

IN THE NEWS

Q2 2019

CONTENTS

Electronic Surfboard To Make A Splash.....1

Fast Vessel Owners Search For Simpler Waterjets.....2

HamiltonJet Secures Multi -Year Project With Taiwanese Coastguard.....3

How Scania Is Helping Whale Watch Give Back To Nature4

Moose Boats To Build Fire/Rescue Craft For Lake Ontario.....5

Repurposed Vessel To Debut6

Repurposed Vessel At Seawork.....7

Vessel Review : Mooloolaba 8-9

Vessel Review : Reliance.....10-11

Waterjet Designers Work Hard To Keep It Simple 12

Vessel Review : Jet-Powered13-14

Fast Fire-Fighting Vessel Design 15

NY Firefighters Order Moose Boats 16

Rescue Cat 16

On The Frontline of Fire Defence..... 17-18

On The Ways19-20

Electronic Surfboard To Make A Splash

NZ Herald
18 May, 2019 5:00am



Matt Kelly demonstrates an all-new electronic surfboard at the Boat Show.

Looking like the Silver Surfer, Matt Kelly demonstrates the new Mertek electric surfboard at the Hutchwilco New Zealand Boatshow on at the ASB Showgrounds this weekend.

It took Kelly about 10 minutes to master, but Cameron Harris, director of Beacon Marine the NZ distributor, reckons his business partner picked it up in about half an hour – and he’s more silver-haired surfer.

Harris said that kids and the young-at-heart will get the most from this inflatable, but durable machine that will withstand being dragged up a beach, but shouldn’t be used around sharp rocks.

The e-board works well on the flat water of lakes and lagoons, but Harris says that they have tried them on small swells and that Kelly aims to try one out on one of the recognised surf beaches around Auckland.

The board is powered by a small modified version of the Kiwi innovation, **the HamiltonJet**, and will reach a top speed of about 26 km/h. It is designed and built in China by the same company that makes DJI Drones.

READ MORE:

Beacon Marine will be demonstrating the e-board at Westhaven Marina in June and Harris recommended calling in advance as he expects a lot of people will want to have a go.

And the cost? \$5250. That’s quite a lot of silver to be a surfer.

Fast Vessel Owners Search For Simpler Waterjets

Marine Propulsion

Mon 29 Apr 2019

A trend for hybrids

New Zealand-based **HamiltonJet** also notes a trend for hybrid and electric drive solutions on waterjet-equipped vessels.

“This is still a small trend, but it is definitely here to stay,” says **HamiltonJet** CEO Ben Reed.

The company is in the process of renewing its entire waterjet portfolio after developing a new design that, according to Mr Reed, delivers three benefits: between 3% and 7% improvement in thrust; up to 40% more bollard pull; and several knots improvement in minimum speed.

“Achieving an improvement in all three of these together has been a goal of ours for some time as they usually trade off against each other,” he says.

HamiltonJet's HTX30 is the first of its waterjets to be subject to a portfolio-wide redesign

The first new jet to be launched was the HTX30.

HamiltonJet, which sells between 1,200 and 2,000 waterjets each year, reports good early sales of the new HTX30 jet. The company will eventually be replacing all 17 models in its portfolio, with the next new model to be launched this year.

HamiltonJet has also investigated the perennial issue of corrosion in brackish water – something that affects vessels which spend a long time in estuarine waters, where lower salinities cause anodes to become less effective.

The company spent two years capturing corrosion data from a test vessel in Hawkesbury river in Australia. Using this data, **HamiltonJet** developed advanced corrosion simulations which it now uses in jet design to optimise material selection, coatings, anode position and size. The result, says Mr Reed, is a 10-fold improvement in brackish water corrosion resistance for its latest products.

Last year **HamiltonJet** launched a new vessel control system, AVX, which offers a fully dual redundant class-approved primary control system and improved user interface. The system is designed specifically to make the addition of new features and functions easy. One current function is a low-cost, open-water station-keeping system called JETanchor. Mr Reed explains that the company is working on a precise GP-based manoeuvring control that can allow safe use both around moorings and closer in to obstacles.

One key consideration for **HamiltonJet** as it developed its control system is that it should not be open to the internet, due to the risk of hacking or corruption. The company is working on a new architecture to allow its jets to connect to the Internet-of-Things without breaking this rule. The system will be trialled on multiple vessels this year.

“Ultimately it will allow us to provide our customers with connected services such as remote support and upgrades, predictive maintenance, vessel data logging and analysis, without any risk to the control of the vessel,” says Mr Reed.

Given **HamiltonJet's** exposure in the military and patrol sector – representing more than 40% of sales – it is not surprising that vessel autonomy has emerged as a trend that the company is looking into. The supplier has completed more than 80 installations on vessels with autonomous or remote-control systems. One publicly known example is a minesweeping platform built by Atlas Elektronik and operated by the UK Ministry of Defence.

