

MAPPING ECOSYSTEM SERVICES IN THE ST. LOUIS RIVER ESTUARY

Dave Bolgrien, Ted Angradi, Brent Bellinger, Tom Hollenhorst, Mark Pearson

U.S. EPA, Mid-Continent Ecology Division (MED) Laboratory, Duluth, MN

Jon Launsbach

SRA International, Inc.

Management of ecosystems for sustainable provision of services beneficial to human communities requires reliable data about from where in the ecosystem services flow. Our objective is to map ecosystem services in the St. Louis River with the overarching EPA goal of community sustainability. This research also supports local priorities including Area of Concern delisting and pre- and post-implementation assessment of R-to-R projects. Our mapping is based on integrating two broad categories of data: a biophysical (e.g., depth, riparian land cover) and amenities (e.g., roads, access points, dredged channels) template. Biophysical data are from existing spatial data and empirical models based on research by MED scientists and collaborators. Mapped services include recreational (e.g., boating, fishing), provisioning (e.g., clean sediment), regulating (safe harbor, property value), biotic productivity (e.g., fish spawning, wild rice), water quality (e.g., nutrient cycling), and cultural services (e.g., Native American sacred sites). By altering the biophysical template and amenity input data for our mapping process-models, we can predict ecosystem service outcomes from R-to-R efforts and other drivers (e.g., water quality). This abstract does not necessarily reflect U.S. EPA policy.