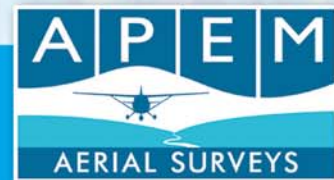
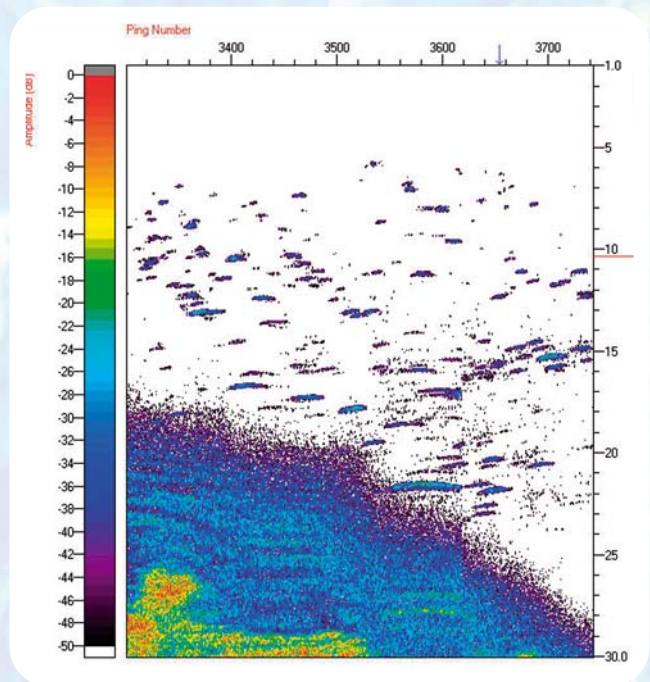
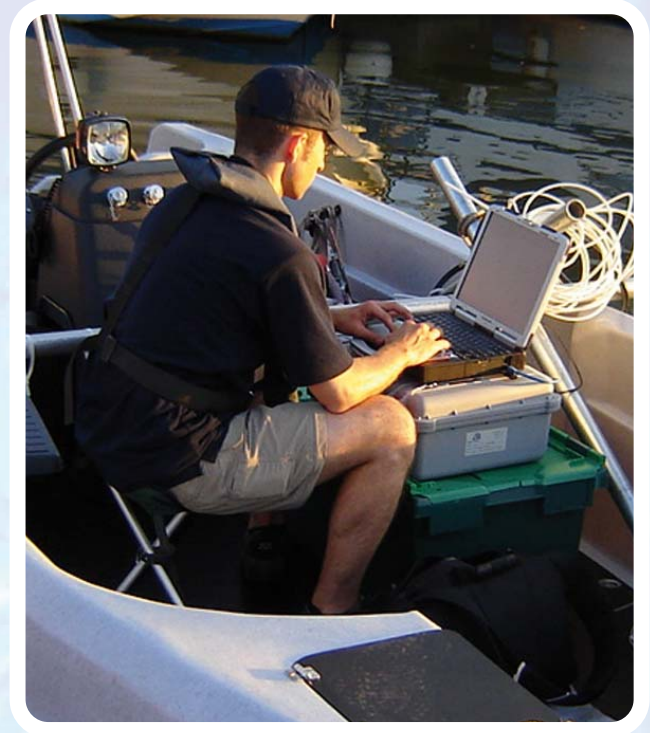