“The waterjet control system should not be open to the internet, due to the risk of hacking or corruption”

Mr Reed notes that autonomy does not just mean unmanned operation. “We believe ‘skipper assistance’ tools will play a bigger part in the short term, particularly in the commercial space where we are working on products to improve safety and productivity,” he says.

One current example of ‘crew assistance’ is the partial automation of firefighting functions on two new vessels for the Singapore Civil Defence Force. The vessels deploy HM721 jets and **Hamilton's** new firefighting control system. The fire pumps are driven off the front of the main propulsion engines and the waterjet control system manages the complicated clutch engagement, priming process and speed control. This leaves the captain free to steer the vessel and operate fire monitors.



HamiltonJet Secures Multi-Year Project With Taiwanese Coast Guard

Baird Maritime
20 May 2019

HamiltonJet recently signed a multi-year, multi-boat project to supply waterjets to the Taiwan Coast Guard for new coastal patrol vessels. To mark the new relationship a delegation from Taiwan consisting of Coast Guard, shipyard, and other notable guests visited Christchurch, New Zealand.

The party was treated to a tour of the Christchurch facilities by Operations Manager Rob Carrol before a lunch was held at which a Memorandum of Understanding was signed by the Deputy Director of the Taiwan Coast Guard, the Vice Chairman of Jong Shyn Shipyard and Vincent Mortimer, CFO for **HamiltonJet**.

As part of their visit, guests were able to board a local NZ Coastguard vessel and were given a demonstration of the twin HJ322 waterjets with “Blue Arrow” controls and “Jet Anchor”.

After a highspeed ride around the Lyttleton harbour, while where the crew demonstrated bucket assisted turns, emergency crash-stops and virtual anchoring off a buoy, the visitors were given the opportunity to drive the boat and operate in slow speed manoeuvres using the Blue Arrow Mouseboat and Jet Anchor.



How Scania Is Helping Whale Watch Give Back To Nature

Cruise&Ferry
27 May 2019

Maori-owned tour operator Whale Watch reduces fuel consumption and minimises environmental impact by installing Scania engines on its vessels



New Zealand-based tour operator Whale Watch has a marina in the town of Kaikoura, where the Seaward Kaikoura Range meets the Pacific Ocean. Every year, the company takes around 100,000 visitors from Kaikoura out to sea to view – with 95% success rate – giant sperm whales in their natural habitat. The company's commitment to responsible tourism and the environment is key.

"As a Maori-owned company, we cherish the twin values of hospitality to visitors and reverence for the natural world," says Kauahi Ngapora, general manager of Whale Watch. "We make a living from nature, so we need to do what we can to minimise our impact."

When the company was founded in 1987, it used a 6.7-metre inflatable vessel to carry eight passengers at a time. Today, the Whale Watch fleet comprises four modern catamarans specially designed for whale watching, each with capacity for up to 48 passengers. To minimise the company's carbon footprint, the vessels' engines have been made as fuel-efficient as possible.

Some years ago, Whale Watch undertook a significant project to review the types of engines it was using and standardised them all.

"Improved fuel economy, reliability, operational parameters providing us with the necessary performance, compatibility with our jet units and robust after-sales support were the criteria we reviewed, and both Scania and the team at South Pacific Diesel Systems [Scania's distributor] were our preferred options," says Ngapora.

Consequently, Scania collaborated with **HamiltonJet** and Q-West Boat Builders to develop a propulsion system driven by 16-litre engines.

"That was not only kinder on the environment, but also offered other special benefits, including a significant reduction in fuel consumption and lower overall operating costs," says Ross Williamson, managing director of South Pacific Diesel Systems.

Each of Whale Watch's four catamarans is now powered by two new Scania engines.

"We are also very interested in developments around more environmentally sustainable engine options that still provide us with the performance we require," Ngapora says. "We look forward to exploring this further with Scania. Maori take an inter-generational view of things, and that is really about doing what we can to ensure that what we have today can be enjoyed by future generations."

Moose Boats To Build Fire/Rescue Craft For Lake Ontario

Workboat
APRIL 22, 2019

The navigation and electronics suite is comprised of multifunction navigation screens, radar, 3D side scan sonar, AIS, VHF radios, radio direction finder and a thermal imaging camera. Moose Boats rendering



Moose Boats, Vallejo, Calif., was awarded a contract recently from the City of Rochester, N.Y., Fire Department for first M2-38 fire rescue catamaran to be built for the Great Lakes.

Main propulsion for the aluminum boats will come from twin Cummins diesel engines, producing 425 hp each, connected to [HamiltonJet](#) waterjets through Twin Disc transmissions.

The Rochester Fire Department (RFD) has jurisdiction on the Genesee River and Lake Ontario. The Port of Rochester is home to over 1,000 seasonal and transient slips including the city's new marina, the Rochester Yacht Club, several private marinas, and a cement shipping terminal. The port of Rochester is also a safe harbor of refuge for the main Great Lakes shipping channel that passes in front of the port.

