Collaborative Conservation across Landscapes: Experiences from the Upper Midwest and Great Lakes LCC

LANDSCAPE CONSERVATION COOPERATIVES

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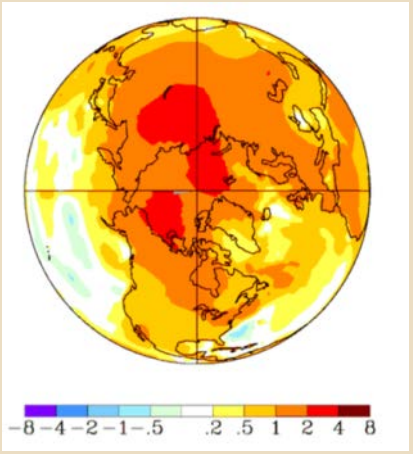
GreatLakesLCC.org

Personal introduction

Brad Potter - Science Coordinator for the Upper Midwest and Great Lakes Landscape Conservation Cooperative where I facilitates cross-discipline science and practitioner groups toward the development information and decision tools to inform landscape conservation strategies. Prior to my current position, I worked as a wildlife biologist and biological technician for the Upper Mississippi River and Great Lakes Region Joint Venture Science Office using GIS and analytical methods for species habitat and landscape assessment and planning.

A world in transition…



Temperature Change,° C
1958-2008

In 2005, for the first time, more people lived in cities than outside them.

--Peter Crane in the journal *Science*

Conservation challenges in transition…

"…(in the past), environmental threats were perceived as local. However, many recent threats to natural resources occur at much **larger spatial scales**. Ecosystem degradation is occurring at an **unprecedented rate**… …it is clear that the most significant conservation challenges facing the United States today **transcend administrative and geopolitical boundaries.**"

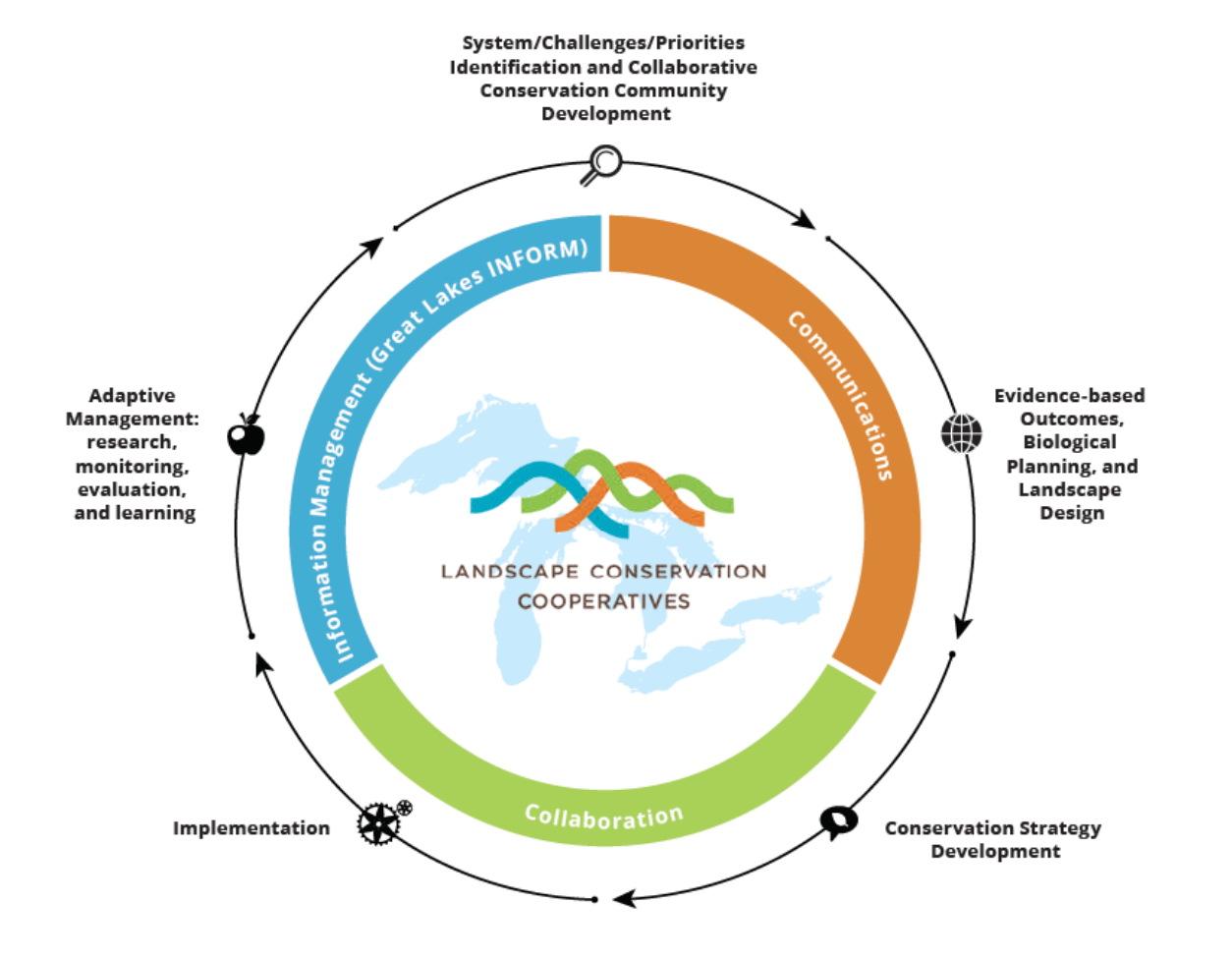
--National Academy of Sciences,
A Review of the Landscape Conservation Cooperatives

Features of these challenges

- They exceed the responsibility of any individual conservation agency or program
- They are complex and will require multiple disciplines/sectors working together

Responding to the challenge

Upper Midwest & Great Lakes LCC Landscape Conservation Approach



What I'll cover…

- UMGL LCC history and evolution
- Describe the UMGL LCC Strategy and Landscape Conservation Approach
- Examples from UMGL LCC efforts in aquatic habitat connectivity and coastal wetland conservation

