

# Fish Related Institutional Animal Care and Use Committees (IACUCs) Web Resources

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## Protocol Forms

### General Methods for Zebrafish Care

#### Zebrafish Standard Protocol Form

[http://zfin.org/zf\\_info/zfbook/chapt1/1.9.html](http://zfin.org/zf_info/zfbook/chapt1/1.9.html)

“The following PDF file (see note below) contains a template for animal use protocols involving zebrafish which has been approved by the veterinarian (OVSAC) and the animal use committee (IACUC) at the University of Oregon. It is provided to facilitate preparation of applications by users who must meet similar regulations. The text is also available on computer disk.”

### Animal Use Application to the Institutional Animal Care & Use Committee (IACUC)

#### University of Oregon

#### Zebrafish Form

[http://zfin.org/zf\\_info/zfbook/chapt1/anim-zeb.pdf](http://zfin.org/zf_info/zfbook/chapt1/anim-zeb.pdf)

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# Guidelines

## **99-10: New IACUC Application and USDA Policy 12 Compliance Requirements**

<http://alpha.ddm.uci.edu/zotmail/archive/1999/19990709109.html>

The new IACUC application complies with USDA policy 12. ... 2) Are there any alternative animal models (eg, invertebrates, fish, protozoa, etc.)? ...

**AFS Policy Statement #16.** American Fisheries Society (AFS), American Society of Ichthyologists and Herpetologists (ASIH), and American Institute of Fishery Research Biologists (AIFRE) (1987) Guidelines for the Use of Fishes in Field Research. Approved Sept 1987, Winston-Salem, NC. Published Mar-Apr 1988, *Fisheries* 13(2):16-23.

[http://www.fisheries.org/Public\\_Affairs/Policy\\_Statements/ps\\_16a.shtml](http://www.fisheries.org/Public_Affairs/Policy_Statements/ps_16a.shtml)

<http://199.245.200.110/pubs/fishguide.html>

**AFS Policy Statement #22.** Robinette, H Randall (Chair); Hynes, Julian; Parker, Nick C; Putz, Robert; Stevens, Robert E; and Stickney, Robert R (1990) ABBREVIATED, AFS Policy Statement #22: Commercial Aquaculture. Approved Aug 1990, Pittsburgh, PA. Published Jan-Feb 1991, *Fisheries* 15(2):12

[http://www.fisheries.org/Public\\_Affairs/Policy\\_Statements/ps\\_22a.shtml](http://www.fisheries.org/Public_Affairs/Policy_Statements/ps_22a.shtml)

**AFS Policy Statement #30.** Kapuscinski, AR and EM Hallerman (1990) Responsible use of Fish and Other Aquatic Organisms. *Fisheries* 15(4):2-5

[http://www.fisheries.org/Public\\_Affairs/Policy\\_Statements/ps\\_30.shtml](http://www.fisheries.org/Public_Affairs/Policy_Statements/ps_30.shtml)

Catching and consuming fish are only parts of the value, especially in ... and federally mandated "institutional animal care and use committees" (IACUC), which are ...

**CCAC Guidelines on: The Care and Use of Fish in Research, Teaching and Testing** [http://](http://www.ccac.ca/english/new/newframe.htm)

[www.ccac.ca/english/new/newframe.htm](http://www.ccac.ca/english/new/newframe.htm)

The second draft of the [guidelines] can be downloaded in MS Word format from this site.

The final draft will be posted after all input from the second draft is taken into consideration.

DeTolla LJ, Srinivas S, Whitaker BR, Andrews C, Hecker B, Kane AS, Reimschuessel R (1995) **Guidelines for the Care and Use of Fish in Research.** *ILAR Journal* 37(4)

[http://dels.nas.edu/ilar/jour\\_online.asp?id=jour\\_online](http://dels.nas.edu/ilar/jour_online.asp?id=jour_online)

## **Fish Care & Information**

Arizona State University

[http://researchnet.asu.edu/animal\\_care/animal\\_information/fish\\_info.html](http://researchnet.asu.edu/animal_care/animal_information/fish_info.html)

## IACUC Policies and Procedures Manual

[http://researchnet.asu.edu/animal\\_care/Protocol\\_Review.pdf](http://researchnet.asu.edu/animal_care/Protocol_Review.pdf)

... PDF IACUC Policies and Procedures Manual: MS Word | PDF Animal Information Sheets ...

FSBI (2002) **Fish Welfare. Briefing Paper 2, Fisheries Society of the British Isles, Granta Information Systems**, 82A High Street, Sawston, Cambridge, CB2 4H, Tel/Fax: +44 (0) 1223 830665. Email: [FSBI@grantaais.demon.co.uk](mailto:FSBI@grantaais.demon.co.uk)

<http://www.le.ac.uk/biology/fsbi/welfare.pdf>

## IACUC Guideline X: Aquatic Guidelines

Penn State

<http://www.research.psu.edu/orp/ani/guide/X.htm>

... A density of more than 1.5 cm of fish per liter of water should not be ... Each tank must be identified with an identification number assigned by the IACUC ...