RFD's new Moose Boat will be equipped with a fire pump system flowing over 1,500 gpm of fire suppression water to cabin roof and cockpit mounted monitors while simultaneously maintaining full maneuverability from both propulsion engines and jets. An integrated 5"-dia. discharge will allow RFD to flow water to land-based fire apparatus where hydrant systems are not present.

The navigation and electronics suite is comprised of multifunction navigation screens, radar, 3-D side scan sonar, AIS, VHF radios, radio direction finder and a thermal imaging camera. A heavy-duty push knee will enable the M2-38 to come in contact with larger vessels and piers while the combination ladder will allow fire fighters to disembark in beach landing scenarios and facilitate dive and rescue operations from the stern.

The city of Rochester used New York State DASNY Grant funding and GSA's Schedule 84 Cooperative Purchasing clause to procure the boat from Moose Boats' GSA pricing schedule.

Rochester Fire Department's boat committee brought several specific requirements and a cohesive approach toward developing solutions with Moose Boats, the boatbuilder said. The committee opted for an extended walk-around cabin configured with three shock-mitigating crew seats, an incident command/navigation station, an 84" patient bench with EMS storage below and an integrated deck level head enclosure. Dedicated hose storage is planned for the underside of the gunwales and weather-tight enclosures in the fore deck and the aft deck will house firefighting foam and the additional valves, nozzles, tools and hardware necessary to respond to a wide range of fire and rescue scenarios.

Rochester is in Monroe County, which has the second largest number of registered boaters in the state of New York. The RFD's new vessel will work in conjunction with marine resources from Coast Guard Station Rochester, U.S. Customs and Border Protection, the New York State Department of Environmental Conservation, and the Monroe County Sheriff Marine Unit to protect these assets and respond with neighboring marine emergency response agencies along the south shore of Lake Ontario.

Repurposed Vessel To Debut At Seawork

Maritime Journal
20 May 2019

Turner Iceni will be exhibiting a new CTV vessel at Seawork 2019 which has been built with recycled and repurposed materials to achieve sprint speeds of 30 knots.

The Iceni Revenge is based on the 20m South Boats IOW-built Don Quixote, purchased by Turner Iceni in January from Vroon. Iceni Revenge has been lengthened to 23m and now incorporates 20,000 litres of fuel storage.

Richard Thurlow, director at Turner Iceni, said: "Taking an asset that has seen better days, then recycling and repurposing it for today's market is, we believe, a first for the industry - one we have achieved together with Diverse Marine on the Isle of Wight."

Powerful engines

Diverse Marine was involved in the development and build of the donor vessel and also assisted during its lengthening and refit.

Iceni Revenge has been re-engined with twin MAN V12-1400 main engines and **Hamilton HM651 jets**, incorporating a new AVX control system and jet anchor. It is capable of a continuous operational speed in excess of 25 knots at 85% engine load.

The updated bridge features a JRC JMA5210-6 IMO main radar system with a Furano TZ Pro second radar, together with seating for up to three crew.

Diverse Marine will be exhibiting at Seawork on stand VB34.



Repurposed Vessel At Seawork

Seawork
17 May 2019

One of the most intriguing vessels on the pontoons at Seawork is the "Iceni Revenge". The vessel is formally the "Don Quixote" which has been recycled and repurposed to create a 23m Crew Transfer Vessel.

Don Quixote, a 20m South Boat, was purchased by Turner Iceni in January this year from Vroon.

It has been re-engined with twin MAN V12-1400 main engines and **Hamilton HM651 jets**, incorporating a new AVX control system and jet anchor. Iceni Revenge is now capable of sprint speeds of 30 knots and a continuous operational speed in excess of 25 knots at 85% engine load.

To enable refuelling operations, the donor vessel has also been lengthened to 23m, enabling a total fuel capacity of 20,000 litres, together with 30,000 kg of cargo capacity split between a bow deck of 24m² and an aft deck of 63m²,

The interior has been completely refreshed with a re-designed galley and updated passenger saloon, featuring 12 x High Speed Code Annex 10 seats. The updated bridge features a JRC JMA5210-6 IMO main radar system with a Furuno TZ Pro second radar, together with seating for up to three crew.

Ben Colman, Director at Diverse Marine: "With many of the staff and directors having been involved in the development and build of the donor vessel, Diverse Marine had extensive knowledge to offer during the lengthening and refit. But in the space of just a few months we have re-engineered a crew transfer vessel that is now at the forefront of the industry, at a fraction of the cost of a new build."

Richard Thurlow, Director at Turner Iceni: "Taking an asset that has seen better days, then recycling and repurposing it for today's market is, we believe, a first for the industry - one we have achieved together with Diverse Marine on the Isle of Wight. Iceni Revenge now offers substantial fuel capacity, cargo capacity and a very comfortable environment for passengers, whilst also reducing Turner Iceni's capital expenditure and carbon footprint."

