WELCOME

to the

Community Information Session for the

Indian River Inlet and Beach Nourishment Project

Presented by

Delaware Department of Natural Resources and Environmental Control

Joined by

Delaware Department of Transportation

We invite you to learn more about the Indian River Inlet and Beach Nourishment project. The session includes a brief history of the location and both short-term and long-term efforts to replenish the beach and protect critical infrastructure.

The History of the Indian River Inlet and Beach Nourishment Challenges

Before 1928, the Indian River Inlet as known today was a natural, ever-changing waterway that shifted north and south due to tides and storms.

In 1928, the US. Army Corps of Engineers installed jetties to stabilize the inlet, significantly changing the movement of sand.

- With the construction of the inlet, the natural movement of sand began to change. Sand naturally migrates north with the tides. The jetties, which are perpendicular to the shoreline, block this movement.

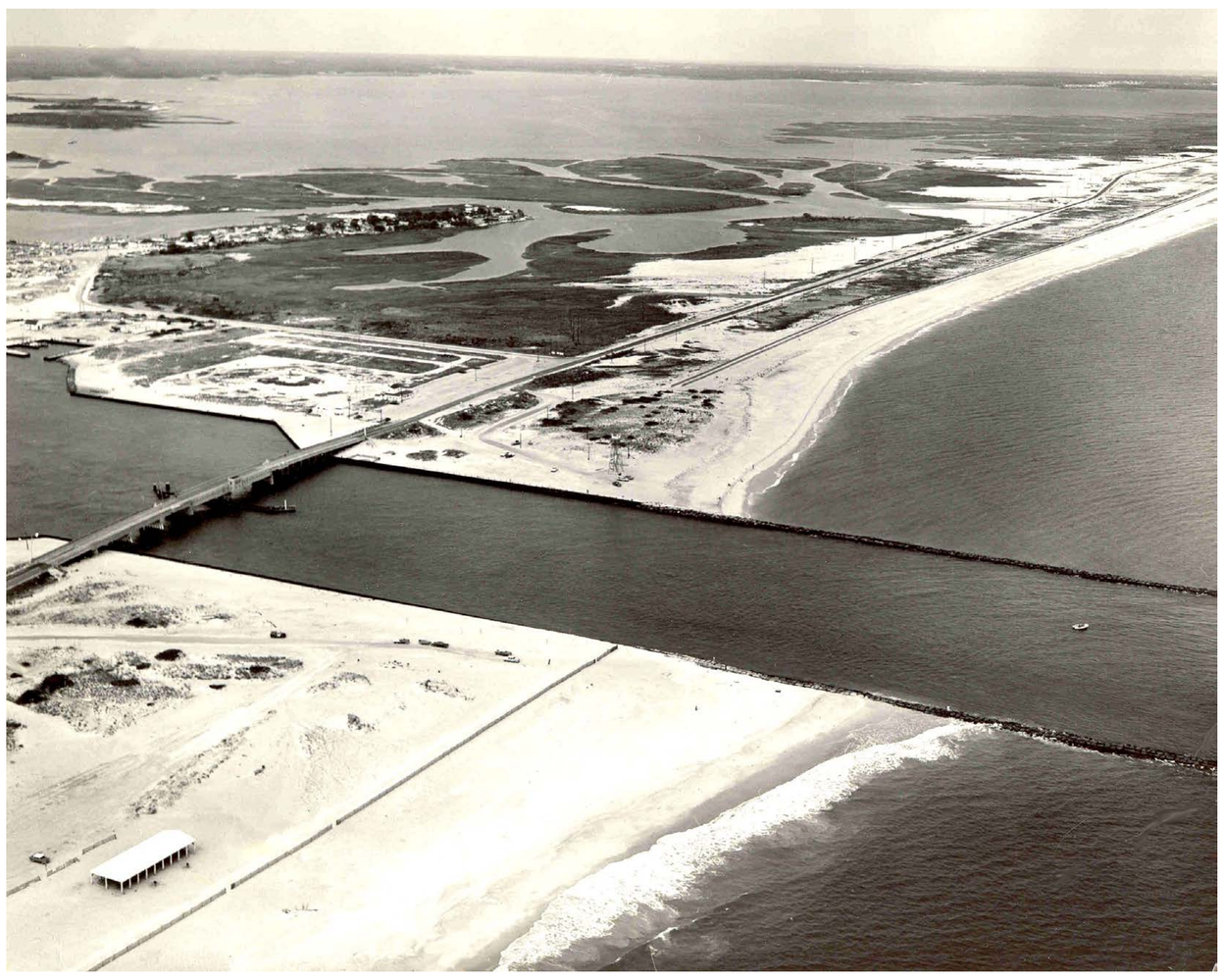


Image from 1962

- As a result, sand accumulates on the south side, leaving the north side (known as the “down drift” side) to become sand deprived. Currents along the outside of the north jetty sweep sand into the inlet, depositing it in the flood shoals.