UMGL LCC – the early years

2010 – LCC initiated; science projects supported by Great Lakes Restoration Initiative (GLRI) funding

2011 – LCC expands capacity, holds "retreat" and begins refining purpose; vision and mission drafted; science projects supported by GLRI and FWS funding

2012 – Vision and mission statements final; ongoing science projects continue; "high-level" shared priorities assessment conducted

2013 – LCC identifies "focus areas", project statements and proposals become more specific; establishment of focus area work groups as part of LCC structure

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ERA OF SCIENCE PRODUCTION

UMGL LCC – recent advancements

2014 – Focus area work groups formed; process of stepping-down high level priorities to specifics begins; terms "shared goals" and "landscape conservation design" become more prominent in LCC dialog and project work; resources used to continue projects, convene, and coordination

2015 – Charter for formation of an "Aquatic Habitat Connectivity Collaborative" approved; LCD for coastal wetland conservation begins; new LCC Strategic Plan drafted

The UMGL LCC Strategic Plan and Landscape Conservation Approach

Identity Statement

We are a community,

composed of conservation agencies, organizations, and individuals with unique purposes, missions, and mandates, but we align our actions around shared goals and objectives for ecological challenges that transcend boundaries and jurisdictions in the Upper Midwest and Great Lakes geography.

We are dedicated to a collaborative approach

to conservation resulting in sustainable and resilient ecological functions and ecosystem services.

We use a Landscape Conservation process by

- identifying and pursuing goals for shared natural resource priorities;
- placing past, current, and future conservation actions into broader context via landscape design;
- collectively leveraging capacities and resources to make greater impact towards our shared goals and objectives;
- using evidence- and science-based information to guide our actions; and
- refining our work and strategies by evaluating the outcomes of our collective actions.

What are we asking?

Decision Context for Objectives [1]

1. What natural resource conservation challenges do we share that require a collaborative conservation approach and what strategies will attain our goals?
2. How do we work together to more efficiently and effectively pursue landscapes that sustain natural resources at desired levels?

The ultimate outcome

Strategic Objective 2

Maximize the number of shared natural resource priorities sustained at desired levels across landscapes in the Upper Midwest and Great Lakes region.

To-date we have chosen **4 focal landscapes**, including:

aquatic landscapes (with an emphasis on aquatic connectivity between the Great Lakes and their tributaries)

coastal landscapes (with an emphasis on coastal wetlands)

forest landscapes (with an emphasis on natural resource based services provided by northern forests), and

urban landscapes (with an emphasis on pollinators and monarch butterfly).

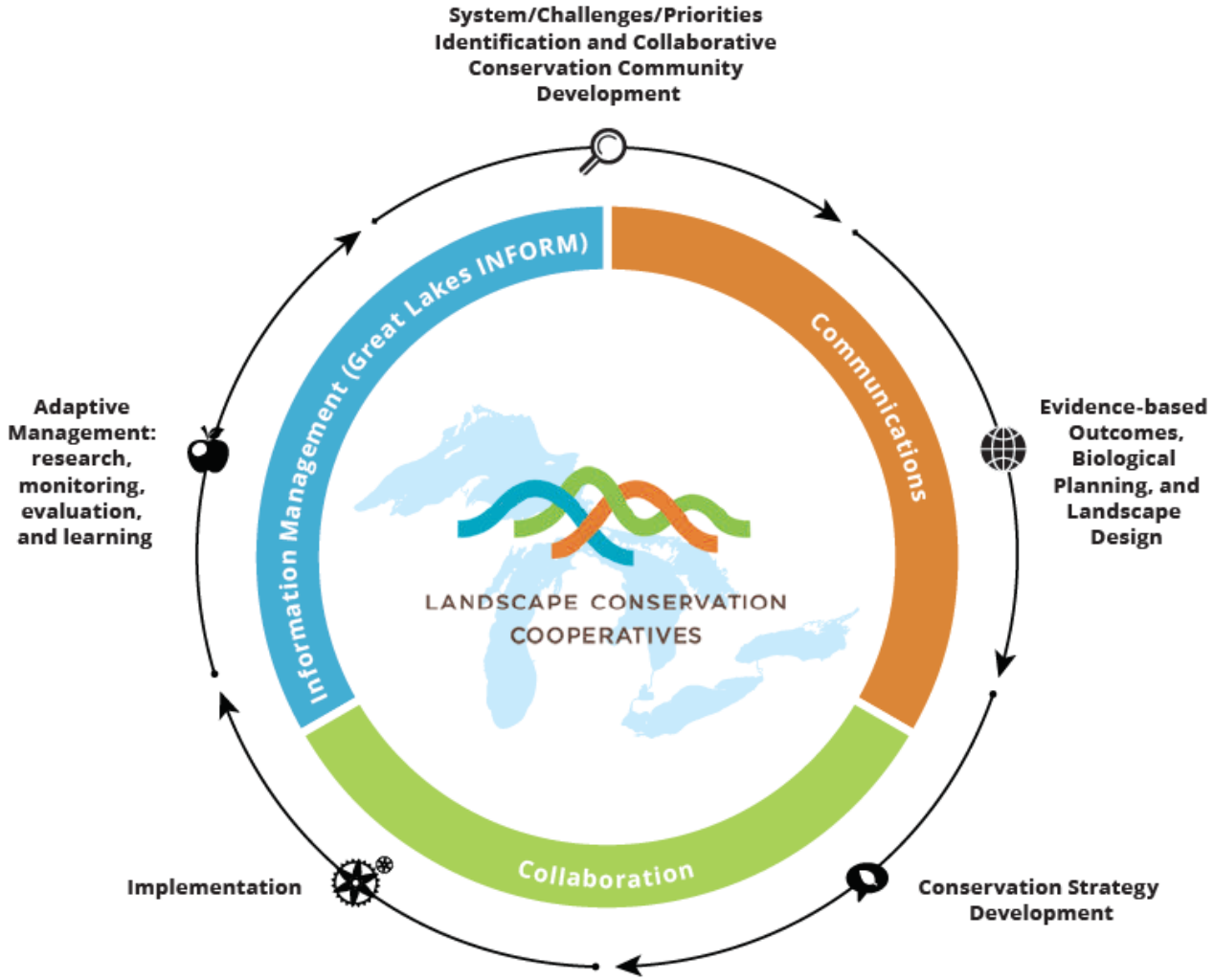
We have also focused on State Wildlife Action Plans (SWAPs). These plans can inform regional fish and wildlife priorities within the focal landscapes, identify additional regional conservation challenges (current emphasis on large grassland complexes, pollinators, and freshwater mussels), and are an important implementation tool for stepping down regional LCC-based products across state boundaries. Working with these and other existing conservation plans are an important part of the process of identifying shared conservation priorities.