"Iceni Revenge" will be exhibited on the quay at Seawork 2019 at berth VB34 - with tours of the vessel available throughout the event.



Vessel Review | Mooloolaba – Top-Of-The-Line Patrol/Rescue Boat For Australia’s North-East

May 14, 2019
Baird Maritime

The water police service of the Australian state of Queensland contacted Hart Marine in 2017 with the



proposal to produce two high-speed police patrol vessels.

It required a fast response, all weather police patrol vessel, with safety, fuel economy and seakeeping capability being high priorities. The owner wanted a larger, more seaworthy vessel to enable response in harsher sea conditions, which significantly improves the police force’s ability to respond in all situations.

Through close work with representatives of Queensland Police, Hart Marine was able to customise one of its models with these specific needs in mind.

Mooloolaba, the second of the two vessels, operates in NSCV class 2B and 2C waters, conducting patrols, rescue, and police duties in the waterways around Mooloolaba. Her high-speed seakeeping ability and manoeuvrability make her an ideal police patrol and rescue vessel as well as being a fast response craft.

According to Hart marine, the most complex part of the build was the internal fitout. The client had many requirements, which naturally led to space issues. In order to meet the requirements, every bit of available space had to be utilised.

Hart Marine said that working with the client to optimise the layout of the vessel and utilise all space to the maximum potential was critical in this build.



“During the build, a lot was learned about the internal fit out of our boats, and the more innovative ways in which we can create more storage without compromising on the serviceability and reliability of our vessels,” said Graeme Taylor, General Manager at Hart Marine.

Mooloolaba has been fitted with twin marine engines rated at 860 kW at 2,300 rpm coupled to **Hamilton HJ 403 waterjets**. Due to the flat output curve of the engines, Hart was able to couple the engine with the jets without the use of a gearbox. Neutral is selected by lowering the jet buckets to direct an equal amount of water forward and astern.

“Removing the gearboxes gave us a weight saving of approximately 600 kg and no power losses in a gearbox which are around three per cent,” added Mr Taylor. “From this, we were able to select the coarsest impeller for the HJ 403 jet giving the best possible performance through the mid-range speeds.”

The outcome was excellent with the vessel achieving a top speed of 42 knots and a cruise speed of 28 knots.

Continued/...



“The waterjet installations are new to Hart Marine ORC vessels and were a request of our client Queensland Police. We have achieved an amazing propulsion package with exhilarating performance. The vessel is exceptionally controllable at 42 knots. We doubt that there will be many crooks getting away from this one!”

Garmin 22” touch screens were chosen by the client along with Czone switching. This is the first Hart Marine vessel to be fitted with Czone, which provides for all switching to be done on a centralised touch screen.

The vessel is fitted with Ocean 3 fenders for the full length of the shear and a lower fender in the boarding area. It has a large open aft deck that creates a great working platform for all police operations from boarding vessels to dive operations. There is also a swim platform and divers ladder to assist with dive operations.

Also on the aft deck is a davit to lift a 4.5-metre tender or jet ski onto the deck. The Queensland Police specification had a lot of equipment included in it and some excellent functionality, from 240V bilge pumps to toilet treatment systems.



Queensland Police’s pair of new patrol/rescue boats

Vessel Review | Reliance – Ultra-Low-Wake Ferry For Washington State’s Rich Passage

Baird Maritime
May 15, 2019



The second of three low wake, high-speed passenger vessels for Kitsap Transit, the Reliance, was launched on March 6 and has been undergoing sea trials and wake-wash testing.

Kitsap Transit had been searching for an economically feasible solution to bring fast and environmentally safe passenger-only ferry service back to the Kitsap Peninsula since Washington State Ferries was forced to terminate their service in 2003.

With the population and subsequent housing cost increases in Seattle, commuters are looking for new ways to get to work downtown faster, without driving. People can

take advantage of the lower housing costs in Bremerton, while also staying in the Seattle job market. This high-speed ferry service allows them to do just that.

Ferries on the Bremerton-Seattle route must pass through Rich Passage, a narrow mile-long passage (roughly 2,600 feet or 800 metres wide at its narrowest point) between the Kitsap Peninsula and the southern end of Bainbridge Island.

Previously, Washington State Ferries (WSF) passenger ferries had been forced to slow to 12 knots while in Rich Passage, to reduce wake and erosion, but drastically increasing the commute time. Residents along Rich Passage even won a class action suit against the state seeking compensation for damage done to their properties by the high wakes caused by the ferries.

Through a series of federally-funded wake wash studies, the wake signature of a hydrofoil-assisted Teknicraft Design catamaran produced the least amount of wake wash energy within its tested vessel class. Kitsap Transit contracted with Pacific International Engineering of Edmonds, Washington, to spearhead the ongoing research efforts in conjunction with Teknicraft Design to further enhance and optimise the vessel’s design.

