Creating a Database to Examine AOC Project Effectiveness and Community Benefits in the Great Lakes

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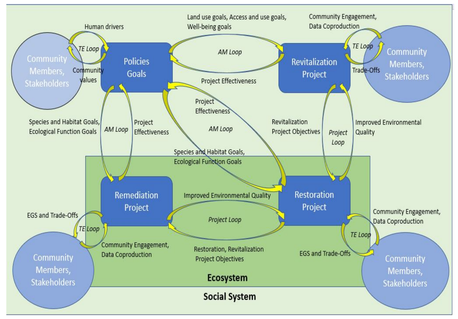
Introduction

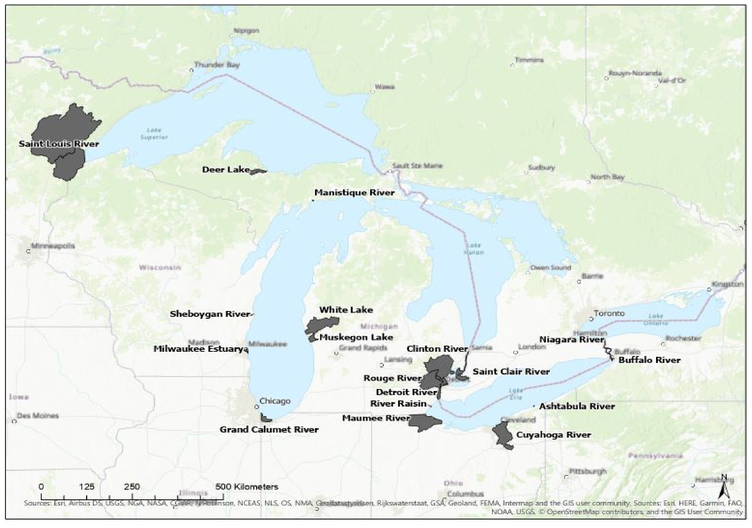
Remediation to Restoration to Revitalization (R2R2R) is a framework to identify ecological and policy-based relationships between large-scale aquatic sediment remediation projects, subsequent habitat restoration projects, and waterfront revitalization. However, as a social-ecological system, the connections and feedbacks between remediation, restoration, and revitalization are not well-understood .

A defining feature of R2R2R is that it possesses three essential feedback loops: a translational ecology feedback loop, an adaptive management feedback loop, and a project management feedback loop. As illustrated, the R2R2R framework is cyclical and iterative, and thereby explicitly recognizes ecological and social complexity and interactions.



Determining Area of Concern (AOC) project effectiveness and quantifying human well being benefits gained from AOC project effectiveness is challenging to asses therefore the process requires a multidisciplinary multiagency effort that is dependent upon communication and participation.

Priority Areas of Concern



This map represents the Area of Concerns our team will be focusing our efforts on.

The R³ Database

Database goals:

- Make connections across all R's
- Identify new *metrics* and approaches to promote community revitalization
- Identify research and data gaps that will further our understanding of AOC project effectiveness
- Support research efforts in the Great Lakes aimed at community revitalization

Remediation (R1)	Restoration (R2)	Revitalization (R3)
Risk Data	Biophysical Data	Socioeconomic Data
Sediment Contaminants	*Fish Community Composition*	*Physical health*
Fish Tissue Contaminants	*Bathymetry*	*Household income*

Revitalization Indicators & Connections

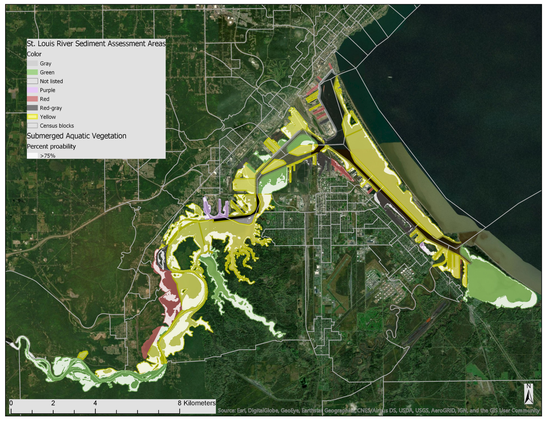
Indicators tabulated by waterfront revitalization goals.

