

WORK STATEMENT 87-127

BPA CY 2021

PROJECT TITLE: Monitoring of Downstream Salmon and Steelhead at Federal Hydroelectric Facilities.

Agency: Pacific States Marine Fisheries Commission
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Program Manager: Chris Wheaton

Supervisory Fisheries Biologist: Rick D. Martinson

Monitoring Sites: John Day and Bonneville Dams.

1. Performance Requirements

Introduction: In 2021, the Pacific States Marine Fisheries Commission proposes to monitor and index the downstream migration and condition of juvenile salmonids at two locations on the Columbia River, John Day and Bonneville Dams.

The program at John Day will be reduced from every day to every other day index sampling at the juvenile monitoring facilities at John Day (March 1 to September 15); Bonneville will continue to sample every day, (March 1 to October 31). Detailed condition data will be collected on a subsample of the index sample. Sample size and frequency will be reduced if high temperature sampling protocols are implemented. An earlier start date is possible to accommodate research. All fish passing through the system are interrogated for PIT tags. Samples are processed one or two times per day.

SCOPE

This project is part of a larger Smolt Monitoring Program coordinated by the Fish Passage Center and mandated by the National Marine Fisheries Service Biological Opinion and the Northwest Power and Conservation Councils' Fish and Wildlife Program. The program provides the fish passage managers with data used in flow and spill management designed to optimize out-migration conditions for juvenile salmon. The data are also used to gauge the migration timing and magnitude and to calculate survival and travel time estimates. Additionally, the real time fish condition data is used to gauge the condition of the bypass system and alert biologists to problems as well as gauge the general condition of the run at large.

Additionally, PSMFC staff working under the SMP contract assist PTAGIS personnel in maintaining the PIT tag equipment at these sites. PIT tag interrogation equipment continually collects PIT tag data which adds to the regional PIT tag database and forms the basis for evaluation of much of the research that occurs in the basin. Minimizing down time is vital to research success.

At Bonneville Dam, SMP/PSMFC personnel will monitor the fish passageways and holding tanks during the day shift. The area is defined as all passageways and tanks between and including the upper and lower switchgates. This also includes all the passageways and tanks inside the building. The regional fish managers require this monitoring whenever the facility is in sampling mode. Due to the narrow flumes and minimal flows, passageways can develop debris plugs which can be lethal to fish if undetected. One component of the system, referred to as the large fish and debris separator bars, or just the separator bars, is particularly prone to collecting debris and large fish. These parallel bars are intended to pass large fish and debris over them and allow juvenile fish to fall through. Insufficient momentum of many objects, such as fish and sticks, leaves them stranded on the bars, which then requires manual removal. Continual on site or video monitoring of this problem prone area is essential.

METHODS

John Day Dam

In 2016, the region decided to reduce sampling to twenty four hour samples collected every other day. In 2020 and again in 2021, due to Covid 19 restrictions and general agreement that the region no longer sufficiently utilizes the fish passage

index (24hour sampling) to justify the effort needed to collect it, sampling will be reduced to every other day condition sampling between the hours of 0700 and 1300 hours. This facility uses a 3 way rotational gate to collect 2 to 6 subsamples per hour and direct them into the sample tank. In 2021, the sample rate will be adjusted to capture about 100 fish of the predominate species. Non-sampled fish go directly to the river via a bypass flume. PIT tag interrogation occurs in both passage routes. Detailed condition data will be collected on salmonids and lamprey.

The 3-way gate is also used to collect research fish using the Separation by Code (SbyC) system. Research fish can be diverted to one of two holding tanks in the lab using the two-way rotating gate that is located on the SbyC flume downstream of the 3-way gate.

Bonneville Dam

Hamilton Island Juvenile Monitoring Facility (JMF)

The JMF, which samples fish from the second powerhouse, will be the primary sampling site at Bonneville. Fish Passage Indices will be calculated from timed samples which are collected with a 2-way rotatating gate. Two to six subsamples are collected per hour, 24 hours per day and processed at 0700 hours. Additional processing may occur around midday, depending on conditions and fish numbers. Sample rates are adjusted to collect about 500 fish per day in the spring and 250 fish per day in the fall. Detailed condition data will be collected on a subsample of the index sample. The facility uses a 3-way rotating gate to collect research fish with the SbyC system. Smolt monitoring personnel will monitor the separator bars, all passage routes, and holding areas during the day shift.

Reporting Requirements

Both sites:

- a. Generate weekly reports and distribute to interested parties.
- b. Report daily water temperatures when in modified sampling mode.
- c. Report any deviations in fish condition to project biologists.

Bonneville Only:

- a. Report daily adults passing the separator bars from March 1st to April 10th.

OBJECTIVES and TASKS

Objective 1. Plan for Smolt Monitoring activities at John Day and Bonneville Dams.

