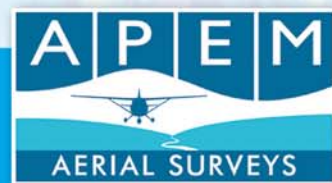
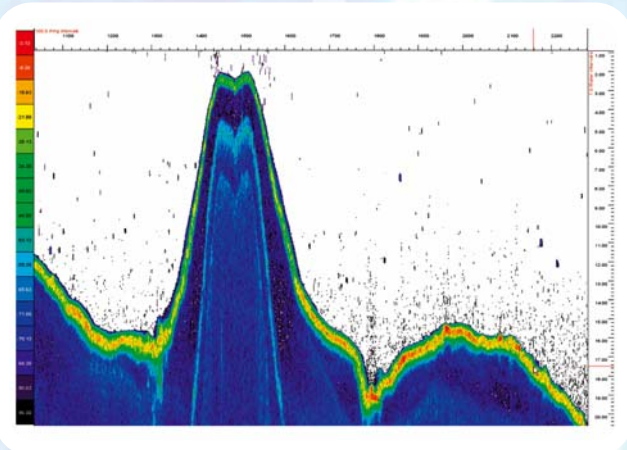
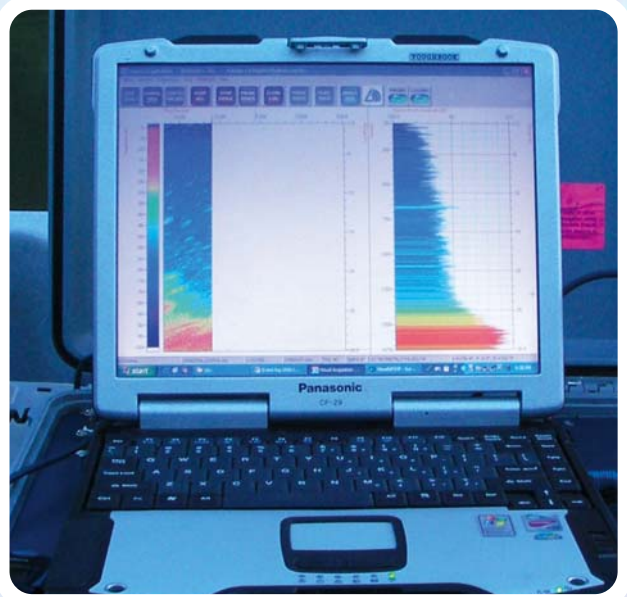




Reservoir Water Quality & Resources

- Range of methods to determine source of water quality problems at public supply reservoirs; management options for short & long-term water quality solutions
- Bathymetric surveys using state of the art split beam echosounder & differential GPS technology
- Bathymetric profile modelling to generate water volume & drawdown data to assess available resource by comparing with historic readings
- Sediment Oxygen Demand (SOD) measurements & sediment accumulation estimations together with mass flux modelling of significant oxygen demand contributors
- Criteria for destratification, aeration & oxygenation design for a range of engineering options
- Algal control & management of blooms caused by stratification & subsequent release of nutrients from sediment due to low oxygen levels



building reputation through excellence



What can we offer?

APEM has over 20 years' experience in public supply reservoir investigations, and provides impartial advice to water companies, regulators and the public. We use the latest technology and established scientific techniques to get to the heart of water quality and resource problems in these often problematic bodies of water.

Water treatment costs for reservoirs can be significant where the waterbody has been impounded for several years or impacted by agricultural run-off. Contaminated groundwater and long-term but invisible, gross sediment build-up can also lead to major resource problems. APEM can accurately quantify current reservoir volume resource and determine the most appropriate methods of improving water quality.

Why choose APEM?

APEM is a science-based consultancy, 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 companies
- Power generation companies
- British Waterways
- Engineering consultancies
- Local authorities
- Angling clubs & associations
- Conservation agencies

Key projects

Wessex reservoir management

Wessex Water commissioned APEM to investigate water quality problems in several reservoirs and gravel pits. Nuisance algal blooms and manganese release were causing costly problems in the treatment process and we needed to investigate in-reservoir solutions. Before these could be considered, accurate bathymetric data were required to establish resource volumes and sediment profiles. Nutrient pathways were investigated using historic nutrient data to assess external and internal (sediment & birds) nutrient sources which fuel the algal blooms and contribute to sediment-water interface anoxia.

Proposed reservoir in disused clay quarry

South West Water had proposed to turn a disused clay quarry in Cornwall into a public supply reservoir and required an accurate volume estimate and bathymetric profile of the resource to determine its suitability. We assessed the waterbody using a combination of boat-based sonar and a land-based levelling survey. Integrating these data with GPS, we produced contour plots and wire frame 3D models. Surface mapping software and volume drawdown curves quantified the resource at any height above Ordnance Datum, giving accurate predictions of resource availability at various drawdown levels. This allowed the company to accurately assess the value and viability of the resource.

Artificial mixing to improve reservoir water quality

Following public complaints of metallic tasting water and compliance issues, South West Water asked us to investigate ways of improving oxygen levels in Upper Tamar Lake, Devon. A previous study of this important reservoir indicated elevated levels of manganese were the result of sediment release during summer stratification and poor oxygen levels in bottom waters. We used our own in-house Sediment Oxygen Demand (SOD) chamber to provide accurate and reliable estimates of SOD. We also devised a mass flux model to determine overall oxygen demand and carried out a detailed sonar survey to obtain up to date volume calculations. APEM recommended a range of artificial mixing options using a spread of 30 mixing units. These were installed and are now operational.

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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