What we produce

Ends Objectives[3]

1. Devise and implement conservation strategies that pursue shared goals for natural resource priorities.
2. Create and maintain a high-functioning organizational culture.

The Landscape Conservation Approach



Application in the UMGL

- Aquatic Habitat Connectivity Collaborative
- Coastal Wetland Landscape Conservation Design

Aquatic Habitat Connectivity

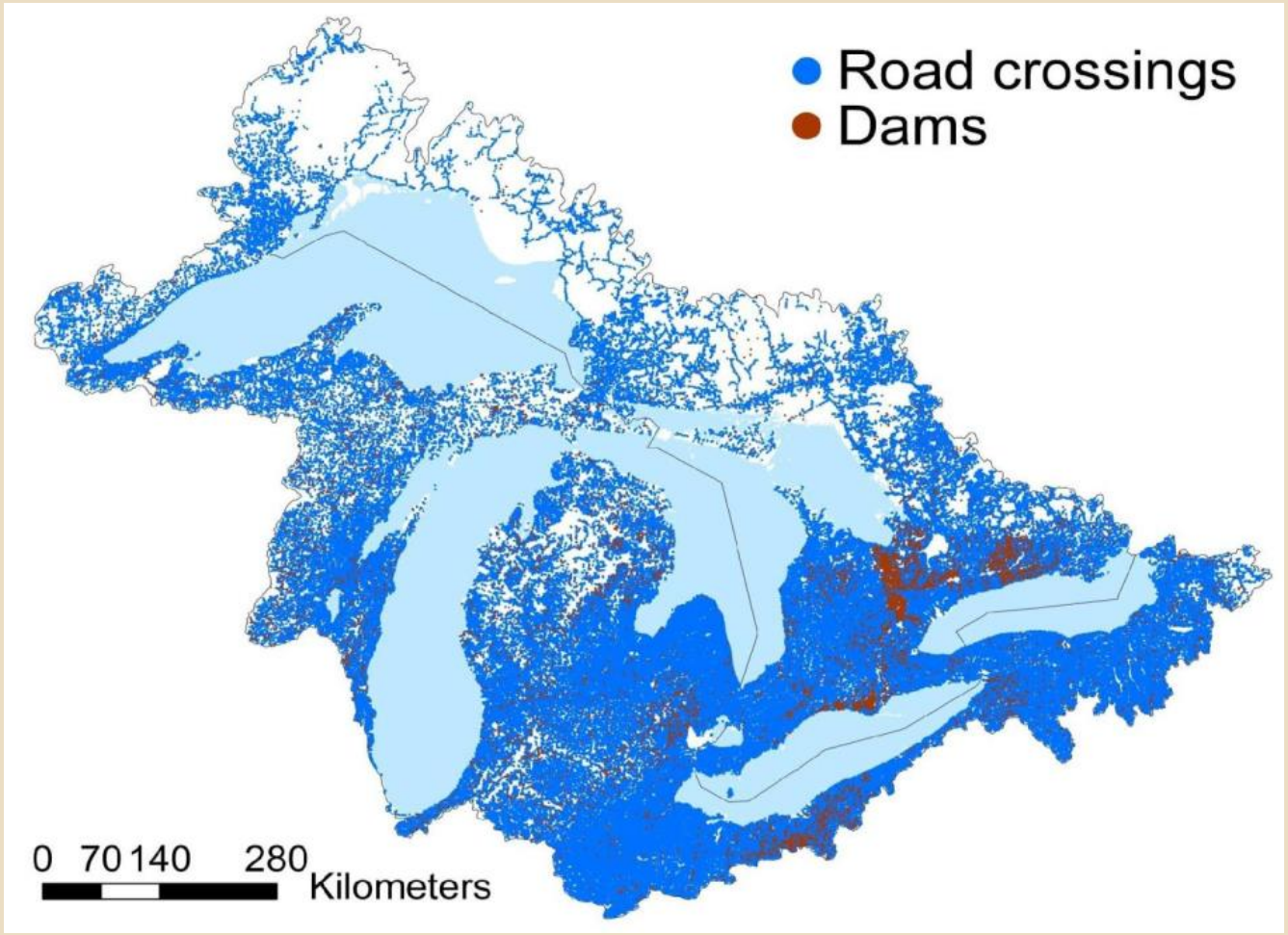
- Aquatic barriers – block movement of aquatic species, trap sediment and contaminants, increase water temperature, decrease oxygen, decrease species populations

