A Case Study of Atlantic Sturgeon on the Altamaha River, Georgia: Are We on the Road to Recovery?

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Decades of overharvest decimated most Atlantic sturgeon populations, and in 1998, the Atlantic States Marine Fisheries Commission closed all fisheries. The effects of the fishery closure are unclear because of a lack of quantified data on recent population trends. However, recent studies have shown that assessments of age-1 cohorts provide a measure of recruitment that can forecast population trends. The objectives of this study were to 1) assess age-1 recruitment, 2) identify key factors influencing recruitment, and 3) forecast potential population trends for Atlantic sturgeon in the Altamaha River, GA. From 2004-2010, we used the Huggins closed-capture model in Program MARK to estimate age-1 abundance. We assessed growth by analyzing repeated measures of individual length with a GLMM. Age-1 abundance estimates and variations in growth were then compared to relevant environmental factors. All data was then integrated into a simple deterministic population projection model to estimate abundance under several different scenarios. Age-1 population estimates varied from 433-6225 age-1 individuals. Model results did not indicate a clear environmental driver for recruitment variability. Growth appeared related to cohort abundance, suggesting density-dependence. Projections of abundance varied from several hundred to several thousand individuals. This information has implications for setting realistic, measurable recovery targets.