- Task 1. Estimate staffing and supply needs for John Day and Bonneville.
- Task 2. Prepare a work statement and budget and submit to FPC and PSMFC.
- Task 3. Request Authorization from the CoE to conduct SMP activities at the Dams.
- Task 4. Determine recruitment, hiring, and training schedules
- Task 5. Edit job announcements, position descriptions, and performance evaluation forms.
- Task 6. Initiate recruitment actions as needed.
- Task 7. Review applications, conduct interviews, check references, and make job offers.
- Task 8. Purchase needed supplies and materials, upgrade computers and software as needed.
- Task 9. Review and edit material in the Standard Operating Procedures manual.
- Task 10. Review, update and modify data gathering, storage, and analysis software and programs as needed. Includes updating of documentation.
- Task 11. Communicate with researchers and coordinate collection schedules, training, staffing, fish holding, water supply, and other logistical issues.
- Task 12. Coordinate or execute facility repairs, improvements, and maintenance work.
- Task 13. Evaluate IT needs and arrange for tune ups, upgrades, replacements and repairs.
- Task 14. Set up computer stations and test PC's and peripherals.
- Task 15. Update and test all spreadsheets used for data storage.
- Task 16. Orient new employees referencing the PSMFC Personnel Handbook, CoE policies and procedures and on site tours.
- Task 17. Conduct extensive training in system operation, species and mark identification, data collection and recording, fish handling, anesthetization, safety, first aid, CPR, harassment, emergency response and others as needed.
- Task 18. Schedule and attend annual CoE safety orientation.

Objective 2. Conduct sampling at John Day Dam (JDA), March 1 or April 1 (TBD)– Sept 15, and at Bonneville in the Hamilton Island Juvenile Monitoring Facility (JMF) March 1– October 31.

- Task 1. Determine work schedules and review with staff.
- Task 2. Sample fish one to two times daily at Bonneville and every other day at John Day.
- Task 3. Collect species, condition, and external mark detail from all sampled fish.
- Task 4. Estimate descaling for every fish sampled.
- Task 5. Collect hourly averages for river flow, powerhouse, and spill and calculate a 24-hour average.
- Task 6. Count and identify all incidental species caught in the samples.
- Task 7. Tally, review, enter into computer and transmit all data to FPC daily.
- Task 8. Conduct Quality Control tests to insure consistency between coworkers.
- Task 9. Coordinate and assist with research activities as appropriate.
- Task 10. Clean and maintain work areas.
- Task 11. Coordinate with researchers and adjust sample rates to get needed research fish.

Objective 3. Conduct microscopic exams looking for symptoms of Gas Bubble Trauma (GBT) at the Hamilton Island Juvenile Facility, Bonneville Dam April through August.

- Task 1. Complete the USGS training program prior to season start up.
- Task 2. Set up workstation in the JMF.
- Task 3. Collect samples and conduct exams twice per week- according to the FPC-GBT program protocols, April thru August.
- Task 4. Record on data sheets, enter into spreadsheets and transmit data.
- Task 5. Record all species ID, condition, external mark, and incidental catch data.

Objective 4. Monitor and report on sampling and related activities throughout the season.

- Task 1. Monitor fish abundance and adjust sample rate to keep sample numbers near target.
- Task 2. Enter all data into spreadsheets for storage and summary.
- Task 3. Write a weekly report and distribute to interested parties.
- Task 4. Investigate non-system increases in mortality, utilizing regional pathologist if needed.
- Task 5. Participate in project related design, fabrication, and modification meetings.
- Task 6. Validate data using validation files sent from FPC.

Objective 5. Monitor bypass system performance and general out-migrant condition by collecting detailed condition data on a subsample of the index sample.

- Task 1. Collect detailed condition data using the touch screen system.
- Task 2. Alternate between Chinook/coho and steelhead/sockeye (200 total fish/day), in the spring and switch to fall chinook only in the fall.

Objective 6. BONNEVILLE ONLY, monitor facility between the upper and lower switchgates during the day.

- Task 1. Monitor dewatering structure, distribution flumes and holding tanks during dayshift.
- Task 2. Conduct regular inspections, record results, and make adjustments as needed to maintain optimum conditions in passageways, dewatering screens, and holding tanks.
- Task 3. Enter the various data into their respective spreadsheets.
- Task 4. Maintain clean dewatering screens throughout the system.
- Task 6. Monitor the fish and debris separator bars, remove kelts, record and report incidence.
- Task 7. Monitor relevant systems inside the compound fence and report any problems.

Objective 6. Evaluate season, prepare in house site reports, and pursue employee development.

- Task 1. Conduct employee performance evaluations.
- Task 2. Evaluate procedures, data sheets, materials, and make modifications as needed.
- Task 3. Conduct thorough data validation to insure site data matches FPC data.
- Task 4. Prepare data summaries for John Day and Bonneville summarizing site details not covered in the FPC annual report, including; in house procedures; including anesthetizing details, water temperature

profile, sampling missed due to high temps, fallback summary, separator bar coverage, research activities and other site specific details.

- Task 5. Pursue employee development through pertinent training, meetings, professional society conference attendance, and cross training (e.g. fishway and turbine dewaterings), etc.
- Task 6. Evaluate procedures and work environment for compliance with CoE and OSHA safety guidelines. Take corrective action as needed.
- Task 7. Participate in fishway dewaterings and fish salvage operations as De facto representative of the Agencies and Tribes.
- Task 8. Calculate and prepare ESA allocation spreadsheet and submit to FPC.

2. Place of Performance

Main Field Office Pacific States Marine Fisheries Commission
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 Smolt Monitoring Facility
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 Smolt Monitoring Facility
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3. Personnel

Management	
Program Manager	Chris Wheaton
Supervisory Fisheries Biologist	Rick Martinson
Administrative Assistant	Catherine Al-Sheikhly
Smolt Monitoring Crew	
John Day Dam	
Supervisory Fisheries Biologist	Greg Kovalchuk
Fisheries Technician 2	vacant
Bonneville Dam	
Supervisory Fisheries Biologist	Dean Ballinger
Fish Technician 2	Tim Levandowsky
Fish Technician 1	Vacant