

# Assessing Community Impacts of Restoring Coastal Wetlands in an Urban Great Lakes Estuary

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## Background

### Location and History

Pickle Pond is a wetland embayment located on the Superior, Wisconsin waterfront in the St. Louis River Estuary and is part of the St. Louis River Area of Concern (SLRAOC). Pickle Pond was created from the construction of a rail line in the Superior Bay in 1880, effectively establishing a sheltered shallow habitat for fish and wildlife.



### Current Conditions

#### Habitat Quality

Due to the construction of the rail line, Pickle Pond has limited hydrological exchange with the St. Louis River and is impacted by chemical contamination, habitat degradation, and stormwater runoff. Pickle Pond is also impaired by abandoned industrial infrastructure and debris.

#### Amenities and Aesthetics

Pickle Pond embayment is adjacent to the Osaugie trail which features a small fishing pier and a parking lot. Pickle Pond also lies adjacent to Barker's Island which is a popular recreation spot that includes a beach, a museum, marina, hotel, and the Lake Superior National Estuarine Research Reserve. However, the site is impacted due to contamination concerns, degraded aesthetics related to litter and water quality concerns, and limited recreation opportunities.

## Our Research



- We plan to study the human wellbeing benefits of ecological restoration.
- Benefits are likely to be related to improved aesthetics, reduced health risk, and increased and improved recreational opportunities.
- We will document the change in environmental aesthetics to better understand how the improvement of ecological and physical conditions may increase human wellbeing benefits through potential enhanced user experiences and expanded recreation opportunities.

## Restoration Plans

### Contaminated Sediment Removal

#### Remedial Site Activities

- Removing contaminated sediments
- Sediment dewatering
- Water Treatment
- Offsite disposal of the contaminated sediments

### Habitat Restoration

#### Restoration Site Activities

- Construction of wetland areas
- Installation of hydrodynamic separator
- Additional openings to Barker's Bay
- Removal of railroad tracks and a railroad bridge
- Seeding and planting of native plants around the pond and on the railroad berm

### Project Goals

- Remediate Contaminated Sediment
- Deepen the pond for better fish habitat
- Enhance habitat for native vegetation and remove invasive species
- Improve connectivity between the pond and the St. Louis River Estuary

## Methods

### Data Collection



Aesthetics Survey  
- Aims to capture the physical environment and user experience



