



# Canadian Council on Animal Care Conseil canadien de protection des animaux

## **IMPLEMENTATION OF THE CCAC GUIDELINES ON: THE CARE AND USE OF FISH IN RESEARCH, TEACHING AND TESTING**

The development of the *CCAC guidelines on: the care and use of fish in research, teaching and testing (2005)* was requested in 1996 by the CCAC Guidelines Committee, on the basis of a rapid increase in the use of fish as experimental subjects, as reported to the **CCAC in the annual animal use census**<sup>1</sup>. Subsequently, this guidelines document was developed by the **CCAC ad hoc subcommittee on fish**<sup>2</sup> and supersedes information contained in Chapter 1, Volume 2, CCAC Guide to the Care and Use of Experimental Animals (1984). In addition, **many individuals, organizations and associations provided comments**<sup>3</sup>, resulting in a set of guidelines described by the Canadian Society of Zoologists as “**a very good document full of intelligent guidelines**”<sup>4</sup>.

These guidelines aim to provide information for investigators, animal care committees, facility managers and animal care staff that will assist in improving both the care given to fishes and the manner in which experimental procedures are carried out. In this respect, the guidelines provide a framework for the implementation of best practices. For clarity, where established Canadian regulatory requirements are involved, or where it is absolutely imperative to adhere to a particular guideline, the term “must” has been used.

During the development of these guidelines, **questions concerning the capacity of fishes to experience any of the adverse states usually associated with pain in mammals were under debate in the scientific literature**<sup>5</sup>. The CCAC subcommittee on fish adopted a precautionary approach in development of these guidelines, recognizing that fishes have the potential to experience pain and manipulations that provoke stress or avoidance/escape behavior may be causes of distress. Therefore the guidelines both support the leadership role that Canadians play in fish research, and ensure that the welfare of fishes is carefully considered, recognizing that better welfare will result in better science.

The greatest challenge in providing the *CCAC guidelines on: the care and use of fishing research, teaching and testing (2005)* is the wide variety of fishes used in Canada, and the diversity of their habits, behavior, life history, and environmental and husbandry requirements. In addition, the scientific information required to define the preferred conditions for fish well-being is limited. Within the guidelines document, where scientific evidence is currently lacking to support the implementation of best practices, efforts have been made to define the most appropriate conditions, based on expert opinion, and approaches to identify those conditions are described. In support of the

implementation of these guidelines, CCAC has identified the need for further research in the areas of recognition and alleviation of pain and/or distress and has communicated this need to the federal granting agencies. Further research is also required to improve experimental procedures and to establish the most appropriate conditions for the maintenance of the various species of fish used in Canadian science. To this end, **CCAC will provide links to additional information concerning best practices as it becomes available**<sup>6</sup>, and encourages institutions to submit best practice information to CCAC for peer-review and publication on the CCAC website. As a first step, a review of the use of anesthetics for experimental procedures involving fish will be posted on the website. In addition to the guidelines, and links to best practice information in support of their implementation, a series of frequently asked questions will be available, based on questions and comments that arose during the review of the draft guidelines.

Institutions using fish for research, teaching and testing may already be meeting the standards of fish care and use outlined in the guidelines. There may, however, be certain areas where refinement of institutional policies and practices are needed. Areas of particular concern identified during the development of the guidelines include procurement of healthy fish, monitoring of water quality parameters, and indicators to be used in monitoring the well-being of fish. Given the wide variety of fish facilities across Canada, it is impractical to describe practices for each situation. Institutions should use these guidelines to establish Standard Operating Procedures and practices that meet the intent of the guidelines and are suitable for use in their particular facilities. Animal care committees are pivotal in providing the interactive interface needed to ensure intelligent implementation of the CCAC guidelines, recognizing the constraints of the institution's facilities and the scientific goals of the particular studies.

Fisheries and Oceans Canada and the Canadian Food Inspection Agency (CFIA) are currently developing containment guidelines for fish pathogens which will be implemented through regulations. The *CCAC guidelines on: the care and use of fish in research, teaching and testing (2005)* include an Appendix C, which provides guidance for containment facilities until the regulations come into force. Facilities conducting research involving fish pathogens are required to consult CFIA's Biohazard Containment and Safety Division to ensure appropriate levels of biocontainment are in place.

## NOTES

1. Members of the CCAC subcommittee on fish: Mr John Batt, Dalhousie University; Dr Kristina Bennett-Steward, Bioniche; Mr Cyr Couturier, Memorial University; Dr Larry Hammell, University of Prince Edward Island; Dr Chris Harvey-Clark, University of British Columbia (Chair); Mr Henrik Kreiberg, Fisheries and Oceans Canada; Dr George Iwama, Acadia University; Dr Santosh Lall, National Research Council; Dr Matt Litvak, University of New Brunswick at St John; Dr Don Rainnie, University of Prince Edward Island; Dr Don Stevens, University of Guelph; Dr Jim Wright, University of Calgary; and Dr Gilly Griffin, Canadian Council on Animal Care.

2. In particular representatives from Fisheries and Oceans Canada, Environment Canada, the Canadian Aquaculture Institute, the Canadian Food Inspection Agency and the Canadian Society of Zoologists.
3. Comment made by the President of the Canadian Society of Zoologists, September 14, 2004, during the final review of the *CCAC guidelines on: the care and use of fish in research, teaching and testing (2005)*. See:
  - Farm Animal Welfare Council (FAWC) (1996) [\*Report on the Welfare of Farmed Fish\*](#). UK: FAWC; Fisheries Society of the British Isles (FSBI) (2002) Fish Welfare. [Briefing paper 2](#);
  - Rose J.D. (2002) [The neurobehavioral nature of fishes and the question of awareness of pain](#). *Reviews in Fishery Science* 10(1):1-38;
  - Braithwaite V.A. & Huntingford F.A. (2004) [Fish and welfare: do fish have the capacity for pain perception and suffering?](#) *Animal Welfare* 13:S87-S92.
4. CCAC participated in an international meeting on the harmonization of fish research in Oslo, Norway, May 2005, [resulting in a list of best practice information currently available](#).