

UNIVERSITY OF TENNESSEE AT MARTIN
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Aquaculture Teaching and Research Farm

STANDARD OPERATING PROCEDURES

EFFECTIVE: 4-01-10

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The intent of this document is to describe the routine husbandry and standard operating procedures at University of Tennessee at Martin Teaching Farm Complex. This document is approved by the University of Tennessee at Martin Agricultural Animal Care and Use Committee. Any exemption must be submitted for approval to the Agricultural Animal Care and Use Committee. The rules and recommendations in this SOP follow those set forth by the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching (referred to as Ag Guide).

1. Animal Care
2. Animal Health
3. Facilities
4. Supplemental SOPs

1. Animal Care

A. Observations of Animals

- i. Animals are observed and cared for daily, including weekends and holidays, by qualified personnel to assess their health and well-being.

B. Emergency Care

- i. Contact information for emergency assistance is posted at the entrance to the animal facility and in Headquarters.

D. Records and Documentation

- i. Records are kept for monitoring fish size, feeding, water quality.

E. Feeding Routine

- i. Animals are fed daily with a timed feed dispenser. The feeder should be filled daily. The amount of food is set based on a percentage of body weight determined by available literature. Feed ingredients and finished feeds are stored and delivered to the animals in a manner that minimizes their contamination or spoilage.
- ii. Water is checked daily to make sure the conditions are appropriate for housing animals.

F. Social Environmental Enrichment

- i. Animals are housed in groups of compatible animals.

2. Animal Health

A. UTM Fish Health

- i. Behavior and body condition are monitored to make sure there are no abnormalities

B. Procedures resulting in potential stress or discomfort

- i. Transport- fish are moved into and between tanks and into out door ponds.
- ii. Handling-fish are periodically measured and weighed to determine appropriate feeding rate

- iii. Harvest- fish are caught to be sold at market.

C. Euthanasia and Disposal of Dead Animals

- i. Animals are euthanized by placing in cold water before breaking backbone
- ii. Disposal of dead animals is covered in Implementation of Animal Welfare at UTM Teaching Farm.

D. Pest and Predator Control

- i. Rodent and insect control is performed by farm personnel.
- ii. Predators are guarded against by nets covering tanks or removed from ponds.

3. Facilities

A. Housing

- i. Fish are housed both indoors and outdoors.
- ii. In barns, fish are kept in tanks with recirculating water.
- iii. Outside, fish are kept in ponds with appropriate aeration.

B. Space Requirements

- i. The size of tanks and ponds are appropriate for the size and the number of animals housed in them, exceeding recommendations set by literature.

C. Cleaning and Sanitation

- i. Filters and tanks are cleaned at least every two weeks.
- ii. Water quality meters are washed after being in the water
- iii. Nets are washed after being in the water.
- iv. Chlorine is a common disinfectant used. All equipment used to handle fish should be placed in a disinfectant after used and rinsed before use.

D. Transportation

- i. Animals are very rarely hauled. Hauling tanks are clean and sanitized prior to hauling.

4. Supplemental SOPs

Daily Care and Maintenance for indoor tanks

Procedures:

1. Remove net from tank
2. Check that water is running
3. Check that air stones are functioning
4. Monitor condition of fish, look for appearance and behavior abnormalities
5. Check water temperature, pH, and Dissolved Oxygen (record on data sheets found in each system.)
6. Remove any mortalities, bag, tag and store in freezer.
7. At end of feeding replace net.

Daily Care and Maintenance for ponds

Procedure:

1. Check that aeration is running
2. Monitor condition of fish, look for appearance and behavior abnormalities
3. Check water temperature, pH, and Dissolved Oxygen (record on data sheets found in shed).
4. Remove any mortalities- bag, tag, and store in freezer.

Feeding indoors

Procedure:

1. Weigh out appropriate amount of feed based on % body weight of fish
2. Place bucket under feed dispenser and fill feeder, use feed that falls through feeder to check fish activity by broadcasting over tank.
3. Make sure feeder is on and set at appropriate settings to dispense food over the course of the day.

Feeding Outdoors

Procedure:

Feed at least once a day the appropriate amount of feed based on % body weight.

Water Quality

Procedure:

In addition to daily water quality measurements take weekly measurements of Ammonia, Nitrite, Nitrate, Phosphate.

Recirculating System Maintenance

Procedure:

Done at least once every 2 weeks

1. Unplug main pump.
2. Turn filter to RINSE
3. Open blower air valve on blower riser.
4. Turn blower on and allow to run for 3-5 minutes
5. Turn off blower and close blower air valve.
6. Set filter to BACKWASH and plug in the main pump
7. After the water clears, turn filter to RINSE for 10-20 seconds before setting filter to the FILTER position.
8. Open sludge valve to purge heavy solids from bottom of tank
9. Use water from 150 gallon tanks to refill the system

Transporting and handling fish

Procedure:

Arriving fish:

1. Allow fish to acclimate to water temperature (30 minutes per degree difference)

2. Add water from the tank to the bags of fish to allow for acclimation to water quality (an additional 30 minutes)
3. Zero a bucket of water on the bench scale and pour fish into net to remove them from the water
4. Immediately place netted fish into bucket and record weight pour fish and water into appropriate tank.

Handling Fish for measurements, arriving, monitoring, transporting and harvesting

1. Keep fish that are to be measured in buckets of water
2. Gently remove one fish at a time record the length in mm and the weight in grams and place it back in water.
3. Arriving fish: measure and weigh 50 individuals
4. Monitoring: randomly net 5 fish and weigh and measure every two weeks
5. Transporting: measure and weigh 50 individuals
6. Harvesting: measure and weigh 50 individuals

Between tanks:

1. Net fish.
2. Place into bucket of water from tank that has been zeroed on the bench scale
3. Add fish until appropriate weight is reached
4. Release into appropriate tank

Between tanks and ponds

1. Net fish
2. Place into bucket of water from tank that has been zeroed on the bench scale
3. Add fish until appropriate weight is reached
4. Release tanks into hauling tank
5. Release fish into ponds

Harvesting:

1. Seine fish into corner of pond.
2. Net to appropriate area

