

# A KIWI KNAVE IN CANADA

BY KEITH INGRAM



The main control and helmstation

Once it might have been said that to export boats to North America was a bit like taking coals to Newcastle. Not any more, its not. New Zealand's Stabicraft Marine recently delivered nine custom 659 Wheel House vessels to Alaska where they will be used as observation boats to monitor the gill net fishery and the fishery's interaction with sea mammals and sea birds. To now be followed by Bladerunner Boat's latest research vessel *Knave*.

Built by Bladerunner Boats in Kumeu, the 9m hydrofoil supported catamaran is one grunty little vessel that can be transported on its own fifth wheel, purpose built to Canadian specs, aluminium trailer.

And to ensure that the export tax requirements were not breeched the trailer was loaded onto one of Boat Haulages' transporters before the boat was lifted on and secured to its new host trailer. The load was then shrink-wrapped before transport to Tauranga where it was duly loaded with no fuss, destination Halifax, Canada.

We caught up with *Knave* while she was doing her owner acceptance sea trials out of Auckland's West Park marina where it was a pleasure to meet the owner Kenneth Keeping, the director of Maritime Survey Services based in St Johns, Newfoundland. I say it was a pleasure, because clearly here was a young fella with a science education having a go and in doing so had committed both he and his wife along with their young daughter to a venture into the unknown against what many would regard was the preserve of traditional science big boys.

So how did it all start, we asked. "I guess for starters my girlfriend at the time and I moved to Australia in 2007. We lived



ABOVE: The stern view gives an indication of the boat's capabilities

RIGHT: KAB Helm seat  
BELOW: Survey computer



there for four years. The first two years I spent completing my masters in maritime archaeology and the last two I worked as a commercial diver and Maritime Archaeological consultant, while my girlfriend (now wife) completed her education degree. Once she was done in 2011 we decided that we wanted to return to Canada to be with the rest of our family and start having one of our own. We currently have a little girl who was born on December 16.

“Moving back I decided to start my company Maritime Survey Services Limited which is designed as a multi-disciplinary company. We offer commercial diving surveys, multi-beam, remote sensing and geophysical surveys, terrestrial and underwater archaeological consultation, as well as a variety of other data sampling services, and small vessel workboat hire.”

That's some brief and task description?

“Yes we had seen the *Gambler*; a Bladerunner boat, and were impressed with the size of boat you got for length because we wanted the largest amount of boat we could fit onto a reasonable trailer that can be used in Canada. This would allow us to take the boat just about anywhere imaginable with relative ease, while having a platform that is comfortable, durable, and in a pinch had the ability to provide comfortable sleeping overnight.”

What drew you to New Zealand?

“I had also read about *Rangitahi*, the NIWA research boat you featured and was impressed with what I saw,” said Kenneth. “Catamarans are not very popular in our area of the North Atlantic and hydrofoil catamarans even less so. The realisation that I wanted a catamaran's stability for the remote sensing equipment, aluminium, built tough, and fully customisable, ►

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Deploying the transducer arm



Locked in the down position

sent me in the direction of Bladerunner Boats”.

Originally when designing the boat, Kenneth wanted it to be very capable for operating in heavy seas so he used the 2B category for 200 nautical mile limit in Australia as a model. While consulting with an Australian surveyor in Adelaide he suggested that you could achieve this by using a different welding schedule with thicker stringers than what Bladerunner traditionally builds in their boats. As a result she is one of the strongest boats around for her construction size and we understand that Bladerunner have adopted this same interlocking construction method for all their new commercial boats.

“We wanted a boat with a very high capacity for fuel so that it would be able to make the 200 nautical mile limit with relative ease, although the full fuel capacity will not be used unless required for designated jobs,” said Kenneth. “We have 1720 litres split between four tanks with 600 port and starboard aft, 260 port and starboard forward, makes for a heap of petrol on board, although the majority of the time it will be only using the 2 x 600 litre tanks in the aft of the vessel.”

Built to a mix of both Australian 2B and New Zealand maritime safety standards, we are advised that both these standards are in

excess of the Canadian standard requirements and as such *Knave* would be given her safety approval on arrival.

