

**Designing, Operating, and Maintaining
Robust PIT tag Interrogation Systems
at Fish Passage Facilities**

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Four species of anadromous salmon (*Oncorhynchus* spp.) comprise more than 99.5% of all fishes in the Columbia Basin marked with PIT tags. The primary objective of essentially all PIT-tag marking projects in the Columbia Basin is the passive detection of these tagged fishes at one or more locations in the main stem Columbia and Snake rivers during their downstream and/or upstream migrations. This requires robust PIT tag interrogation systems capable of continuously and reliably auditing the passage of tagged fish. Since 1993, PSMFC-PTAGIS has operated and maintained the smolt bypass interrogation sites at all hydroelectric dams in the Snake River and lower Columbia River. PSMFC-PTAGIS currently provides all the detection data from, and support for, 21 interrogation sites at smolt and adult fishways as well as at hatchery and acclimation pond outfalls. At all of these sites, PSMFC-PTAGIS relies on a combination of industrial-grade equipment, standardized and top-quality installation practices, fail-over redundancy of essentially all systems, and established diagnostic and maintenance protocols to avoid data gaps and ensure that researchers and resource managers have access to the complete and valid sets of these critical detection data in "near real-time".