

TO: Fish Passage Center

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SUBJECT: Review of Smolt Monitoring Program/Transport Program Fish Injury Protocols.

1. Background. The Corps contracts with PSMFC to provide biological assistance for the Juvenile Fish Transportation Program at each of the Walla Walla District transport facilities; Lower Granite, Little Goose, Lower Monumental, and McNary dams. The contract requires PSMFC to provide a biologist (transport biologist) 8 hours per day seven days per week (56 hours per week) from late March through early October or November, depending on the project. One of the contract requirements is for the transport biologists to assist biologists from the Smolt Monitoring Program (SMP biologist) in sampling fish. PSMFC subcontracts this work to WDFW for work at Lower Granite, Lower Monumental, and McNary dams and ODFW for work at Little Goose Dam. At Lower Granite and McNary dams, there are 3 state biologists working at each dam so there is always a transport biologist working alongside a SMP program biologist when the sample is done. At Little Goose and Lower Monumental dams, there are only 2 biologists working at each dam, so about 4 days per week the only biologist on duty is the transport biologist. The remaining 3 days per week, there are 2 biologists there. This staffing level though is sufficient to meet the sampling and other requirements for both programs.

2. Common Practices. Fish at each project are sampled using similar methods. All fish are anesthetized in preanesthetic chambers in the sample holding tanks. Fish are then passed via gravity flow into handling troughs in the sample rooms where they are identified by species, clipped versus unclipped, and evaluated for descaling. All projects do what we call full sample descaling examinations using the standard criteria: a fish is descaled if it has 20% or greater descaling on one side of the fish. This descaling data is reported by both the SMP and Transport Program as descaling in daily data submissions. This descaling rate is what is primarily used by the Corps for managing facility operations for debris and other requirements.

3. From this point on, what the state biologists do in terms of evaluating fish for further maladies varies considerably from dam to dam. For instance ODFW at Little Goose examines all fish

for maladies if numbers are not too great. State biologists at the other three dams examine only a subsample of fish for maladies, like 50 to 100 of each predominant species. McNary and Lower Monumental ignore all descaling that is less than the standard criteria, while Little Goose classifies less than 20% descaling as body injuries, and Lower Granite has five subcategories for various descaling levels for the subsample. Outside of descaling conditions, projects appear to be either "lumpers" or "splitters" when dealing with other maladies with the number of different categories/conditions ranging from 19 at Lower Monumental to 30 at Lower Granite. Protocols appear to have partly evolved based on what dam some person(s) in the past worked at and then adopted those protocols to the next dam they worked at. In most cases, these persons are not involved in the programs anymore but protocols have carried on. In some cases biologist at a project just started recording data on what they have observed over time.

4. There is some commonality to the types of injuries and other maladies that are recorded, and here is sort of a combined/lumped list by category so everyone can see what is recorded. Some of the projects keep track by right side versus left side, but we don't think that really matters.

Head injuries:

- Eye
- Pop eye
- Operculum damage
- Other head injuries

Body injuries:

- Body injuries - including lacerations, abrasions, punctures, and bruises
- Fin damage (other than apparent hatchery eroded fins)

Predation marks:

- Bird bites
- Fish bites
- Lamprey marks

Diseases:

- Fungus
- Columnaris
- BKD
- Parasites
- Fin hemorrhaging
- Deformity

5. Recommendations. Descaling data should continue to be gathered using the standard descaling criteria and full sample descaling evaluations. Other non-standard descaling data can be kept on the subsample examined fish, but it should be clearly labeled as other descaling data and not injuries or combined with the standard descaling data. Other maladies examined should somewhat conform to the list above, unless there are some specific reasons to add more items or break down the categories further. Again, these other maladies are not really used for the Juvenile Fish Transportation Program, but may be of interest to the Salmon Managers and the SMP.