



Title	Minimum Standards for Housing Aquatic Species
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I. POLICY AND REQUIREMENTS

This policy defines the minimum standards for housing aquatic vertebrate species at Central Michigan University (CMU) based on the standards of practice and standards of performance outlined in The Guide for the Care and Use of Laboratory Animals (2011).

Investigators who house aquatic animals must establish written standard operating procedures (SOPs) to ensure compliance with The Guide. These SOPs must be documented and must include the following minimum requirements:

- A. Animals must be observed daily for general health. These observations must include weekends and holidays, and these observations must be documented.
- B. Water temperature must be recorded daily.
- C. Ammonia (NH₃) levels should be recorded weekly for established systems, more frequently for newly established cultures. Concentrations of compounds correlated with water quality should not be allowed to exceed generally accepted standards (NH₃ > 0.5 ppm, NO₂ > 0.2 ppm, NO₃ > 50 ppm).
- D. pH, Oxygen, salinity (or conductivity): For pH, monitor at least weekly. Measure oxygen if fish begin to show behaviors associated with low environmental oxygen. If administering salt treatments, monitor salinity daily. Levels shall not deviate beyond standards commonly accepted for the species.
- E. The principal investigator, or their designee, must describe and provide a species appropriate diet and feeding plan that includes frequency of feeding.
 1. All food must show a clear expiration date. For dry food, when a date is not printed on the manufacturer's packaging, write an expiration date of six months after arrival on the original package.
 2. Food that has been transferred to containers other than the original packaging must show the date the original package was opened and the expiration date.
 3. Frozen food: Use by manufacturer's expiration date, or opened within six months of receipt, whichever comes first. Avoid using freezer-burned food.
- F. For all aquatic systems, tanks should be cleaned and sanitized/disinfected between projects/animals. Approved methods of sanitization include rinsing with 70% ethanol, rinsing with dilute bleach, or sanitizing in a standard cage washer using water temperatures of not less than 180°F.
- G. A portion of the water, accumulated waste, and excess food should be siphoned out of tanks each day. Deviation requires IACUC approval.
- H. Aquaria nets as well as other aquaria accessories and system components should be rinsed and air dried after each use, and one net per system or tank is strongly recommended. Nets must be

disinfected using Net Soak (or similar commercial cleaner), boiling water, or dilute bleach (a 10% solution is recommended), at least monthly.

- I. To minimize potential spread of pathogens (between aquaria, or zoonosis), those maintaining aquaria must follow proper husbandry practices (e.g., removing organics, cleaning tools, as above), wear gloves when handling animals, and wash hands after handling animals/cleaning aquaria.
- J. Redundant and emergency systems should be in place. Example: PIs should identify a source of backup water/air pumps if needed in their project.

Any exceptions to the minimum requirements listed above require scientific justification and prior approval by the IACUC.