



PORT OF BRISBANE

Hydrographic Services Capability Statement

Port of Brisbane

Port of Brisbane is a cornerstone of Queensland's economy, handling approximately \$55 billion in international trade annually. The Port is managed by Port of Brisbane Pty Ltd (PBPL), which is owned by four of the world's largest and most experienced infrastructure investors.

The Port is located at the mouth of the Brisbane River and set over a 1870ha footprint including a 90km navigational channel, a 224ha future port expansion area and 693ha of environmental area.

Operational port limits extend north of Caloundra to 16km up the Brisbane River to Breakfast Creek.

As Port Manager, PBPL employees span a wide range of technical, operational and professional disciplines. This in-house expertise provides full service delivery across sectors including hydrographic surveying and marine as well as trade development and property.



PORT OF BRISBANE PTY LTD

Port Services	Property	Brisbane International Cruise Terminal	Other PBPL services	
Harbour and wharfage related services	Delivery and maintenance of port infrastructure	Delivery and maintenance of public tourism infrastructure asset	Hydrographic surveying, marine and dredging operations	Stevedoring, towage and piloting provided by private operators
Brisbane Multimodal Terminal	Development approvals and planning	Security management and facilities management services	24/7 Port Security	Maritime Safety
Around 450 commodities	Facilities management	Oversight of third party contractors	Port of Brisbane MSIC Centre	Queensland provides Vessel Traffic Services
Over 1.5million TEUs annually	571ha of leased land	Common user facility, open to all visiting cruise lines	Visitors Centre and Café	
	136 customer leases			

Safety

At Port of Brisbane, safety is always our highest priority. For our hydrographic surveying work, that means we put the safety of our crew and vessels, and our clients and their projects, first.

PBPL's Business Management System has achieved certification under:



ISO9001:2015 Quality Management Systems



ISO14001:2015 Environmental Management Systems



ISO45001:2018 Occupational Health and Safety Management Systems



Our Hydrographic Services Team

We are highly qualified

Our Hydrographic Services team includes Certified Professionals Level 1 and Level 2 from the Australasian Hydrographic Surveyors Certification Panel, and all are members of the Surveying and Spatial Sciences Institute (SSSI). The team has extensive experience with sonar, laser and survey technology and are proficient in a variety of disciplines.

A Certified Hydrographic Professional (Level 1) supervises all field work, processing and reporting on client projects, and declares that the outputs meet the requirements for the survey class.

PBPL surveyors are also supported by our highly experienced, in-house Marine Operations team who maintain and operate the survey vessels.

We are highly experienced

Our Hydrographic Services team is responsible for the safe navigation of over 5,000 commercial shipping movements that transit the 90km of navigational channels, rivers, reaches and berths that fall under the jurisdiction of the Port of Brisbane by ensuring all navigable areas are surveyed, charted and maintained to declared depths.

We're trusted to deliver over 800 port surveys annually which means we're out on the water or processing survey data every day.

In addition to our work at the Port, we also undertake approximately 200 external contracts each year for around 60 clients all along Australia's east coast including wharf owners, infrastructure companies, port authorities and local government authorities.

We work to international standards

All work undertaken is in accordance with the Queensland Government's *"Standards for Hydrographic Surveys within Queensland Waters"* or other Australian state regulatory standards, as required.

Our surveyors also adhere to all standards, guidelines and best practices provided by the International Hydrographic Organisation (IHO) which regulates 80 member countries, including Australia.



OUR TEAM

Our in-house Hydrographic Services team is led by a dedicated Survey Operations Manager. This ensures we bring extensive experience, capability, and high-quality service to every project.

Our surveyors are supported by the Port of Brisbane's Marine Operations Team and fleet of surveying vessels which enables us to resource all jobs internally, ensuring we don't rely on subcontractors.



