PILOT BOAT
A BREATH OF WIND

BY KEITH INGRAM

CentrePort, so named because of its location, is a fully operational port, located in the geographical centre of New Zealand, within the natural, sheltered deep-water harbour of Port Nicolson at Wellington, New Zealand's capital city.

The location offers convenient access to the east and west coasts, from its position on the axis of the Tasman Sea and Pacific Ocean. These features, the Wellington port team says, make CentrePort New Zealand's most strategically situated international port – as well as the northern gateway of the blue road across Cook Strait. The port operation facilitates the movement of goods, trains, vehicles and passengers between the North and South Island through its two inter-island passenger terminals.

Internationally it manages over 760 international-commercial ship arrivals, 3,400 inter-island ferry arrivals, plus almost 100 cruise ships per year.

CentrePort is one of the largest seaports in New Zealand, and moves $3.5 billion worth of cargo each year.

Pilotage is compulsory for all vessels exceeding an International Gross Registered Tonnage (GRT) of 500 tonne, except where Master holds a current Pilotage Exemption Certificate for Wellington. Wellington's pilots carry out around 1250 ship pilotages in the port per annum.

The port's current pilot vessel is a Striker launch, built by Wanganui Engineering (the forerunner to Q-West) in 1993. At 14m long and a service speed of 17 knots, the *Tarakena,* having served the port well for nigh on 25 years, will become the port's backup support vessel.

When CentrePort decided to upgrade and build a new pilot boat, the Marine Services Manager and Chief Pilot Charles Smith said, "When doing the assessment phase, I visited Safehaven in Ireland, Harwich (UK), and several pilot stations in Australia to determine if other builds would suit the unique bad weather conditions applicable to the port of Wellington." The port entrance is open to the south and swells over 10m in height are not uncommon.

"Although the French Pantocarene ORC model, common in Australian ports and, as built by Hart Marine, now in service in Lyttelton and Timaru, was very highly regarded, the offering


The main conning position


Engine controls at ease of hand


The aft emergency control station

provided by Q-West ultimately met our needs. Particularly as Q-West are specialists in the construction of alloy craft, a medium with which we are familiar," said Charles.

After the *Tarakena*, Charles said they sought an experienced, quality-driven builder of repute and with whom we had confidence in completing the project to high standards.

On approaching Q-West with the project in mind, the Q-West management team immediately set to work to provide the basis of what ended up to be an outstanding project for them.

"This started with ensuring that the vessel's UK-based designer was able to visit CentrePort to provide a presentation to our marine staff – the ultimate users," Charles said.

Q-West was able to provide guidance to enable CentrePort to make an informed decision to introduce waterjet propulsion into their operation. The Port staff were impressed with the new Carmarc-designed pilot vessel *Mikotahi* delivered to Port Taranaki in 2014. This craft was capable of working in the wide window of sea conditions experienced on New Zealand's west coast and was the first pilot launch in New Zealand to be built and classed to Lloyd's Register Special Service Craft Rules +100A1 SSC, pilot, mono, HSC, G3, MCH. That's still an impressive-sounding pedigree, I must say.

TE HAA

This new vessel is named *Te Haa*, meaning 'the breath'. The name is a reference to the breath exchanged between people when they touch noses in a *hongi*, which is analogous to the way the pilot vessel will meet visiting ships.

Te Haa, is a purpose-built Camarc Pilot launch, built by Q-west to the same Lloyd's standards as *Mikotahi*. But she is not 'in Class', although the welders were all of 'classification' ▶


Galley below – note emergency escape ladder


The crew mess room below

standards and approved.

She is 19.8m long and has a service speed of 24 knots.

Constructed in 5083 marine grade alloy, with 8mm hull 6mm side and 5mm cabin, the vessel has been built under supervision to Lloyd's Register exacting standards of Special Class Rules and Maritime New Zealand Part 40C, for restricted coastal.

Te Haa, is powered by twin Scania DI16 076M 900hp (661kW) @2300rpm marine diesels, supplied locally by South Pacific Diesels. These engines drive twin Hamilton HM461 water jets – the largest Hamilton jets sold to New Zealand clients.

