

Distribution of submerged aquatic vegetation in the St. Louis River Estuary: Maps and models

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In late summer of 2011 and 2012 we used echo-sounding gear to map the distribution of submerged aquatic vegetation (SAV) in the St. Louis River Estuary (SLRE). From these data we produced maps of SAV distribution and we created logistic models to predict the probability of occurrence of SAV. SAV predictor variables varied among areas of the SLRE, but generally included depth, fetch, fetch * depth, and bed slope. Inclusion of digital echo data characterizing substrate hardness and clay content improved the model fit. About 40% of sites in less than 3 meters depth had SAV. Where SAV was present, SAV cover was 30-40%. The models can be used to estimate optimal design parameters for SLRE habitat restoration that includes modification of depth, slope, and fetch distance. The effects of the June flood on SAV could be detected using this methodology. This abstract does not necessarily reflect U.S. EPA policy.

Impact statement: This work contributes to the science needed to quantify changes in environmental conditions of EPA-designated Areas of Concern in the Great Lakes in response to restoration and remediation investments.