Abundance of adult Atlantic sturgeon in the York River and an assessments of the primary threat to the population.

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Atlantic sturgeon, *Acipenser oxyrinchus*, were listed under the Endangered Species Act in 2012 when 20 extant populations and two abundance estimates were known. In 2013, a spawning population was discovered in the York River system and research commenced to estimate its abundance. A closed population Schumacher-Eschmeyer model and more complex models with open and closed periods (Huggins p and c Robust model) produced estimates of annual spawning abundances for 2013 to 2015. Then using a POPAN model, we calculated the total number of adult Atlantic sturgeon in spawning and non-spawning condition during those three years. Within year spawning run sizes using Schumacher-Eschmeyer models and Huggins p and c Robust models were not significantly different. Mean estimates with 95% confidence intervals were 75 (17-168), 157 (107-207), and 184 (147-222) using the Schumacher-Eschmeyer model during 2013, 2014, and 2015, respectively. Mean estimates with 95% confidence intervals were 51-75 (26-266), 151-175 (104-290), and 164-199 (123-292) in 2013, 2014, and 2015, respectively, using the 11 model calculation variations of the Huggins p and c Robust model in Program MARK. The mean total abundance of adult Atlantic sturgeon in the Pamunkey River was approximately 289 (95% CI, 258-329). There are significantly fewer small adults (1300-1400mm FL) than larger adults in the population (n=138), suggesting poor recruitment to the adult life stage by year classes spawned 9 to 13 years ago. Juvenile sampling from 2012-2016 resulted in no 0 or 1 year old juveniles being captured. Since 2005, the blue catfish population indices in the York River have been above average every year and this invasive species now accounts for the majority of fish biomass in the river. Blue catfish predation is likely having a significant negative effect on juvenile Atlantic sturgeon, negative adult population growth.