Of note, the Hamilton 'HJ' series are marketed, sold, and installed by licensed agents, while the larger 'HM' series can only be purchased from HamiltonJet and must be installed under the firm's supervision, thereby maintaining the exacting standard required by HamiltonJet on these larger commercial units.

Because of the vessel configuration, connecting the drive train to specifications, ensuring absolute dependability and integrity from its propulsion system, Beattys Driveline Technologies was called on for the design and supply of the cardan shafts.

These two-piece cardan shafts connect the two Scania powerplants and ZF500 gearboxes to the HamiltonJet propulsion units. All welding on the driveline assemblies was carried out to internationally recognised BS EN ISO 15614 weld procedure. The extensive process included crack and material testing by an accredited metallurgical laboratory.

Also, below is the Kohler 17.5EFKOZD 50hZ gen-set that supplies the ship's high voltage power.


Small head


Aft rescue station

Wellington is a noise sensitive city with a 2400hrs to 0600hrs curfew on the airport at night. We all know how well noise travels over water, and with the Wellington pilot station only two nautical miles off Pencarrow Head and the coast, with the main shipping channel being less than *one* nautical mile from the shore, it is well within earshot of the coastal residential community.

Therefore insulation and sound proofing material throughout the vessel was supplied in two parts – with Foreman Insulation providing the fire-proofing and Pyrotek the sound insulation.

Added to this was the requirement for minimal vibrations and exhaust noise both on and away from the vessel. To ensure minimal noise escape, the Q-West boat builders painstakingly installed both sound insulation and fire-proofing.

To assist in the elimination of vibration, the pilot-house is fully isolated and mounted on rubber mounts; meeting the noise and vibration specifications of 75db in the pilot-house, with 67db in the cabin when underway at service speeds.

The end result is an exceptionally quiet vessel – both for those on board or nearby when the vessel is passing.

LAYOUT

The main cabin and lower accommodation are serviced by independent water-cooled air conditioning units, as well as a dedicated demisting unit for the helm windows (which is critical for maintaining adequate visibility in a vessel equipped with so much glass).

Additional heating has also been provided in all the voids to keep the vessel dry and free of condensation when alongside.

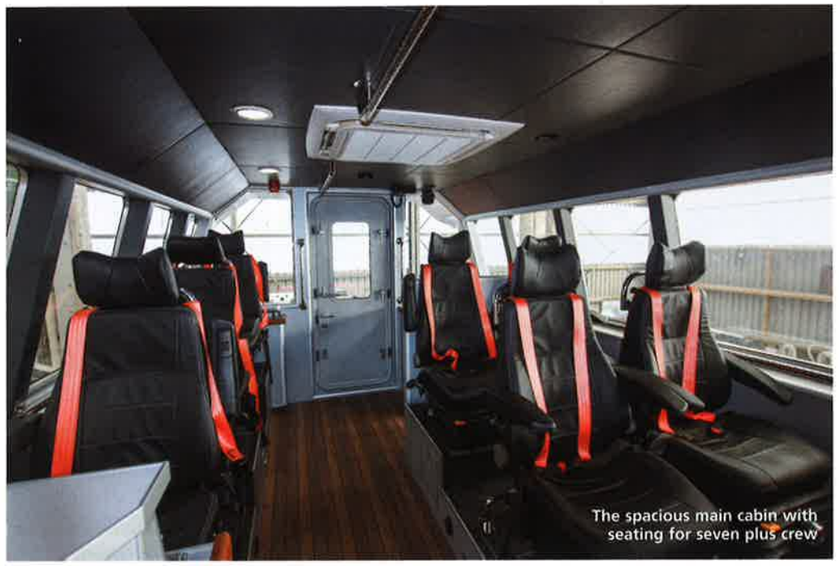
There are *nine* mechanical suspension KAB marine pilot seats in the pilot-house, each trimmed in custom leather. These KAB 514C mid-highback seats feature arm rests and head rests, along with four-point integrated full harness safety belts.