Teknicraft worked with hydrodynamicists from the University of Iowa’s IIHR-Hydroscience and Engineering Research Center as well as naval architects from INSEAN in Rome, Italy to model an ultra-low wake hull.

The computational fluid dynamic analysis focused on optimising the hullshape and foil system in relation to minimum wake energy and maximum lift to drag ratio. Hull and foil interaction, as well as foil profiles, foil location and angle of attack were studied to create a system that produced optimum results.

Coastal specialists from Golder Associates of Redmond also evaluated the proposed vessel’s performance in terms of wake generation and resistance.



The design of the new vessel was based upon the successful ultra-low-wake Rich Passage 1, built in 2011. Reliance will also carry 118 passengers and has registered a service speed of 37 knots. The addition of air-conditioning units and an improved HVAC system will improve airflow to help reduce cabin temperatures during the summer.

Reliance was strictly modelled on the proven hull design, but additional enhancements and modernisations were added without hampering performance.

Complementing the hull design, the ferry also features “smart” technology for wake wash mitigation. The Naiad control systems for the adjustable composite hydrofoil and wake mitigating interceptors have been integrated with GPS technology to automatically position the foil and interceptors for the lowest wake energy signature when the vessel enters wake-sensitive coastal areas.

The system will also make adjustments for optimising performance and fuel efficiency when wake mitigation is not the critical operation. The adjustable hydrofoil can be manipulated intentionally through minor adjustments to optimise speed without increasing engine rpm or fuel consumption. The adjustable foil is highly beneficial for commuter ferry applications where the passenger load may be heavier in one direction than the other.

The hull form is a semi-planing type catamaran and employs a combination of symmetrical and asymmetrical sponson shapes, thereby combining the attributes of both shapes into one hull. The

symmetrical bow-section ensures directional stability in rough conditions, while the asymmetrical midship and aft sections ensure softness of ride and reduce the wetted area, enhancing comfort and fuel economy, as well as decreasing wake energy.

The hulls were constructed with high tensile strength 5383 aluminium alloy while the passenger cabin and deck were made from composites to reduce weight and to enhance the exterior styling and visual effect. The composite construction consists of a sandwich layer comprising of thin E-glass outer layers, reinforced with carbon fibre in highly stressed areas, and a high-density structural foam core between the fibreglass layers.

Lightweight aluminum honeycomb panel materials were utilised for finishing the interior spaces and high performance bottom paint was applied to help accomplish the speed and wake requirements.

The dynamic hydrofoil was moulded in carbon fibre and automatically adjusts as the vessel transits Rich Passage.

Quad Hamilton 403 water jets and Caterpillar C18 engines were fitted to provide a high-powered propulsion system in compliance with EPA Tier III emission regulations. The ferry carries 800 gallons (3,000 litres) of fuel. During test periods and in a light laden condition, the crew observed the vessel capable of speeds in excess of 45 knots.

The successful launch of Reliance will provide Kitsap Transit with a back-up vessel on the Bremerton-Seattle route. A third sister ship vessel, Lady Swift, is currently under construction and will launch in summer 2019.



Waterjet Designers Work Hard To Keep It Simple

Passenger Ship Technology
Tue 30 Apr 2019

New Zealand-based **HamiltonJet** is in the process of renewing its entire waterjet portfolio after developing a new design that, according to chief executive Ben Reed, delivers three benefits: between 3% and 7% improvement in thrust; up to 40% more bollard pull; and several knots improvement in minimum speed.

“Achieving an improvement in all three of these together has been a goal of ours for some time as they usually trade off against each other,” he says.

The first new jet to be launched was the HTX30. **HamiltonJet**, which sells between 1,200 and 2,000 waterjets each year, reports good early sales of the new HTX30 jet. The company will eventually replace all 17 models in its portfolio, with the next new model to be launched this year.

The company spent two years capturing corrosion data from a test vessel in the Hawkesbury river, Australia. Using this data **HamiltonJet** developed advanced corrosion simulations which it now uses in jet design to optimise material selection, coatings, anode position and size. The result, says Mr Reed, is a 10-fold improvement in brackish water corrosion resistance for its latest products.

Vessel Review | Jet-Powered Line Boat For Port Hedland

Baird Maritime
June 25, 2019

Western Australia's Dongara Marine has delivered its second work boat for operation in the world's largest bulk port. Jetwave Stanley Point has been operating in Port Hedland since shortly after builder Dongara Marine completed it in late April this year.

Owner Jetwave Marine Services approached Dongara Marine after learning of the Western Australian boatbuilder's first bulldog-class work boat which was delivered to the Pilbara Ports Authority (PPA) in mid-2018.

While the PPA primarily uses its vessel for harbour maintenance activities in Port Hedland and Dampier, Jetwave Marine Services wanted a similar design but customised for work as a lines boat. It also had a preference for diesel inboard and waterjet propulsion rather than the outboards used on the PPA's vessel. The naval architects at Southerly Designs modified their original design to provide the expected capability and a formal proposal was made.

