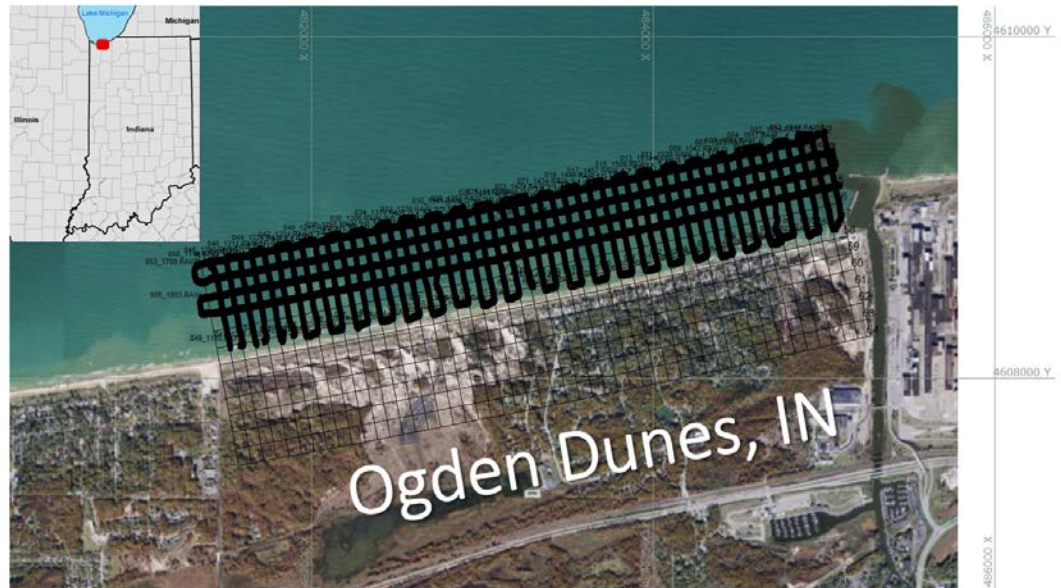




Evaluation of Nearshore Placement in Southern Lake Michigan

Description

The FY 16 funded RSM project, “Improving Effectiveness of Nearshore Placement in Southern Lake Michigan”, included a review of existing nearshore placement practices and the development of strategies for improving the effectiveness beach nourishment as a results of nearshore placement. Additionally, a monitoring plan was created and funding was leveraged through other sources to conduct monitoring of nearshore placement of dredged material at Ogden Dunes for the 2016 dredge cycle. Monitoring included the installation of 2 ADCP devices to monitor wave direction and height as well as topographic and bathymetric surveys prior to and after nearshore placement. The pre-placement survey was conducted in June 2016, dredging was performed in late June and early July 2016. Three post-placement surveys are planned following the completion of sediment placement. This 2017 funded RSM effort is to conduct the work required to evaluate the data collected and to make assessments on the effectiveness of nearshore placement activities.



Location of CELRC RSM initiative.

Issue/Challenge To Address

The southern shoreline of Lake Michigan is highly developed and the presence of harbor structures and shoreline armoring interrupts the natural littoral movement of sand. Remaining undeveloped areas contain valuable natural resources and provide protection for residential structures. To support the shoreline management goals of the State of Illinois, the State of Indiana, the National Park Service, and local communities, USACE regularly places sand dredged from Burns Waterway Harbor, Indiana in the nearshore area along Ogden Dunes. Dredged sediments are primarily coarse sand suitable for beach nourishment, and the material is placed in a designated nearshore area that is directly accessible by the dredging scows. While this method of beneficial use of dredged material is lower cost than placement directly on the beach or closer to the shoreline, the



Evaluation of Nearshore Placement in Southern Lake Michigan

effectiveness of these nearshore placements for shoreline protection and littoral nourishment has not been established. Despite ongoing nearshore placement activities, the shorelines along these reaches continue to erode. The results from this continued study will evaluate the performance of the nearshore placement.

Successes Lessons Learned

Lessons learned will be compiled during the duration of this study.

Expected Products

- Processed data from FY16
- RSM Workshop Presentation
- Technical Report summarizing RSM Study
- Advocacy group article

Stakeholders/Users

The first phase of this project was completed in partnership with Indiana Department of Natural Resources, the National Park Service, and the Town of Ogden Dunes. These stakeholders will continue to be involved with and/or informed of the results of the data analysis as more information about the effectiveness of nearshore placement is developed.

Projected Benefits

Improving the effectiveness of placement activities intended to nourish and protect eroding shoreline will support more sustainable shoreline management practices, protect valuable natural resources, and improve the efficiency of Federal and stakeholder investments. Nearshore placement is used to nourish shorelines across the Great Lakes with varied success. This effort will aid Detroit and Buffalo Districts as well as local entities in developing more effective nearshore placement and monitoring plans.

Leveraging Opportunities

Wave, bathymetric, and topographic survey data was collected offshore at Ogden Dunes by the USGS Illinois Water Science Center. The collection was funded by LRC through the Survey of Northern Boundary Waters Program.

Additionally the National Park Service completed in August 2014 a Shoreline Management Plan/Environmental Impact Statement (SMP/EIS) for the Indiana Dunes National Lakeshore which selected annual nourishment of shoreline west of Burns Waterway Harbor as the management alternative for this reach. The decisions recorded in the SMP/EIS and the National Park Service staff expertise will be used to ensure that alternatives are targeted to meet the identified shoreline management goals.

Points of Contact

David Bucaro, CELRC-PM-PL-F
Chief, Economic Formulation and Analysis Section
312-846-5583
david.f.bucaro@usace.army.mil

Participating Partners

Indiana Department of Natural Resources
Illinois Department of Natural Resources
USGS Indiana and Illinois
Town of Ogden Dunes