

ZIRC NURSERY PROCEDURE

To provide an optimal rearing environment, we control water quality by adjusting water flow to each nursery tank individually, according to the specific requirements of the growing larvae (e.g. mouth gape). The tanks have individual water valves and drains that allow for switching from static water conditions (water off) to intermittent, or to a constant 24-hour water drip or flow.

Overview

Feeding:

- 5 to 9-day-old fish are fed concentrated paramecia
- 10 to 21-day-old fish (and older) are fed ZIRC Nursery Mix and brine shrimp, both 2x per day

Water Changes:

- 0 to 4-day-old fish are kept in Petri dishes with E2 embryo medium
- 4-day-old fish are transferred to nursery tanks (static system water)
- 5 to 9-day-old fish are maintained in static system water
- 10 to 21-day-old fish (and older) receive water for 24 hours (constant)

Detailed Nursery Procedures

Day 0 - 4:

- Maintain embryos/larvae at 28.5 °C in Petri dishes with E2 embryo medium and a density of 50 fish per dish

Day 4:

- Transfer larvae to nursery cages, with 300 ml of system water

Day 5 - 9:

- Maintain larvae in static system water
- Feed 40 ml concentrated paramecia, 2x per day

Day 10:

- Discontinue paramecia feedings
- Switch to constant (24-hour) water flow
- Feed larvae 5 ml ZIRC Nursery Mix (powdered flake food prepared from Zeigler and Freeze Dried Rotifers), twice per day
- Feed 5 ml concentrated brine shrimp, twice per day

Day 10 - 21:

- Continue feeding ZIRC Nursery Mix and brine shrimp, each twice per day
- Water flows 24 hours a day

Day 21:

- Larvae are usually ready to be moved from the nursery to the grow-out section of the main facility

- Continue nursery care if larvae are not large enough to be transferred out of the nursery

Day 21 - 80:

- Transfer larvae to the grow-out section. To prevent larvae and juveniles from escaping, cover the drains in these tanks with a fine mesh.
- Feed larvae and juveniles brine shrimp and a juvenile powder mix prepared from the Zeigler larval diet and Cyclopeeze.
- Once juveniles are large enough, by approx. 2 - 3 months of age, the mesh juvenile drains can be replaced with adult drains and adult food mix can be fed. The juveniles can now be moved from the grow-out racks to the standard adult racks.

Stage definitions for Embryo, Larvae, Juvenile:

Parichy, D.M., Elizondo, M.R., Mills, M.G., Gordon, T.N., and Engeszer, R.E. (2009) Normal table of postembryonic zebrafish development: Staging by externally visible anatomy of the living fish. *Dev. Dyn.* 238(12): 2975-3015.