Aaron Willcock

Senior Manager –
Survey and Channel
Certified Professional in
Hydrographic Surveying (Level 1)



Neill Woolley

Surveyor
Certified Professional in
Hydrographic Surveying
(Level 1)



Dan Inglis

Surveyor
Certified Professional in
Hydrographic Surveying
(Level 1)



Scott Thompson

Surveyor
Certified Professional in
Hydrographic Surveying (Level 2)



Celeste Tan

Surveyor
Certified Professional in
Hydrographic Surveying
(Level 2)



Damian Mullany

Survey Technician
16+ years hydrographic
technical experience

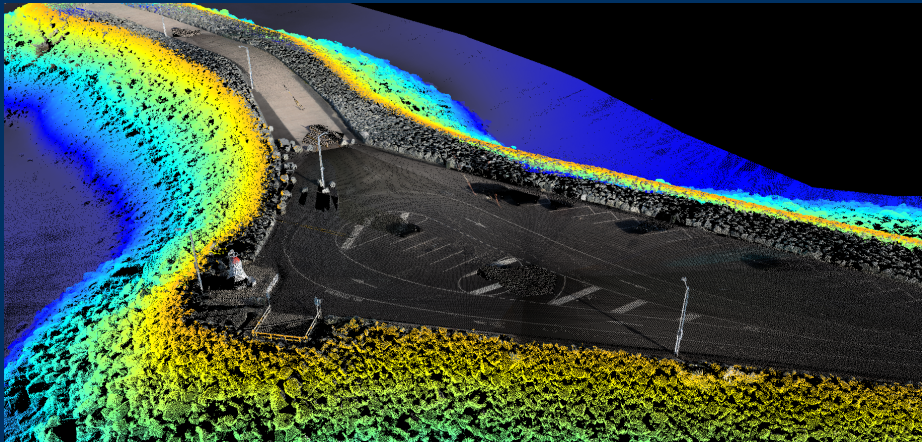


Lisa Newton

GIS Analyst
15+ years GIS and Spatial
Experience

What we do

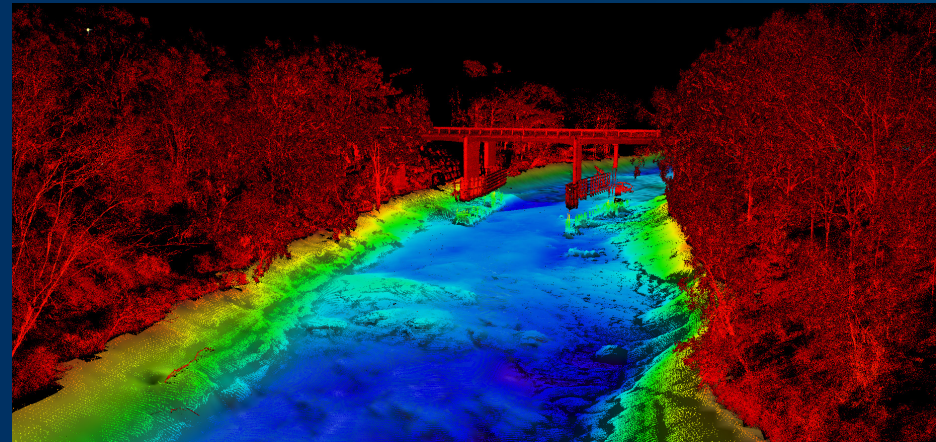
Our team delivers an extensive range of high quality inshore and coastal surveying services to port and local government authorities as well as infrastructure projects.



