Dual Head SeaBat T20-P collects more efficient data, improving all round data coverage and survey efficiency

OVERVIEW

Titan Environmental Surveys Ltd was subcontracted by Gardline Geosurvey Ltd on behalf of the Maritime & Coastguard Agency (MCA) to undertake the nearshore element (Mean Low Water to 20m Chart Datum) of the UK Civil Hydrography Programme, Shallow Water Contract. This comprised of large area bathymetric, backscatter, detailed wreck investigation and environmental surveys to the IHO Order 1a standard for hydrographic surveying.

Due to an ever increasing workload, increased technical requirements and the need for greater survey efficiency. Titan Surveys needed to upgrade the survey vessel MV Titan Discovery, with a modern high specification MBES system to meet the IHO Standard for hydrographic surveying. This system would also help Titan Surveys be more efficient, cost effective and technically capable, across a number of key market sectors.

Teledyne Marine supplied new equipment for this challenge, having already supplied various other systems to Titan in the past that were to be deployed for this mission.
STRATEGY

In order to meet the required technical specifications, Titan Environmental Surveys Ltd purchased a Teledyne RESON SeaBat Dual Head T20-P Multibeam Echosounder system and installed it onto their 13m survey vessel, MV Titan Discovery. Of the prominent SeaBat T-Series product range, the T20-P is a compact and portable system specially designed for small vessel use for fast mobilization. The Portable Sonar Processor is small, compact, portable and water resistant and can be installed on deck. It produces high res data output and data compression, which allows the user to collect more and cleaner data, that is collected by the T20-P. The wide swath allows the surveyor to survey a wider area in one go.

The RESON Dual Head T20-P Multibeam Echosounder system and Applanix POSMV Wavemaster complete with a RESON standard 30° T20-P Dual Head multibeam echosounder mounting bracket had a total sonar size of 550mm x 550mm, which fitted through the MV Titan Discovery’s moonpool, ensuring the system purchased was the most ideal solution for the survey platform.

Titan also added the additional Teledyne RESON software features to ensure that they got the best possible results from the system; Max Beams (that increased total beam number from 512 to 1024 in Dual Head Configuration to increase data density), X-Range and Full Rate Dual Head Capability (to increase system range, data quality, ping rate and data density), and FlexMode (to improve future capabilities for high density survey applications).

Other survey processing software purchased included further licences of Teledyne PDS in order to acquire and process the multibeam echosounder and backscatter data, as well as further licences of Teledyne CARIS HIPS and SIPS Professional to meet the increased data processing demands from the UK CHP Surveys.

Highlights:

- Better all round productivity enabling Titan to become more competitive in the Marine Survey Market
- Both the MV Titan Discovery and the MV Titan Endeavour are now market-leading survey vessels due to the deployment of higher technical and better performing Teledyne equipment
RESULTS

There were a number of productivity gains generated from the surveys that Titan undertook using the SeaBat Dual Head T20-P and accompanying software packages. Firstly, data collection using this system is more efficient in terms of coverage (km2). It produced a higher swath coverage on each survey line as opposed to 5 x water depth from the previous system. The full rate Dual Head with an FM pulse means that Titan were able to confidently estimate their data density and survey at faster speeds, with both increasing productivity. Working together, the multibeam echosounder and software packages produced better resolution and data density making it the most suitable for high specification multibeam surveys, also giving a much improved data quality at far range.

These positive results helped to establish multiple savings across the survey project. A normal survey day (12 hours) of data collection, in good surveying conditions, now takes between 6-8 hours to process as opposed to the previous 10-12 hours, saving approximately 3-4 hours (25-50% reduction) processing time per day.

As a result, Titan have confirmed that they can achieve 2-3 times more data coverage per day using this set of Teledyne Marine equipment, meaning they can complete surveys faster, to a higher specification and at a lower cost to future clients.

In sync with this, the faster survey completion and productivity of the T20-P Multibeam Echosounder results in greatly reduced labour costs and weather risks on large scale projects.

Highlights:

- More efficient data in terms of coverage (km2)
- Produced better resolution and data density
- Enabled Titan to confidently estimate their data density and survey at faster speeds
Dual Head SeaBat T20-P collects more efficient data, improving all round data coverage and survey efficiency

CONTINUED

OTHER ADVANTAGES

Acquiring this multibeam echosounder equipment has enabled Titan’s data coverage and all round survey efficiency whilst acquiring data to improve, allowing them to be much more competitive in the marine survey sector as operations are now quicker and of higher quality.

Both of Titan’s survey vessels; Discovery and Endeavour are now seen as market leading inshore survey vessels that can compete with any competition, increasing Titan’s position in the market further. They can now bid for and stand a better chance of winning work which previously they couldn’t or wouldn’t due to being technically non-compliant or not cost-effective enough because of the older multibeam echosounder system that was in use.

The SeaBat T20-P Dual Head remains in operation, ready for deployment on either of Titan’s competitive survey vessels, being able to product cutting-edge survey and backscatter data at an extremely efficient rate.

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