Schwedler TE, Johnson SK (2000) **Responsible Care and Health Maintenance of Fish in Commercial Aquaculture. Animal Welfare Information Center Bulletin**, Winter1999/2000. vol. 10, no. 3-4.

<http://www.nal.usda.gov/awic/newsletters/v10n3/10n3schw.htm>

Thorsteinsson V (2002) **Tagging Methods for Stock Assessment and Research in Fisheries. Report of Concerted Action FAIR CT.96.1394 (CATAG)**. Reykjavik. Marine Research Institute Technical Report (79), pp 179

<http://www.hafro.is/Timarit/catag.pdf>

Westerfield, M (2000) **The Zebrafish Book. A Guide for the Laboratory Use of Zebrafish Danio (Brachydanio rerio)**. 4th ed., Univ. of Oregon Press, Eugene

[http://zfin.org/zf\\_info/zfbook/zfbk.html](http://zfin.org/zf_info/zfbook/zfbk.html)

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# General Topics

Rose JD (2002) **The Neurobehavioral Nature of Fishes and the Question of Awareness and Pain. Reviews in Fisheries Science**. 10(1):1-38

<http://uwadmnweb.uwyo.edu/Zoology/faculty/Rose/pain.pdf>

## **Are Plants Making Fish “Happy”?**

<http://zebra.biol.sc.edu/methods/plants.html>

A dialog regarding the use of natural plants and an excellent response by Monte Westerfield (author of *The Zebrafish Book: A Guide for the Laboratory Use of Zebrafish *Danio (Brachydanio) rerio**) regarding the potential introduction of pathogens into the system.

... 25 Mar 1998 12:28 -0400 (EDT) From: [hawk0001@mc.duke.edu](mailto:hawk0001@mc.duke.edu) Subject: Re: (Fwd)  
Are plants  
making fish happy ... I would suggest you get help from your IACUC chairperson ...

## **AWIC Bulletin: Wildlife Research and the IACUC**

<http://www.nal.usda.gov/awic/newsletters/v10n1/10n1will.htm>

For fish, our IACUC has determined this same stage of development to be the "buttoned-up" stage, or when the embryo has fully absorbed the yolk sac and must ...

## **IACUC Links**

University of Alaska, Fairbanks

<http://www.uaf.edu/iacuc/links.html>

... National Wildlife Health Center, USGS. United States Fish and Wildlife Service, USF&WS. National Marine Fisheries Service, NMFS. Other resources and IACUC sites. ...

## **IACUC Newsletter: A Look at Fish Welfare (pg. 4)**

University of Pittsburg

<http://www.iacuc.pitt.edu/Newsletters/Feb2003.pdf>

## **IACUC.org**

<http://www.iacuc.org/>

## **IACUC Zoonoses**

### **Species Specific Fact Sheets**

University of Pennsylvania

<http://www.upenn.edu/regulatoryaffairs/animal/zoonoses.html>

**click on Fish, Reptiles, and Amphibians for a comprehensive table of zoonoses**

... Zoonoses (diseases which can be transmitted from animals to humans under natural conditions) by animal species: birds, dogs, cats, ferrets, fish, reptiles, and ...

## **Information Regarding the Use of Zebrafish at MBL Institutional Animal Care & Use Committee**

Marine Biological Laboratory, Woods Hole, MA

[http://www.mbl.edu/research/services/iacuc/iacuc\\_zebrafish.html](http://www.mbl.edu/research/services/iacuc/iacuc_zebrafish.html)

... Investigators bringing fish from an outside facility to the MBL must choose a method of care for the fish when making an application for IACUC approval. ...

## **Information Resources for Institutional Animal Care and Use Committees, 1985-1999, Revised**

September 2000. AWIC Resource Series No. 7

<http://www.nal.usda.gov/awic/pubs/IACUC/iacuc.htm>

### **Professional Guidelines**

<http://www.nal.usda.gov/awic/pubs/IACUC/profguid.htm>

... NAL call number: QL55 A1I43 ... Descriptors: principal investigator, animal care personnel, IACUC members, overview of current uses of fish in research and commerce ...

## **Institutional Animal Care and Use Committee (IACUC) Operating Procedure for Release of Research, Instruction, and Display Animals for Adoption**

College of Charleston

[http://www.orga.cofc.edu/compliance\\_IACUC\\_SOP\\_005.html](http://www.orga.cofc.edu/compliance_IACUC_SOP_005.html)

## **National Resource for Zebrafish**

Comparative Medicine Resources Directory

National Center for Research Resources, NIH

<http://www.ncrr.nih.gov/ncrrprog/cmpdir/FISH.asp#zebra>

## **Northern Arizona University IACUC Self-Instruction Module for Certification in the Humane Care and Use of Laboratory Animals**

[http://www.for.nau.edu/courses/pb1/FOR690/downloads/IACUC\\_Training\\_Module.pdf](http://www.for.nau.edu/courses/pb1/FOR690/downloads/IACUC_Training_Module.pdf)

... c. State Game and Fish agencies require permits to trap or hold most wildlife species  
... Check with the IACUC chair if you have any question regarding permits. ...