The History of the Indian River Inlet and Beach Nourishment Challenges

Since 1957, there have been approximately 12 nourishment projects at this location.

Since 1990, the Department has used the sand bypass system to help replenish sand. However, it only moves about 100,000 cubic yards (cy) of sand a year, which hasn't been enough to solve the issue. Additionally, the total cubic yards are dependent on sand availability. There were several years that the lack of sand led to the bypass pumping far less.

In 2013, the bypass operations had to stop pumping while the 500,000 cy nourishment project by the USACE was completed. For the next six years, the bypass operations were limited due to a lack of sand on the south side of the inlet. Over the last several years, the bypass has been inoperable as it has been undergoing a conversion from diesel to electric power. This pause was necessary due to continuous breakdowns as a result of the diesel motor not being meant for this environment.

Sand bypass pipe that transports material from the pump on the southside of the inlet to the North Inlet Beach

Past Nourishment Projects on the Delaware Bay and Atlantic Coast

Nourishment Projects (2009-2023)

Delaware Bay: DNREC conducted **34 nourishment projects.**

Atlantic Coast: DNREC conducted **27 nourishment projects.**

Bay Beaches:

- **Where:** Bowers, Broadkill, Cape Shores, Kitts Hummock, Lewes, Mispillion Inlet, Pickering, Slaughter Beach and South Bowers
- **Total:** 2+ million cubic yards of sand.
- **Cost:** More than $25 million. Some of these projects are cost shared with the State and the USACE.

Atlantic Coast Beaches:

- **Where:** Rehoboth, Dewey, Bethany, South Bethany and Fenwick.
- **Total:** 10+ million cubic yards of sand.
- **Cost:** More than $145 million. Many of these projects are cost shared between the State and the USACE with the State's contribution of more than $40 million.

With exception of the replenishment associated with storms like Sandy, the North Inlet is not one that is included in the USACE beach replenishment work that is done to this point because of a historic cost/benefit analysis that they use. DNREC was planning for a Fall 2025 nourishment project at the North Inlet that has since been expedited due to current conditions.

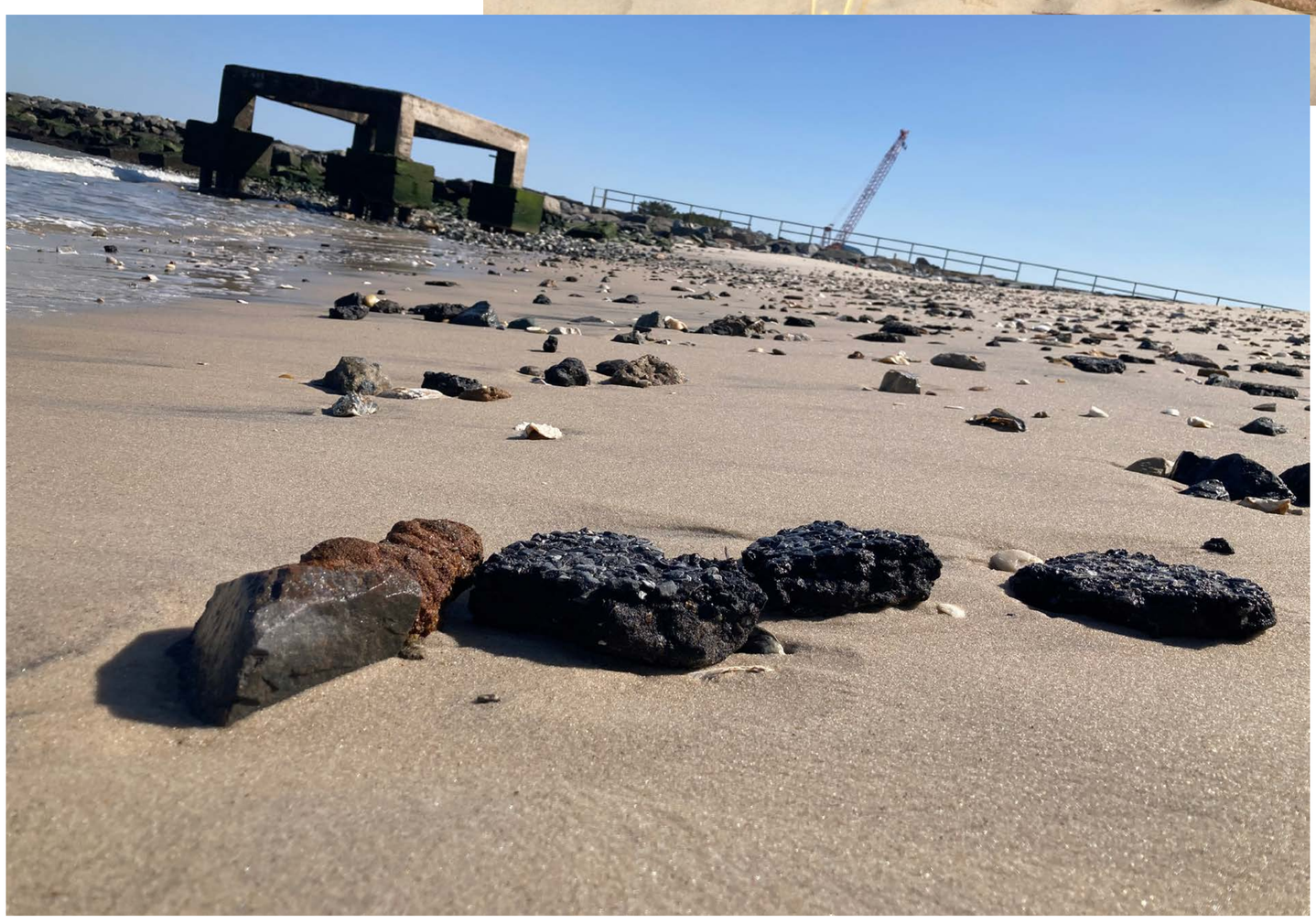
Current Challenges at North Indian River Inlet

