

Economic Analysis for Shoreline Management

Question and Answers (Updated 2/5/24)

What was the impetus for this analysis to be completed?

DNREC is authorized by the legislature to administer the shoreline management program. The shoreline management program saw this as a potential research question to inform future funding options given rising costs. Cost-share is only one potential avenue for future funding, and other cost-reduction measures have already been integrated. DNREC will also continue to ask for state funding for nourishment projects.

Will this study affect current nourishment projects?

No, this study will be completed in parallel with currently planned nourishment projects. No changes to the immediate beach nourishment schedule or funding will result from this study.

Who will be expected to pay?

This study by itself will not mandate any changes to the way beach nourishment is paid for in Delaware, but it could serve as the basis for future cost-sharing decisions. The study will examine who benefits from beach nourishment (e.g., state, municipalities, counties, private property owners, out-of-state entities). It is critically important to this study that analyses are performed objectively and consider the full array of benefits of beach nourishment so that an accurate distribution of those benefits can be assessed.

Why is only beach nourishment being examined as an option for sustainable shorelines?

The study focuses on sites where beach nourishment has traditionally been used as a means of shoreline management. The analysis will consider historical and potential future beach nourishment plans and designs at these sites. Some previously designed alternatives do include terminal groins and are being examined as modeling alternatives; however, no new possible layouts or design concepts are being evaluated. Beach nourishment is the favored approach due to its ability to create a recreational beach along with shoreline protection and wildlife habitat. However, this study does not exclude or prevent research into alternatives to beach nourishment (i.e., groin fields, breakwaters, etc.). The study is fundamentally looking at the cost-share ratios for beach nourishment projects, it is not looking at all possible solutions for coastal resilience – though separately there are many [DNREC staff working on all aspects of coastal resilience](#).

How would this cost-share be implemented?

This study does not examine how the cost-share will be implemented. This study will result in a potential cost-share ratio based on benefits. Once developed, the ratio will be presented to DNREC leadership for further discussion on if, how, or when any sort of cost-share ratio might be implemented.

Does the model include contributions coastal towns already provide?

DNREC recognizes that coastal towns and communities play an important role and bear costs associated with maintaining the beaches as a public resource (e.g., paying for lifeguards). Our analysis, however, is focused specifically on understanding the benefits associated with beach nourishment projects, including reducing storm-related risks to infrastructure and providing recreational and economic opportunities. Our objective is to isolate how the beach nourishment projects benefit people and communities, apart from the costs and benefits due to the presence of the beach in general.

Where is data coming from for the model?

There are two distinct components of the analysis: coastal modeling to understand how beach nourishment projects affect coastal processes (e.g., reduced erosion, flooding, wave energy) and economic modeling to understand how those physical changes affect society (e.g., protection of infrastructure, support for recreation, regional economic impacts).

Sources of data for the coastal modeling include: storm data from the National Oceanic and Atmospheric Administration (NOAA) and the U. S. Army Corps of Engineers (USACE), wave energy from the Delaware Bay Coastal Flood Model, wind data from the National Weather Service and National Bouy Data Center, water level data from NOAA and Delaware Coastal Viewer, shoreline change data from the U.S. Geological Survey (USGS) and the University of Delaware, and topography/bathymetry data from a Delaware digital elevation model developed by USGS. The coastal model ultimately outputs data such as, but not limited to, shoreline positions, extent and depth of flooding, wave energy, and performance service life of the beach nourishment project alternatives.

Sources of data for the economic modeling include: depth-damage functions developed by USACE to assess infrastructure damage, information about property characteristics and values from the USACE National Structure Inventory, Kent and Sussex County tax records, and the Zillow Home Value Index; information about other infrastructure from US Census TIGER/Line Roads and USGS National Structures Dataset, and regional survey data about recreational usage.

In conjunction with the modeling datasets, previous feasibility studies and economic analyses completed on the local level are used as a stimulus to inform and enhance the datasets when applicable.

How does the model incorporate coastal resiliency and climate change?

We know that climate change is going to make the challenges of shoreline management more difficult and more expensive to address. The model includes issues related to coastal resiliency and climate change to the extent that they interact with beach nourishment over the 30-year time horizon of the analysis. For example, the coastal modeling will include the projected sea level rise increases that may be expected to occur over the 30-year time horizon. Many issues associated with climate resiliency (e.g., back bay flooding) are not generally affected by beach nourishment and will not be examined in this study.

How would this effect current easements and public access to beaches?

As funding is still (and will continue to be) provided by federal and state sources, public access will still be required on all beaches nourished with public funding. If a cost-share is recommended for implementation, easements and other considerations will be examined for any potential conflicts.

How does this affect federal and non-federal cost shares?

This study does not affect federal cost shares, it is only examining non-federal cost shares (i.e., currently the state share). Delaware is not unique in considering local cost share for beach nourishment projects. For example, New Jersey cost shares the non-federal portion 75% state and 25% local, and Maryland's non-federal costs are shared 50% state, 25% county, 25% city.

When will the study be completed?

The Economic Analysis for Shoreline Management study is scheduled to be completed by fall 2024.

Is this project connected to offshore wind projects?

No. Further, offshore wind is not expected to substantially affect beach nourishment or mitigate wave energy reaching Delaware beaches.

Is DNREC trying to get out of the beach nourishment business?

No. By undertaking this study, DNREC is evaluating one option that would help ensure long-term sustainability of its beach nourishment work and broader shoreline management work.