

AYKSSI 2021 Call for Proposals

Project Title: Assessment of Chinook Salmon Freshwater Production in the Kwethluk River

Investigators:

Principal Investigator

Spencer Rearden, Supervisory Biologist, U.S. Fish and Wildlife Service
Yukon Delta National Wildlife Refuge

Co-Principal Investigator

Kevin Whitworth, Fisheries Biologist, Kuskokwim River Inter-Tribal Fish
Commission

Co-Principal Investigator

William Bechtol, Ph.D., Bechtol
Research

Project Period: 05/01/2021 – 06/30/24

Study Location: The Kwethluk River watershed, a lower Kuskokwim River drainage tributary with the Kwethluk River weir site at lat. 60.812225, long. 161.435833.

Abstract: Partitioning mortality between freshwater and marine life stages is a key step towards identifying the life stages that are influential in determining population trends and has been identified as a priority within the AYKSSI Chinook Action Research Plan and the 2021 AYK SSI RFP. The proposed project builds on a 2015 pilot study followed by four years of assessment of the abundance, migration timing, and production of juvenile Chinook salmon in the Kwethluk River, Alaska, conducted from 2015 to 2018. Spawning escapements and subsequent returns are estimated at the adjacent Kwethluk weir with an 18-year time series. Using the same rotary screw trap and mark-recapture techniques employed in the earlier study, we propose a 2-year study (2022 and 2023) to estimate Chinook salmon smolts and pre-smolts emigrating past the Kwethluk River Weir, compared with adult escapement data, to robustly quantify relationships between smolt abundance, total adult returns, and spawning escapements and selected environmental drivers. This project uses a highly cost-effective method and involves strong community engagement and capacity building with the Organized Village of Kwethluk. The resulting time series will provide the only long-term freshwater productivity signal for Chinook salmon in the Kuskokwim River drainage.