



Nature-Based Shoreline Management

Management actions that enhance, restore, and maintain natural coastal processes, aquatic habitats, and ecological functions that promote coastal and ecological resiliency along the Ohio Lake Erie coastline.

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Coastal Management

- Important Elements of Coastal Systems
 - Coastal Sand Resources
 - Nearshore and Coastal Habitats
 - Nearshore Water Quality
 - Functional Ecosystems
- Socio-Economic Benefits
 - Public Health and Safety (Infrastructure)
 - Water Resources (Quantity and Quality)
 - Ecosystem Services (Habitat, Fisheries, Waterfowl...)
 - Commercial and Recreational Navigation





Nature-Based Shoreline Management

Ohio Approach

- Actions that protect, maintain, and restore natural coastal and ecological processes.
- Application of Landscape Conservation Design (LCD) concepts to coastal systems at landscape scales – connecting systems and projects to maximize benefits.
- Linkage to Coastal Management Goals and State Priorities



Landscape Conservation Design Process

- Requires establishment of clear goals, objectives, and priorities.
- Maximize socio-economic, environmental, and functional benefits derived from coastal conservation projects at multiple scales.

Example: Development of methods and tools to identify and link potentially restorable coastal wetlands at landscape scales to maximize benefits and attain desired goals.



Coastal Management Goals

Ohio Examples

- Improving nearshore water quality
- Maintaining a sustainable fishery
- Enhancing coastal biodiversity
- Managing invasive species
- Protecting coastal sand resources
- Protecting coastal infrastructure
- Promoting public access



Each of these goals will have place-based actions that may result in potential impacts or benefits relative to existing local geographic, physical, biological, and socioeconomic conditions along the shoreline.

Fundamental Needs/Questions (Fisheries)

- What are the relationships between shoreline characteristics and fish communities?
- Which coastal reaches are important and why?
- What are the criteria that define Priority Management Areas and at what scales?
- **What are the types of actions that can be taken to protect, enhance, or restore coastal and nearshore fisheries habitats?**
- How much and what type of fisheries habitat is enough?
- How do we coordinate with Fishery Management Agencies?



Assessment Strategy

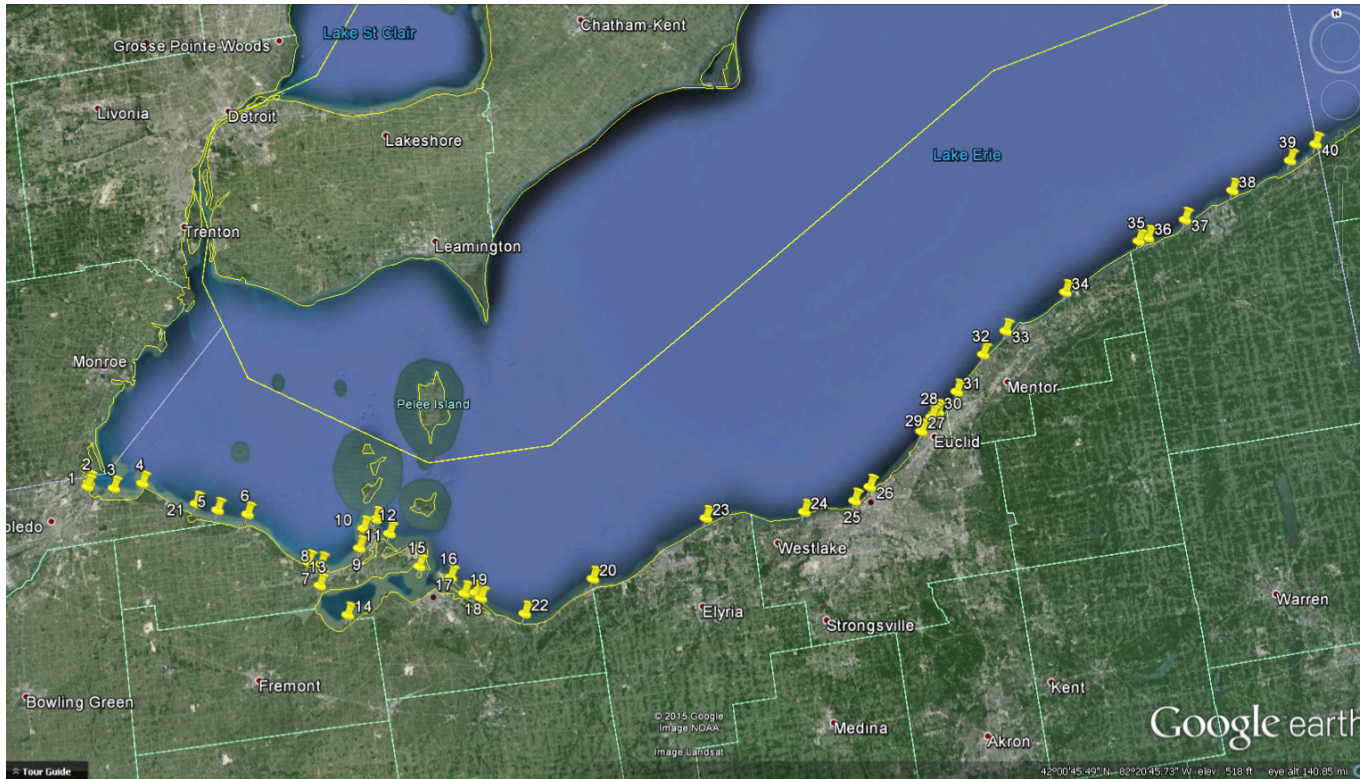
Where, What, How Much, and Why?

- Perform a systematic reach-based integration of place-based actions along shoreline to maximize benefits and minimize impacts (Priority Management Areas)
- Critical to this analysis is a comprehensive set of high-resolution coastal and nearshore physical, chemical, and biological datasets which, for the most part, don't exist.
- Requires systematic coastal/nearshore assessment program (regional scale).



Building Resilient Shorelines Initiative

Nearshore Assessments...



- **Ohio CMP has committed more than \$500,000 over a 3-year period to acquire coastal/nearshore assessment data along Ohio Lake Erie shoreline to identify functional habitats and Priority Management Areas.**



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Implementation Strategy

- Site-specific high resolution monitoring program for unique local-scale projects of opportunity.
 - Acquisition of pre-project baseline data
 - Acquisition of post-project monitoring data
 - Performance Indicators
- Developing GIS tools to perform the reach-based integration to identify Priority Management Areas
 - Develop guidance for sites within PMAs
 - PMA database (GIS) linked to regulatory database



Coastal Habitat Protection and Enhancement

- Goal is to incorporate functional habitat elements and Priority Management Areas into Coastal Management regulatory programs.
- Institutionalize through Legislation/Administrative Rules.
- Requires training and a “Culture Change” in how we (Coastal Management Programs) do business.
- Regulatory reform must occur concurrently with implementation of nature-based shoreline management
- In Ohio, this is a collaborative effort between the Ohio Division of Wildlife, University of Toledo, Ohio EPA, Bowling Green State University, and the ODNR Office of Coastal Management