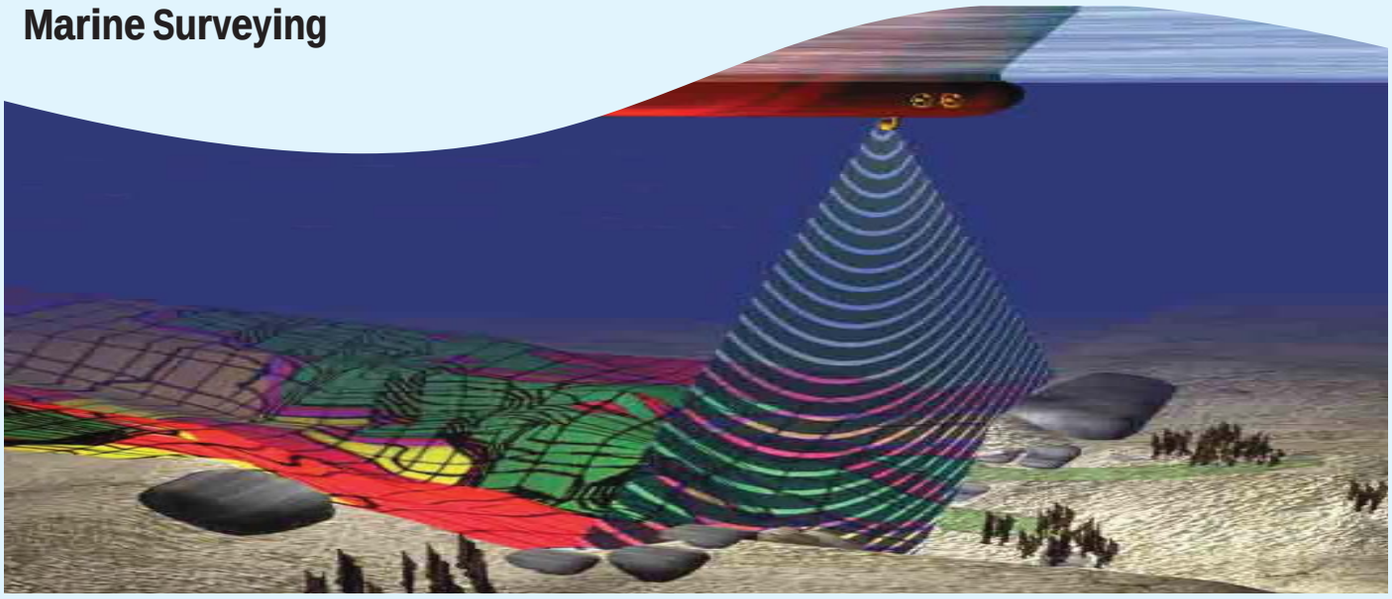
Marine Surveying



The **AquaBioTech Group** is an international consulting company strategically located in the centre of the Mediterranean on the island of Malta, although operating globally with clients and projects in over fifty-five countries.

ABT Marine is a part of the **AquaBioTech Group**. As an independent marine hydrographic survey firm, we offer a broad range of capabilities in shallow water marine surveying, construction support, precise positioning and project management within the marine industry. Our expertise covers a number of disciplines that enable us to provide support to a wide range of water-borne research, engineering and construction activities such as:

Marine construction
By employing 3D bathymetric, side scan and sub-bottom profiling technologies accurate depth, sea-bottom and sub-bottom representations of a geographic area can be acquired in efficient time frames to assist in the planning of marine construction projects, dredging works or sub-sea installations.

Geophysical investigations - Salvaging operations - Detection of obstructions
Side scan sonar is the industry-standard technology for detection of wreckages, obstructions and underwater objects. **ABT Marine** is capable of deploying its side scan sonar technology which features effective working depths down to 300 metres and very high image resolutions to aid in the detection of lost equipment, detached mooring structures, geological features and virtually any object laying on the seafloor. The data acquisition techniques can vary, but they generally employ a combination of side scan sonar and sub-bottom profiling to detect features both on the surface and below the seabed. 3D bathymetry can be used to discover undetected changes in the topography of the seafloor.

Baseline studies – Environmental Risk Assessments
General baseline and environmental risk data can be acquired using the whole range of **ABT Marine**'s solutions. Marine charting, detection of objects, habitat mapping, seabed classification and oceanographic sampling techniques can be used to bring together an updated snapshot of a determined marine area.

Marine Archaelogy
ABT Marine has been involved in many marine archaeology projects for governments and universities through Europe. Our marine survey technology and expertise can be used to localise wrecks as well as defining their dimensions, age, probable cargo and destination.

Search and rescue
Side Scan and ROV technology can be deployed for search and rescue purpose. ROV can be used to investigate unattainable or risky places for divers. ROV can also use its manipulation jaw to pick up items, bodies or debris. Thanks to its accuracy, Side Scan can be used to locate wrecks, bodies, black boxes and any kind of debris.

