

Animals in Scientific Studies at Cefas

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Centre for Environment,
Fisheries & Aquaculture
Science



Cefas



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Cefas Document Control

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Introduction

Cefas is an Agency of the UK government's Department of Environment, Food and Rural Affairs (Defra). We provide high quality marine and freshwater science and evidence to inform policy, support healthy and sustainable aquatic environments and promote wellbeing, health and prosperity both in the UK and internationally. We work with a wide range of partners undertaking monitoring programmes, and carrying out world-class research and development to ensure,

- that commercial fisheries are sustainable;
- that marine and freshwater ecosystems are healthy and diverse;
- that fish and shellfish are healthy and that aquatic businesses are biosecure;

- that food from water is safe to eat.

Cefas has approximately 650 staff primarily based at two laboratories in Lowestoft (Suffolk) and Weymouth (Dorset). We also have an ocean-going research vessel that allows us to carry out work at sea.

Our work, and why we use animals

Most work undertaken by Cefas does not involve the use of protected animals (live vertebrate animals and cephalopods) as defined under the Animals (Scientific Procedures) Act 1986 Amended Regulations 2012, often referred to as ASPA (see page 5, below). However, we believe that where no alternative approaches exist, the use of animals, including those protected under ASPA, is justified and necessary. At Cefas, we maintain very high standards of animal welfare, do all that we can to minimise pain and suffering and to limit the number of animals we use – in doing this we adhere to the principles of the 3Rs (Reduction, Refinement and Replacement). We respect the animals that we work with and support a very strong culture of care.

In this document we aim to explain more fully:

- the nature of the experimental work involving animals that we carry out;
- why we use animals and what the animals experience;
- how pain and distress are prevented or minimised; and
- the governance structures we have in place to ensure our animal use is both legal and ethical.

Commercially sustainable fish stocks

Cefas is responsible for gathering the scientific information on the status of the UK fish and shellfish stocks that underpins advice on fisheries management. This involves collecting information about commercial landings of fish. Alone this is insufficient to estimate or 'assess' the structure (composition by sex, age and size) of the existing stocks accurately. We therefore carry out approximately 10 to 15 independent survey cruises around the UK each year to assess the abundance and population structure of more than 50 commercial fish stocks. Using standard survey fishing techniques these cruises are conducted from either our own research vessels or from commercial fishing boats specifically chartered for the purpose.

To minimise the need for fishing surveys we also gather data from commercial catches and apply egg-based stock assessment methods where appropriate. All of the fisheries assessment work is carried out within an international framework to share knowledge and reduce sampling. We also carry out the science necessary to assess the impact of human activities and natural factors on marine and freshwater animals and ecosystems. This involves a range of research programmes aimed at understanding the movement, behaviour and dynamics of fish populations, and the effects of human activities and natural processes on aquatic ecosystems. This includes investigations into fish life history stages from planktonic eggs and larvae to adults. Studies are carried out that involve fitting wild fish with electronic tags in order to understand their movements and behaviour in relation to the environment and management measures. For this work, fish are caught and restrained. Tags are then either attached externally to the fish, or fish implanted in the gut cavity. External tagging is likely to cause stress and momentary pain but the procedure is very quick and fish are rapidly released back into the environment. For internal tagging, fish are anaesthetised for the few moments it takes to insert the tag. The fish are carefully checked as they recover from the anaesthetic before they are released back to the water. In all cases we ensure that our staff are licensed, trained and competent to undertake the tagging process and identify, mitigate and manage any distress observed in tagged fish. Where previously anaesthetised fish are to be released to the wild, we ensure we comply with all national legislation.

Quality of marine and freshwater ecosystems

Cefas is responsible for carrying out work in relation to the conservation of ecosystems, amongst this are surveillance programmes aimed at understanding the impact of natural and manmade pollutants in aquatic environments, particularly the effects of hazardous substances. This requires experimental work, exposing cell cultures, plants, invertebrates or sometimes fish to varying concentrations of pollutant chemicals within a controlled laboratory setting. The majority of testing work is carried out using invertebrates, but sometimes fish must be used to answer specific questions or to comply with particular regulations.

