

**Title:**

The Monitoring and Evaluation of Avian Predation on Juvenile Salmonids on the Yakima River, Washington, Annual Report 2003

**Author:**

Ann E. Stephenson

**Author's Affiliation:**

Yakima Klickitat Fisheries Project, Yakama Nation Fisheries  
771 Pence Road, Yakima, WA 98908

**Presenter's E-mail addresses and phone numbers:**

[anns@yakama.com](mailto:anns@yakama.com) office (509) 966-4975, cell (509) 945-1073

**Summary of presentation:**

Avian predation of fish contributes 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 the Yakama Nation joining the WACFWRU in 2002. The monitoring of avian predation was conducted in 2003 by the Yakama Nation.

In 2003, piscivorous birds were again monitored 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 piscivorous birds on river reaches 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 both hotspots and river reaches.

2003 saw a major shift in the primary avian predator at the Chandler Juvenile Fish Facility, one of the hotspots, from gulls to American White Pelicans. Gulls remained the primary predatory at Horn Rapids Dam, the other hotspot. American White Pelicans were the major consumer in the lower river, as in 2002, and Common Mergansers remained the primary avian predator on the upper river, as in all previous years surveyed. Estimated consumption by gulls at both hotspots combined in the spring was 141,349 fish, approximately half the number of fish consumed by gulls in 2002. Consumption by Common Mergansers ranged from 6661 kg of fish in the spring to 2963 kg of fish in the summer in the upper river.