Ergonomically designed with a range of adjustments for comfort, these seats aim to provide correct support for the spine, and the two-spring mechanical suspension also protects occupants from harmful vibration.

One of the KAB seats doubles as a jockey seat. It is fitted forward adjacent to the coxswain to allow the Pilot to come forward from his control position when needed.

The coxswain is afforded excellent operational vision around the vessel; the windows supplied by Glasshape of Warkworth are 'body-bonded'. They have a fresher appearance than the traditional framed windows normally seen on a pilot boat.

The conning position is supported by a vast modern electronic package supplied and fitted by ENL. The vessel features ▶



The spacious main cabin with seating for seven plus crew

an extensive electronics Furuno package provided by ENL which includes three TZT screens, one for coxswain, one for crew person and one at a dedicated Pilot station. There is an onboard CCTV camera system as well as the RM Young ultrasonic weather info system.

There is a Maretron onboard monitoring system for the services and engine management system with all the vessels operating parameters capable of being recorded on board and downloaded for analysis.

The kit includes an Icom M506E VHF radio; RM Young anemometer with true wind display

FLIR thermal camera; Olorin 12 inch marine display; Fusion sound system; and from Furuno: FM8900S VHF radio with 2 remote stations; navpilot 711C; FA170-GPA AIS.

Furuno DRS64 3.5ft open array radar; and FI70 DST display. The vessel is also equipped with wifi and internet capability on board.

Te Haa is designed to be *self-righting* in heavy seas, so the cabin windscreen and glass had to be hydrostatically tested to withstand 9M of water pressure (nine tonnes of water per square metre) – which is four times the design pressure of the boat.

The strength of the DuraShield® marine glass used meant that the yard could reduce thickness from 19mm glass to 15mm glass – a huge weight saving.

FENDERING

Protecting the vessel during close quarters encounters with ships of all sizes is the resilient fender system is called a "Popsure" fender which is used extensively on the Dutch Pilots' Association vessels.

This system comprises of a polyethylene closed cell foam that will not deflate or retain water when punctured, and is capable of taking the hard knocks and abrasions that are an operational hazard on these vessels. The fender system extends past the transom before wrapping around and being secured at the edge of the rescue cut- out.

We note a slight difference down aft with a lower transom platform protecting the water jets, from which the rescue cradle rockers over so as to recover a person in the water and deliver them to deck level.

The cradle maybe lowered and used to scoop a dead weight in the water by operating the vessel in a frontend loader motion astern, using the rear controls.

Once the object (or person) is in the cradle, it can be raised and rolled so that there is ease of access for the crew to offer immediate first aid or transfer the patient to a stretcher for further attention.

FINISH

Outwardly, the finished look is painted using International Paint's new exterior marine paints system. This and the underwater sections of the boat also uses International Paint's underwater protection system for alloy craft.

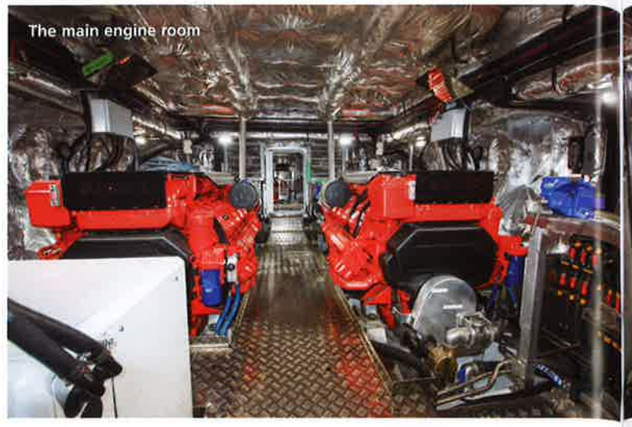
PILOT TRANSFERS

On walking around the upper deck, apart from at the transom where there are stern quarter safety rails and the rescue cradle, the sides remain clear of obstructions. A lot of thought has gone into ensuring the safety of crew and passengers aboard when underway. There are numerous grab rails and safety bars fitted in strategic positions.

