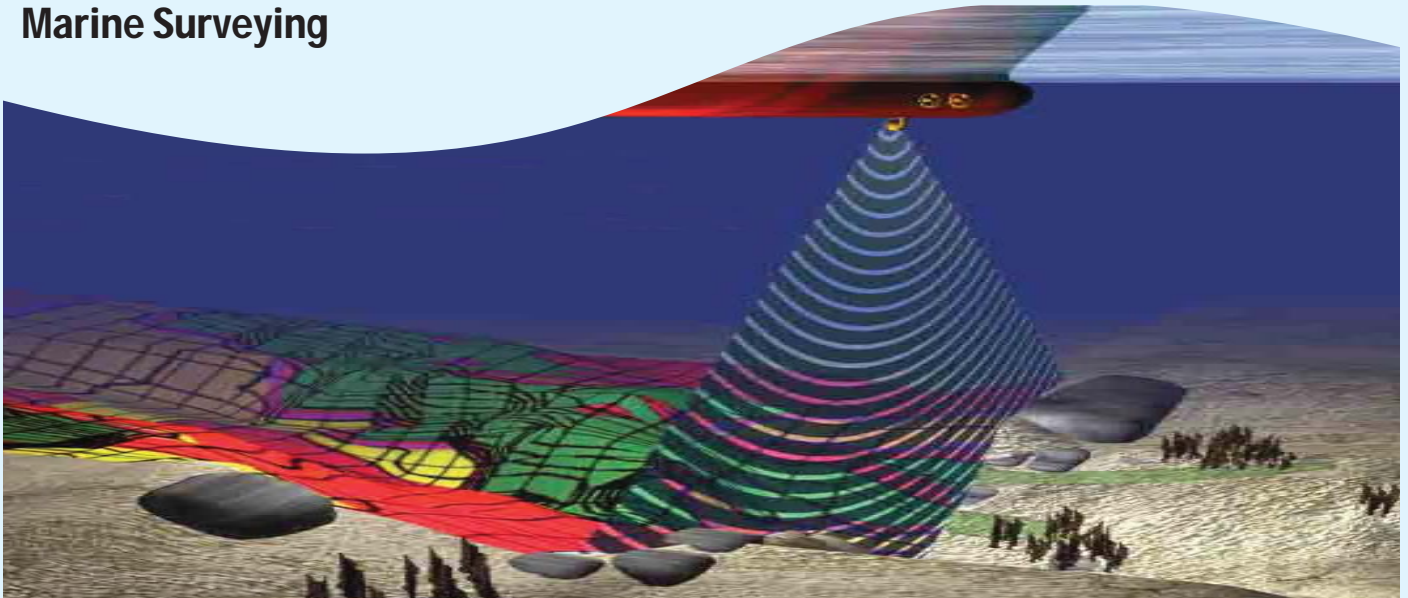


# Marine Surveying



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 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

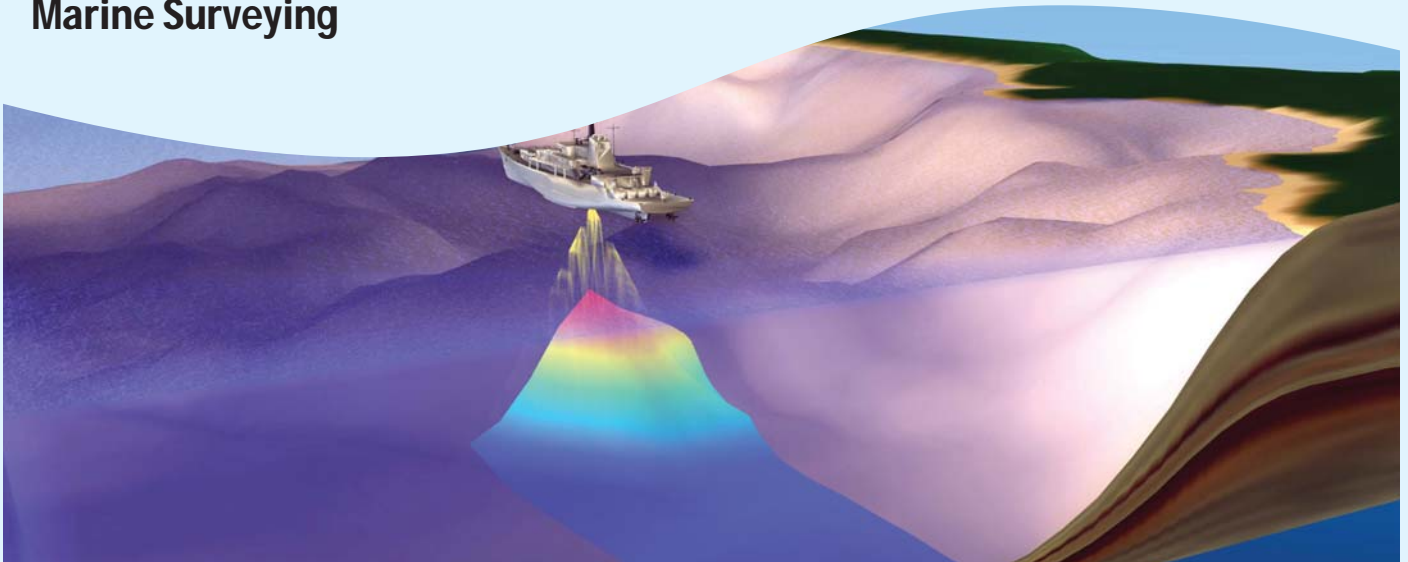
Side scan sonar is the industry-standard technology for detection of wreckages, obstructions and underwater objects. **ABT Marine** is capable of deploying its side scan sonar technology which features effective working depths down to 300 metres and very high image resolutions to aid in the detection of lost equipment, detached mooring structures, geological features and virtually any object lying 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 and large objects.

### 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 Surveying



The **AquaBioTech Group** undertakes a variety of aquaculture, fisheries, marine surveying, aquarium and aquatic environmental projects through its regional offices and partners throughout the world.

Among them, marine surveys using both in-situ and remote sensing techniques are an important part of the company's project portfolio, which encompasses small scale site investigations to major offshore surveys at regional/national scale.



## MAIN SERVICES

### Bathymetric and Side Scan Sonar surveys

Acquisition of both bathymetric and side scan data can be achieved through the use of IHO special order compliant interferometric sonar systems capable of producing both Digital Terrain Models (DTM) and side scan imagery of the seafloor.

Bathymetric data shows an accurate, color-coded depiction of the seabed 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.

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 high image resolution makes it ideal for detailed examinations of the seabed where obstructions, wreckages, debris, boulders, cables or any other features need to be identified.

### Bottom type assessments

Ground discrimination/benthic mapping 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/sidescan surveys.

### Sub-bottom profiling surveys

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

### Data confirmation & 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 acquired during these surveys is 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.