It's complex…

- Barriers are both harmful and helpful

Annual sea lamprey control budget = $21M

And, across landscapes…

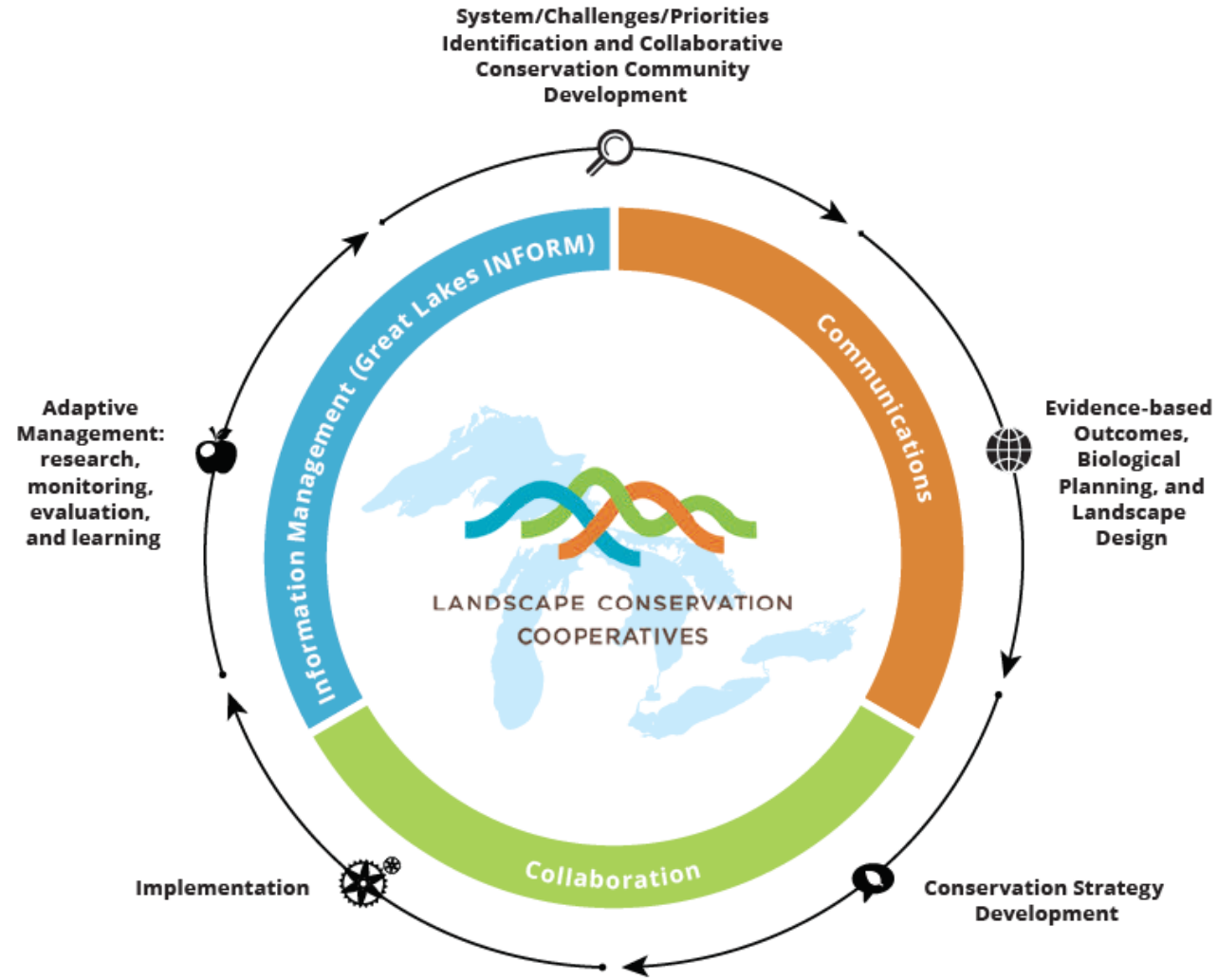


Nearly ~275,000 total possible barriers

~105,000 consequential

Januchowski-Hartley. 2013. Frontiers in Ecology & Environment

The approach and activities – aquatic connectivity



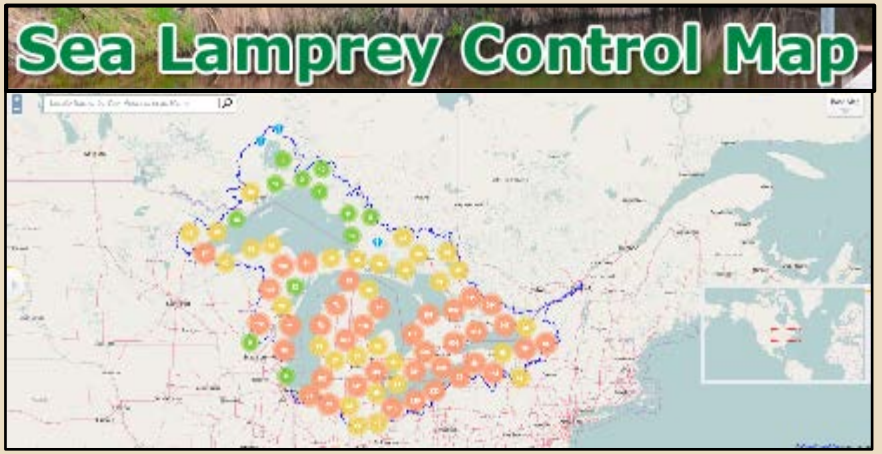
- Formation of Aquatic Connectivity Collaborative – hiring of coordinators
- Landscape assessment and decision support tool development
- Information management platform

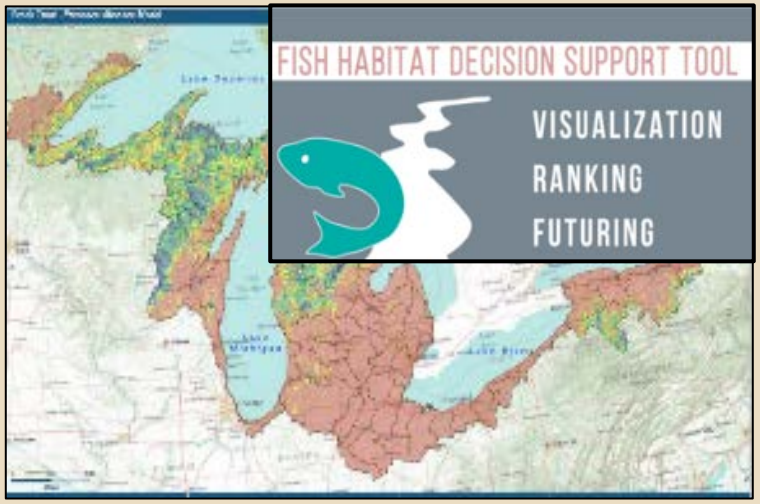
Collaborative formation

- **Vision** - A connected Great Lakes and their tributaries optimized to: increase or maintain population levels and genetic diversity of desired aquatic species; to allow bi-direction movement of energy and nutrients by fish; prevent unacceptable population increases of detrimental species; and, meet economic and social objectives

