

RSM FY12 IPR

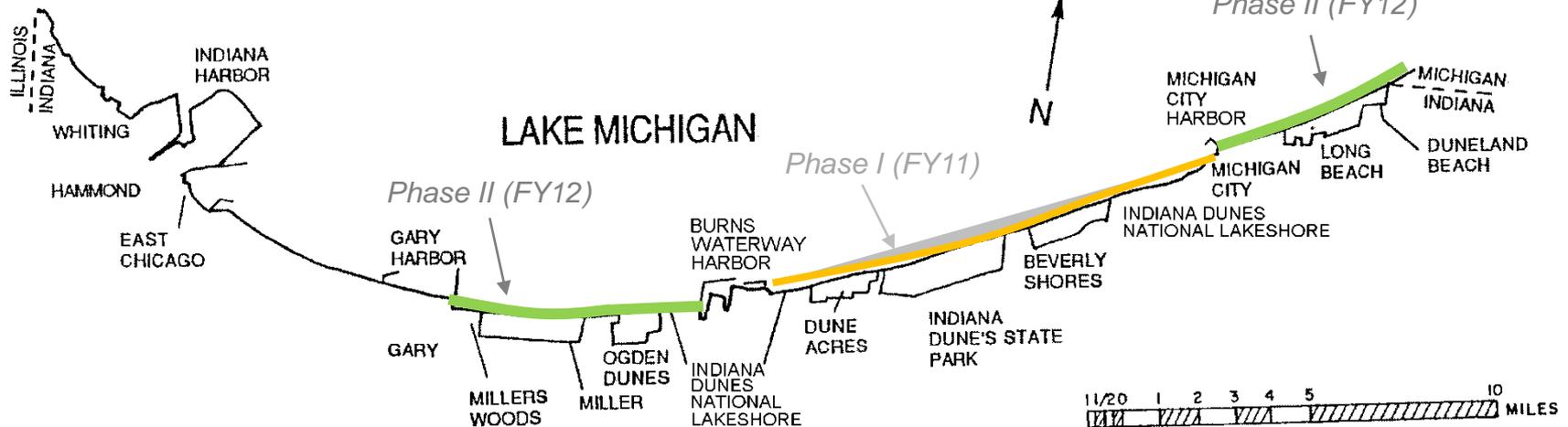
Chicago District, Lower Lake Michigan/Indiana, David F. Bucaro, P.E.

Description/Challenge

- Altered Shoreline
 - Harbor/Shore Protection Structures
 - Littoral Disruption (accretion/erosion)
- Several agencies have jurisdiction and interests along shoreline
 - Federal (USACE, National Park Service)
 - State (Indiana DNR, Indiana Geological Survey)
 - Private (Industry, Communities)

Goals/Issues to Address

- Develop comprehensive digital database of historical shoreline data
- Develop comprehensive sediment budget for entire Indiana shoreline
- Facilitate system-based decision making through data sharing and coordinated monitoring planning



BLUF: This data and analysis will provides a consistent foundation among agencies for formulating solutions to address the impacted littoral processes along the shoreline and for planning future maintenance needs at federal projects.

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District PDT Members

- David Bucaro, Planning
- Sara Brodzinsky, Planning
- Joel Schmidt, Hydraulic Engineering
- Jeff Fuller, Hydraulic Engineering

ERDC Principal Investigators

- Andy Morang, Coastal Hydraulics Laboratory
- Ashley Frey, Coastal Hydraulics Laboratory

Active Partners

- Steve Davis, Indiana DNR
- Charles Morris, National Park Service (NPS)
- Jim Sparks, Indiana Geological Survey

Stakeholders

- Coastal Communities (7): Duneland Beach, Long Beach, Michigan City, Beverly Shores, Dune Acres, Ogden Dunes, and Miller, Indiana.
- Port of Indiana
- Michigan City Port Authority
- Northern Indiana Public Service Corporation
- Arcelor-Mittal

Leveraging/Collaborative Opportunities

- Other USACE efforts:
 - (GI) Sect 111 Burns Waterway Harbor Shoreline Damage Mitigation Study
 - (CG) Indiana Shoreline Nourishment Project at NPS Mt. Baldy Dune
 - (O&M) Continued Maintenance of Burns Waterway, Burns Small Boat and Michigan City Harbors
- Other Federal efforts:
 - NPS-Indiana Dunes National Lakeshore Shoreline Restoration and Management Plan/DEIS
- Indiana DNR:
 - Regulatory management and coordination over Indiana Shoreline
 - Management and planning of shoreline state parks
- Locally-led Efforts:
 - Maintenance of A-M and NIPSCO water intake structures.