## **Policy on Aseptic Technique**

University of Colorado Health Sciences Center

<http://www.uchsc.edu/animal/policy%20of%20aseptic%20technique.htm>

... For example, skin preparation in amphibians and fish is not recommended as such ... component of the research protocol and approved by the IACUC, non-rodent ...

## **Veterinarians in Research Labs Address Conflicting Agendas**

[http://www.the-scientist.com/yr1997/may/finn\\_p1\\_970526.html](http://www.the-scientist.com/yr1997/may/finn_p1_970526.html)

... I hope they were humane when they killed the fish." ... of the Washington, DC-based Humane Society of the United States, for example, think IACUC veterinarians are ...

## **Zebrafish at UCL**

<http://www.ucl.ac.uk/zebrafish-group/>

### **IACUC Links**

<http://www.ucl.ac.uk/zebrafish-group/links/links.html>

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# **Anesthesia and Analgesia**

## **Small Animal Survival Surgery Guide**

Northeastern Ohio Universities College of Medicine, Division of Basic Medical Sciences

<http://www.neoucom.edu/DEPTS/CMU/PIhandbook/SmallAnimalSurvivalSurgery.html>

... applicable to survival surgery in small amphibians, reptiles, and fish with appropriate modifications. Other species may be added as needed with IACUC approval ...

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# **Euthanasia and Endpoints**

## **CCAC Guidelines on: Choosing an Appropriate Endpoint in Experiments Using Animals for**

### **Research, Teaching and Testing**

#### **Acute Toxicity Testing in Fish**

[http://www.ccac.ca/english/gui\\_pol/gdlines/endpts/APP9TO10.HTM](http://www.ccac.ca/english/gui_pol/gdlines/endpts/APP9TO10.HTM)

... justified for reasons of scientific necessity and approved by the institutional animal care and use committee (IACUC). ... Acute toxicity studies in fish ...

## **Euthanasia Guidelines**

University of Minnesota

<http://www.ahc.umn.edu/rar/euthanasia.html>

## **Euthanasia Protocol**

### **SOP-160 Euthanasia**

<http://www.bgsu.edu/offices/spar/IACUC/IACUC%20web%20documents/SOP-160%20Euthanasia.doc>

... procedure with explicit IACUC approval. Cooling and/or freezing, liquid nitrogen.  
Total immersion of prenatal rats and mice or larval forms of fish in liquid ...

## **Guidelines for Euthanasia**

University of California, Riverside

<http://www.ora.ucr.edu/vet/Primer/Biomethodology/Euthanasia.htm>

### **Table of Euthanasia Methods**

<http://www.ora.ucr.edu/vet/Primer/biomethodology/euthanasia.htm#FISH>

## **IACUC Guideline XI**

### **Electrofishing Guidelines**

Penn State

<http://www.research.psu.edu/orp/ani/guide/XI.htm>

## **Methods of Euthanasia by Species**

Euthanasia Guidelines

University of Michigan

<http://adv.susu.edu/LARC/euthgd.htm>

## **Policy for Euthanasia of Research Animals**

UCI Animal Subjects

<http://www.rgs.uci.edu/as/vieuth.htm>

... Fish, barbiturates inhalant anesthetics, CO<sub>2</sub>, Tricaine methane sulfonate (TMS, MS222)  
... 2. All euthanasia methods must be described in an approved IACUC protocol. ...

## **UW Policy for the Euthanasia of Fish Species - 2002**

[http://depts.washington.edu/compmed/iacuc/policies/fish\\_euthanasia.html](http://depts.washington.edu/compmed/iacuc/policies/fish_euthanasia.html)

... UW Policy for the Euthanasia of Fish Species - 2002. Approved July 18, 2002. ... A.  
Primary euthanasia methods for fish (methods that can be used alone) include: ...

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# Laws, Regulations, and Governing Entities

**IACUC Learning Module: Laws and Regulations**  
**Laws, Guidelines & Programs Affecting Animal Research**  
**The University of Arizona**

<http://www.iacuc.arizona.edu/training/laws/research.html>

**IACUC Learning Module - Laws & Regulations ... Arizona Game & Fish and agencies such as Fish & Wildlife Service ...**

**Regulations, Guidelines, and Miscellaneous Recommendations**  
**University of Idaho**

<http://www.uro.uidaho.edu/committees/acuc/resources/regulations.htm>

**resource contains numerous links of interest!**

... Fish & Wildlife, ... IACUCs, Institutional Animal Care and Use Committee Guidebook.  
Wildlife Research and the IACUC - Animal Welfare Information Center ...

**Regulations and Governing Bodies**

Office of the University Veterinarian  
University of Kentucky Research

<http://www.mc.uky.edu/dlar/resources/handbook/regulations.htm>

Federal Agencies, Laws, Regulations and Policies  
The Freedom of Information Act

Independent National Regulatory Bodies and Professional Groups

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