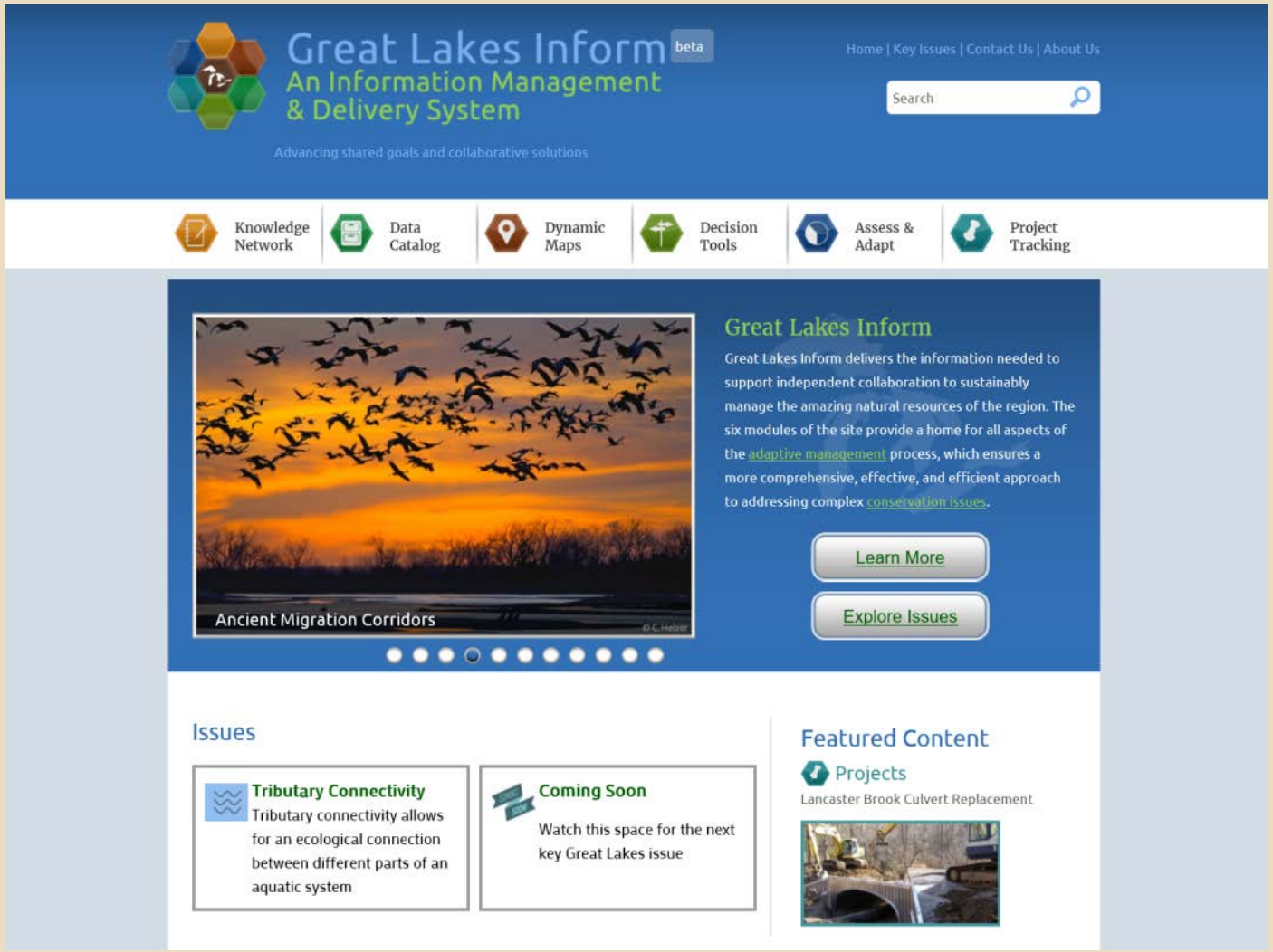
- **Purpose**
  - Establish shared aquatic habitat and connectivity targets
  - Support progress toward mutually agreed upon connectivity targets
  - Promote the development and acceptance of best practices related to the design and implementation of connectivity projects
  - Stimulate research and advance knowledge for improved connectivity decision making

