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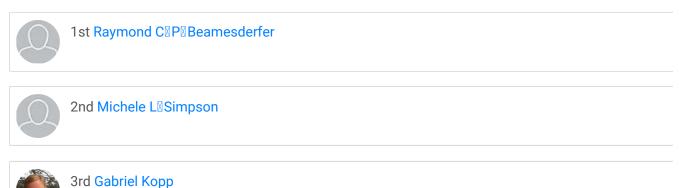
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Use of life history information in a population model for Sacramento green sturgeon

**Article** *in* Environmental Biology of Fishes 79(3):315-337 · January 2007 DOI: 10<sup>M</sup>007/s10641-006-9145-x



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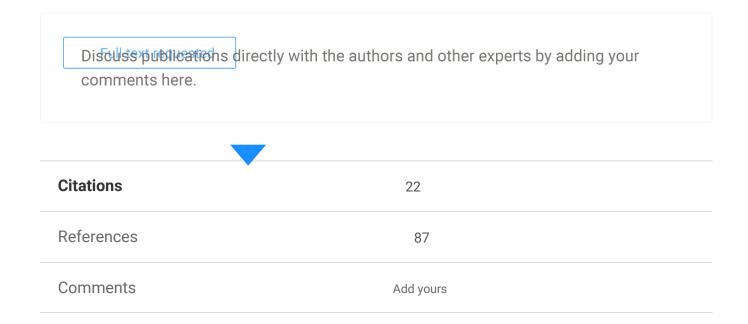
## Abstract

We review the available life history information on green sturgeon and develop a simple population model to inform interpretations of status and threats in the Sacramento River and throughout their range A review of general life history information provides a context for interpretation of model results that are based on popu parameters specific to the Sacramento River and inferences from other populations where Sacramento data lacking The simple life table model consisted of an age-specific schedule of demographic parameters incluaverage length, weight, natural mortality, fishing mortality, sex ratio, and maturity that are used to project age specific population size, biomass, fecundity, harvest, and yield for any given level of recruitment. While mode assumptions of constant recruitment, population equilibrium, stable size and age structure, and a lack of der dependence are rarely met, the model provided useful descriptions of a hypothetical green sturgeon populat based on current estimates of demographic parameters The data available for Sacramento green sturgeon included young-of-year from juvenile salmon migrant traps in the river, pump salvage samples of juveniles fr the Sacramento-San Joaquin delta, San Pablo Bay trammel net samples dominated by subadults, and Colur River commercial fishery landings of subadults and adults I ife table results indicate that green sturgeon are vulnerable to salvage pumps for one or two years of age and that fishery slot limits of 117cm to 183cm inclu 14years of vulnerability on average Subadults that rear primarily in bay and ocean habitats would comprise majority (63%) of an equilibrium population with adults only 12% of average numbers and only a fraction of a spawning each year Population fecundity, which is the total number of eggs based on female number, size,

individual fecundity, peaks around age 24 when all females have matured The sensitivity of sturgeon to increasing mortality is highlighted by abrupt declines in numbers, reproductive potential, and potential yield i hypothetical life table analyses This review and modeling exercise identified significant research needs for esturgeon and supports a precautionary approach in conservation and management in the face of uncertain assessments of status and risk

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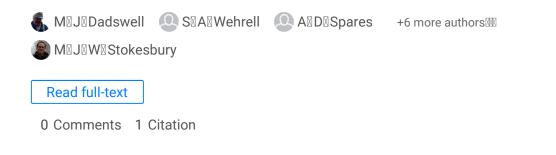


"... range of reported values for A. oxyrinchus and other sturgeon species (Dadswell, 1979; **Beamesderfer et al., 2007;** Kahnle et al., 2007). Research on Gulf sturgeon (also A. oxyrinchus) predicted that an annual morta..."

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