We conduct tests to understand the effects of medicines, biocides, oil pollution, production chemicals and dispersants on aquatic animals to aid the development of control measures or generate licensing data for chemical usage

in the aquatic environment. Some chemicals at environmental levels can modify physiological processes and inhibit growth, so we design and conduct experiments to measure both long and short term effects. The methodology we use follows international guidelines and is constantly under review, nationally, internationally and within Cefas.

When investigating possible environmental effects, fish at the appropriate stage in their life history are exposed to chemicals at levels similar to those found in the environment. Our research includes life-cycle modelling of the impacts of these chemicals at the population level. In the majority of this work the fish are intensively monitored during the experiment and humanely killed at the end. Cefas is committed to implementing humane endpoints in all studies using protected animals. We strive to reduce the use of fish by replacing them with invertebrates or cell lines grown in culture where possible, and to increase the use of sub-lethal testing techniques that cause less distress. In situations where there is currently no alternative to using live fish we endeavour to improve experimental designs and statistical analysis to reduce the number of fish required. Our work involving fish and shellfish is carried out to meet mandatory requirements under national, European and international regulations and inform monitoring programmes associated with the protection of the marine environment. The main purpose is to protect aquatic life from the adverse effects of pollutants whatever their origin.

The health of farmed and wild fish

Cefas is responsible for providing scientific advice and services related to the development of sustainable aquaculture practices and the protection of wild and cultivated fish stocks from disease. One aspect of the work is the study of fish diseases (understanding the biology of a disease, its infectivity, which species are affected etc.) and the evaluation of possible vaccines, treatments or cures. Our aim is to minimise the impact of disease on both wild and cultivated fish.

We have input from expert statisticians to ensure that we use the minimum number of fish necessary and their welfare is routinely monitored by cameras and visual inspection. In addition, we investigate factors affecting fish on fish farms to identify indicators of positive and negative welfare in order to make recommendations for improving aquaculture practices.

Systems we use to make sure our work is legal and ethical

All work carried out for a scientific purpose involving the use of protected animals is regulated in the UK by the Home Office under ASPA. Cefas places great importance on ensuring full compliance with ASPA in everything that we do. ASPA requires that both our laboratories are licensed under an **Establishment Licence** and that individual scientists and programmes of work are approved through a system of **personal** and **project licences**. Each laboratory has a designated **Establishment Licence Holder (ELH)** who is a senior member of staff with ultimate responsibility for ensuring that the standards of care and accommodation fulfil the Home Office Codes of Practice and that everything we do complies with the requirements of ASPA.

At Cefas, the ELH at the Weymouth and Lowestoft laboratories are also the **Named Person Responsible for Compliance (NPRC)** with ASPA. Each laboratory has a group of trained staff directly involved with animal care. These include **Named Animal Care and Welfare Officers (NACWOs)**, **Named Veterinary Surgeons (NVS)** specialising in aquatic animals, and day-to-day care persons. Other persons specifically identified in the Establishment Licence are the **Named Training and Competency Officers (NTCOs)** who ensure that all staff engaged in work covered by ASPA are competent and properly trained. In addition, the **Named Information Officers (NIOs)** ensure that all staff engaged in work covered by ASPA have access to the information they require when planning studies on protected animals or attending to their welfare needs.

Some activities involving fish (principally the fishing surveys required to assess the status of commercial fish stocks) are regarded by the Home Office as routine husbandry practices and are not normally regulated under ASPA. Similarly, any work conducted at sea beyond the 12-mile limit of territorial waters, or in another country, is not regulated under ASPA. Nonetheless, in any such work we still seek to apply the same stringent animal welfare and ethical principles that we apply to our regulated work and will comply with all applicable legal requirements (e.g. Animal Welfare Act 2006).

Occasionally, we work with non-Cefas personnel to help us achieve our scientific aims. In these situations, we strive to ensure that non-Cefas personnel have the appropriate authority and training to comply with ASPA and that they adhere to our standard welfare and ethical procedures and practices.