Informing strategies - decision support tools





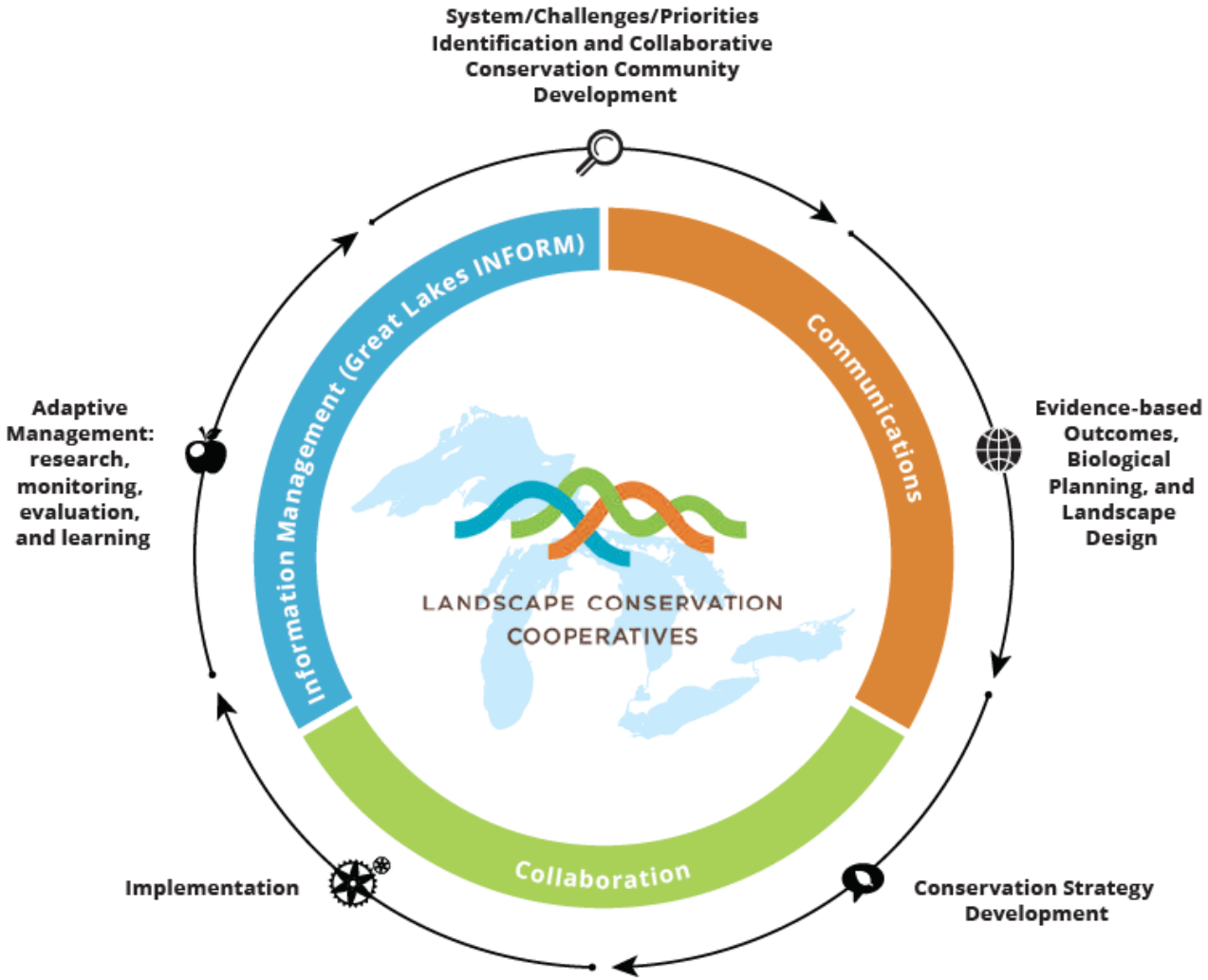
Information management



Coastal Wetland Conservation

- Some high-quality coastal wetlands remain, but it is estimated that two thirds of the original coastal wetlands in the Great Lakes have been converted for another land-use benefiting humans like productive farming, residential development, and industry. Unfortunately, much of this conversion occurred before we understood the multiple values coastal wetlands provide.

The approach and activities – coastal wetlands



- Landscape Conservation Design; landscape assessment and decision support tool development
- Leveraging region-wide monitoring program
- Taking action – guiding implementation investments
- Information management platform

Landscape conservation design

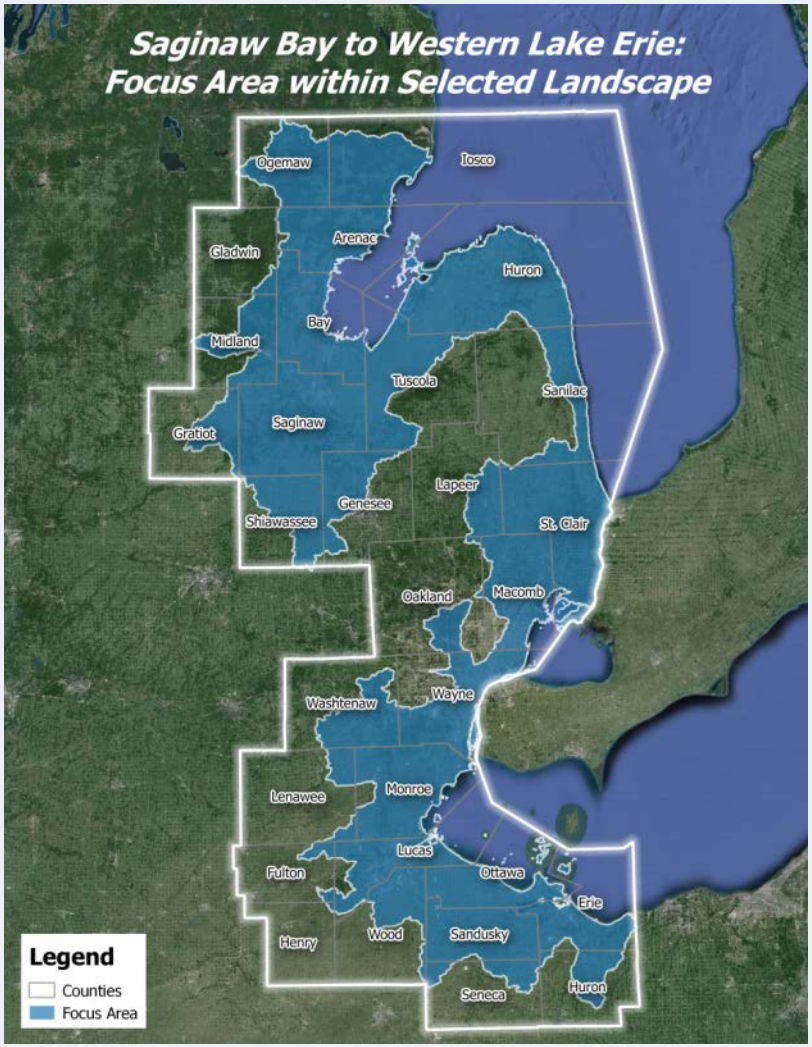
- Effort is guided by the LCCs Coastal Conservation Work Group (~15 members)
- Engages a broad conservation community from conservation organizations to local community leaders

Landscape Conservation Design (LCD) is an ***iterative***, ***collaborative***, and ***holistic process*** that provides information, analytical tools, spatially explicit data, and best management practices to develop shared conservation strategies and to achieve conservation goals among partners.

