

# Yukon River Chinook MSE

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**Project Period:** September 1, 2015 – May 31, 2017

## **Abstract:**

Management of AYK salmon populations requires that wise decisions are made in the face of considerable uncertainty about population and fishery dynamics. During 2008-2012 an Expert Panel sponsored by AYK SSI introduced a methodology known as Management Strategy Evaluation (MSE) to the region. MSE involves developing models, informed by existing data, that simultaneously simulate the management process, including stock assessment and harvest control, and the dynamics of the fish population being managed. We propose to advance understanding of the MSE methodology in the region by engaging regional biologists and managers in a project that develops an MSE model for the Canadian-origin component of the Yukon River Chinook Salmon fishery. The project would comprise: engagement with biologists and managers to inform our analysis about relevant management objectives, issues, and harvest options; analysis of assessment data to inform a Bayesian state-space stock-recruitment analysis; development of an MSE model for this fishery; and training of quantitative biologists in state-space and stochastic simulation methods. This project is not intended to inform management of Yukon River Chinook Salmon in the short term, but rather to broaden awareness and build capacity for utilization of a methodology that has the potential to inform better management in the long term.

## **Project Objectives:**

Objective 1: In consultation with Yukon River salmon managers and biologists, identify important management objectives and issues of concern for Yukon River Chinook Salmon.

Objective 2: Review, update, and document the Canadian-origin Yukon River Chinook Salmon run reconstruction and Bayesian state-space stock-recruitment model.

Objective 3: Develop and apply an MSE model that incorporates the results of the revised stock-recruitment analysis, to examine trade-offs among management objectives identified through completion of objective 1.

Objective 4: Engage biologists and managers throughout the project (1) to ensure an appropriate set of management objectives guides our analysis, and (2) to inform them of the MSE process, including – as appropriate – training of biologists in the analytical methods used.