With a length overall of 10 metres and beam of 3.2 metres, Jetwave Stanley Point is slightly longer and wider than the original Bulldog class but retains the tried and tested "punt"-style hullform with modified forward sections. The former provides for stability, deck area, and carrying capacity while the less flat bow shape reduces resistance and improves head seas performance.

The dimensional variation reflects and enables the propulsion change, including providing for an open transom with duckboard to both protect the waterjet and enable lines to be efficiently handled over the stern.

Other features that reflect the vessel's use for lines handling include a towing crucifix rated to five tonnes, and the ability to develop 1.2 tonnes of bollard pull, which was confirmed on trials. Jetwave Stanley Point was also designed, built, and equipped to ensure there are no external fittings or other potential catch points for ships' lines.

Jetwave Marine Services is also using the vessel to transfer personnel within the port, and thus Jetwave Stanley Point was placed into AMSA NSCV 2D survey for up to six passengers and two crew.

Even though speed was important, Dongara Marine fabricated the vessel with scantlings that exceed the NSCV minimum requirements.



“We know from our own experience as professional mariners that robustness and longevity are extremely valuable to operators, especially for boats like this that work in close quarters harbour situations and demanding environmental conditions,” explained Dongara Marine’s Managing Director Rohan Warr. “For that reason we almost exclusively used six millimetre aluminium plate for the structure.”

Despite the resultant weight penalty, the utility vessel has a maximum speed of 32 knots and can comfortably cruise at 24 knots. Power comes from a single Yanmar diesel driving a **HamiltonJet HJ322 waterjet**.

A North West Australia-based company offering offshore and port service vessels plus quay-side support across Australia, Jetwave Marine Services has grown rapidly since being formed a little over a decade ago. It currently operates a fleet of some 20 vessels including tugs, utility vessels, barges, multi-cats and port service vessels.

Michael Hansen said the new vessel, which is named for a geographic feature in Port Hedland, was reflective of the company’s commitment to the port and its users.

“Jetwave Stanley Point is the first of four new assets making their way to our Port Hedland operations,” he said. “We are committed to expanding the depth and breadth of the services we provide there.”

Jetwave Stanley Point SPECIFICATIONS

Type of vessel: Lines/personnel transfer boat

Survey: Australian Maritime Safety Authority (AMSA) - National Standard for Commercial Vessels (NSCV)

Class 2D - Non-Passenger vessel for partially smooth water operations

Port: Port Hedland, Western Australia

Owner: Jetwave Marine Services, Australia

Operator: Jetwave Marine Services, Australia

Designer: Southerly Designs, Australia

Builder: Dongara Marine, Australia

Construction material: Aluminium

Length overall: 10.0 metres

Beam: 3.2 metres

Draught: 0.6 metres

Main engine: Yanmar 6LY2A-UTP

Gearbox: Twin Disc 5050 SC

Propulsion: HamiltonJet HJ322 waterjet

Maximum speed: 32 knots

Cruising speed: 24 knots

Bollard pull 1.2 tonnes

Fuel capacity: 600 litres

Sounder / plotter Lowrance

Radios 2 x Icom VHF

Electronics supplied by Geraldton Marine Electronics

Crew: 2

Passengers: 6

Fast fire-fighting vessel design

BMT | The United Kingdom's BMT Specialised Ship Design, a subsidiary of BMT and formerly known as BMT Nigel Gee, has completed and delivered the design for a 35m-long, aluminium, high-speed fire-fighting vessel to Penguin Shipyard in Singapore. The vessel's fully redundant fire-fighting capability exceeds standard class requirements with three monitors and three interconnected pumps providing a total discharge flow rate of

3,000m³/hour. It has self-spray protection, a foam system and can be used as a pump station to support fire-fighting operations on shore. It also has a decontamination room and two air-locked access points to the citadel. The vessel is powered by a three-engine (MTU 16V4000), three-waterjet (Hamilton H721) configuration providing high operational flexibility and optimum efficiency at speeds in excess of 30 knots.



The craft can be deployed in various scenarios

ent's request, the boat will also feature an walk-around cabin, arranged with: three seating seats; a combined incident command station; and a 2.1m patient bench.

Patrol and rescue boats

NY firefighters order Moose Boats rescue cat

The Rochester Fire Department in the state of New York, US has ordered a fire rescue catamaran from San Francisco-based Moose Boats, to enhance safety in the Port of Rochester, which accommodates a marina and more than 1,000 slips. The client has opted for Moose Boats' M2-38 design, which measures approximately 11.6m × 4m and has a draught of 0.66m. The vessel will incorporate twin Cummins diesels, rated 317kW each, Twin Disc transmissions and **Hamilton waterjets**, as well as a firefighting system with a pump capacity of more than 5,675litres per minute.