Vessel mounted terrestrial laser surveys

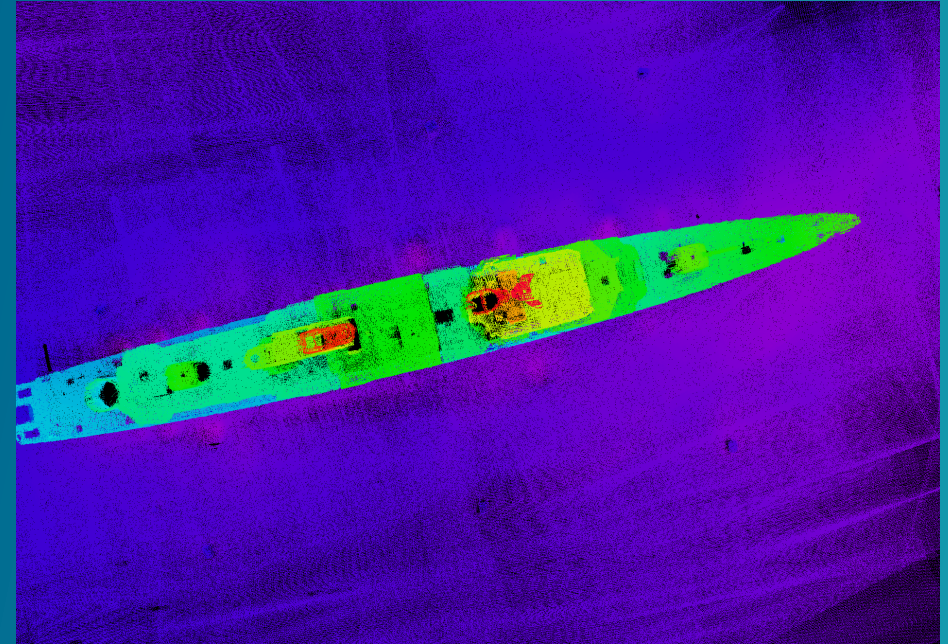
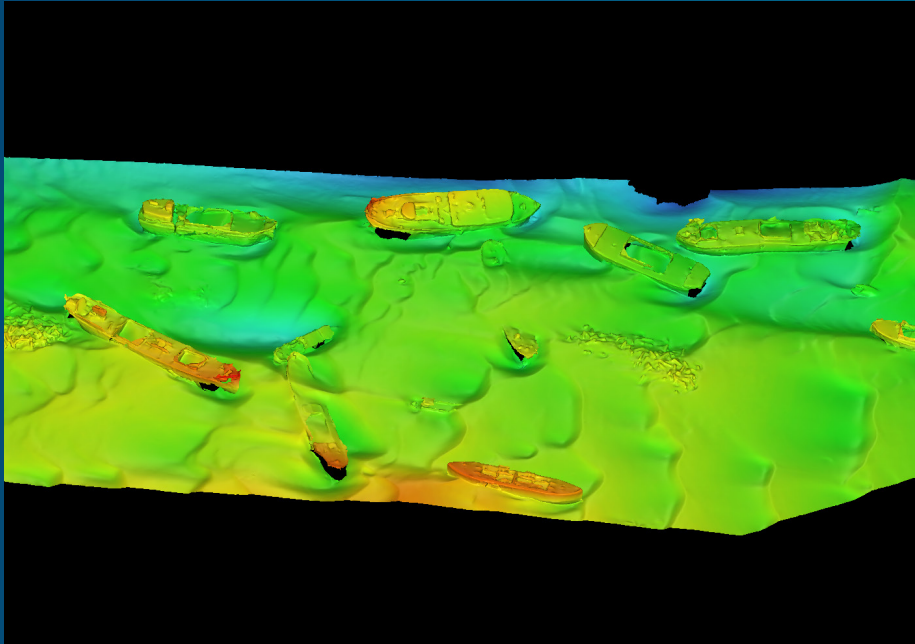
- Bridge / structure monitoring
- Maintenance and monitoring surveys
- Breakwater construction surveys
- Rapid infrastructure asset surveys – water-based

We also provide natural disaster recovery support, helping port authorities to obtain a picture of damage to marine infrastructure and prioritise recovery plans to help re-open the port or facility as quickly and as safely as possible.



Combined multibeam (underwater) and vessel mounted terrestrial laser surveys (above water)

- Simultaneous monitoring surveys above and below the water
- Rapid high resolution 'as-built' surveys – water-based
- High resolution dam surveys – walls, banks and vegetation
- Breakwater construction /monitoring / maintenance
- Rapid infrastructure asset surveys – water-based
- High density 3D models with draped photography
- Combined multibeam / laser and lidar 3D models



High resolution multibeam surveys

- Class 'A' surveys undertaken by Certified Level 1 Hydrographic Surveyors
- Shallow to deep water capabilities
- Underwater construction surveys
- Capital / maintenance dredging support and monitoring
- Infrastructure surveys – pipelines, outfall and cable routes
- Infrastructure surveys – breakwater and bridge pier inspections
- Artificial reefs – establishment and monitoring
- Coastal engineering surveys
- Ports, harbours, estuaries, bays and coastal surveys
- Beach and seabed profiling surveys
- Sand migration monitoring surveys
- Safety of navigation object detection surveys
- Marine sand extraction lease surveys
- Shallow water canal, river and riverside property surveys

