



Survey Case Study

Civil Engineering

Port Survey



Image of Tyne River harbour wall, the overlaid sonar image below clearly shows the wall supports

Customer Background

Tyne and Wear Marine Ltd. is a privately owned marine and engineering company, with over 27 years' experience in the Marine and Engineering industry.



StarFish 990F - offers users high-resolution and high-frequency for superb clarity in survey imagery.

StarFish 990F

Tritech's shallow-water side scan provides high-resolution imagery to help locate and identify objects on the seafloor and map waterways to enable further inspection.

StarFish Seabed Imaging Systems can also be utilised in port and harbour surveys, offering operators a valuable survey tool.

StarFish 990F is part of the range of StarFish Seabed Imaging Systems, compact and lightweight side scan systems.

The Need for Side Scan in Survey Operations

StarFish systems can provide a quick, low-cost survey of a site prior to, during and after completion of any underwater survey, salvage or engineering project.

The systems' ability to record and playback images assists surveyors carrying out shallow-water surveys, for example of a bridge inspection, provide data for further analysis and can assist future research, for example dredging analysis.

TWM Ltd used Tritech's StarFish 990F for a survey of the dock wall on the Tyne River, Newcastle during a port survey and inspection project.

The Challenge of Port Surveys

Accuracy is crucial in any survey, where operators working underwater often have the additional factors of low visibility waters and obstructions to contend with.

Civil engineering projects need reliable images of the site before, during and after a survey. The use of divers and Remotely Operated Vehicles (ROVs) is common; however operations can be slow and expensive with this method. Underwater video systems have been used for such survey operations, however they can be ineffective due to limited range capability.

How it Works

Through the application of Compressed High Intensity Radar Pulse (CHIRP) and digital-signal processing (DSP) techniques, StarFish Seabed Imaging Systems offer outstanding image and range resolution; technology which enabled TWM to capture clear and representative imagery of the Tyne River dock wall. In post processing, the operators were able to overlay the data onto a photographic image of the dock walls.

The signature three-fin hydrodynamic shape and 50m depth-rating mean StarFish Seabed Imaging Systems are an ideal tool for shallow water surveys. In this operation, the StarFish 990F was fixed to TWM's vessel using a mounting bracket, alternatively the system can be easily towed from a vessel. In addition, a GPS receiver enabled an engineer to record the operating position in order to create an accurate map of the project area; information which was used to determine the target area on the Tyne River and could help guide further survey operations.

Measuring Success

StarFish Seabed Imaging Systems are known as the side scan for shallow-water survey and the 990F has increased the aptitude of the range due to its high-resolution qualities. This unique application on the Tyne River, Newcastle demonstrates the capabilities of the unit as a universal survey tool for target detection and image definition. For more information on StarFish visit:

www.starfishsonar.com.

John Cramman, Tyne and Wear Marine, comments:

"We are extremely pleased with the results that we have achieved with the StarFish 990F.

Its compact size facilitates easy mounting to our vessels, allowing us to carry out vertical scanning of quay walls and other port and marine structures. As a survey tool, it enables us to collect a vast amount of information in a relatively short time frame. It has proven invaluable for pre-dive and ROV exercises, literally giving both the client and our team a picture of underwater structures and assets."



Alternate angle of the Tyne River harbour wall with the Tyne bridge which runs from Newcastle to Gateshead visible in the foreground.



Image showing Newcastle docks, visible targets from the StarFish 990F data includes the dock struts and supports.

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