

Specific Animal, Room, Personnel and Equipment Procedures

Channel Catfish (*Ictalurus punctatus*)

1. Description of animals: Channel Catfish (*Ictalurus punctatus*). Obtained from Aquacultural Research and Teaching Facility, Dept. of Wildlife and Fisheries Sciences (via Dr. Delbert Gatlin).

2. Research or Teaching Objectives: To examine endocrine mechanisms controlling growth and reproduction.

3. Record keeping procedures of daily, weekly and monthly duties.

Daily: Records of feeding, temperature, animal health, equipment performance, water levels, flow rates, animal numbers and cleaning duties.

Weekly: Records of water quality (ammonia, nitrite, nitrate, and pH)

4. Housing requirements:

A. Set-up

Larger fish: Loose in raceways, possibly separated with gate. Net coverings on connecting pipes.

Medium fish: In 4 foot diameter, 16 inch deep fiberglass tanks, covered with secure netting. Netted standpipe in center. UV sterilizers. Reduced lighting.

Small fish: In 20 gallon black painted tanks covered with eggcrate

B. Maintenance

Raceways: Scrub algae off bottom when it gets thick. Net out uneaten food and any particulates. Clean pads as indicated on the chart and as needed (when the water level in front of the pad is higher than behind the pad, the pad is clogged and needs cleaned). Back flush the sand filter twice/week depending on pressure and load on the system, but always once/week. Water changes with any detectable amount of ammonia or nitrites and when nitrates are 40 mg/l or greater. Ammonia and nitrites should never be detectable; notify the supervisor if they are. Carbon changes (see carbon change SOP) every 3-4 months or as needed (when water starts to become yellow-green color instead of clear). Clean flow meters (carefully clean making sure not to scratch the plex tubing) when you see algae build up. The algae build up in the flow meters will cause the flow to read inaccurately. Check sand in sand filter (see sand filter SOP) at least twice a year. Replace nitex bags when torn or not functioning. Vacuum or net out filter and raceways as needed to remove particulates. Clean off UV bulbs and inspect yearly. Replace UV bulbs yearly.

Tanks: Clean gutters as indicated on the charts or as needed. Nitex bags must be cleaned daily, but sometimes they must be cleaned twice daily when the loads are high. Inspect tanks daily. Look through the windows for dead sinkers and over the top of the tank for dead floaters. When a dead fish is observed, it must be removed, bagged, labeled by tank #, dated and initialed and then frozen in the BSBE 107 freezer on the bottom shelf. Record fish

removal and tank # on daily duty sheet in the comment section. Usually uneaten food will be netted out of the tanks, but it is important to follow the experiment protocols. Sometimes there are restrictions to what we can do with the tanks during critical experiments.

C. Cleaning See Maintenance

D. Parameters

1. Temperature 25-30°C
2. Water Aged, treated tap water
3. Photoperiod 12L:12D, but varies with experiments. Custom photoperiods will be programmed by investigators. If the lights are off or on at unexpected times, notify the supervisor.
4. Feeding Daily, but varies with experiments
Maintenance Fish: Aqua Max 500 floating fish feed.
Experimental Fish: Aqua Max 500 floating fish feed.
5. Water Quality Ammonia: 0.00, Nitrites: 0.00, Nitrates: 0-50, pH 8-8.5
Notify the supervisor if any of these are out of range.
6. Other Keep the noise level low in rooms. Watch for slamming doors and talking loudly. Report slamming doors to the supervisor. Keep lighting level low.

5. Personnel duties

- A. PI Provides written (SOP) and hands on instruction of how the systems are to be run to the supervisor. Continually checks up on the progress and informs the supervisor of any changes or deficiencies.
- B. Graduate Students Design and conduct experiments, establish feeding and bleeding protocols that must be provided in writing to the supervisor, feed animals or arrange with the supervisor to have the student workers feed them, collect experimental data including blood and tissue samples, move animals into tanks, inform the supervisor when the experiment is over and the system can be broken down and perform daily duties when student workers are unable to.
- C. Student Workers Daily duties and regular room maintenance, daily inspection and removal of dead animals unless instructed not to (notify the supervisor when any health or system concerns are apparent) and assist the grad students upon request.

6. Additional animal and research information

Most experiments with these animals are feeding and endocrine experiments and for this reason, feeding protocols must be strictly adhered to and any modifications must be communicated with the investigator. Hormone levels are influenced by stress (noise, contact

with tanks, looking at the animals, tours, etc.) and therefore stress must be minimized. All tours or visits must be cleared with the supervisor. Please take extra care to observe door signs indicating an experiment is in progress. Access to the rooms will be limited at these times.

7. Description and use of equipment and supplies:

Filters: Sand filter, carbon filters, vertical screen biofilter, Nitex bags
Pumps: Jacuzzi pump
Meters: Flow meters, pressure gauge on sand filter, thermometer

8. Anticipate problems and situations:

Pump Sucking Air: Turn the pump off. Often the water level in the biofilter is too low. This occurs most because the pads (usually the front pad) are clogged. Remove and wash the clogged pads. A clogged pad is determined by the water level in the front of the pad being higher than behind it. Clean pads until the level is balanced. Turn the pump back on making sure to open the air release valves to bleed off excess air.

Pump is not pumping: Check to see what is going on. Is someone doing a water change or a back flush? Did someone forget to turn it back on after a water change or back flush? Check the switch to see if it is in the "on" position or if it is plugged in. If the pump is one that plugs in, check to see if the GFI circuit needs to be reset. Notify the supervisor immediately. The pump may need replaced by the supervisor or repaired by contacting the Biology Instrumentation Shop. The pump should ALWAYS be running.

Flooding tanks: Either a fish is stuck against the outflow inside the tank or the outflow tube has clogged. Removal of these should solve the problem. If the tanks are undergoing an experiment consult the supervisor first. Outflow tubes can be cleaned with a long test tube brush located in the shop. Dead fish must be removed and recorded.

Sand Filter Problems: Increased pressure and reduced flow rates mean there is a build up in the sand filter. This can be cleaned with several back flushes. If caking and channeling of the sand occurs, then the sand must be replaced.

Flow too Low: Make sure the flow meter is clean and you are getting an accurate reading. If still too low, then there is something causing the reduced flow: failing pump or pressure too high in the sand filter (see above). Notify supervisor.

Tank flow low: Flow has been reduced due to a clog in the line. The tank faucets should be opened full to remove the clog and the raceway return valve should be closed more to force more water up to the tanks. See supervisor to flush the manifold.

