

ANADROMOUS FERAL BROODSTOCK

Anadromous feral broodstock are defined as feral anadromous strains of salmonids with desired genetic traits that:

- led to their being selected for introduction into the Great Lakes,
- or have developed as a result of natural selection in the Great Lakes.

Those populations are managed, as necessary, to maintain those desired traits. The broodstock are captured and spawned as required during spawning "runs" of the feral populations.

ANADROMOUS FERAL BROODSTOCK DEVELOPMENT (established stocks)

1. Gather data on candidate parent broodstocks and source waters.
 - a. Must be able to access the majority of the spawning population of the target species, both spatially and temporally.
 - b. Check genetic variability/integrity of the proposed parent broodstock and collect baseline data.
 - c. Parent broodstock should be disease free if possible.
 - d. A minimum broodstock of 50 pairs, preferably 250 pairs, per year is required.
 - e. A 1:1 sex ratio is desirable for spawning; however 2:1 is acceptable if necessary.
2. Select parent broodstock and source water based on criteria listed above.
3. Consider establishing several alternate broodstocks for each species/strain.

ANADROMOUS FERAL BROODSTOCK DEVELOPMENT (new stocks)

1. Look for existing stocks with desired traits.
2. Evaluate the cost effectiveness/necessity of developing our own broodstock as compared to obtaining production stock, e.g. eyed eggs, fry, from the existing sources.
3. Check genetic variability/integrity of the proposed parent broodstock and collect baseline data.
4. Follow the spawning guidelines provided under **ANADROMOUS FERAL BROODSTOCK MAINTENANCE** for a minimum of 3 successive years (preferably 5), from the parent broodstock, as feasible.
5. Develop anadromous runs in selected spawning streams.

ANADROMOUS FERAL BROODSTOCK MAINTENANCE

1. Maintain a minimum broodstock of 50 pairs, with a preferred population of 250 pairs, per spawning station.
2. Stockings at spawning station release sites should have maximum genetic diversity as feasible.
 - a. A subsample of green fertilized eggs shall be collected from each spawning pair, throughout the spawning period, for candidate future broodstock.

- b. These eggs will be held and incubated separately from those destined to be production fish.
 - c. The candidate future broodstock fish are to be reared separately, and are not to be sorted or graded with the intention of reducing the population during rearing.
 - d. Candidate future broodstock should be reared under "optimal conditions". Rearing density in pounds per cubic foot should not exceed 0.5 times the average fish length in inches, and also should not exceed the flow index-based density calculation for the rearing unit.
 - e. Any thinning of the candidate brood stock shall be done by random subsamples of the entire group.
 - f. Any culling of candidate future broodstock for obvious genetic deformities, i.e. incomplete opercular development, scoliosis, should be done prior to final selection.
 - g. Final selection of future broodstock will be by random subsamples from the entire candidate broodstock group when they are stocking age.
3. If steps 2. a.- g. are not feasible, future broodstock will be selected by random subsamples from each spawning lot, with proportional representation based on the spawning lot size.
 4. Check genetic variability/integrity of the broodstock every 6 years, compared to baseline data.

ANADROMOUS FERAL BROODSTOCK CARE

If it is necessary to hold feral broodstock at a propagation facility as part of the spawning operation, the following will apply:

1. Make food available, especially over a long period.
2. Holding:
 - a. At a density they will tolerate. Consider the length of time that broodstock will be held before spawning.
 - b. Holding densities for feral broodstock optimally would not exceed 0.5 pounds per cubic foot. At a maximum, holding density should not exceed 4 pounds per cubic foot, and also should not exceed the flow index-based density calculation for the rearing unit.
 - c. Keep feral broodstock on a separate water supply system if possible. Do not hold them upstream of production fish, egg incubation, or domestic brood stock.
 - d. If feral broodstock are to be returned to the source water after spawning, do not expose them to disease at the holding facility, if possible.
 - e. Keep the public away from these broodstock.
 - f. Provide overhead cover for stress relief.

ANADROMOUS FERAL BROODSTOCK SPAWNING TECHNIQUES

1. Broodstock are not to be culled prior to spawning, except for obvious genetic deformities, i.e. incomplete opercular development, scoliosis, etc.

2. Fish will be paired on a 1:1 ratio if less than 500,000 eggs are required.
3. Fish can be paired on a 2:2 ratio if 500,000 or more eggs are required, to reduce the number of "family lots".
4. Fish should be spawned when ready and not held to create a larger egg take, with no more than 1 week lapse between spawnings.
5. Spawn should be taken throughout the spawning period, and each spawning day should contribute to production in proportion to the number of females ready to spawn at that.