On the frontline of fire defence

Singapore has boosted its front line of civil defence with a new firefighting boat concept, designed to surpass class requirements



The 35m fireboat has been equipped with a CBR citadel, to protect her crew and firefighter/casualty complements

It's an unfortunate fact of modern life but, as a thriving business hub, and home to the second busiest container port in the world after Shanghai, Singapore remains an attractive target for terrorists. In summer 2018, the city-state's minister for defence, Ng Eng Hen, warned that the risk of a domestic attack had reached its highest level since 9/11, and, responding to a reported increase in incidents across Indonesia and the Philippines, described terrorism as "a long-term problem" for both Singapore and the Asia-Pacific region.

The Lion City hosts extremely valuable real estate and vital amenities around its waterfronts, not least of all in Marina Bay Sands, and safeguarding these assets from the potential effects of more 'natural' catastrophes, such as fires, requires ongoing coordination and commitment. Similarly, there is an ongoing requirement for a skilled rescue service, to assist boaters who may have fallen foul of strong local tides or been involved in collisions and/or capsizals.

In April 2012, the government-administered Singapore Civil Defence Force (SCDF) announced that it was taking over marine firefighting and

rescue operations from the Maritime and Port Authority of Singapore (MPA). These roles are now handled by the SCDF's Marine Command (SCDF MC) division, which officially commenced operations in June 2014. One of the SCDF MC's primary goals has been to amass a powerful and robust fleet that can hold the line in crisis situations and provide vital life-saving services to the country's 5.6 million inhabitants.

Integrated system

In Q1 this year, the SCDF MC took delivery of SCDF *Red Dolphin*, the first in a series of new response vessels that have been jointly developed by UK-headquartered naval architect BMT Specialised Ship Design (formally BMT Nigel Gee) and Singaporean boatbuilder and aluminium specialist Penguin Marine – builder of the Flex series of patrol/rescue boats, offshore crewboats and small ferries. This 35m marine rescue vessel (MRV) concept was created to offer "an advanced, external firefighting capability that goes above and beyond standard FiFi Class 1 requirements", explains Sylvain Julien, principal naval architect at BMT – thereby enabling

her crew to not only tackle blazes at sea but also rescue a significant number of casualties from the water and respond to major incidents in contaminated (or potentially contaminated) areas.

While FiFi 1 class requirements specify a minimum of two fire monitors and one fire pump, SCDF *Red Dolphin* has been developed with three pumps and three monitors, which guarantee "redundancy in every aspect – if one goes down, the others have the right capacity to continue to combat the fire well within FiFi 1 capability requirements," Julien tells *Ship & Boat International*. The MRV's firefighting system is also fitted with an integrated foam-forming system serving all three monitors, while the three pumps feature a total discharge flow rate of 5,300m³ (5.3 million litres) per hour and a throwing range of 175m – which again goes beyond the FiFi 1 notation's requirement.

The firefighting system incorporates self-spray protection to protect against external heat radiation. This arrangement comprises a number of interconnected nozzles, spraying the boat's structure when it is in close proximity to a fire. The hydrant system was also upgraded to allow the vessel to provide "floating pumping station" capability, with the aim of supporting landside firefighters, Julien adds. "Although not a formal requirement for the MRV, the addition of this feature during the design process is a good illustration of the attention to detail paid by SCDF, Penguin and BMT, to constantly optimise and improve the vessel's operational capability," he comments.

Safe compartment

The MRV has also been fitted with an in-built, internal citadel, providing a safe, sealable, protective compartment for her four-man crew, plus up to eight firefighters and 30 survivors, when entering areas affected by chemical, biological and/or radiological (CBR)

With a total discharge flow rate of 5,300m³/hr, the MRV goes beyond Fifi 1 class notation requirements



contamination. Such citadels are becoming increasingly popular on standby vessels, especially those conducting patrol and surveillance work around ports which tend to store large quantities of inflammable/hazardous materials.

However, factoring an effective citadel together with its supporting system into a relatively small-sized craft can present challenges, as Julien confirms. “The SCDF MC had very high expectations in terms of the amount of space reserved for SAR missions,” he says. “A CBR citadel, with its two airlocks and associated air-conditioning equipment, takes up a lot of space and, on this build, the citadel includes all of the vessel’s internal space, except the engine room. Along with Penguin, we invested a significant amount of time integrating the related systems, while preserving the operational spaces, such as the decontamination room, first aid room and rescue room.”

In addition to the space constraints, the vessel displacement had to be kept under strict control. Rescue and firefighting vessel class rules are derived from heavy displacement ship design and are not always sympathetic to the most critical aspect of a high-speed

craft design: keeping things light. For instance, the MRV’s firefighting-related system alone weighs over 30tonnes when including the CBR system and upsizing of ventilation equipment specific to high ambient temperature operation. There was no question of compromising on air-con capabilities, Julien explains. “Exterior temperatures when in firefighting range can reach 50°C,” he says. “When the crew and machinery are exposed to that, the air-conditioning and machinery ventilation system become absolutely essential.”