Environmental surveys

- Seabed classification surveys
- Habitat mapping
- Water column data / fish monitoring
- Dredge and disposal monitoring
- Sub-bottom profiling surveys
- Pipeline, cable and outfall detection
- Geotechnical and dredge support
- Wreck surveys
- Magnetometer / gradiometry surveys
- Ferrous magnetic and geological object detection
- Buried pipeline and outfall surveys
- Side scan surveys
- Sand detection / seabed texturing
- Object detection / pipe route surveys

Vessels

Our fleet of dedicated survey vessels are permanently equipped with high resolution multibeam sonar and integrated hydrographic survey systems.



Investigator

The *Investigator* is a 9.8-metre single hull survey vessel of fibreglass construction. The fully enclosed cabin design allows the vessel to operate in most weather conditions. A customised moon pool design allows the Reson Seabat T50-R high resolution multibeam sonar to be tilted at 30 degree angle to

enable multibeam data around difficult applications such as rock walls, piles, canal estates and shallow inshore areas. The vessel is fitted with a bow thruster, making it ideal to tight manoeuvring within marinas, canals and the port environment.



Jim Peel

Predominantly used in offshore applications, *Jim Peel* is a 16-metre single hull survey vessel. It is fitted with a Reson Seabat T50-P high resolution multibeam sonar system in a moon pool configuration as well as an

innovative deployment chute for the safe utilisation of towed magnetometers or side scan sonars. The *Jim Peel* has the facilities required to sustain a crew for extended periods.



Navigator

The *Navigator* is a 6-metre catamaran survey vessel of aluminium construction. The fully enclosed cabin design allows the vessel to operate in most moderate weather conditions. A customised moon pool design allows the Reson 8125 Hybrid high resolution multibeam sonar to be permanently tilted at 15 degrees to enable multibeam data around difficult

applications such as rock walls, piles, canal estates and shallow inshore areas. The vessel is fitted with two 115HP outboard motors, making it ideal for tight manoeuvring within marinas, canals and the port environment. The vessel also comes with a purpose-built trailer, enabling it to be towed to site and launched.