Some questions being addressed

- What purposes does coastal wetland conservation target (ecological & human well-being)? What are our goals?
- How many restored and protected coastal wetland acres are enough?
- Which coastal wetlands and system characteristics will maintain these benefits under a changing climate and landscape?
- How much will it cost to restore, protect, and enhance these wetlands?

Our focus area for LCD



High number and diversity of wetlands

MANY organizations actively working in coastal wetlands

Amazing capacity to collectively attain goals and objectives

LCD process – basic elements

Set targets & goals

- WHY: Understand where goals/priorities align; use human well-being targets with ecological targets to meet multiple goals; engage new partners to advance aligned goals faster.
- WHAT: Map where we can work to benefit nature and people; set a vision for coastal wetland conservation

Gather data

- WHERE: Saginaw Bay to Old Woman Creek.
- HOW: Workshops to vet concepts; build datasets where none existed to translate goals.
  - clean data, format for analyses

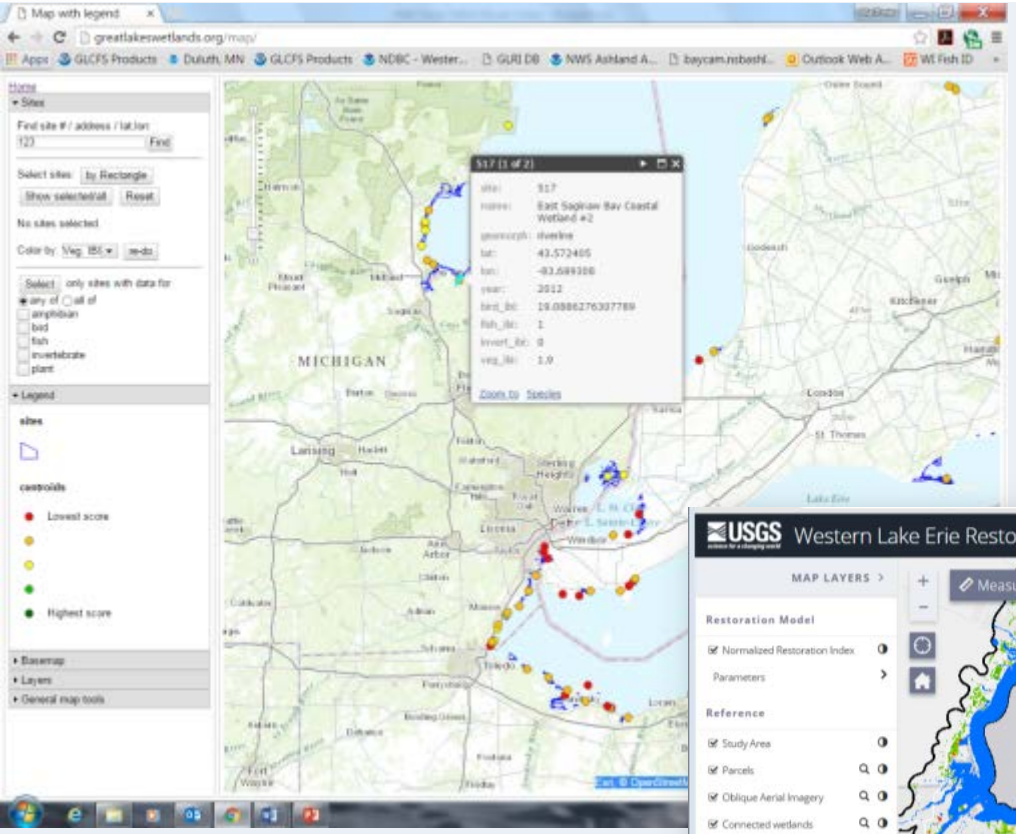
Analysis & map

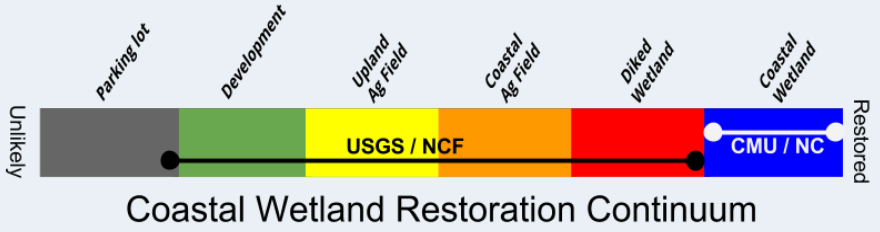
- Iterations with Science Team
- Develop website, factsheets, messaging
- Workshop: vet inputs and outputs with stakleholders
- Adapt, refine and share improved outputs.
- Assessed goal status to further refine where to work to fill specific "gaps"/advance specific goals.
- Identified focal areas/investment hotspots.
- Update website, include data viewer to serve data layers and output.

