

The Success of the Columbia Basin Passive Integrated Transponder (PIT) Tag Information System

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Abstract.—Passive integrated transponder (PIT) tags have been used since 1987 to evaluate the survival and behavior of juvenile anadromous Pacific salmon *Oncorhynchus* spp. and steelhead *O. mykiss* as they migrate to the Pacific Ocean from the Columbia Basin. Through 2008, PIT tags have been implanted into 22 million parr and smolts originating from hatcheries and natal streams throughout the Basin. During their downstream migration, more than 8.5 million PIT-tagged fish have been passively detected as they are bypassed at one or more large hydroelectric dams in the main-stem Columbia and Snake rivers. As PIT tag technology has improved, larger detection systems have been installed in the adult fish passage facilities at many of these dams and elsewhere throughout the Basin. Tagged salmon and steelhead are commonly detected at multiple locations in the Columbia and Snake rivers and their tributaries during their downstream and subsequent upstream migrations. In addition to these passive detection events, more than 620,000 tagged fish have been physically recaptured, providing an opportunity to observe and record changes to the morphology and physiology of an individual tagged fish before re-releasing it. Almost 850,000 PIT tags have been recovered from dead fish or detected under circumstances that confirm the mortality of the tagged hosts. All of these separate PIT tag mark and recovery events are reported to the Columbia Basin PIT Tag Information System (PTAGIS), where the individual events for each tag are catalogued in the PTAGIS database. Standardized methods have been developed to systematically record these mark and recovery tag events, and to ensure that the data are accurately and consistently reported to PTAGIS by contributors from dozens of agencies and organizations in the Columbia Basin. There is essentially no delay between the acquisition of these validated field data and their incorporation into the PTAGIS database. Researchers and resource managers have immediate access, through the PTAGIS Web Portal, to the comprehensive sets of individual and correlated PIT tag events reported in the Columbia Basin.