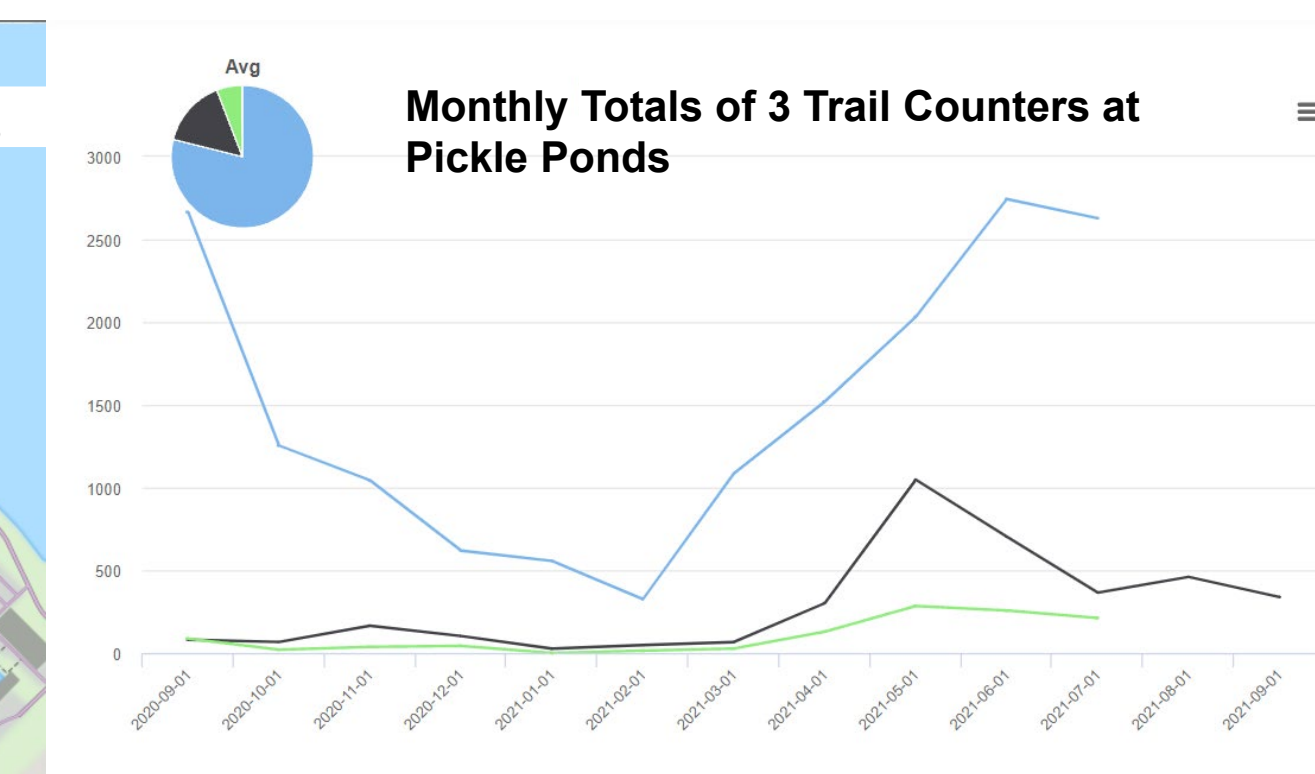
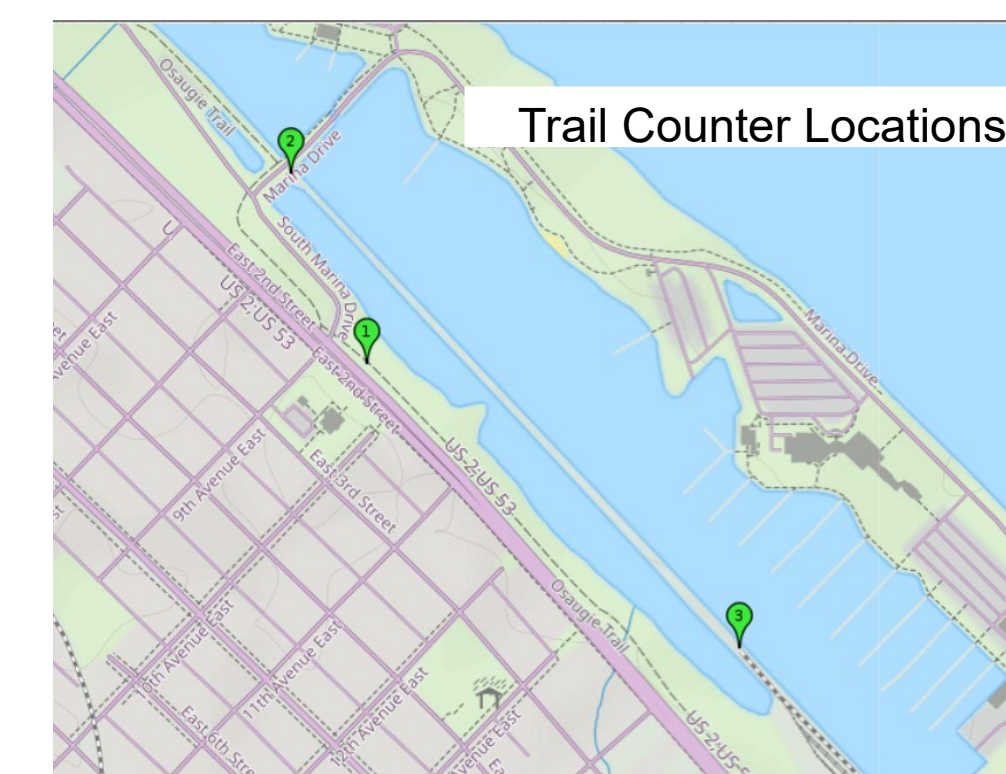
Intercept Survey  
- Focuses on recreational opportunities and community participation



Trail Counters, Trail Cameras, and a Web Camera  
- Counts people and captures recreational activities

Baseline data (pre-restoration) was conducted in 2021 and 2022. Restoration construction will begin in 2022. Data are being collected in the form of surveys, counters and cameras (see left). To our knowledge, this is the first coastal wetland restoration project in the Great Lakes where pre- and post-project ecological and social monitoring will be conducted to measure the combined effect on ecological health and community wellbeing.

## Preliminary Results



Pickle Pond Trail Counter Summary from 7.2020-9.2021

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ADT <sup>1</sup>	ADT <sup>1</sup> x365	Days with data
2020	OTR_S47410							9,767*	2,966	2,665	1,254	1,044	619	85,832	31,415	173
	PPN_S47409							1,291*	640	80	67	165	103	10,913	3,994	173
	PPS_S47411							436*	185	87	20	37	43	3,775	1,381	173
2021	OTR_S47410	557	325	1,085	1,520	2,032	2,744	2,628*						50,064	18,273	204
	PPN_S47409	26	48	66	301	1,047	703	365	460	338*				12,317	4,496	265
	PPS_S47411	0	14	27	129	284	257	212*						4,255	1,553	204

ADT<sup>1</sup> = Average Daily Traffic

\* = based upon that mor

arn more Indicates months with less than 6 days of data.