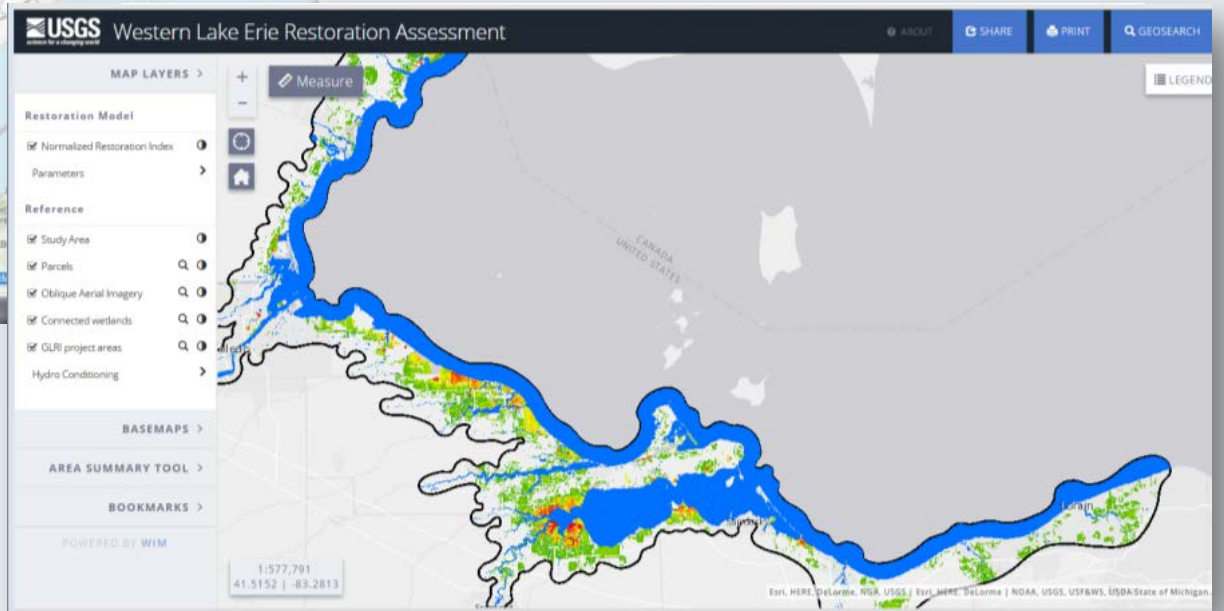
Implement

- Meetings
- Identify funding and delivery mechanisms
- Map □nform coastal community resilience planning & implementation
- Develop project-tracking and goal-tracking process - disseminate via Great lakes INFORM.

Decision support tools





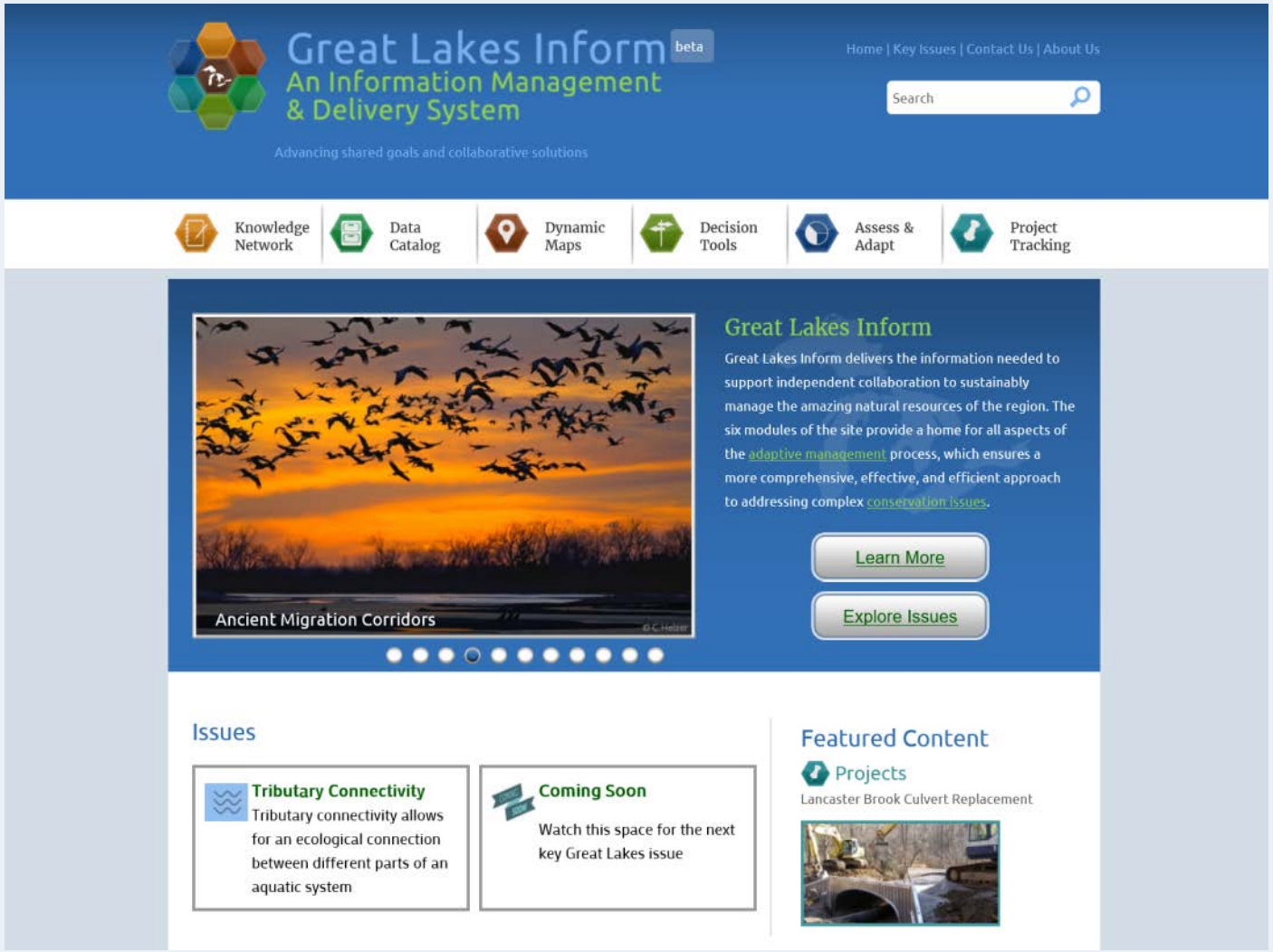


Guiding implementation

- Received funding from the Great Lakes Restoration Initiative to implement coastal wetland actions in FY17/18

- A multi-agency team reviewing projects – guided by LCD process to-date and DST

Information management



Wrap up

- Conservation in the 21st Century is facing complex and rapid change and will require multiple disciplines/sectors working together.

- Conserving natural resources across broad landscapes is necessary, but can not be achieved through production of more science alone.

- LCCs are a forum for developing a landscape conservation approach that works for the circumstances that occur within that geography.

Thank you!

Sunrise over Ludington State Park, MI