Reinforcement Efforts Since 2019:

- **Since 2019, we have transported sand from inland sources to reinforce the most vulnerable areas. In fact, the Department has spent more than $2 million since August alone.**

- **Significant work was completed in March before the first storm disrupted the area later that month and again in August.**

- **Our team also planted beach grass and removed more than 500 tons of debris since June 2023.**



Current Challenges at North Indian River Inlet

March 2024 Coastal Storm:

A coastal storm in March of 2024 caused the dune to breach creating an emergency at the North Indian River inlet. Though the storm was off the coast, the surges and wave energy associated with the storm led to severe beach erosion and dune breach.

- DNREC and DelDOT responded promptly to the situation and mobilized on site within the hour with equipment and back up personnel. From late March to early April, the team worked the breach that created hazardous conditions, exposed buried debris and brought additional debris to shore. This debris was in addition to the large amounts that washed up into the area in the weeks preceding this storm.

Hurricane Ernesto – August 18, 2024:

Hurricane Ernesto, combined with a full moon and high tide, caused powerful winds and waves to breach the dune and force the closure of Route 1.

- It was the second time in six months the dune required emergency repair and fortification.
- DNREC worked tirelessly for the next 30 hours working around-the-clock alongside Department of Transportation staff to clear the road, raise the dune and fortify it for the first time with large rock called rip rap.

Ongoing Risk: Even with the continued efforts, the area is at risk of a breach with every storm surge or higher than usual high tide.

DNREC/DelDOT Current Efforts

DNREC and DelDOT have been working tirelessly on the North Inlet Beach area to monitor high tides for breaches, continuously work to rebuild the dunes, add sand to the beach areas most at risk and remove debris that is becoming exposed or deposited with the tidal surges.

Since the August storms:

- DNREC and DelDOT have been working **six days a week** with staff and contracted workers.
- DelDOT has worked most night shifts if there are concerns of a breach.

Actions Taken:

- Moved and spread nearly **54,000 cubic yards.**
- Brought in **100 truckloads of R5-R6 stone** in to secure the breached area.
- Installed rip rap extending approximately **300 linear feet.**
- Removed more than **500 tons debris** since June 2023, over 50 standard dump truck loads.

DNREC/DelDOT Short-Term Plans

Short-Term Until Dredging Begins:

- The area of concern will continue to be at risk of a breach on abnormally high tides, strong winds or storm events.
- To reduce risk, DNREC issued a Letter of Approval to DelDOT through the Division of Watershed Stewardship for the addition of sheet pile in the area.
- The 665 linear feet of 30-foot-tall sheet pile is proposed to be driven adjacent to Route 1. The elevation of the sheet pile will range from even with the shoulder of the road or up to three feet higher.
- The sheet pile will tie into the existing sheet pile that is in place and have rip rap placed to cap off the end.