SAR missions

As mentioned, the MRV can accommodate up to 30 survivors and, combined with her 30knots+ speed, this highlights the vessel’s capability as a search and rescue (SAR) craft. To further assist her SAR missions, the MRV is equipped with a 5.4m high-speed RIB, supplied by Palfinger, which can be launched and recovered via a man-riding winch system.

The relationship between BMT, Penguin and the SCDF MC does not end there: Penguin is currently nearing completion of another new BMT-designed fireboat for the force.

This larger (40m) high-speed vessel is designed to complement the operational capability of the MRV as part of the SCDF MC’s overall strategy. It’s a much welcome spread of orders for designer and builder alike – and especially for those seeking to establish another line of safety across the city-state. *SBI*

TECHNICAL PARTICULARS	
SCDF Red Dolphin	
Length.....	34.9m (oa) 31.8m (wl)
Breadth, moulded.....	8m
Draught, design.....	1.6m
Engines.....	3 x MTU 16V 4000
Output of each engine.....	2,240kW
Waterjets.....	3 x Hamilton HM721
Speed.....	30knots+
Complement	
Crew.....	4
Firefighters.....	8
Passengers/casualties.....	30
Classification society.....	Bureau Veritas
Notations.....	BV HULL ● MACH, Special Service-Standby Rescue vessel (30 survivors)/HSC Coastal Craft Fire Fighting Ship 1, Water Spraying, AUT-UMS

ON THE WAYS

Gladding-Hearn delivers new pilot boat to Alaska



75' pilot boat will operate in Alaskan waters.

Gladding-Hearn Duclos Corp.

Gladding-Hearn Shipbuilding, Somerset, Mass., delivered its first pilot boat to Alaska just before Thanksgiving. That was after the 75'7"×20'6"×3'11" *Emerald Island* went under its own power from the shipyard to Fort Lauderdale, Fla., where it was loaded on a ship and taken to Victoria, British Columbia. From there the Southwest Alaska Pilots Association took the new pilot boat to Valdez, its homeport.

The pilots selected the **C. Raymond Hunt** deep-V hull design after traveling to Texas and riding on two boats Gladding-Hearn built for the Galveston pilots several years ago, said Peter Duclos, Gladding-Hearn's president. "They went down [to Texas] rode on the boat and liked it."

Changes from the earlier design were required. The *Emerald Island* is 5' longer and being that it operates in Alaska and not the warm waters of the Gulf of Mexico, there is "lots of heat," said Duclos. "The decks are heated, hand rails are heated, roofs, mast, anything subject to ice accretion from flying spray."

All the windows are also heated, as are the cabins. A multi-zone hydronic system with diesel fired boilers supplies a majority of the heat.

Pilot boats for the Gulf generally have platforms on the bow or the top of the cabin that pilots use for boarding but on the *Emerald Island* pilots board off the deck. "They don't want anything at all to catch ice," said Duclos.

Another difference between the Gulf and Alaska waters is that encounters with ice, debris and tree trunks are inevitable in Alaska. Thus, there's more framing and thicker plating in the *Emerald Island*. All the bottom plating is 1/2", whereas it would be 3/8" or 5/16" if the *Emerald Island* were working the Gulf of Mexico. "There's a lot of stuff in the waters up there," Duclos noted.

Since the new pilot boat will spend a lot of time running at night, the chances of the pilots spotting that debris are improved with "giant LED flood lights on the mast to light up the water in front of the boat," said Duclos. The lights are arranged so they don't shine on the foredeck, which is painted black to avoid light reflection.

When another boat approaches, the lights have to be turned off to avoid blinding the oncoming vessel's crew. A pair of 30-kW **Northern Lights** generators provides electricity for the LED lights and other electrical needs.

The *Emerald Island's* crew and accompanying pilots should be in a good position to keep track of what's approaching while seated in three **NorSap** shock-mitigating seats that are across the front of the pilothouse. "A lot of eyes looking forward," said Duclos. "That's the key there." Three more NorSap seats are behind the front seats.

The pilothouse also has a galley. Down below is a head, separate shower room and two staterooms with double berths.

The *Emerald Island's* fenders are a feature that Duclos described as new and different. They are from **Fender-care Marine** in the United Kingdom and are designed for the weight of the *Emerald Island*. The fenders have a high-density foam core wrapped with glass fiber impregnated with urethane rubber that's over a stainless-steel frame, which is stud bolted to the hull without penetrating it. "They are very tough and strong and don't hang down like a tire would."

When the *Emerald Island* needs to get somewhere in a hurry, it can run at about 29 knots behind the power from a pair of 1,400-hp **Cummins QSK38-M1 Tier-3 diesels** spinning **Hamilton-Jet HM651 waterjets** through **ZF 5000 gear boxes**. — *Michael Crowley*