EVALUATION OF ADULT PACIFIC LAMPREY PASSAGE AND BEHAVIOR AT McNARY AND ICE HARBOR DAMS

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ABSTRACT

Due to precipitous declines in numbers of returning fish, dam passage and escapement of adult Pacific lamprey (*Lampetra tridentata*) in the Columbia River basin has received increasing concern from fisheries managers. Between July and September of 2008 we trapped a total of 34 adult lamprey from the Oregon shore fishway of McNary Dam and tagged them with both a 2.2 gram radio-transmitters (RT) and 23 mm half-duplex (HD) PIT tags. The relatively low number of tagged adults resulted from low overall run size returning to McNary Dam compared to recent study years. All study animals were released approximately 1.5 km downstream of the dam and their subsequent behavior and passage at McNary and upstream dams were monitored using telemetry receivers and half-duplex reader/antenna systems located within the fishways of McNary, Ice Harbor and Priest Rapids dams.

Of the 34 tagged lamprey released downstream of McNary Dam, 25 (74%) were detected re-approaching the dam and 19 (56%) were detected in fishways by one or both monitoring systems. Of those 19 lamprey detected within fishways, 15 (79%) were known to have passed the dam (44% of all tagged fish). In 2007, the rate of re-approach was 23% and the rate of fishway entrance was 21%, with 12 of 13 fish that entered eventually passing the dam (20% of all tagged fish).

Passage times for lamprey at McNary Dam varied widely among fish. Median time from release to first dam approach was 1.6 d (N=25, range 0.6-13.6 d), from first approach to fishway entrance was 0.01 d (N= 18, range 0.002-10.1 d) and from fishway entrance to fishway exit was 0.6 d (N=14, range 0.17-7.0 d). In 2007, these values were 7.6 d (N=14, range 0.7-42.5 d), 0.001 d (N= 10, range 0.001-4.9 d) and 2.8 d (N=7, range 0.2-8.2 d), respectively.

Of the 15 lamprey known to pass McNary Dam, eight have been detected at upriver sites. Five lamprey were detected at Priest Rapids Dam and four were detected at Ice Harbor Dam with one fish detected at both projects. All five lamprey detected at Priest Rapids were detected on fishway exit antennas as were two of the four lamprey detected at Ice Harbor. Performance of lamprey in 2009 was likely aided by mild river conditions this summer.