AQUATIC ANIMAL FACILITY STANDARD OPERATING PROCEDURE (SOP)

# FOR <Name of Satellite Animal Holding Facility>

1. Purpose and Scope:

Specify the specific aims of your protocol that require you to house animals in your laboratory or classroom. State how long the animals will be housed in your laboratory, classroom, or satellite animal facility. This should be the shortest length of time necessary, and cannot exceed the approval period of the protocol. State the location (building and room number) where the animals will be housed.

1. Responsibilities:
2. <Category (PI, Supervisor, etc.)> will be responsible for ensuring compliance with the procedures described in this document, and for reviewing and updating this document annually, or as needed.
3. <Category (personnel listed on protocol, facility staff, etc)> personnel will be responsible for reading and complying with the provisions herein.
4. General Aquatic Housing Description:

A. Species

<Common Name> (Genus species)

1. Animal Facility Construction

Describe the animal facility or animal holding room, including the materials and finishes used for the floors, walls, and ceilings of the aquatic animal holding facility. Note, these materials and finishes should be impervious to water and able to withstand the loads inherent with large quantities of water and should be slip resistant. Moisture-resistant switches and outlets and ground-fault interrupters should be used in areas with high water use, such as cage-washing areas and aquarium-maintenance areas. Describe how the facility is designed or operated to minimize cross-contamination and prevent the spread of disease between animals.

1. Animal Facility Security

Describe the security and access control measures for the animal facility or room. Include in your description the measures for preventing access into the animal holding area by pests, vermin, and wild-animals. Note, access should be strictly controlled and made available only to personnel who have a legitimate need for access and have received appropriate training.

1. Primary Enclosures

Describe the enclosures (i.e. tanks) used to house the aquatic animals, include the construction material (glass, acrylic, fiberglass), and dimensions.

1. Stocking Density

List the maximum number of animals that each enclosure (i.e. tank) can accommodate. At a minimum, animals must have enough space to express their natural postures and postural adjustments without touching the enclosure walls or ceiling, be able to turn around. In addition, there must be sufficient capacity in the life support system to accommodate the biomass without adversely affecting the water quality.

1. Water Source

Identify the water source, and describe any source water treatment (e.g. activated carbon filtration) used to remove toxic components in the water (e.g. chlorine or chloramine).

1. Life Support System

The phrase life support system refers to the physical structure used to contain the water and the animals as well as the ancillary equipment used to move and/or treat the water.[[1]](#endnote-1) Identify and describe the type of life support system (re-circulating; flow-through; or static system).

1. Environmental Parameters

Describe the control of the environmental parameters of the aquatic animal facility, including temperature, humidity, ventilation, illumination, noise and vibration. Alternatively, note if any or all of these environmental parameters are controlled at the cage/enclosure level rather than at the room level, and then describe those control mechanisms below.

1. Environmental Enrichment and Social Housing

Describe the environment in which the fish are housed to elicit species appropriate behaviors. Social housing should be the default method of housing unless otherwise justified based on social incompatibility resulting from inappropriate behavior, veterinary concerns regarding animal well-being, or scientific necessity approved by the IACUC. Do you provide substrate (e.g. gravel) for species that need it to reproduce or express normal behavior? Does the species require visual barriers, hides, or shading in its enclosure?

1. Animal Care Procedures:
2. Daily Monitoring

* Describe the animal monitoring procedure (e.g. visual evaluation of individual animal’s appearance and behavior), who performs its, and how often the animals are monitored. Note, at least daily animal health observations are required.
* Describe any variation in these procedures that might occur on weekends, or Holidays.

1. Veterinary Care

* Unexpected deaths, signs of illness, trauma, distress, or abnormal behavior must be reported to the Attending Veterinarian in a timely manner by phone (893-7344 or 451-5931) or email (manuel.garcia@ucsb.edu).
* Describe the procedures for quarantine of newly acquired animals and separation of animals by health status or susceptibility to disease.
* Describe the procedures for animal health surveillance.

1. Feeding

* Describe the type of animal diet that is fed (e.g. pellets, flakes, live-food), and how the food is stored. Note, the storage time should be based on manufacturer’s recommendations or follow commonly accepted practices. Food storage should be in leak-proof containers with tight fitting lids to prevent spoilage and contamination. If the food is stored in an outside or field enclosure, then the food storage container should also be vermin-proof.
* Describe the amount for food that is provided per animal or tank, and the feeding frequency. Note, many aquatic animals are not provided with food ad libitum in the tank, and in some cases may not be fed daily.
* Describe how any fresh or frozen food is handled and prepared to prevent contamination.