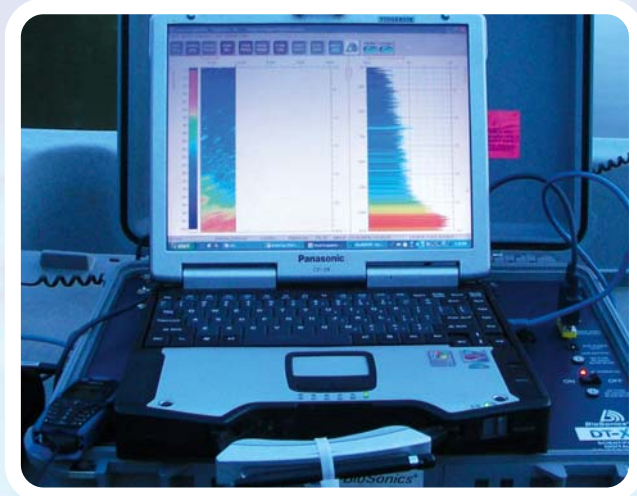


# Hydroacoustic Surveys

- Dedicated team of hydroacoustic surveyors & full range of craft for all water bodies
- Mobile fisheries surveys in rivers, lakes & canals using state of the art Biosonics DTx split beam echosounder & software linking outputs to GIS
- Technologically advanced fish stock & plankton density assessments
- Macrophyte mapping & biomass estimation at various locations including important conservation sites to determine height, cover & PVI
- Bathymetric surveys of rivers & lakes for 2D & 3D modelling, volume drawdown relationships for public supply reservoirs, pre-dredging sediment depth/accumulation determination & reservoir capacity determination



building reputation through excellence



## What can we offer?

Hydroacoustics is an example of APEM's use of innovative technology to obtain the highest quality data and develop valuable new services for our clients. This sophisticated and highly versatile tool offers a number of significant surveying benefits. It is a non-intrusive, cost-effective way to assess large waterbodies. Data are collected rapidly with GPS co-ordinates logged for uploading to GIS. We investigate fish stocks, plankton and macrophyte communities. In addition we perform bathymetric profiling and sediment typing from the acoustic signature of the bed and can quickly and accurately calculate reservoir volumes and sedimentation rates.

## Why choose APEM?

APEM is a science-based company, working exclusively within the realm of Aquatic Science for over 20 years. We operate UK-wide, providing a comprehensive, multi-disciplinary approach to the monitoring and management of aquatic ecosystems. Our scientists are recognised experts in their diverse and specialist fields. Our teams work to exacting standards and are committed to providing a professional, client-focused service.

## Who are our clients?

We work for a wide range of organisations including:

- Environment Agency
- Water & power companies
- Local authorities
- Port authorities
- Consulting engineers
- Conservation agencies
- Planners & developers
- Environmental consultancies

## Key projects

### Upper Thames major resource development scheme

We conduct annual hydroacoustic surveys of the River Thames in Oxfordshire. These are designed to build baseline data on the fishery's population status and to plot spatial change in abundance. The survey results are combined with qualitative information from netting surveys to create a complete picture of quantitative seasonal change in fish populations. We use the standard single echo detection analysis method to report on fish densities.

### Salford Quays bathymetry survey

APEM was commissioned to undertake a high resolution bathymetric survey around the Welland Lock gate entrance between the Manchester Ship Canal and Salford Quays. Concerns had been raised over sediment build up which was affecting boat mooring and movement. Salford City Council required a hydroacoustic survey and detailed 3-dimensional map of the basin. This proved invaluable in making decisions about cost effective dredging and re-profiling of the area.

### Barrow-in-Furness dock management

Since 1988 APEM has been involved in assessing the ecological impact of a power station's heated effluent to a low salinity coastal dock in Barrow-in-Furness, Cumbria. The dock is a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Ramsar site. The presence of the macrophyte *Ruppia maritima* is fundamental to the ecology of the dock. Our survey team use hydroacoustics to map and geo-reference macrophyte height, coverage and Percentage Volume Inhabited (PVI) and to assess relative change in plant spatial and temporal distribution. This information informs a cutting programme within an overall Conservation Management Plan designed to protect water quality and maintain this unique ecosystem.

### Bathymetric survey of Manchester Ship Canal

We carried out a detailed bathymetric survey of 25km of the Manchester Ship Canal to provide input data for a detailed water quality modeling study. Canal depth data were collected along pre-determined tracks using GPS navigation. All acoustic data were recorded using dedicated specialist software, integrating sonar with GIS and 3D model building programmes. This allows accurate determination of volumes and identifies areas of sediment deposition by facilitating comparison of the bathymetry data to original 'as built' design depths.

Every day we deliver a professional, integrated service across all Aquatic Science disciplines. Every day our people raise the bar with their dedication to quality, integrity and impartiality. Every day we strive to exceed your expectations.

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South Wing, Winfrith Technology Centre, Winfrith, Dorset DT2 8DH. Tel: 01929 463387

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