ALTERNATIVE BARGING STRATEGIES TO IMPROVE SURVIVAL OF TRANSPORTED JUVENILE SALMONIDS 2008

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ABSTRACT

During spring 2008, we completed the 3nd and final year of a study to test the hypothesis that releasing transported juvenile salmonids in the lower Columbia River estuary would produce higher smolt-to-adult return rates (SARs) than releasing them just below Bonneville Dam. We also determined pathogen loads (*Renibacterium salmoninarum* and *Nucleospora salmonis*) in about 1,800 study fish using non-lethal sampling to evaluate whether pathogens in individual fish affect vulnerability to avian predators as well as SARs.

On six consecutive Sundays, starting in late April 2008, yearling Chinook salmon and steelhead were collected and tagged with PIT tags at the Lower Granite Dam juvenile fish facility. A total of 16,519 hatchery and 3,036 wild yearling Chinook salmon were tagged and released downstream from Astoria at rkm 10, while 23,717 hatchery and 4,520 wild yearling Chinook salmon were tagged and released at Skamania Landing at rkm 225. We also released 25,353 hatchery and 5,686 wild steelhead at rkm 10 and 32,921 hatchery and 7,628 wild steelhead at rkm 225. For non-lethal pathogen testing, gill snip samples were taken at Lower Granite Dam from about 450 fish each of the tagged hatchery and wild Chinook salmon and hatchery and wild steelhead. Gill samples were processed for testing by both nested (non-quantitative) and real-time (quantitative) polymerase chain reaction (PCR) assays.

From 2006 releases, 49 and 124 Chinook salmon (jacks and 2-ocean) have returned to date from Astoria and Skamania Landing releases, respectively for a TA/TS of 0.59, while for steelhead, 445and 504 fish have returned for a TA/TS of 1.26. From 2007 releases, 20 and 29 Chinook salmon jacks have returned from Astoria and Skamania Landing releases, respectively for a TA/TS of 1.06, while for 1-ocean steelhead, 188 and 305 fish have returned for a TA/TS of 0.85.