1. Water Quality

* Identify the standards for acceptable water quality, appropriate parameters to test, and testing frequency. It is recommended that you provide a table of these water quality parameters, including acceptable or normal values (see sample table below).

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| --- | --- | --- |
| Parameter | Acceptable Range | Testing Frequency |
| Water temperature | 28°C +/-2 (79-86°F) | daily |
| pH | 6-8 | weekly |
| Conductivity | 600 – 1200 μS | weekly |
| Free ammonia | <0.02 mg/L | weekly |
| Total ammonia | <0.5 mg/L | weekly |
| Nitrite | <0.1 mg/L | weekly |
| Nitrate | <20 mg/L | monthly |
| Oxygen saturation | 6-8 mg/L | monthly |

1. Substrate and Cage Changes

* Describe the frequency of any substrate (e.g. sand or gravel) or cage changes.

1. Cleaning and Sanitation

* Describe the cleaning, sanitation, or maintenance of the life support system.
* Describe the frequency of water changes in re-circulating or static life support systems.
* Describe the procedures (i.e. syphoning) for regular removal of solid waste materials.
* Describe the method (i.e. scrubbing or scraping) and frequency of removing algae from the sides of the tank.
* Describe the method and frequency of cleaning and sanitizing the nets, sponges, and other equipment that is used to handle the animals or clean the tanks.
* Describe the method and frequency of cleaning and sanitizing the aquatic animal holding room. Note, cleaning agents should be chosen and used with care to ensure there is no secondary contamination of the aquatic systems.
* Describe the method for evaluating the effectiveness of the cleaning and sanitation procedure(s). Identify how each sanitation procedure (e.g. sanitizing primary enclosures) is evaluated, and how often the evaluation is performed.

1. Waste Disposal

* Describe any waste-water treatment procedure, and precautions for preventing animals from escaping or being flushed along with the effluent. Drains should not permit passage of animals or hazardous materials into the sanitary system without appropriate treatment.
* Describe how animal carcasses are disposed. Animal carcasses should not be disposed of in regular trash receptacles.
* All hazardous chemicals (e.g. MS-222 aka tricaine methanesulfonate or TMS) must be disposed of through EH&S hazardous disposal services, and should never be flushed along with the effluent water into waters of the state.
* MS-222 powder shall be disposed of through EH&S hazardous disposal services. Contact Campus Hazardous Waste for solutions greater than 5000mg/L. Excess MS-222 solution less than 5000 mg/L may be disposed of in a drain that leads to the city sewer system.

1. Animal Identification

* Animals should be identified. Describe the method of identification, which may include group identification for each tank or enclosure, or individual identification based on unique identifiers (e.g. individual color patterns) or devices/implants (e.g. elastomeric tags).

1. Recordkeeping

* Daily records should be kept to document performance of the care and feeding procedures that are described in this SOP.
* Records of all animal acquisitions and animal census should be maintained.
* Records of general animal health information should be maintained, including documentation of the performance of daily health observations, and identification and resolution of any animal health problems.
* Records of water quality testing results should be maintained.

1. Transportation Procedures

* Describe how animal transportation will be performed, and how you will minimize any occupational hazards related to exposure to animals during transport.
* If animals are transported in a motorized vehicle, describe how the driver is protected from exposure to hazards such as bacterial, protozoan, or parasitic microorganisms in the water.
* If animals are transported in a motorized vehicle, describe how animals are protected if the vehicle stops for an extended period.

1. Other (e.g., Use of Hazardous or Biohazardous Materials)

* Describe any occupational hazards related to an inherent risk posed by the animals (e.g. venomous species), or from experimental treatments (e.g. use of hazardous chemicals or biohazardous agents). Include a description of how any potential hazards will be mitigated.
* MS-222 powder must be handled in a fume hood and personnel working with MS-222 powder must wear a lab coat, safety glasses, and gloves.

1. *Guide for the Care and Use of Laboratory Animals, 8th Edition.* pg 79 [↑](#endnote-ref-1)