

# Global resources to help us focus on fish

Adrian J Smith  
[adrian.smith@norecopa.no](mailto:adrian.smith@norecopa.no)

**Norecopa: Norway's consensus-platform for the replacement, reduction and refinement of animal experiments**



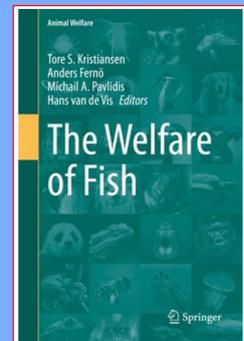
norecopa

PREPARE for better Science

Fish account for about 13% of the 9 million animals used annually in the EU for research and testing. This amounts to 1.2 million individuals with the potential to feel pain and distress. In addition, Norway uses approx. 4 million fish annually.

Despite this large-scale use, resources to support those using fish in research and testing are relatively scarce, compared to what is available for terrestrial species. Since there are over 30,000 species of fish, living in a large range of habitats, there is a clear need for **species-specific, science-based guidelines** on their care and use in research and testing.

**Norecopa works to collect and disseminate the resources which are available, and to support the development of new resources. We also maintain an International Webinars and Meetings Calendar: [norecopa.no/calendar](http://norecopa.no/calendar)**



Norecopa's website contains information on guidelines, databases and books about the care and use of fish in research and testing

## What has Norecopa done so far?

### Severity classification

The 2009 EC Working Group report provides examples of procedures in the severity classes used in Directive 2010/63 ( 'non-recovery', 'mild', 'moderate' or 'severe'), but many of these are examples are not appropriate for aquatic species. A working group set up by Norecopa has published supplementary guidance on severity classification in fish research, with examples:

[norecopa.no/categories](http://norecopa.no/categories)

Norecopa has also published an overview of systems currently in use in Europe for severity classification, with tables to help scientists and regulators choose an appropriate category:

[norecopa.no/severity](http://norecopa.no/severity)

### International consensus meetings on the care and use of fish in research

Two such meetings have been held in Norway. All the presentations, guideline collections, recommendations and consensus documents from these meetings are available:

[norecopa.no/consensus-meetings](http://norecopa.no/consensus-meetings)

### Alternatives to *in vivo* testing of fish vaccines

Norecopa has collaborated with industry to reduce the number of fish used in vaccine development and testing. Norecopa has awarded its 3R-Prize to researchers validating ELISA tests to replace animal use in batch potency testing.

[norecopa.no/species/fish/projects](http://norecopa.no/species/fish/projects)

Categories of severity for common procedures and clinical conditions

## What are we working on right now?

### A Refinement Wiki

Norecopa has launched a Refinement Wiki where is ample room to publish and discuss refinements to procedures on fish:

[norecopa.no/wiki](http://norecopa.no/wiki)

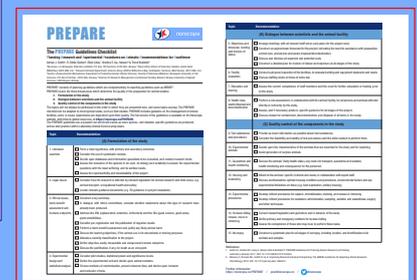
### An app for scoring clinical signs in fish

Norecopa is sponsoring the development of an app which will allow scientists and technical staff to record clinical signs, compare these with reference data and monitor the progression of an experiment in relation to the humane endpoints which have been set for that study.

### PREPARE for fish experiments

Norecopa is developing specific guidance for fish researchers on how to implement the PREPARE guidelines, linking fish-specific resources to the 15 topics on the PREPARE checklist – which is now available in 25 languages!

[norecopa.no/PREPARE](http://norecopa.no/PREPARE)



[norecopa.no/PREPARE](http://norecopa.no/PREPARE)

Norecopa's 9,000-page website contains sections on fish (including zebrafish and wild fish), and other aquatic organisms. You can start here

[norecopa.no/species/fish](http://norecopa.no/species/fish)

- > [Alternatives](#)
- > [Anaesthesia and analgesia](#)
- > [Behaviour](#)
- > [Education and training](#)
- > [Environmental enrichment](#)
- > [Guidelines](#)
- > [Handling](#)
- > [Health monitoring and disease prevention](#)
- > [Humane killing](#)
- > [Legislation](#)
- > [Marking and identification](#)
- > [Meetings](#)
- > [Organisations](#)
- > [Pain and suffering](#)
- > [Projects in which Norecopa has been involved](#)
- > [Reports from projects](#)
- > [Sampling](#)
- > [Surgery](#)
- > [Welfare](#)
- > [Zebrafish](#)

Download this poster at [norecopa.no/FocusOnFish](http://norecopa.no/FocusOnFish)