

Office of Laboratory Animal Welfare Comments

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Abstract

In support of the new column in *Zebrafish* dedicated to initiating conversations about animal care policies and compliance for the zebrafish, the Office of Laboratory Animal Welfare (OLAW) has offered the following clarification and guidance.

Keywords: PHS Policy, OLAW, vertebrate animal, guide, performance standards, Animal Welfare Assurance

THE ARTICLE, *Hatching Fish—When should animal tracking begin?*, by Gary Moulder raises the following issues:

- Authority for the oversight of Public Health Service (PHS)-supported zebrafish activities;
- Developmental stage when fish are covered under PHS oversight; and
- Implementation of zebrafish standards.

Office of Laboratory Animal Welfare (OLAW) offers the following clarification and guidance on each specific issue.

Authority for the Oversight of PHS-Supported Zebrafish Activities

The NIH OLAW is responsible for the administration of the PHS Policy on Humane Care and Use of Laboratory Animals (Policy).¹ The PHS Policy requires institutions to establish and maintain proper measures to ensure the appropriate care and use of all animals involved in research conducted or supported by the PHS (PHS Policy I).¹ Compliance with the standards of the PHS Policy is a term and condition of NIH Grants Policy Statement² for PHS-supported activities.

Institutions that accept PHS funds are required to negotiate and maintain a current Animal Welfare Assurance (Assurance) with OLAW (PHS Policy IV.A.).¹ The Assurance describes the institution's program for the care and use of animals. Institutions are required to conform to the standards negotiated and approved in their Assurance and that are in accordance with the PHS Policy standards. If the institutional Assurance includes standards that exceed those of the PHS, the institution must conform to the higher standard.

Developmental Stage When Fish Are Covered Under PHS Oversight

In 2009, OLAW became aware of inconsistencies in how institutions addressed specific activities involving zebrafish,

including compliance with the American Veterinary Medical Association Guidelines on Euthanasia³ as well as the stage of development at which zebrafish were considered to be live vertebrate animals. The PHS Policy defines an animal as “any live, vertebrate animal used or intended for use in research, research training, experimentation, or biological testing or for related purposes” (PHS Policy III.A.).¹ Although avian and other egg-laying vertebrate species (including fish and amphibians) develop backbones before hatching, OLAW interprets the PHS Policy as applicable to their offspring only after hatching. Zebrafish larvae, for example, typically hatch 3 days postfertilization. OLAW expects Assured institutions to have policies and procedures in place that address the care or euthanasia of animals that hatch unexpectedly. Working with zebrafish researchers and animal programs within the Intramural Research Program of the NIH, the Guidelines for the Use of Zebrafish in the NIH Intramural Research Program⁴ were subsequently developed and provide a model that other institutions may find useful. These Guidelines include the stages of development to be included in a protocol, the consideration of pain and distress categories, the use of estimated number of fish, and a thorough discussion of euthanasia requirements for each stage of development.

Implementation of Zebrafish Standards

The PHS Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals (Guide)*⁵ (PHS Policy footnote 2.).¹ The Institutional Animal Care and Use Committee (IACUC) is the institutional entity that ensures that this responsibility is fulfilled. The eighth edition of the *Guide*,⁵ released in 2011, is the first edition to include a section on aquatic animals (pp. 77–88),⁵ reflecting the increasing importance of the zebrafish as a research model.

The PHS Policy and the *Guide* require vertebrate animals to receive a level of care “appropriate to the species” through “all its life stages.”^{1,5} The *Guide* permits, and OLAW encourages, the use of performance standards. A discussion of engineering, performance, and practice standards may be found in the *Guide* (pp. 6–7).⁵ By the application of these standards, many institutions have been able to avoid the drastic institutional self-induced burden that Eudaimonia University has created.

Operational practices of the *Guide* are stated in terms of standards that must be met, standards that should be met, and standards that may be met. OLAW defines “must” as a minimum standard required of all Assured institutions. “Should” statements in the *Guide* often involve performance standards. Well-established performance standards are not departures from the *Guide*. “May” statements in the *Guide* are suggestions that institutions can choose to implement if suitable for their program. IACUC approval of departures from the *Guide* must be based on scientific, veterinary medical, or animal welfare issues.

OLAW advises awardee institutions concerning the implementation of the PHS Policy. Inclusion of all life stages in zebrafish protocols is not a requirement of OLAW. OLAW’s guidance is based on subject matter experience and draws on best practices followed by the biomedical community. Unless specific statutory or regulatory requirements are cited, OLAW’s guidance may be viewed as recommendations in that an institution may use an alternative approach if that approach satisfies the requirements of the PHS Policy and the Institutional Assurance. Institutions are advised to consult OLAW to determine whether a proposed alternative approach is compliant with the PHS Policy and compatible with the Institutional Assurance.

Summary

OLAW encourages institutions to apply the standards of the *Guide* appropriately. Engineering, performance, and practice standards (*Guide* pp. 7–8)⁵ should be developed thoughtfully and with common sense. An article specifically

dedicated to this subject has been proposed for a future edition of *Zebrafish*. Guidance provided in the section on aquatic animals (*Guide* pp. 77–88)⁵ is to be applied to zebrafish. Employing its own expertise in the understanding of federal standards, supplemented by the expertise of researchers, and the training and experience of veterinarians and animal husbandry staff, the Eudaimonia University IACUC will be in a position to develop policies and procedures that support both high-quality research and zebrafish care.

OLAW looks forward to participating in future commentaries and articles in *Zebrafish*. We welcome and encourage discussion in the support of research and animal welfare.

Disclosure Statement

No competing financial interests exist.

References

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<http://grants.nih.gov/grants/olaw/olaw.htm>

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