

SHIPPING GAZETTE™

Precise data at fingertips of POAL pilots

By Warren Head

Pilots working at POAL now have GPS technology at their fingertips, adding to their knowledge of the Auckland coastline and Waitemata Harbour.

Following a multi-year survey they can almost claim to 'know every inch of the place'.

POAL have invested in the development of software which uses GPS positioning as a navigational tool in the company's pilots department.

"POAL has rolled out the new technology to all of our pilots on every vessel sailing in and out of Auckland," POAL chief pilot John Barker told *Shipping Gazette*. POAL has twelve licensed pilots, rostering five on any single work day.

The navigational programme is loaded to tablets carried by pilots assigned to vessels — in POAL's case these are Windows-based Panasonic FZ-G1 toughpads well suited for harsh maritime environments. They are called Portable Pilot Units (PPU).

The software contractor is Navicom Dynamics, based at Albany, Auckland. The company provides offshore, channel and harbour solutions to the port sector in some 20 countries.

The PPU integrates with onboard Automatic Identification Systems, WiFi network, Bluetooth for access to ships' systems and have independent GPS receivers.

Mr Barker said, "The programme operates similar to air traffic control, utilising GPS positioning and can identify all shipping in the Auckland region and their locations."

"We realized that what was being built was not just a portable piloting unit to monitor a vessel. We have developed a digital strategy that the pilot can take onboard." Mr Barker explained that the port company has added other layers of information,

including precise data on what lies beneath a vessel and on each side of the vessel.

In the context of Waitemata Harbour, precision information is a valuable tool; whilst from ashore the harbour presents a wide expanse, the actual navigable channel for larger ships is constrained by terrain and tide.

With a trend towards larger ships carrying greater volume of containers, it is likely that vessels of 6000 TEU capacity will eventually be commonplace in New Zealand waters. Several New Zealand ports are now undertaking or planning significant capital expenditure on dredging programmes to provide adequate draught for bigger ships.

"The critical part for the pilot is in understanding the safety bubble around the ship," said Mr Barker. "All ships are required to carry charts by law and we bring more localised information to a ship." The port uses Land Information charts that are updated annually.

The commercial sphere of POAL includes port areas and coast from Hobsonville to Tamaki estuary. To gain a deeper knowledge of the seabed, POAL also invested in a bathymetric profiling of the harbour seabed. Conducted by POAL over recent years, this has resulted in a detailed data set with granular information to 20cm intervals.

"The critical information is what lies underneath the ship and at what depth. To this we add a tidal data set which is useful for any port and particularly in Auckland harbour which has a 3.5m tidal range."

The survey results have been processed into the charts shown on the PPU toughpads carried by POAL pilots and in real-time to help pilots to determine the safest position for the ship.

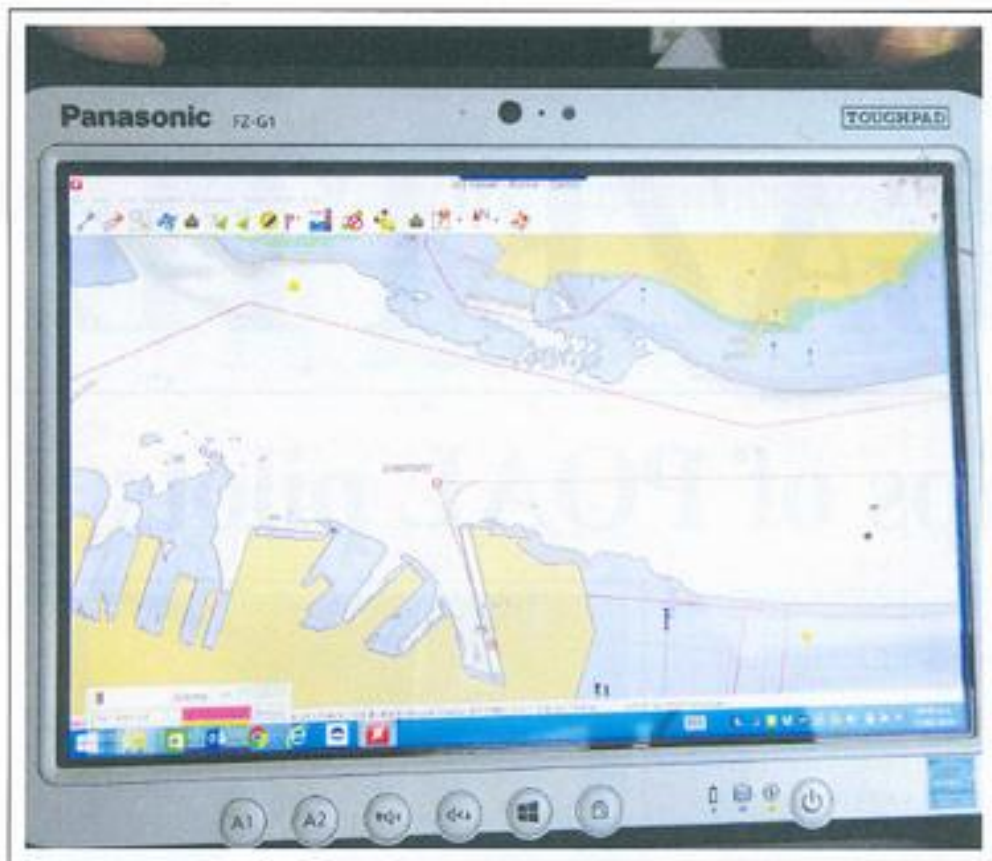
"The data is continuously recalculated to the



John Barker, chief pilot at Ports of Auckland, holding a toughpad loaded with navigational software.

vessel's movement with the safest part of the bubble shown in white and lesser depth shown in blue." When a ship can be drawing 11m and there is a one

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The navigational data includes precise information on the surrounding channel.

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metre tide running, knowing the safest position at all times is a very useful tool. There are some 'pinch and pass' points in the Waitemata where passing criteria apply and the new technology has helped to identify proximity to 'no-go' areas.

Compared to the scale of soundings shown on official charts, the POAL system is "dramatically more detailed," said Mr Barker.

The pace of the project has been influenced by changes in shipping. "The harbour channels are not wider, the berths are not large but ships are getting bigger — this technology grabs the safety buffer back."

Other New Zealand ports have similar systems and all use LINZ charts in hard format; what POAL has achieved is data integration in real-time. Should a ship develop equipment failure, or needs to take evasive action from another vessel, the system should guide the pilot to the best decision as to the route to take.

The PPU assists the marine pilot to make complex manoeuvres in confined spaces and adverse conditions.

The device also helps to alleviate the translation issues that can arise when pilots are working on foreign vessels where they do not know any of the crew.

POAL is working on further refinements to the system and plans to roll out a software application in 2017 that will enable closer interchange of information between pilot and ship's master. Information may become available days earlier to transiting vessels and updated real-time when the pilot comes aboard.

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