Fisheries and Ecosystems

As the UK's largest and most diverse applied marine science centre, Cefas enables the management of fisheries and sustainable food security.

We provide scientific evidence and advice to governments, industry and stakeholders so that marine and aquatic ecosystem management action can be taken with confidence.

Our services

Our work takes us from freshwater to the open ocean, and includes both wild and farmed finfish and shellfish. Our influence over management extends throughout the UK, Europe and beyond and we lead in the full spectrum of fisheries managers' issues including:

- sustainable fisheries and ecosystems management choice
- food security
- climate change impacts and adaptation
- marine planning and environmental licensing
- marine biodiversity and habitats
- sustainable aquaculture
- fish and shellfish health and hygiene
- emergency response.

Cefas delivers effective results for its customers by drawing on its comprehensive scientific and technical capacity and our proven ability to deliver practical, evidence-based advice to managers. Our advice is derived from in-depth scientific analyses of data derived from surveys, remote monitoring, industry and other stakeholders.

Specific benefits that Cefas can offer include our expertise and innovative work in data collection and management, stock assessment, analyses of spatial data, and investigations on the effects of both environmental and human influences, including fishing, upon the ecosystem. We enable sufficient, sustainable, safe and shock-proof food security.

Centre for Environment
Fisheries & Aquaculture
Science

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Our customers

In the UK, our principal customer is Defra and we work closely with policy officials and the Fisheries Minister. Our customers also include local and national fisheries managers, foreign governments, port and regulatory authorities and energy producers.

We have a global reach, with collaborative relationships that span EU and UK governance, non-governmental organisations, universities, research centres and industry. We are proud of our networks in the world's management organisations that both provide information and yield influence.

We work collaboratively to deliver effective results. Collaboration includes helping customers respond proactively to the implementation of legislation, at the scale of EU Common Fisheries Policy (CFP) and, leading for government, working with the fishing industry to minimise the unintended consequences of change.

Our scientists will be found at the table where decisions of international importance are being made, but also engaged in work for individuals upon local fisheries issues or single-vessel matters.

Assessing fish stocks

Cefas scientists have been, and remain, at the world forefront of the development of models for stock assessment and biological reference point estimation and for the simulation of management scenarios.

- Model development
- Ecosystem Approach to Fisheries management
- Applied Stock Assessment
- Marine biodiversity and habitats
- Deep Sea Fisheries
- Diadromous Fish and Fisheries

Acquiring and managing fisheries data

Cefas is expert in the full spectrum of activities relating to the monitoring and management of fisheries resources.

Cefas runs the extensive research vessel survey, sampling, data handling and subsequent data collation and analytical programmes required to support national and international stock assessment and to provide scientific advice on marine fish stocks.

- Research surveys
- Port sampling
- Industry observer programme
- Otolith Processing and Age Determination
- Data Capture
- Data Management
- Data Collation

Providing advice

Cefas provides advice to science and policy customers and to stakeholders on the status of finfish and shellfish stocks, the regulation of marine and freshwater fisheries and the mitigation of undesirable impacts of man's activities.

We craft robust and appropriate management advice to solve real-world problems through the use of scientific and technical information.

Customers want to be sure that our advice is specific, timely and takes into consideration the most relevant knowledge and expert opinion. For advice to be useable, complex matters are provided in a sound, practical format that is made appropriate for its intended audience. We back-up written advice with presentation and answer stakeholders questions as they arise.

The following examples of our work demonstrate our wide topic range involving diverse stakeholders and complex political environments:

- Marine and freshwater legislation
- The marine Strategy Framework Directive
- The EU cod recovery plan
- Bass management
- Interaction with fishers
- Deep water stock assessment
- Management strategy for mackerel and horse mackerel
- Salmon management
- Eel management
- Piscivorous bird control advice
- Fishing gear technology development
- Enabling Responsible Research and Innovation (RRI)
- Sourcing data
- Data-limited / model-poor situations

Application of Science

Cefas conducts the rigorous, respected and peer-reviewed, published science that is needed to investigate the marine ecosystem and underpin advice on the sustainable management of fisheries.

We have an approach to science application that provides practical solutions to real problems and to support robust policy advice in an uncertain world.

The activities within fisheries science fall into three main themes, as follows:

1. Evidence collection and monitoring. At-sea and on-shore monitoring programmes are designed to provide statistically robust estimates of the state of fish and fishing fleets. Quality assurance of the data is a vital component to meet international data standards and maximise accuracy and precision of aggregated data outputs.

2. Ecosystem approach to fisheries. Research into the underlying mechanisms that regulate and cause variation in fish and shellfish communities. Data are collected and models are developed to improve the basis of annual and ad-hoc fisheries advice to national and international governments, and to meet emerging policy and environmental challenges.

3. Assessment and advice. Numerical and statistical modelling techniques are developed and used to provide annual and multi-annual assessments and advice of the state of stocks and the level of impact of fishing fleets on target and non-target species, of other human impacts (e.g. in-river hydropower turbines) and the ecosystems that support them. These data are quality assured to feed into advice on the status of commercial stocks and 'vulnerable species.

Training

Cefas has an outstanding track record in knowledge transfer, demonstrating that we can not only conduct scientific programmes, but also are trusted to train our clients' staff.

- Stock assessment training
- Training in software development
- Fishery observer training
- Training for enforcement officers
- Biological sampling
- Ageing
- Behaviour tracking

The list is not exhaustive. We are able to train practitioners in all aspects of building management teams: from the design of surveys and collection of data through to building local, national or regional capability.

We thrive in contentious or difficult situations with competing priorities where the application of science can be used to demonstrate causes or predict outcomes and thus enable difficult decisions to be made.

Whether your problem is at the national or international sustainable development level involving government, industry and stakeholder complexity or at a more local or individual level, we look forward to hearing from you.

Enquiries

For further information on our fisheries services, please contact Ross Jolliffe on +44 (0) 1502 524561 or ross.jolliffe@cefas.co.uk

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