

ANALYSIS OF POTENTIAL MITIGATION EFFORTS AND HARVEST EFFECTS ON A WHITE STURGEON POPULATION USING EXTINCTION RISK AND BIOMASS DYNAMIC MODELS

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Fishery managers are determining methods to recover the Hells Canyon Snake River white sturgeon population. This population has been impacted by over fishing and habitat alterations. Harvest restrictions have been in effect for thirty years but recovery has not met managers' expectations. Managers are interested in knowing if the current population can sustain a larger harvest and, if not, what the best mitigation strategies are to achieve this goal. Studies to determine abundance and structure of this population were performed beginning in the 1970's with the latest performed from 1997- 2001. Though methods for these population estimates differ and parameter uncertainty around this population is variable, this is the best information available to analyze this population. We fitted Hells Canyon Snake River sturgeon population estimates to a Logistic Model estimating intrinsic growth rate and the carrying capacity. Using the parameter estimates obtained from the logistic model fitting, and looking at both deterministic and stochastic estimates of population size over the next 50 years, we assessed maximum sustainable harvest levels that would allow the population to persist. We evaluated extinction risk for this population over the next 50 years and examined the effects mitigation actions might have on population persistence.