

**Assessment of Population Status for a White Sucker (*Catostomus commersoni*)
Population Exposed to Bleached Kraft Pulp Mill Effluent**

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A predictive model was developed to translate changes in the fecundity and the age structure of a breeding population of white sucker (*Catostomus commersoni*) collected in the field to alterations in population growth rate. Application of this density dependent population projection model requires only a life table for the organism of interest, a measure of carrying capacity for the given population, and estimation of the effect of stressors on vital rates. Individual-level responses of fish exposed to pulp mill effluent at a study site in Jackfish Bay, Lake Superior, were used to demonstrate the model's capability to project alterations in population status. A white sucker population occurring at carrying capacity and subsequently exposed to pulp mill effluent equivalent to the exposure period of 1988-1994 would be expected to exhibit a 34 to 51% annual decrease in recruitment during the first 5 years following exposure, and reach an equilibrium population size of 71 % of carrying capacity. The Jackfish Bay study site contains monitoring data for biochemical endpoints of interest that could be combined with population modeling to extrapolate the construct demonstrated at the Jackfish Bay study site to other white sucker populations at sites that are less data rich. This abstract does not necessarily reflect U.S. EPA Policy.