Animal Welfare and Ethical Review Body (AWERB)

ASPA requires each Establishment to have in place an approved, well documented ethical review process that helps to promote a 'culture of care'. This process is managed by the Animal Welfare and Ethical Review Body (AWERB) whose principle roles include reviewing the use and welfare of protected animals, ensuring that the 3Rs are fully implemented throughout the Establishment and to consider and approve project licence applications prior to submission to the Home Office. Cefas, involves lay members (who are not directly associated with regulated animal studies) in this process to widen the discussion about the justification and necessity of protected animal use.

The geographical locations of our laboratories, and differences in the work conducted at each site, requires Cefas to maintain two AWERBs; one at Lowestoft and one at Weymouth. Both AWERBs are based on a committee structure and have been approved by the Home Office. They aim to promote and monitor a culture of care for all protected animals used by Cefas either at our Licenced Establishments or Places Other than a Licenced Establishment (POLEs):

- To ensure that the highest standards of care and accommodation are achieved for animals protected by ASPA;
- To improve awareness and consideration of relevant ethical issues;
- To promote the Reduction, Refinement and Replacement (the 3Rs) in the use of animals protected by ASPA.
- To monitor and adhere to any changes in animals classified as protected by ASPA.

Each Committee meets at least twice annually, with the following scope & responsibility for protected animals:

- Advise staff dealing with animals, both at the Licensed Establishments and Places Other than a Licensed Establishment (POLEs) on matters related to the welfare of the animals, their acquisition, accommodation, care and use;
- Advise on the application of the 3Rs and keep practitioners informed of relevant technical and scientific developments;

- Establish and review management and operational processes for monitoring, reporting and follow-up in relation to the welfare of animals housed or used both at the Licensed Establishments and POLEs;
- Follow the development and outcome (retrospective review) of Projects carried out at the Licensed Establishments and POLEs, considering the effect on the animals used; and to identify and advise on elements that could further contribute to the 3Rs;
- Advise on re-homing schemes, including the appropriate socialisation of the animals to be re-homed.
- Advise the Establishment Licence Holders whether to support Project Licence proposals, primarily considering such proposals from a local perspective and bringing local knowledge and expertise to bear;
- Assist with the retrospective assessment of Project Licences at Cefas Establishments;
- Respond to enquiries, and consider advice from the Animals in Science Regulation Unit and Animals in Science Committee;
- Promote awareness of animal welfare and the 3Rs;
- Provide a forum for discussion and development of ethical advice to the Establishment Licence Holders on all matters related to animal welfare, care and use at their Establishment;
- Support Named Persons, and other staff dealing with animals, on animal welfare, ethical issues and provision of appropriate training;
- Help to promote a 'culture of care' within Cefas Establishments and, as appropriate, in the wider community whilst protecting confidentiality;
- Support Cefas in meeting its obligations under the Concordat on Openness on Animal Research in the UK;
- In keeping with Cefas Animal Welfare Policy and any local regulations, provide support, advice and guidance to individuals undertaking research with animals outside the scope of ASPA;
- Encourage staff to adopt good practice in planning and reporting animal work (i.e. PREPARE and ARRIVE guidelines);

- Encourage staff to disseminate/publish work using live animals to prevent duplication elsewhere.

Membership of each AWERB includes the: person designated to liaise with the Home Office (this person usually chairs the Committee); Establishment Licence Holder/ Named Person Responsible for Compliance (ELH/NPRC); Named Veterinary Surgeons (NVS); Named Animal Care and Welfare Officers (NACWOs); Named Information Officers (NIOs), Named Training and Competency Officers (NTCOs), representative project and personal licence holders; and both internal and external lay members. The external lay members are from the local community and are not associated with the work of the laboratories. Members also include professionals involved in animal care and welfare. The external representation provides an independent ethical view of our work. The relevant Home Officer inspector has an open invitation to attend committee meetings.

