Overview of Corps of Engineers Walla Walla District Planned Usage of PIT Tags for Research studies in the Snake and Columbia River Basin

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The Corps of Engineers (COE) has multiple research projects they fund annually that utilize Passive Integrated Transponder (PIT) tags to obtain the research data on individuals of ESA listed populations. In 2010, the Walla Walla District (NWW) provided 694,000 PIT tags to numerous research organizations for various research projects. The COE has funded projects where PIT-tagged salmonids where used to compare smolt-to adult return rates (SARs) of salmonids that where either transported or migrated downstream through the bypass system these studies took advantage of PIT tag detectors at each of the hydro projects. A study by National Oceanic and Atmospheric Administration (NOAA) received 60,000 PIT tags to compare seasonal SARs of early migrating in-river vs. transport Snake River yearling Chinook (*Oncorhynchus tshawytscha)* and Steelhead (*Oncorhynchus mykiss)*. A multi-year study by US Fish and Wildlife (USFW), Nez Perce Tribe and NOAA is being performed to compare SARs ratios between two groups of Snake River Basin PIT-tagged fall Chinook salmon that reached the sea through a combination of either (1) transportation and in-river migration or (2) bypass and in-river migration. Biomark has been PIT-tagging hatchery salmonids for this study and the PIT tags provided were divided up among the surrogate fish at 268,000 tags, the production subyearlings at 241,000 tags, and the production yearlings at 45,000 tags. Along with this study the USFW, Nez Perce Tribe and NOAA has PIT-tagged Clearwater River post release salmon at 18,000 PIT tags, Snake River post release salmon at 20,000 PIT tags and late season transport at 10,000 PIT tags. FY 2011 is the last year this study is currently planned to be funded at the 600,000 PIT tag level. The COE has funded numerous past studies that use PIT tags in conjunction with other active telemetry tags which allow the researcher to keep track of the fish in the system even after the battery life of the active tag is dead. These studies include the RSW/TSW post construction at Lower Granite, McNary, Ice Harbor, Lower Monumental, and Little Goose dams (performed by US Geological Survey and Pacific Northwest National Laboratory). Each year these studies use 8,000- 20,000 PIT tags. Avian predation on salmonid populations is an ongoing problem and about 22,000 PIT tags are allocated for use in these studies. NOAA has conducted these studies by recovering the PIT tags from piscivorous bird colonies in the Columbia River Basin. In addition, Real Time Research has used about 10,200 PIT tags to evaluate of the impact of avian predation on salmonid smolts released from specific locations in the Columbia and Snake Rivers. The COE and Bonneville Power Administration funded a project being performed by Biomark to study the SAR rates for Snake River Sockeye Salmon. This information can then be used to design a transportation evaluation for sockeye salmon in the future. Other future studies will involve evaluation of the new antenna placements in the spillbays at Ice Harbor, passage and survival studies at all the Snake and Columbia River dams using PIT tags in conjunction with the Juvenile Salmon Acoustic

Telemetry System (JSATS). Future management decisions will use this information for fall Chinook studies, transportation studies, and avian studies.