

Plankton and Benthos Taxonomy

Cefas has over 70 years' experience designing and conducting plankton and benthic ecology surveys in UK marine waters. The samples collected are analysed in dedicated, modern, well equipped laboratories.

In addition, we continue to test and develop new technologies to complement the more traditional microscope analysis. In recent years the knowledge and experience of our taxonomists has been extended to be able to process and identify samples from other regions of the world.

Plankton sampling

Cefas offers vast experience in the design of plankton surveys and sampling equipment, having for many years managed sampling programmes for government departments and an increasing diversity of commercial customers. Surveys have included both research and regular monitoring of plankton species and abundance, including fisheries independent fish stock assessment surveys, ecological surveys and baseline surveys around proposed new marine developments.

Cefas has a variety of zooplankton sampling gear at its disposal including:

- variations of Gulf VII plankton samplers
- various ring-nets
- an epi-benthic sledge
- Mik nets
- a multi-net Bioness system.

Phytoplankton can be collected by Niskin bottles, pole samplers or Lund tubes. In addition the RV Cefas Endeavour is fitted with a continuous passive sampling system which can collect near surface (3m) plankton and marine litter samples autonomously as the ship undertakes other survey duties.

Plankton analysis

Cefas has 12 trained plankton taxonomists involved with the identification and enumeration of both zooplankton and phytoplankton samples. The samples are analysed in a dedicated laboratory fitted with ergonomic, stereo-microscopes.



Taxonomic expertise has been enhanced due to demands from an increasing range of customers. Zooplankton analysis involves the speciation and staging of a wide range of taxa from European shelf seas, including many invertebrate species, ichthyoplankton and commercially important crustacean species in all stages of development. A Zooscan image analysis system is being used as an alternative, rapid method for zooplankton analysis.

Phytoplankton analysis is conducted for a number of customers including the monitoring of potentially toxic algae for the Food Standards Agency and full community analysis to help the Environment Agency comply with the requirements of the Water Framework Directive. The phytoplankton team have maintained UKAS 17025 accreditation for this work since 2007.

Expertise has been expanded more recently to encompass the identification of UK freshwater species and marine species from the waters of Kuwait.

Benthic sampling

Cefas has extensive experience in the design and implementation of benthic surveys and is currently leading on the survey provision for the Marine Conservation Zone (MCZ) programme for Defra. Cefas offers a variety of benthic sampling gear including grabs, cores and trawls.

Benthic analysis

Cefas has ten trained macrofaunal taxonomists with the skills to identify, enumerate and biomass infaunal samples from around the UK and further afield. The Benthic Ecology laboratory is spacious with two LEV (Local Exhaust Ventilation) systems for processing preserved samples and with bench space for six Leica stereo and six Olympus polarizing microscopes. Cefas maintains an extensive UK reference collection enhanced by the recent MCZ programme.

Cefas benthic ecologists are engaged in the provision of scientific advice to Defra and other government departments. Staff participate annually in the UK National Marine Biological AQC Scheme and lead on QA developments in international fora.



Cefas continues to be focused on QA/AQC at all levels of investigation, including the advisory interface. Cefas Standard Operating Procedures provide consistency and continuity within the discipline and the function also supports the development of in-house data management tools, e.g., new LIMS database to replace existing survey design and survey metadata databases.

Enquiries

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