PROJECT IMPACTS OF PIT TAGGING ADULT COHO SALMON AT BONNEVILLE ADULT FISH FACILITY FOR A CONTROL GROUP TO ASSESS POST-RELEASE MORTALITY OF COHO CAPTURED IN TANGLE NETS IN THE COLUMBIA RIVER

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BACKGROUND

The development of newly legally available fishing gears that can be used to potentially implement mark-selective commercial fisheries requires a period of development and testing to evaluate their feasibility. In addition, immediate and post-release mortality rates must be determined in order to estimate impacts to released fish. Field work conducted since 2009 by the Washington (WDFW) and Oregon (ODFW) Departments of Fish and Wildlife has evaluated the feasibility of implementing newly legalized commercial gear types in the lower Columbia River. Gear types tested include beach seines, purse seines, troll gear, and tangle nets. Seines have been tested during June - October, troll gear was tested in August and September, and tangle nets were tested in October (when water temperatures are on average 6 degrees cooler than in September). Evaluation of alternative gear types gained increased importance with the Lower Columbia River Harvest Reform process initiated by Oregon Governor John Kitzhaber, and approved by the Oregon and Washington Fish and Wildlife Commissions in 2013. Based on catch rates and other preliminary results, seines and tangle nets may be feasible for commercial harvest. In 2011, 2012, and 2013 WDFW evaluated the post-release mortality rates of Chinook and coho salmon, and steelhead captured in beach and purse seines. We conducted our initial year of evaluating coho tangle net post-release mortality in 2013. In 2013, WDFW was already tagging coho salmon in the Bonneville Adult Fish Facility (AFF) for the last year of their mortality study; therefore, we were able to utilize a subset of their tagged fish for our control group. Since then, WDFW has completed their study, so we must tag our own control group in 2014.

OBJECTIVES

The primary intent of the proposed study is to determine the post-release mortality rate of adult coho salmon captured using tangle nets during the late fall timeframe (October) through a multi-year mark-recapture study. Successful completion of this study should allow us to apply a post-release mortality rate to listed fish handled in future commercial fisheries using this gear type.

METHODS

Passive Integrated Transponder (PIT) tags will be injected into a representative sample of adult coho salmon entering the trap at the Bonneville AFF from late September through mid-October. Fish selected for sampling will be anesthetized using a solution of Aqui-S 20E (safety data sheet enclosed). In addition to receiving a PIT tag, each fish will be evaluated for pertinent biological

data (e.g. length, sex, fin mark, fish condition, and scale loss). Any fish that have been previously PIT tagged will have biological data recorded and will be returned to the brail pool for recovery. Our goal is to tag approximately 600 coho (30 – 40 fish per sample day) that will serve as a control group for the study. The control group will allow for differentiation between total mortality and mortality attributable to effects of the fishing gear. Coho tagged at the AFF will be placed in US Army Corps of Engineers (USACE) transport tanks specially modified for use in the AFF. Fish will then be transported down river approximately 6 miles to release sites at Skamania Landing (Washington) and Dodson (Oregon). We will alternate release sites every other release. The control release sites are in the vicinity of where treatment fish from test fishing vessels will be released.

Justification of the Proposed Study Area

Capturing coho at the AFF is the only viable option for marking a control group because we can collect sufficient numbers of fish in a short time, and there is very little mortality associated with capture in the AFF trap compared to other methods. The later eliminates a potential confounding factor associated with a control group in a mortality study. In addition, analysis of data in the PIT Tag Information System (PTAGIS) indicates that fish tagged at the AFF and transported down river for release are recaptured at locations above Bonneville Dam at a rate similar to fish tagged and released directly from the AFF. Therefore, if done properly, the effects of transport can be negligible. We will follow AFF protocols outlined in Appendix G of the 2014 Fish Passage Plan. Our proposed work at the AFF in 2014 has been coordinated with the other research groups in the AFF, as well as project and district staff, and we are awaiting final approval by the Fish Passage Operations and Maintenance Coordination (FPOM) team at the August meeting.

SCHEDULE

We will hire staff, obtain necessary supplies and training, and visit the AFF to observe operations and coordinate with other researchers during the summer of 2014. We will begin PIT tagging adult coho at the AFF in late September (approx. September 29), and plan to sample five days per week (probably Monday through Friday) for approximately three weeks. We will provide a more detailed sampling schedule when dates are finalized.

FACILITIES AND EQUIPMENT REQUIREMENTS

We will require access to one of the anesthetic tanks in the AFF and enough space to sample and tag fish, as well as store necessary equipment and supplies. We will also need to use the USACE fish transport tanks (including oxygen tanks), which have been specially modified for use in the AFF, to transport and release our study fish. We believe this would be the safest option for both personnel and fish. In addition, we will need to use the bridge crane to move fish transport tanks in and out of the building, as well as raise and lower the collection pool bulkhead during trap start up and shut down. We will obtain the necessary training and certification to operate the

crane. ODFW will provide the anesthetic (Aqui-S 20E) and all other sampling equipment and supplies, as well as any necessary safety gear (e.g. hardhats, steel-toed boots, safety harness, etc.).

PROJECT IMPACTS

Project Services

When starting up and shutting down the trap at the AFF, we will need to access all necessary control panels to open/close valves, lower/raise picket leads, etc. We will need to operate the flume gates to divert sample fish into the anesthetic tank. We will also need access to a water supply to fill the anesthetic and transport tanks. Prior to working in the AFF, we will request training from project fisheries staff in the proper operation of the AFF.

Security

Project security issues involve access to the AFF and project roads by ODFW personnel and vehicles. The primary work area will be the AFF. Approximately every other release, we will need to transit across the project with a vehicle and trailer-mounted transport tank to release fish at the Oregon release site. A preliminary list of ODFW personnel assigned to work at the project is enclosed. A final version will be provided when staffing assignments are completed.

Safety

We will participate in a pre-work meeting with project fisheries staff to go over safety requirements and protocols for working in the AFF. A final version of the personnel list with First Aid/CPR expiration dates will be provided when staffing assignments are completed.

The Activity Hazard Analysis, Fall Protection Plan, and Accident Prevention Plan are enclosed. All personnel assigned to work at the AFF will be familiar with these documents as well as Appendix G of the 2014 Fish Passage Plan.