There is a main pilot safety handrail and safety harness track, and cars where anyone on the upper deck can be clipped to a pilot ▶

PHOTO COURTESY OF CHIEF PILOT CAPTAIN CHARLES SMITH

A pilot's view from the ship


The main engine room


Twin Scania power below

car before going forward. On the bow at the safety landing point, we note the changes in the safety rails and landing point, where the pilot may disengage his harness from the car before making a leap for the ladder.

At this point, while there may be a deckhand in support, he is on his own. Jump and climb like hell, or face the prospect of an untimely swim and checking out the recovery scoop aft.

On return, the transfer is just as risky – or exciting – as his leap from the ladder to the landing point must be timed to meet the waiting arms of the deckie ready to clip him onto the safety car.

While there is a pair of mooring bitts on the stern quarters, the forward breast bitts are recessed into the pilot-house structure on the shoulder and a further set of bitts are forward under the fo'c'sle safety rails.

Also to port under this central safety rail is a Maxwell anchor winch mounted over both the hawse and naval pipes.

The pilot vessel carries one 12-man RFD SeaSava inflatable life raft forward in a recessed quick release cradle. There are two

> During sea and acceptance trials *Te Haa* performed to the expectations of both designers and builders

life rings mounted either side in ready release brackets.

When survey slipping or servicing is needed, the vessel has four certified lifting lugs built in and concealed below deck hatches for lifting the boat using a harbour mobile crane – negating the need for spreaders, complicated rigging and the risk of strops slipping.

The main crew accommodation and heads are below. There is a comfortable mess room, a galley complete, with fridge – microwave oven and sink; all the facilities to make a brew or heat a meal.

Forward through a watertight door is the mid void and stowage space with another door leading to the forepeak space, including the chain locker.

Further aft is the main door to the engine room, with a further door to the lazarette and water jet machinery space.

During sea and acceptance trials *Te Haa* performed to the expectations of both designers and builders. While she is certainly a heavily constructed vessel with a heap of machinery and extras on board, at 30 tonnes she is no slug. She delivered a top speed of 33 knots (well above expectations) and meets her specified service speed of 24 knots at 80 percent power with ease.

Te Haa's power plant offers ample thrust, delivered from the larger than usual HM461 jets, resulting in good manoeuvring ability.

She rides well, with a gentle landing and a good feel downhill in the seas off Pencarrow seen so far. She is, true to design, exceptionally quiet with sound levels of 67db in the cabin.

The spacious engine room means she will be easily maintainable – another prime consideration in the original specification.

A final word from Charles advises that CentrePort was very pleased to have local industry input in the project and it was important that these relationships continue. It's been "a total credit to all those involved with the construction and delivery of the vessel," he said.

Meanwhile the CentrePort crews and pilots report they are still getting used to the different handling technique required by waterjets. The company has employed a trainer from Port Taranaki to give nine days' transition training to the already experienced coxswains (who had to get used to the idea of not having rudders).

Pilots and crew appreciate the reduced transit time the service speed at 80 percent MCR (maximum continual rating) of 25 to 26 knots provides. It means less time exposed to inclement conditions than with the previous boat.

"With the thought of a MOB situation arising, our people feel much safer with the knowledge that there are no props in the water, and the incredible handling characteristics of a water jet for retrieval purposes," Charles said.

Q-West is proud to demonstrate yet again that they can work with owners and designers worldwide to provide a design that best meets the requirements of the end user – as well as bringing their industry experience and independent advice to the table. The combination ensures the process of any new build is both efficient and cost effective.

SPECIFICATIONS	
LOA	19.8m
Beam	5.7m
Draft	1.0m
Construction	5083 Marine aluminium
Power	2 x Scania DI16 072M 900hp (661kW)
Propulsion	Hamilton HM461
Service speed	25 knots
Fuel capacity	3000 litres
Survey	Maritime NZ, Part 40C and MOSS
Owner	CentrePort Limited
Designer	Camarc Design, Scotland
Builder	Q-West Boat Builders Limited, Wanganui