**

**A** 65-knot box ship is slowly taking shape on the drawing board at Southampton University's Ship Science Department. Forget the 8,500TEU monsters: 'smaller and faster' is the new mantra of researchers.

Their design calls for a 600TEU capacity for carrying high-value, low-density cargo on deep-sea routes. The ship's speed would allow for two sailings a week, for example, on a route linking Yokohama and Los Angeles.

Oh, and the ship would be powered by liquid hydrogen.

Ivo Veldhuis, the researcher who conceived the design, explains why: "We found out that if you want to go fast you need more fuel, and then you need a big ship. If you have a big ship, then you need more fuel, and you get into a spiral where you can't take any cargo."

*Hydrogen OceanJet 600* – the vessel's working title – would be a semi-swath catamaran to reduce the vessel's pitch and heave motion in a choppy sea.

Crucially, *OceanJet's* design calls for large hydrofoils that create an aerofoil-

shaped cavity for running the ship with minimal friction. The hydrofoils would also help to damp the motion of the ship and improve stability.

"It's actually a bit similar to a Boeing 747 – it's easily controllable," Veldhuis tells *Fairplay*. "Water density is quite high, so you only need small ailerons to keep it under control." And the propulsion system – four 2m-diameter water jets – would also help to aid control.

The catamaran shape would also improve survivability should the vessel strike a large underwater object.

"It can survive whether foilborne or not-foilborne," Veldhuis explains. "Say if one or more of the foils get damaged, this particular vessel design can still function as a ship and make its way to a safe haven."

Even if the foil lift no longer works, then the static buoyancy of the vessel

should keep it afloat. The hull will have normal watertight subdivisions, so the ship should survive even if there is a hull breach. *OceanJet's* design pushes back the boundaries of technology and might help with future innovation. "When you start using liquid hydrogen, it creates new opportunities, both economic and in ship-design," enthuses Veldhuis. "For example, you wouldn't lift a spaceship into orbit with diesel."

And there is a strong precedent of technology changing the nature of the world fleet.

It must have been a glorious sight in summer 1897 when the British Royal Navy mustered for Queen Victoria's Diamond Jubilee Review. Pennants and bunting flew above the black hulls and white superstructures of 150 vessels. More than 20 were fiercely armed battleships, some of which could hit speeds exceeding 17 knots.

And they were all obsolete. A tiny intruder sped between the vessels at 30 knots. It was the first appearance of Charles Parson's steam turbine-driven *Turbinia*. It changed everything within four years. By 1916, steam-turbine battleships were hitting 25 knots, and Parson's propulsion system became the major system for marine propulsion until well after the Second World War.

**Jim Wilson** 

## 25 years ago in *Fairplay*

**ARBITRATION** was the buzzword in the early 1980s, after the passage of the UK's Arbitration Act in 1979. Shipping figures convened to discuss the law and hear arbitrator Donald Davies, who was involved in the *Nema* dispute. It was the first case to be decided under the law.

"Unfortunately, the *Nema* dispute showed up the act in the worst possible light... There is clearly cause for disappointment, at least among arbitrators," *Fairplay* commented.

Speculation was rife that this dispute, and many others, would be subject to lengthy appeals, causing *Fairplay* to fret: "A drift toward New York arbitration (already discernable) may gain momentum."

Back then, *Fairplay* was eager to take sides – especially the side of UK shipping vs the rest of the world.

Shipping subsidies were also exercising *Fairplay*. The LookOut Man, in pondering South Korean aid to shipping, displayed a long view: "By the end of the year, vessels delivered to foreign owners will have exceeded \$1,000M in value [now known as \$1Bn], and the Korean Ministry of Finance must be delighted with the inflow of foreign exchange."

Mercantilism, which had (in theory) died out early in the 1800s, obviously retained a strong grip on the feeble minds of maritime journalists.

**Jim Wilson** 