**Daily SOP Checklist for Adult Fish Care**

1. When you first enter the room, check the floor for water. There should be none. If there is, try to identify from where it is leaking.
2. Check:
   1. Room temperature (~18-23C)
   2. Water flow to all tanks in all systems
   3. Air flow to all tanks
   4. Water level in sump and head tank (up to the line)
      1. **Add more if necessary and refill premixed water in garbage cans**
   5. Look for sick fish- Record and euthanize
      1. Sever vertebrae below head using razor blade
   6. Look for dead fish- Remove and record
      1. Dead fish go in a Ziploc bag in the freezer in the room across from Sue’s office
   7. Water temp. Acceptable is 18-23C.
   8. Remove any bio-beads found in tanks.
3. Feeding
   1. Pellet Food
      1. Located in Tupperware in 0127.
      2. Extra is in the walk-in fridge in the basement.
   2. You want each fish to be able to eat the food in a minute or two. A good way to judge this is to feed everything, then go back and check to see if they ate it all. If there is food floating on the top/bottom- you overfed.
   3. Remove the excess food and fish waste from tanks via net or siphon
4. Record everything you do and initial the book.

**Twice Weekly Tasks: Completed each Monday and Thursday**

1. Water Chemistry
   1. If **any**of the following are above non-detectable, at least 30gallons of water needs to be changed
      1. Ammonia, nitrites, nitrates
      2. Rinse water chemistry tubes after use to prevent buildup.
   2. Salinity- Make sure to rinse probe with DI/RO after using and recap probe
   3. Temperature
2. Scrub tanks to remove algae. IMPORTANT: Rinse scrubs between Virkon buckets and tanks using tap water.
3. Perform a water change
   1. A small water change should always be performed, even if chemistry is ok.
   2. This can be done simply by siphoning from the sump. 30 gallon change is marked on the side of each.
   3. Salinity of water added should be equal to the salinity of the system.
      1. Check with the YSI meter in the cabinet
      2. Make sure to rinse probe with DI and recap probe before putting away
   4. Hose off any salt build-up from the outside of tanks or egg crates
4. Siphon off any debris that have accumulated in the bottom of the sump or tanks.
5. Before Leaving:
   1. Make sure water is flowing to all tanks, head tank.
   2. If water levels need to be adjusted, do it
   3. Make sure garbage cans are filled and have salt added (if necessary)
   4. **Record everything you did.**
   5. Sweep up any debris and hose off dirt from the floor.

**Once Weekly Tasks:**

* Clean Filters on large systems
  1. **IMPORTANT: never close all valves at once. There always needs to be an open path for water to flow. The system may explode bc of build up of pressure (or something bad…).**
  2. Open Ball Valve to diversion from filter
     1. Close valves to isolate filter
  3. **To Clean Filter**
     1. Open mechanical filter, hose off filter with attachment to remove dirt, replace
  4. Open Ball valves to filter **FIRST.** Then close diversion valves.
* Change and clean filter mats on fry racks
  + Change the filter mat where the outflow of water goes back into the sump.
  + Clean using tap water and hose attachment.

**Once Monthly Tasks:**

* Change Virkon in net buckets.
  + Mix 10g of Virkon per 1.0L of water
* Change sleeve around carbon filter in fry systems.
* Perform fish counts and update fish numbers on record sheets.

**Every 6 months:**

* Change filter on RO system
* Add salt to water softener

**Fry/ Embryo Care**

1. Check:
   1. Water flow to all tanks
   2. Water level in sump
   3. Look for sick fish- Record
   4. Look for dead fish- Remove and record
   5. Water temp. Normal is 20-25C.
2. Feeding
   1. Feed a small amount of otohime- in the falcon tube
3. Change water twice weekly
   1. Water chemistry to be completed the same as for adult racks.
   2. Conduct 5 gallon water changes.

**Embryo specific care:**

1. Embryos are stored in petri dishes or other small dishes until hatching.
2. Water needs to be changed daily
3. All water needs to be mixed with methylene blue.
   1. 1 drop of methylene blue per 0.5 liters for 3ppm concentration.
      1. Ie, 2 for 1 liter, 4 for 2 liters.
4. Slowly dump water out of embryo dish and into the waste bucket. Please, **don’t dump out embryos!**
   1. You can use the small pipette or the serological pipette if you are worried about losing individuals- especially if there are hatched fry.
   2. Change about 2/3 to ¾ of the water in each dish.
   3. Then refill with methylene blue water of the correct salinity.
5. Move hatched fry to correct tank in fry rack.

**Breeding**

Breeding killifish is pretty simple. They’ll do it on their own almost year round. However, there are a few things you can do to facilitate the process.

* You want the adults to be ready for breeding. The way to do this is to set their light to a summer schedule. Something like 12-14h light, 10-12h dark. It is best to put them through “winter” for at least a month, if you have time. Short days, long nights. Just match the light cycle to wherever they’re from for winter/summer. Ideally we’d use cold temps too, but the current setup doesn’t have this capability.
* When adults look ready to breed, you can begin. Males get yellow bellies, dark heads and backs, and turn sparkly. Females just bulge from eggs. You can try to squeeze a few females to see if they have eggs if you’re unsure.
* To collect eggs, it is easiest to use the spawning baskets. These are just 4 inch pvc with fine mesh on the bottom, coarse mesh on top. The fish will spawn into the top and the eggs will fall into the basket. They will eat the eggs if they have access, this is why you need a basket. It is best to use multiple baskets/tank because males are territorial. Spawning mops or mats also work.
* Once eggs have been fertilized transfer to a rearing dish with methylene blue treated water-dose according to the bottle. This prevents fungus. It can also help to roll the eggs clean on a paper towel before transfer. I literally mean roll them clean to get off the feces, food, etc. You can use Tupperware or petri dishes for the rearing dish. For petri dish, I don’t put more than ~70/dish.
* Change water daily.
* Once hatched, move to fry rack and feed otohime, hatch brine. After a few weeks or a month you can begin a small amount of frozen brine
* After about 2 months move to make rack system with a screen covered stand pipe (fine screen).
* Make sure to thin appropriately as they grow. Transition to larger food as they grow. I use a combination of small adult food, frozen brine, hatched brine, and otohime as necessary.