

**Title:**

Development of an Index to Bird Predation of Juvenile Salmonids within the Yakima River, Annual Report 2002

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**Summary of presentation:**

Avian predation of fish is suspected to contribute to the loss of migrating juvenile salmonids in the Yakima River Basin, constraining natural and artificial production. In 1997, the Yakima/Klickitat Fisheries Project (YKFP) assessed the feasibility of developing an index to avian predation of juvenile salmonids. The research that followed confirmed that Ring-billed Gulls and Common Mergansers were the primary avian predators impacting migrating smolt populations (Phinney et al. 1998).

In 1999, the Washington Cooperative Fish and Wildlife Research Unit (WACFWRU) continued the development of the index, using monitoring methods modified from Phinney et al. (1998). The monitoring of impacts to juvenile salmon along river reaches and at areas of high predator/prey concentrations, hotspots, has continued each year, with YKFP Yakama Nation joining the WACFWRU in 2002.

In 2002, piscivorous birds were again counted at hotspots and along river reaches. Consumption by gulls at hotspots was based on direct observations of foraging success and modeled abundance. Consumption by all other piscivorous birds was estimated using published dietary requirements and modeled

abundance. Seasonal patterns of avian piscivore abundance were identified, diurnal patterns of gull abundance at hotspots were identified, and predation indices were calculated for hotspots and river reaches.

Primary avian predators in 2002 were again gulls, both California and Ring-billed, at hotspots, and Common Mergansers on the river reaches. Estimated consumption by gulls at both hotspots combined in the spring was 279,482 fish. Consumption by Common Mergansers ranged from 5676 kg of fish in the spring in the upper river to 319 kg of fish in the summer in the Canyon.