	Revitalization goal	Example indicators
Environmental	Protect and restore greenspace and open spaces in waterfront areas	Green land cover, impervious surface, native plants, natural habitat, parks and trails
	Protect and restore nearshore aquatic habitat, riparian areas, and soft shorelines	Shorelines, birding areas, green land cover, storm water solutions
	Protect native and rare flora and fauna including, animal migration corridors	Natural habitats, invasive plant treatment, shorelines, stream daylighting, sentinel, and charismatic wildlife
	Increase climate and natural disaster resiliency of the waterfront	Hydrologic response, stream daylighting, storm water solutions, shorelines, impervious surface
	Increase safe access to the water and to shoreline and riparian areas	Access to water, birding areas, marina use, parks and trails, recreational amenities, viewscapes, water trails,
Social	Improved health of people living in waterfront neighborhoods	Bikeability, green land cover, mental health, recreational amenities, social incivility, physical health, well-being, walkability, gentrification, beach closures,
	Provide nature-based waterfront recreational amenities	Recreational amenities, access to water, birding areas, parks, and trails
	Promote environmental, cultural, and historical awareness and sense of place	Sense of place, access to water, cultural identity, wayfinding and signage, public art, heritage preservation
Economic	Increase waterfront property value	Property value, stigma, gentrification
	Support waterfront and water-dependent business retention and expansion, especially green businesses in degraded areas	Brownfield reuse, green business development, commercial activity, maritime industry,

Table 2: Sediment Assessment Area Color Designations

SAA Remedial Designation	Definition
Purple	Remedial action complete, monitoring of effectiveness underway or complete.
Red	Remedial action needed.
Red-gray	Additional characterization and assessment needed to determine if remedial action is necessary.
Yellow	Remediation generally not warranted, but management actions must consider the presence of contaminants, especially bioaccumulative contaminants.
Green	No known contamination. No remedial actions planned.

The SAA Remedial polygons shown in the maps are current as of 2018 with the understanding that more recent data has been produced.



This map shows the interactions among R1, R2, and R3 in the St. Louis River Estuary landscape.

Data to Share?

Do you know of or have information that might help inform these revitalization indicators?

You can share your data, insights, and information by scanning the QR code or going to the web link provided.

https://arcg.is/1fL1z5

Going Forward

What we are doing with your data

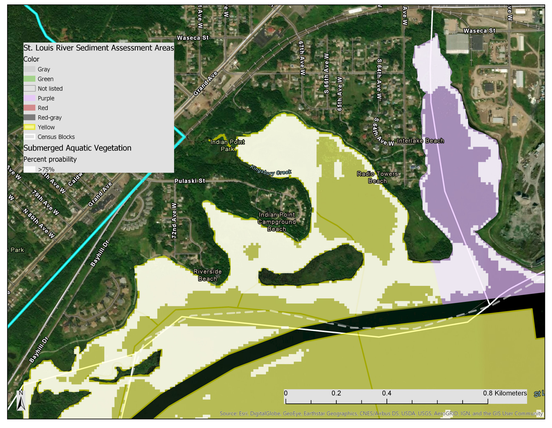
Data and data insights may be recorded in the R³ Database. The use of the data or the database is not for the purpose of providing a living directory of data, it is rather a story book of data used to communicate the connections or opportunities for connections among R's.

Long term goals

The R³ Database will support long term remedy effectiveness and waterfront revitalization studies.

What this means for the St. Louis River Estuary

Data provided for the St. Louis River Estuary can inform research scientists and managers of areas where long term remedy effectiveness and waterfront revitalization studies may be beneficial.



This map shows the interactions among R1, R2, and R3 in the Kingsbury landscape.

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