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PREDICTING SUBMERGED AQUATIC VEGETATION OCCURENCE (SAV) IN A GREAT LAKES ESTUARY

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SAV provides the biophysical basis for several ecosystem services in Great Lakes estuaries including rearing and adult habitat for commercially and recreationally important fishes, foraging habit for waterfowl, and nutrient retention. Understanding sources of variation in SAV in estuaries is important for understanding the economic importance of existing and future (restored) SAV beds to Great Lake's human communities. In 2011, we used echo-sounding gear to map the distribution of SAV in the St. Louis River Estuary (SLRE) of western Lake Superior. From these data, we produced maps of SAV distribution and models to predict the probability of occurrence of SAV. Predictors varied among areas of the SLRE, but generally included depth, fetch, bed slope, a surrogate for substrate particle size, and a spatial autocorrelation term. About 40% of sites of less than 3 meters depth had SAV. Where SAV was present, cover was 30-40%. These models can be used to optimize design parameters for SLRE habitat remediation and restoration projects that include modification of bathymetry, substrate, and fetch distance. This abstract does not necessarily reflect U.S. EPA policy.