On stepping aboard this is one chunky work boat weighing in at 5500kg light ship, add another tonne and half of fuel and water plus an extra 500kg or so for gear and we are starting to see some serious displacement, which explains why we have twin 250hp Yamaha four stroke outboard motors with 30inch legs. The choice of outboards was simple: mainly to be able to get the best power to weight ratio, and to keep the working cockpit low and clear. Outboards also allow for a quicker turn around if one were to shit itself. Plus the price differential between petrol and diesel in Canada is minimal with petrol or gasoline tracking lower than diesel.

To assist in supplying dry cool air to the outboards, they are both fitted with breather snorkels that draw air from inside the transom lockers. A strong, fully fenced boarding platform is mounted between the motors that not only allows ease of access for servicing and running repairs if required, it also doubles for diver recovery, and when working astern.

Once in the cockpit the davit and side-scan sonar transducer pod dominate the starboard side. The sonar transducer pod is a masterpiece of engineering, able to be easily moved from stowed to deployed position by one man. It also doubles as a normal lifting davit for bottom sampling and the like. Once the transducer pod is deployed it is securely locked into a supporting bracket and clamped on the lower belting, meaning the vessel can operate at survey speeds of up to 12 knots.

The primary survey tool is an R2sonic multi-beam connected to an Applanix wave master POSMV system. This provides heading and position, yaw, pitch and roll information. The back up for this is a Trimble hemisphere DGPS and a Maretron compass that can supply information to the boat if the equipment had to be removed for other jobs. The navigation system is a tough book computer running MaxSea that interfaces with a 12 inch Navnet 3D system. There is a Vartech military grade monitor overhead that connects to the computer as a third viewing screen.

Having the boat set up like this allows the operators to be able to make sure that the survey computer and boat read the same valuable positioning and heading data. This allows for continuity of both platforms to make sure that the boat and survey equipment know where they are in relation to the world around them, and that the skipper follows the appropriate survey lines set out by the survey computer operator. Another point of interest is that they are able to import waypoints and routes through MaxSea into the Navnet 3D via excel worksheets. They can transfer entire survey grids and run them through the autopilot, although this concept will take time to truly perfect and of course at first can't really be trusted, it never-the-less is advancing technology. We have more on the electronics later.

We digress, now back in the cockpit, the rest of the work deck is clear and functional. There are dive bottle racks and built-in self-draining stowage trays for when working with handy bits. A built-in auxiliary outboard motor bracket for the tender motor is fitted to port. We note that all the fuel points have sturdy locking caps over the filler caps.



Underway, showing a clean entry

Moving for'ard to port is the external head and shower compartment and note – it is fully heated! To starboard, fully enclosed in its protective housing along with a separate 125 litre diesel tank is an 8kW Fisher Panda diesel genset that provides power to a Webasto reverse cycle air-conditioner, and a stand alone Webasto diesel heater that controls the climate in both the main cabin and the head as well as provide hot water.

When living in the North Atlantic it is imperative that the head be heated and it took a little bit of convincing for the boat-builders to fully grasp the need for this. Trust me, having been in Canada in winter where minus 32 degrees Celsius if the head is not heated, when you drop your pants your nether region and cheeks will quickly freeze to the seat and being so framed may not be such a pretty sight.

The cabin may be fully closed off and secure. On entering the cabin a small galley is to starboard with a sink, hot and cold water, and twin electric hob. The electric jug, toaster, fry pan and all the cooking appliances ensure the crew are well fed summer and winter. The cabin is lined in Fronrunner fabric for warmth and sound softening, although with the outboards the engine noise was hardly discernable from inside the cabin.

A small dinette is to port with an added crew and computer position ahead of this at the front. For'ard under the foredeck is a crawl in bunk space that is quite roomy and light with its own escape hatch above.

The main conning position is the heart of the vessel with every electronic aid and survey need close at hand. The main switchboard and distribution panel is low down under the dash panel.


