

Avian Consumption of Juvenile Salmonids at John Day and The Dalles Dams on the Columbia River in 2010

Nathan A. Zorich,
Michael R. Jonas,
Patricia L. Madson

US Army Corps of Engineers, Fish Field Unit, Portland District, U.S. Army Corps of Engineers
Bonneville Lock and Dam, Cascade Locks, OR 97014
Patricia.L.Madson@usace.army.mil

ABSTRACT

Background: In 2010 our task was determining the impact of avian predators on fish passing John Day and The Dalles Dams. Our objectives: 1) Determine species composition and numbers of piscivorous birds; 2) Estimate smolt consumption by gulls; 3) Determine the effectiveness boat hazing and a new synthetic avian line array at John Day Dam.

Methods: To quantify avian consumption observers used binoculars to count gulls, the rate of attacks (dives), and determine if an attack was successful (fish in bill) from 8 April to 28 July 2010. We then estimated salmonid consumption using those variables and diet information from weekly gull stomach collections.

Results: The daily abundance of gulls at John Day ranged from zero on 7 April to a brief high of 118 on 14 June, declining rapidly to two on 17 June, yielding a seasonal mean of 17. At The Dalles gull daily abundance ranged from zero on 12 April to a high of 133 on 19 May, slowly decreasing to four on 27 July, yielding a seasonal mean of 34.

Overall, 349 California Gull stomachs were collected. Stomachs from John Day Dam contained 93 salmonids, seven lamprey, three other fish, eight unidentified fish, and insects. We also recovered 14 PIT tags, eight of which were un-readable tags. Gull stomachs from The Dalles Dam contained 72 salmonids, 95 lamprey, and three unidentified fish as well as five readable

PIT tags and landfill starches.

At The Dalles Dam our estimate of smolt consumption, was 98,000 (58,000 - 145,000 95% CI). At John Day Dam our estimate of smolt consumption, was 18,000 (11,000 - 26,000 95% CI). Estimates include both additive and compensatory mortality. This is a reduction of 62,000 (76%) from 2009 and is attributed to intense boat hazing and a large avian deterrent line array.