Steelhead and Chinook Abundance Monitoring Utilizing PIT Tag Arrays

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Currently there is limited quantitative information on natural adult Snake River steelhead populations (Oncorhynchus mykiss) in tributary streams upstream of Lower Granite Dam and validation of natural Snake River spring/summer populations of Chinook. Current methodologies use steelhead adult abundance for the aggregate of populations determined from fish ladder counts at Lower Granite Dam and weir and redd counts for Chinook. Steelhead contemporary methods, (e.g. redd counts, weirs) are limited throughout most the upper Snake River drainage due to geographic inaccessibility and high stream flows during the spawning period, additional techniques need to be developed to estimate population abundance. The Integrated Status and Effectiveness Monitoring Project (ISEMP) initiated a project to determine whether innovative methods can be employed to increase the accuracy and precision of juvenile and adult abundance by age for summer Chinook salmon at the subpopulation, population, and major population group (MPG) scales and for steelhead at the subpopulation and population scales. This project generates wild/natural adult escapement estimates through adult sampling and passive integrated transponders (PIT) placed in adult fish at Lower Granite Dam in conjunction with PIT tag detections from flat panel pass-over PIT tag arrays currently operating within the Snake and Salmon River basins in Idaho, Oregon, and Washington . This methodology requires that adults are representatively PIT tagged at Lower Granite Dam and that enough PIT tags are applied to get sufficient stream detections for calculation of precise escapement estimates. This methodology integrated with existing monitoring and evaluation tools quantifies adult and juvenile salmon and steelhead for both natural and hatchery populations in a more robust and comprehensive manner than what was achieved in the past. This comprehensive data will provide high quality data to ensure that fish managers are making informed decisions.