Victor Solomon from ENL in Auckland, says *Knave* has been equipped for precision hydrographic survey work in the rugged marine environment of eastern Canada. He advises that the client



The small functional galley


knew exactly what he wanted and that no expense was spared to equip her appropriately for her intended purpose, with double and even triple redundancy built into her electronics package.

Basic navigation capability consists of a Furuno NavNet 3D radar/sounder/chartplotter system, with a grunty 1kW transom-mounted transducer. Additionally, incorporated into this package is a Furuno FA30 Automatic Identification System (AIS) to alert her to, and identify, those vessels that might be of concern within her operating range. These AIS targets will appear on her radar and/or plotter screens, together with Automatic Radar Plotting Aid targets. A Maretron solid state heading sensor has been included to provide radar course up and north up, target lat/long, and radar/plotter overlay as required. This same sensor also ▶



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Loaded on the trailer

provides heading data to the Furuno NavPilot 711 autopilot. A Maretron Weather Station provides environmental information.

Similarly, as part of the network, there is a Toughbook laptop running the PC-based charting program MaxSea Explorer, providing the user with a "second station" for information from and control of the network.

Because much of Canada is isolated, onboard radio communications consist of an ICOM 504 VHF radio and 802 single sideband, each with appropriate antennas.

Technical survey equipment onboard includes a POS MV Wavemaster dynamic positioning and orientation unit providing data for attitude, heading, heave, position and velocity and a Hemisphere 131 Differential GPS providing sub-600mm positioning information.

All onboard data is directed through a multiplexer and sources can be selected through a system of rotary switches. By now we can start to see the true depth and capability of this vessel.


While the *Knave* is essentially a day boat, given the long hours the crew will be expected to work when deployed the vessel is fitted with a KAB self-riding helm seat to reduce fatigue on the skipper. From this position the helmsman is afforded excellent all round vision with only a small area well aft of the beam blocked by the heads. In saying this, the helmsman can still see all four corners of the vessel and the small blind spot can be easily compensated for.

Once underway and clear of the marina and channel restrictions *Knave* quickly responded to the touch on the twin throttles and quickly registered a top end speed of 42 knots on the GPS. Drop the revs to her most economical service speed of 25 knots and she is consuming 70 litres an hour giving a working range of 500nm.

The *Knave* was surprisingly nimble at speed and easy to control in the turns. I was even more impressed when coming back into the marina how easy she was to manoeuvre even when turning and berthing within the tight confines of the work pontoon and mangroves. Clearly the distance between the main engines giving the twin-screw manoeuvring ability is a significant advantage that will come into its own when in service on the Canadian waterways.

On arrival, sitting comfortably on her purpose built Canadian approved triple-axle alloy trailer she will be matched to her intended tow vehicle, a new Ford F550 Super Duty rated to 26,500lbs towing GVM utilizing the fifth wheel and turn table coupling which is quite common in the northern hemisphere where it is used in preference to the rig feeder coupling. The breaking system and trailer components are all American, supplied by CM Equipment incorporating a Kodiak electric hydraulic breaking system for six stainless steel disc breaks.

In summary, Bladerunner Boats and Greg Shine have a well-earned reputation for building quality strong vessels of this type and in reviewing *Knave* it is easy to see why. With the added stringer strength as recommended by the Australian standards, the vessel while heavy in deadweight, is also heavily constructed and designed to carry a heavy load. The workmanship throughout is good and the finish of the exterior has been random sanded, acid washed before the application of three coats of Nyalic clear coatings, leaving a pleasant look and durable finish.

On arrival in Canada, yes she will be different from the norm and will turn heads. But it is our guess that when she starts work, doing what she has been designed to do efficiently will ensure young Kenneth Keeping will be chuckling all the way to the bank. 

#### SPECIFICATIONS

Length overall	10.4m
Hull length	9.0m
Beam	3.1m
Construction	5083 marine grade alloy plate
Displacement (light ship)	5500kg
Power	2 x 250hp Yamaha 4-stroke
Petrol	1720 litres
Diesel	125 litres
Water	240 litres
Electronics	ENL
Designer	Greg Shine
Builder	Bladerunner Boats Limited
Built to MNZ SSM coastal and Australian 2B offshore.	

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