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Approach

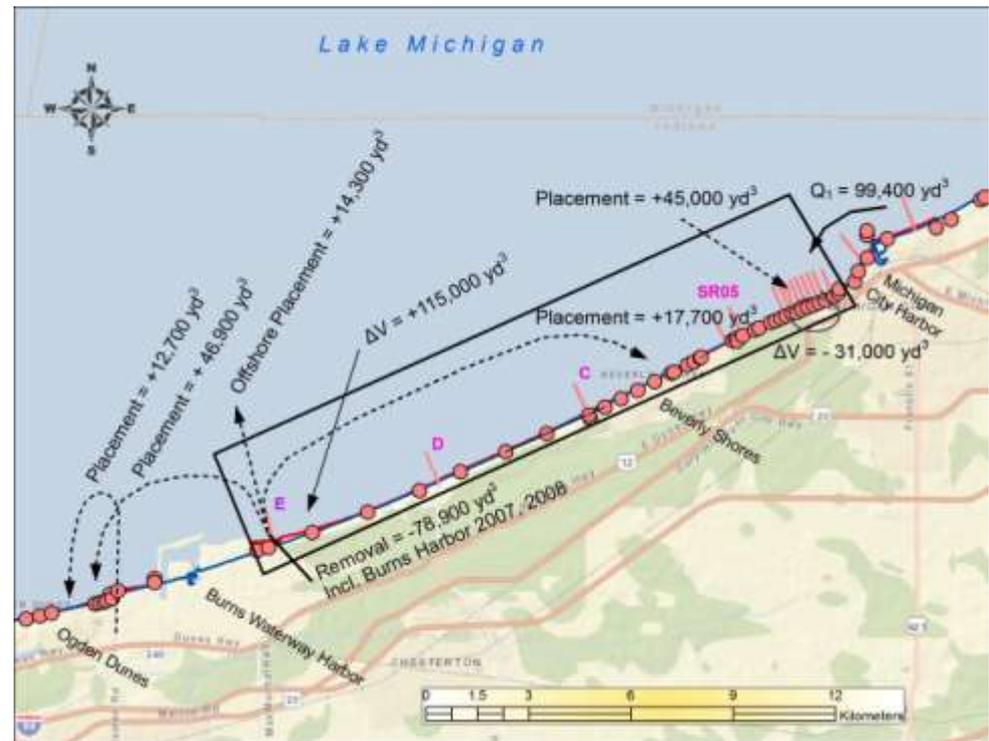
- Collect and digitize all available data
- Compare cross-shore profiles over time
- Catalog shoreline changes from aerial photography
- Establish consistent profile locations for calculation of volume changes
- Interpret dredge volumes and placement locations

Opportunities to take action:

- Project future shoaling quantities in Burns Harbor approach channel
- Optimize placement sites for anticipated new future dredging at Burns Harbor, NIPSCO and A-M
- Reevaluate sand source and material quantities for ongoing Mt. Baldy nourishment

Study Benefits

- Prediction of sand transport, shoaling and erosion rates
- Collaboration of data between agencies
- Improved understanding of regional littoral processes and effects over time



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FY11 Products (\$115k)

- Comprehensive digital database of profiles, aerial photography, and historic shorelines
- SBAS sediment budget
- Regional data collection and monitoring plan
- Published ERDC Technical Report (July 2012)

FY12 Milestones/Deliverables (\$45k)

<u>Milestone</u>	<u>Due</u>	<u>% Completed</u>
• Expanded database	7/31/12	90%
• Sediment budget	8/31/12	75%
• Identify FY13 actions	9/30/12	75%
• Study documentation	9/30/12	50%

Accomplishments

- USACE, partners and stakeholders have a better understanding of the Indiana shoreline coastal processes and basis for future management decisions
- Established a unified approach for future monitoring and data collection
- Enhanced relationships around a common understanding of a complex system

Lessons Learned

- Importance of good data archiving (dates, monuments, datums, etc.)
- Importance of agency collaboration
- Digitizing and cataloging is somewhat tedious and requires good organization skills in order for the end result to be accurate
- Establish timeframe for budget analysis and stick to it; incorporating new data makes it difficult to wrap up the effort