Cold Water Species Eyed Eggs: Disinfection & Treatments SOP

This SOP was created by UW-Stevens Point Northern Aquaculture Demonstration Facility based on successful practices. This SOP is a recommended, example protocol based on previous success, and is for cold water species at the eyed-up stage only (i.e., Trout, Salmon, Charr). This SOP is for single pass, flow through heath tray incubation systems utilizing degassed, aerated water with appropriate biological parameters for species reared.

STEPS

1. When eyed-up eggs arrive in insulated carton, make note and take photos of any damages, tape missing, indents to carton, etc.

2. Turn lights down in facility or hatchery before opening carton. Eggs of coldwater species are sensitive to high light.

3. When opening the carton, make sure ice is evident on top and bottom trays. If ice is melted, eggs were not insulated properly and damage to the eggs may have occurred. If any carton damage or ice not apparent, take photos and contact egg distribution company immediately.

4. Take out top layer of ice and take temperature of eggs with thermometer on top and bottom. Record and compare to known biological parameters of species and egg supplier requirements.

5. In a 5 gallon bucket, create a water mix that is the same temperature as the eggs. Might have to use slurry of ice and water to decrease temperature to match egg temperature.

6. When water in bucket matches egg temperature, carefully place egg trays into a container of the tempered water so eggs are submerged. Eggs can also be poured from the trays into the tempered water bucket. Make sure oxygen and pH are within biological parameters.

7. Slowly temper the eggs to match the water temperature of heath tray inflow water at your facility. Make sure you are slowly increasing this temperature (only 1°F every 10 min. or so). At this time the eggs are reabsorbing water, it is important that eggs are rehydrated before disinfecting them. Let the eggs reabsorb until they are in water for ≥1 hour. Keep adding fresh water to the eggs during this time from heath trays to ensure good oxygen and water quality.

8. Once the eggs are in the same temperature water as your heath trays and have been reabsorbing water for approx. 1 hour, create another bucket of water of same temperature with 100ppm of Iodine. For 100ppm iodine the ratio is 10 ml Iodine to 990 ml of water (about 10ml iodine to 1L water).

9. Take egg tray and place in new bin or bucket of the 100ppm iodine water. Let sit for 15 minutes to disinfect.

10. After they have been disinfected, rinse of iodine with fresh tempered water. They can be enumerated by volumetric displacement, if needed and placed into heath trays. Make sure they are still tempered to the heath tray water. Heath trays should be set at about 5 gal/min inflow.
11. Check oxygen and temperature in the bottom heath trays regularly to ensure water quality is within biological requirements for your species.

12. Keep heath trays dark during egg development. Eggs should be picked for mortalities when needed and also can be treated with hydrogen peroxide or formalin at appropriate ppm every other day, if they are not hard eyed (Formalin: 1000-2000ppm for 15 minutes UWSP NADF uses 1670ppm. Hydrogen Peroxide: 500-1000ppm for 15min). **Once eggs are hard eyed or close to hatching, stop any treatments. Treatments will kill fry. Continue to remove mortalities as needed.**

13. Fry will remain in heath trays until button-up stage, when they will be ponded and introduced to feeding. The photo below shows the stages of absorbing the yolk sac and generally the best time to pond your fish. The bottom fish should be left in the heath trays, still absorbing much of the yolk sac. The middle fish is half way through the button-up stage, when the chromatophores (pigment cells) are reaching about half way down the yolk sac. This stage is when we recommend the fish should be ponded and slowly introduced to feed. The top fish has fully absorbed its yolk sac, the chromatophores are reaching around the entire ventral region. This fish will be looking for feed and should have already been ponded.

![Fish stages](image)

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