**Columbia River Estuary RM&E – P2: 123452**

**PROJECT INFORMATION**

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| **P2 Identifier** | 123452 |
| **Project Manager (PM)** | Mark Bierman (NWP, 503-808-3734) |
| **Technical Lead (TL)** | TBD |
| **Biologist/Coordination** | Jake Macdonald (temp) (NWP, 503-808-4844) |

The purpose of this project is to conduct monitoring and evaluation in support of the Corps’ and BPA’s commitments per the 2020 NMFS Biological Opinion for the Columbia River System and Proposed Action. A secondary purpose is to synthesize information and inform adaptive management of the Corps/BPA Columbia Estuary Ecosystem Restoration Program (CEERP). Funding in 2022 will be to complete a Synthesis Memo #3, and to conduct an implementation plan for a new study of Indirect Benefits of estuary restoration projects to mainstem-migrating juvenile salmonids.

Monitoring and evaluation are integral parts of the overall Corps/BPA estuary habitat program, and part of an adaptive management strategy actively implemented under the CEERP. The 2020 NMFS Biological Opinion includes the requirement to fund a Synthesis Memorandum (Memo) roughly every five years as part of the adaptive management strategy. The Synthesis Memo would summarize all estuary-related research findings over the previous five years and synthesize the information to draw conclusions regarding the state of the science, critical uncertainties, and recommendations for future research.

FY22 Capability (below) included funding of the final year of benthic sampling (2022) at Woodland Island; this study was funded in FY21.

**SCHEDULE & COST**

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| **YEAR** | **COST** | **MAJOR ACTIVITIES** |
| **FY21 Est. Actual Obligation** | $1.1M | Woodland Island benthic sampling 2021, Woodland Island benthic sampling 2022, Woodland Island fish sampling |
| **FY22**  **Capability** | $1.4M | Synthesis Memo #3, Indirect Benefits year 1, Woodland Island benthic sampling 2022 |

**The Dalles Dam Auxiliary Water Supply (TDA AWS) – P2: 142630**

**PROJECT INFORMATION**

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| **P2 Identifier** | 142630 |
| **Project Manager (PM)** | Erin Kovalchuk (NWP, 541-506-8279) |
| **Technical Lead (TL)** | Mehdi Roshani (NWP, 503-808-4988) |
| **Biologist/Coordination** | Eric Grosvenor/Jon Rerecich (NWP, 503-808-4844) |

This project is to evaluate alternatives to remove debris from The Dalles Dam Auxiliary Water Supply (AWS) trash rack. Debris build-up on the rack currently causes high head differential across the rack. Fish Unit Rehab, potentially starting in the year 2024, requires the AWS backup system to operate during the rehab to provide adequate flow for fish attraction. Fish Unit Rehab duration is one year per unit for a total of two years. Long term use of the backup AWS system will be part of the alternatives evaluation.

FY22 funding is to continue and complete the Engineering Documentation Report (EDR) and begin work on the Design Documentation Report (DDR).

**SCHEDULE & COST**

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| **YEAR** | **COST** | **MAJOR ACTIVITIES** |
| **FY21 Est. Actual Obligation** | $300k | Begin EDR, complete Value Management study |
| **FY22 Capability** | $350k | Complete EDR, begin DDR. |

**Lower Columbia River Survival – P2: 156117**

**PROJECT INFORMATION**

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| **P2 Identifier** | 156117 |
| **Project Manager (PM)** | Brad Eppard (NWP, 503-808-4780) |
| **Technical Lead (TL)** | n/a |
| **Biologist/Coordination** | Dave Trachtenbarg (NWP, 503-808-4709) |

The purpose of this project is estimate system wide survival for PIT-tagged juvenile Chinook salmon and steelhead, defined as Lower Granite Dam to Bonneville Dam. Operation of the PIT-trawl is required as the last detection point allowing survival estimation in the Lower Columbia River to Bonneville Dam.

System survival is a performance metric identified in the Proposed Action for the 2020 NMFS Biological Opinions for the Columbia River System. Funding for this project is shared between the Bonneville Power Administration and the U.S. Army Corps of Engineers.

The PIT-trawl is a towed array operated in the Columbia River estuary. Two vessels tow a long net (~800 ft) to guide fish into a fyke net and through a PIT-tag detector at the distal end. A third vessel houses the detector. PIT-tag detections are collected and uploaded to the PIT-tag database operated by the Pacific States Marine Fisheries Commission. The PIT-trawl is operated from April through July and pre- and post-season maintenance of the vessels, nets, and PIT-tag equipment occurs over the winter months.

**SCHEDULE & COST**

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| **YEAR** | **COST** | **MAJOR ACTIVITIES** |
| **FY21 Est. Actual Obligation** | $1.9M | Operation and maintenance of the NWFSC PIT-Trawl for 2021 (COVID operations) and 2022. |
| **FY22** | $1.5M | Operation and maintenance of the NWFSC PIT-Trawl; field work in summer 2023. |

**Bonneville Powerhouse 2 Fish Guidance Efficiency (B2FGE) – P2: 122645**

**PROJECT INFORMATION**

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| **P2 Identifier** | 122645 |
| **Project Manager (PM)** | Jim Adams (NWP, 503-808-4742) |
| **Technical Lead (TL)** | Bridget Bell (NWP, 503-808-5106) |
| **Biologist/Coordination** | John Rerecich (NWP, 503-808-4844) |

The purpose of this project is to improve fish passage survival through the gate wells through Bonneville’s second powerhouse (PH2). Data indicates that when PH2 units are operated at the upper 1% range, juvenile salmonids may incur high mortality and de-scaling. Inductive and deductive reasoning pointed to poor hydraulic conditions in the unit gatewells, specifically the A and B slots. Currently the PH2 units are operated at the lower end of 1% to provide better hydraulic conditions, however this limits power generation and operational flexibility during high flows and is not a sustainable long-term solution.

Steel plates were initially installed in the A and B gatewells of all the PH2 units to restrict flow and improve juvenile passage conditions. During routine inspections, however, it became apparent that the anchoring system for the steel plates had come lose, posing the risk that the plates could detach and damage a turbine unit. The steel plates were removed from all units and a new flow control system was designed that met the same hydraulic and biological goals.

A concrete corbel was installed in Unit 15 in spring of 2021 for initial testing; hydraulic testing was delayed. Remaining work includes hydraulic testing in Unit 15 in the spring of 2022 (A/E contract), and corbel installation in the remaining seven PH2 units (construction contract). These contracts will be awarded in FY21 with the hydraulic testing occurring in FY22 and the construction in FY23 (winter of 2022-23).

The original FY22 capability assumed construction contract award for 3 of the units in FY22, some construction occurring the winter of 2021-22, and contract oversight for that work.

**SCHEDULE & COST**

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| **YEAR** | **COST** | **MAJOR ACTIVITIES** |
| **FY21 Est. Actual Obligation** | $1.9M | Construction in Unit 15, award of hydraulic A/E contract, award of all construction CLINs. |
| **FY22 Capability** | $1.5M | Oversight, review of the hydraulic testing. Construction award for 3 units and contract oversight. Modification of construction contract to change dates. |