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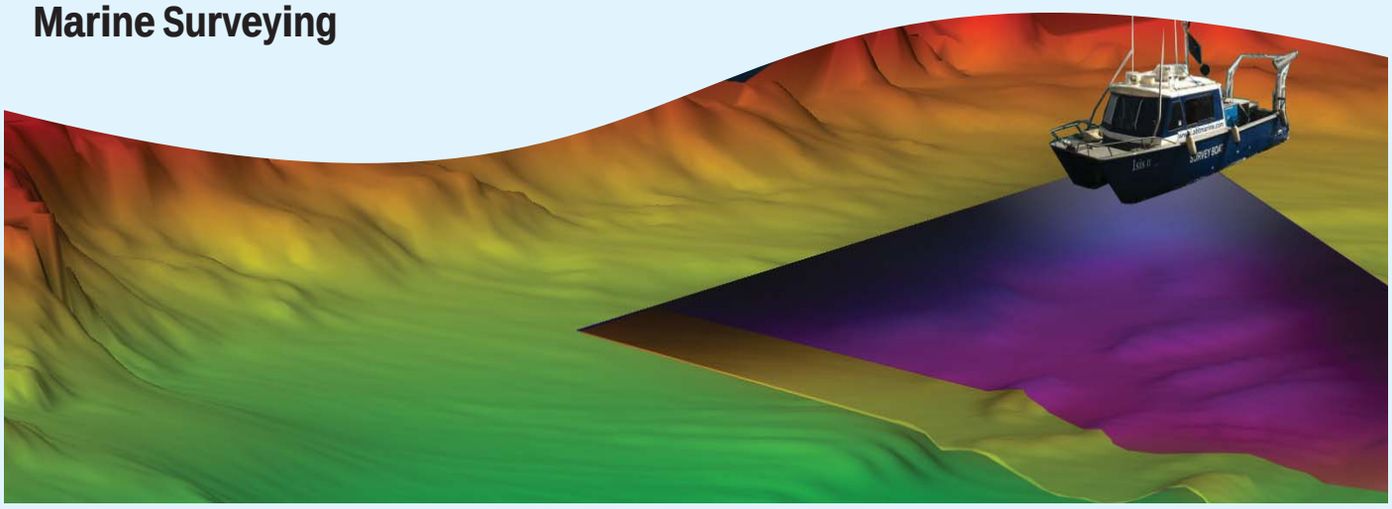

Following this principle, **ABT Marine** is able to offer a wide range of services related to marine surveying wherever it is needed. The technology we use is composed of a full set of sensors selected for its portability and proven efficiency allowing it to be deployed promptly all over the world. Most important, as it is the people that determine the quality and reliability of surveys, our technology is manipulated by a crew with extensive experience in all the aspects of marine surveying.

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Main Services

Bathymetric and Side Scan Sonar surveys

ABT Marine is able to offer fully comprehensive seabed mapping composed of Bathymetric and Side Scan surveying, down to depths of 300 meters.

Bathymetric data shows an accurate, color-coded depiction of seabed elevation that can be presented in 2D or 3D according to the nature of works or requirements of the client. This technique is ideal when accurate depth profile information is necessary to support marine construction, aquaculture sea cages installations, environmental assessments, dredging works, wind farm locations selection and many other marine activities.

Side Scan Sonar data provides a flat, monochromatic, picture-like representation of the surveyed area. Side Scan data alone does not represent bathymetry (depth), but its image resolution makes it ideal for detailed examinations of the seabed where obstructions, wreckages, debris, boulders, cables, habitats or any other feature must be identified.

Bottom type assessmentcs

In addition to seabed mapping, **ABT Marine** can provide ground discrimination/benthic mapping. Our technology can be applied to provide accurate, geographically referenced data on the characteristics of the benthos. This technology can be used as a stand-alone application or in conjunction with bathymetric/side scan surveys.

Sub-bottom profiling surveys

When sub-bottom information is required, powerful low frequency echo-sounding devices can be used to obtain information of the upper layers of the ocean bottom, down to 40 meters.

Data confirmation and site inspections using Multiport DTS Drop Down camera systems

The digital drop camera system, with real time video link to the surface allows video monitoring without the need for expensive fibre optic cables. This unique system is ideal for any job that requires real-time high quality photographic images. Environmental survey operations are mostly undertaken with combined video and deep water stills camera (up to 10mega pixel resolution). The information captured during these surveys are used to provide high resolution data for habitat identified by the sonar survey and provide evidence for the presence/absence of potential habitats.

Support Services

In addition to our hydrographic services, **ABT Marine** offers a range of solutions to complement data acquisition activities. Data post processing, data quality control and GIS modelling can be performed in-house while support surveys employing precise positioning, ecosystem samplings and SCUBA/ROV investigations can be used to confirm previously acquired data in the field.