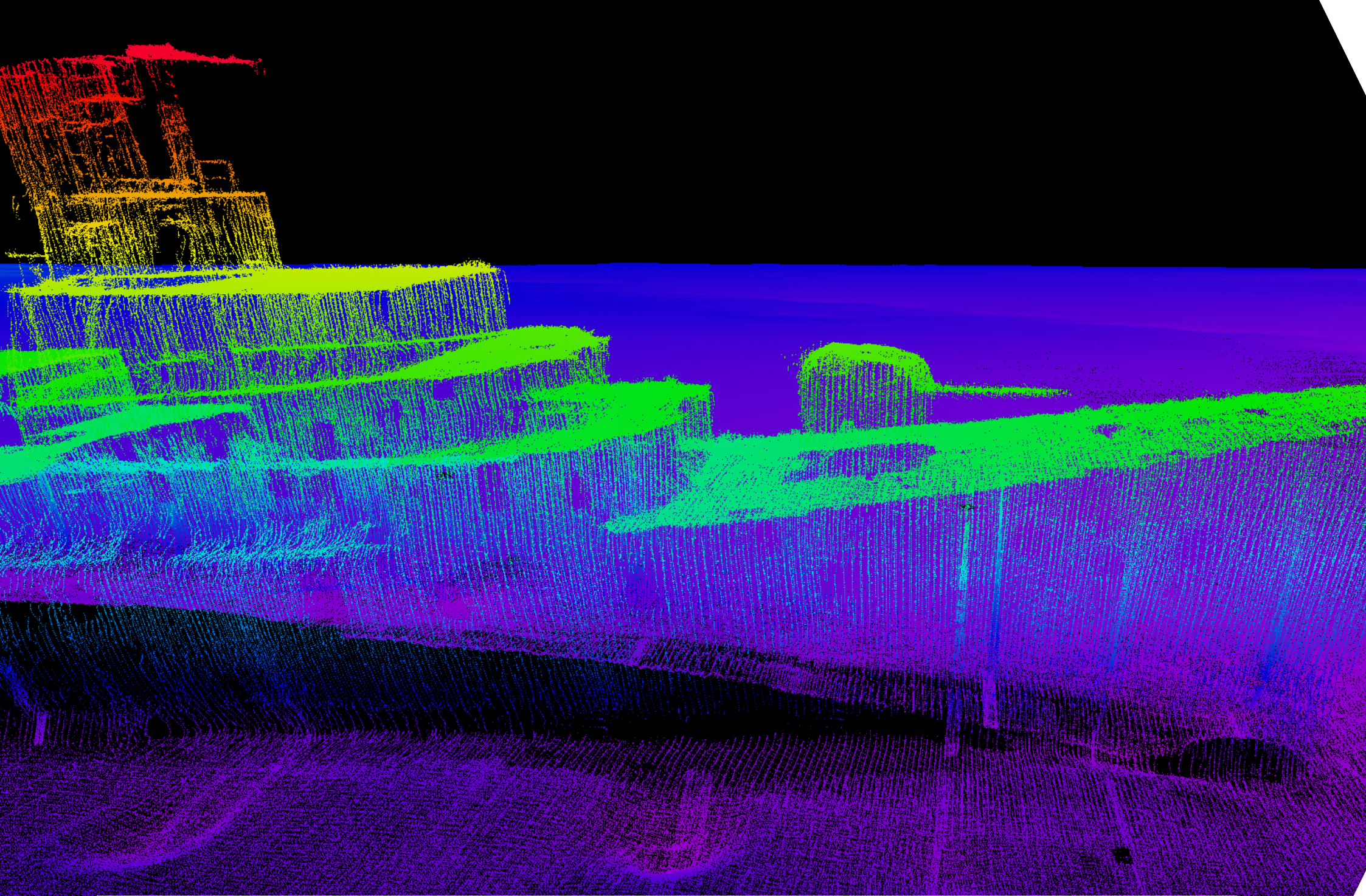


Smaller vessels

Our team also operate smaller vessels – with and without crew – that can be fitted with either single beam or multibeam hydrographic equipment. These smaller vessels are aluminium or fibreglass and are transported on trailers for easy site access.

Curlew 2 and *Tapsall* – Shallow water vessels that can be fitted with either single or multibeam technology with all required equipment.

Accura – A remote-controlled vessel that can be fitted with single beam technology with all required survey and positioning equipment.





Technology

The survey team operate multibeam sonar equipment and vessel mounted terrestrial laser systems, coupled with precise inertial navigation and GPS positioning systems. Integration into data acquisition and processing software packages achieves high accuracy surveys to both MSQ Class 'A' standards and International Hydrographic Organisation (IHO) Special Orders.

Multibeam sonar

Multibeam sonar technology provides comprehensive seafloor mapping covering a swath width of up to 150 degrees. The multibeam sonar delivers increased seabed detail, enabling high density surveys to be produced and achieving 100% seabed coverage. The systems can operate at varied frequencies to suit water depth and resolution requirements.

Motion sensors

Motion sensors operated on PBPL vessels are precise high-end inertial positioning systems. The very fast update rate of the imbedded gyroscopes and accelerometers allows precise movement of the vessel to be determined. These measurements are combined with constant speed of sound measurements and fed into the hydrographic system to enable every sounding to be precisely positioned.

A high-quality precision motion sensor is paramount to delivering quality data and large datasets. Our motion sensors generate rotational scans at 200 times a second to allow for data feed and motion adjustment from fast scanning lasers.

Navigational systems

Vessel navigation is provided by high-end Real Time Kinematic Global Positioning Systems (RTK GPS), integrated into the inertial navigation system to provide extremely robust solutions.

Hydrographic data from a range of sensors is collected using specialist software aboard the vessel and is processed and validated to produce bathymetric data at appropriate scales to display the bathymetry.

Data modelling and visualisation

Once collected, the data can be modelled and visualised, providing clients with a 'fly-through' of the project area; allowing areas of interest to be targeted and providing a useful and powerful communication and engagement tool.

Additional data, such as aerial photography and DXF line work, can also be overlaid to enhance the information.



Contact us

We welcome the opportunity to discuss your surveying requirements. To get in touch, please contact

Aaron Willcock, Senior Manager – Survey and Channel,
via aaron.willcock@portbris.com.au or 0421 098 172.