Because we have two separate laboratories, each with their own Establishment Licence and AWERB, Cefas also has an established Pan-Cefas AWERB to provide a forum for debate among members of the two local AWERBs. It enables the responsibilities of the Establishment Licence Holders at each laboratory to be aligned with the overall accountability of the Chief Executive for all the work conducted in the Agency.

This Body is chaired by Cefas Chief Scientist. Other members include the chairs of the two local AWERBs, the Establishment Licence Holders for the two laboratories and other members of the local AWERBs as appropriate. The Pan-Cefas AWERB meets annually, with the following remit:

- to consider common issues requiring a co-ordinated approach across Cefas;
- to identify areas of divergent practice that require harmonisation;
- to agree policies relating to the use of animals, for parallel implementation by the local AWERBs and Establishment Licence Holders; and
- to advise the Chief Executive on matters requiring Senior Leadership Team (SLT) attention.

All meetings are minuted and the Pan-Cefas AWERB reports to SLT annually.

In addition to the improvement of protected animal care and welfare practices at an Establishment/ organisational level, the local AWERBs also contribute to

separate regional “AWERB Hubs” where applicable aimed at facilitating communication between different Establishments. These regional hubs support the Animals in Science Committee’s aim to share best practice on matters relating to animal acquisition, breeding, accommodation and care at a national level as well as promoting the 3Rs.

How we minimise pain and distress

When planning a programme of work, our AWERBs carefully consider any potential adverse effects the work may have on protected animals involved and how these can be minimised or avoided. We take care when housing, handling and caring for all animals to ensure that they are kept in an appropriate environment and treated with respect. Anaesthetics and analgesics are used wherever appropriate and humane endpoints applied to individuals if they show signs of distress.

At a practical level, trained staff monitor the health and welfare of protected animals in our charge on a daily basis, including weekends and public holidays. We take into account the whole lifetime experience of each protected animal, from birth to death, as well as the numbers used. Cefas is committed to applying the 3Rs and continually strives to avoid the use of animals wherever possible. Where the use of protected animals is necessary, we take every step to ensure that the number of individuals used is kept as low as possible and that methods are refined to minimise or eliminate all potential sources of distress. In addition, we seek to maximise the application of the knowledge that we obtain by publishing our findings so that others may share what we have learned. All of these measures benefit not only animal welfare but also the quality of our science, since applying the 3Rs results in better quality data.

Animal Welfare Policy

Alongside the legal requirements for animal care and welfare enshrined in ASPA, Cefas has an established Animal Welfare Policy stating that we will:

- adopt a humane and compassionate approach to protected animals and to other animals housed at our facilities and on our Research Vessel Cefas Endeavour;
- maintain an active, well-documented ethical review process;

- comply fully with the provisions of the Animals (Scientific Procedures) Act 1986 and all aspects of associated Codes of Practice;
- seek continually to improve standards of animal care by fostering an open culture in which all staff have access to the Agency's ethical review process;
- ensure that all uses of protected animals are carefully considered and justified, and that proper account is taken of the '3Rs' of replacement, reduction and refinement;
- ensure that staff involved in the care and use of protected animals are competent and adequately trained;
- foster an awareness of animal welfare issues throughout the Agency;
- fulfil our Commitments as signatories of the Concordat on Openness on Animal Research in the UK; and
- ensure that all staff have a readily accessible means of raising 'causes of concern' with Cefas management.

Further information about ASPA can be found at the Home Office's website: <https://www.gov.uk/guidance/research-and-testing-using-animals>

We hope we have answered most of your questions. However, should you like further information, or if you wish to discuss specific issues, please contact us through our website at <https://www.cefasc.co.uk>

Tackling global challenges through innovative science solutions

Cefas, the Centre for Environment, Fisheries and Aquaculture Science, is an Executive Agency of Defra (the UK Government's Department for Environment, Food and Rural Affairs).

Through innovative solutions and world-leading applied science we work to ensure a sustainable future for our rivers, seas and the ocean, supporting healthy and productive marine and freshwater ecosystems.



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