

UC Davis Office of the Attending Veterinarian Standards of Care

Policy: SC-35-300
Date: 6/7/2019
Enabled by: IACUC/AV/
ILAR
Supersedes: 7/9/2015

Title: Husbandry Care of Fishes

I. Purpose:

The purpose of this policy is to outline the UC Davis minimum standards of care for fishes.

II. Policy:

All units providing animal care for fishes must meet or exceed these minimum requirements based on the ILAR Guide for the Care and Use of Laboratory Animals (*Guide*), and Public Health Service Policy (*PHS*). Deviations or exceptions must be approved by the Attending Veterinarian and the IACUC.

III. Procedure:

Daily (365 days a year without exception):

- Observe each animal and check for health concerns (*Guide* pg. 112).
- Ensure adequate feed is available, though depending on the species and life stage this may be done less frequently (*Guide* pg. 65-68).
- Record sick and dead animals, and report them to Campus Veterinary Services (CVS) or designated clinical veterinarian per standard operating procedure for reporting sick or dead animals.
- Record minimum and maximum water temperatures.
 - Temperature range varies by species, but general recommendations are 5-15°C for cold water fishes, 12-26°C temperate water fishes, and 18-35°C warm water fishes.
 - It is recommended to record each individual tank water temperature daily, but for large subsets of tanks minimally 10% of the tanks must be recorded on a rotational basis.
- Clean any excessively soiled tanks.
- Clean and organize room, anterooms, and surrounding premises (*Guide* pg. 72).
- Record daily completion of tasks, initial, and date log sheet.

Weekly

- For static tanks and recirculating tanks, record water quality (suggested parameters are: dissolved oxygen, ammonia/nitrite/ nitrates, pH, and conductivity).

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- Ranges vary by species, but zebrafish recommendations are > 6.0 mg/L dissolved oxygen, < 0.02 mg/L Ammonia (NH₃), < 1.0 mg/L Nitrite (NO₂), and < 50 mg/L Nitrate (NO₃) (*Guide* pg. 78), pH (6.5-7.5), conductivity (500-2500 µS).
 - More frequent water quality checks may be needed when setting up a systems biologic ecosystem.
 - Minimally 10% of the tanks should be recorded on a rotational basis for all water quality measurement.
- For flow-through tanks, it is recommended that dissolved oxygen levels are measured and evaluated.

Biweekly (not to exceed every 14 days):

- Replace at least 25% of the tank water volume using conditioned water.
 - This can be split into lower volume and increased frequency as needed
- For filtration system and pumps, clean or replace all filters per manufacturer's instruction.

Monthly (not to exceed every 30 days):

- Disinfect nets, shelves, racks, tank cleaning utensils, scrub brushes, and enrichment devices.
 - The use of certain disinfectants may be contraindicated for some aquatic species, as residues may be highly deleterious. Read the label for dangers to aquatics.

Semi-Annually (every 6 months):

- Flow-through tanks are recommended to have tanks and/or source water quality evaluated.
 - Since water quality is constantly changing in flow-through systems more frequent evaluation may not be necessary. If high mortality or other clinical concerns are recognized, water quality intervals may be increased.

As needed:

- Disinfect the animal room including walls, floors, and ceilings (if possible) (*Guide* pg. 72).
- Remove and replace worn or damaged equipment from primary enclosures and surrounding facility (*Guide* pg. 72).
- Pelleted feed must be discarded after 6 months of the milling date unless manufacturer guidelines recommend a shorter or longer expiration (*Guide* pg. 66).
- Clean and sanitize feed storage containers (*Guide* pg. 67).

Environmental Enrichment:

- Fish should be provided the opportunity to demonstrate species typical behavior. Examples of enrichment for zebrafish include plastic plants and conspecifics (*Guide* pg. 83).
- Devices must be checked regularly for wear and discarded when safety hazards are observed.

Facilities:

- Temperature alarms must be installed in all rooms housing fishes (*Guide* pg. 143).
- Adequate ventilation must be provided for the health and comfort of the animal at all times, governed by thermal and moisture loads (*Guide* pg. 81).
- Floors shall be moisture-resistant, non-absorbent, impact-resistant, and relatively smooth (*Guide* pg. 137). Refer to Physical Plant and Facilities Maintenance policy.

Housing:

- Whenever possible and depending on the species, fish should be socially housed in compatible groups (*Guide* pg. 51).
- Space requirements will vary by species and life stage, but zebrafish should be housed 5 adults per liter of water (*Guide* pg. 83).

When housing this species, please also refer to the Animal Care Program's Standards of Care Policy on Pest Control, Identification and Labeling of Cages, Environmental Enrichment, Food Storage, House-Keeping in Facilities Housing Biomedical Research Animals, Physical Plant Facilities Maintenance, as well as the IACUC's Policy on Social Housing of Social Species.