Long-Term Plan Overview

Emergency Sand Replenishment:

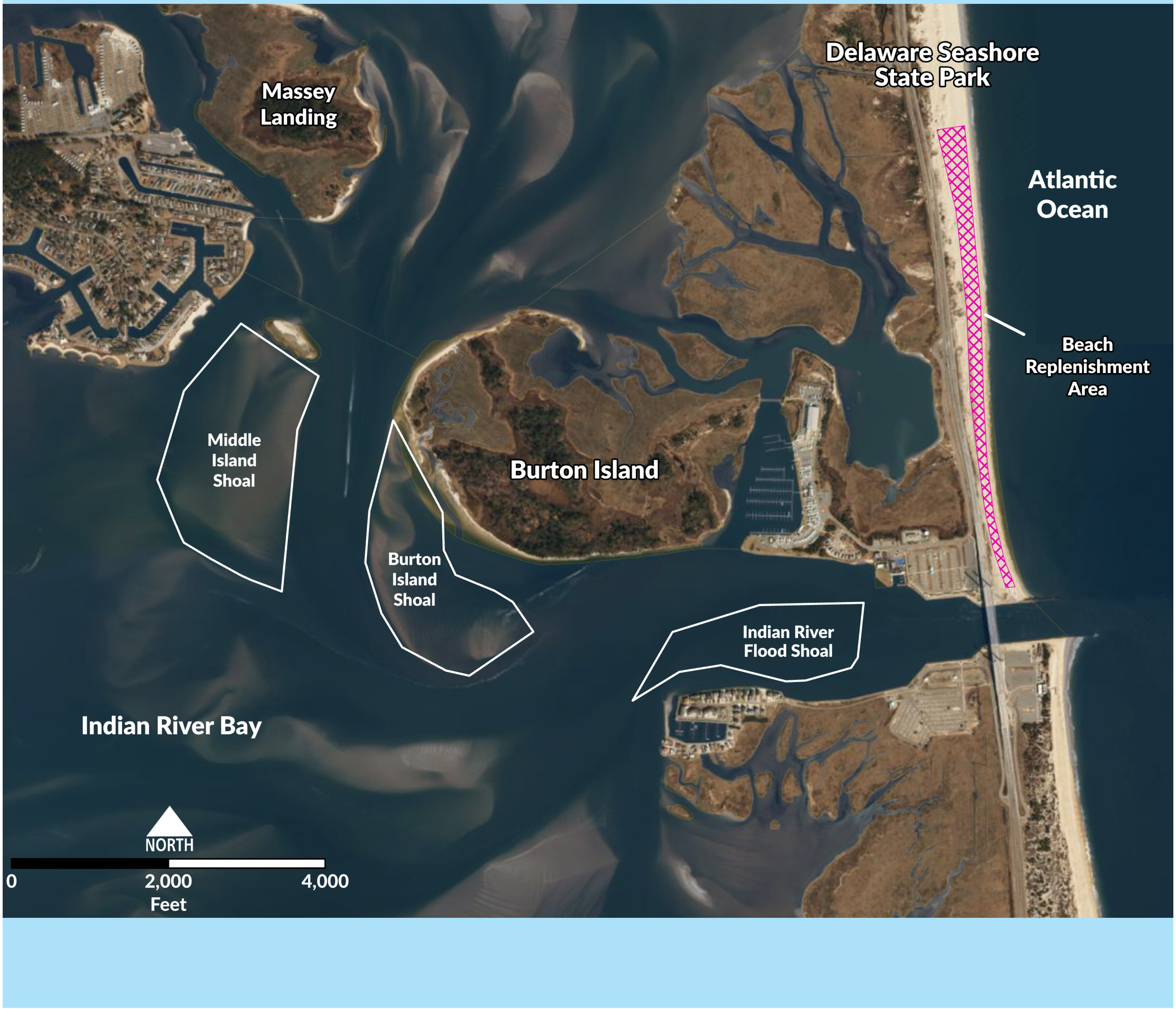
- DNREC will perform an emergency sand replenishment project starting late this fall to protect the beach and Delaware Route 1 during the winter storm season.

- Originally planned for Fall 2025, the project has been expedited due to the increasing strength and frequency of storms and tidal surges.
- The engineer estimate to duplicate the 2013 nourishment projects dredging up to **800,000 cubic yards** of material to fully build back the North Inlet Beach.
- The amount of material moved this winter will be dependent on permit approval, the ability of the dredging companies, weather conditions and federal time of year restrictions to operate in the water/area.

Future Plans:

DNREC will continue to work with the USACE to determine a cycle of beach replenishments moving forward.

Indian River Inlet and Beach Nourishment Project Area



Indian River Dredging and Beneficial Use- Emergency Project Details

DNREC is currently working with two dredging companies to determine the best path forward based off availability and workload capacity.

Projected Dredging Operation:

- Indian River Flood Shoal
- Middle Island Shoal
- Burton Island Shoal

Time of Year Restriction:

DNREC is permitted to dredge from October 1 – Feb 28 but not outside that window due to state and federal Time Of Year Restrictions.

- The Time Of Year Restrictions for fisheries include summer flounder and anadromous species that spawn in the Indian River and other Inland Bay tributaries, which include striped bass and river herring. This is done in consultation with NOAA Fisheries, USFWS and USACE.
- The Time Of Year Restrictions for wildlife includes beach nesting birds. This is done in consultation with the USFWS.
- The Department will evaluate the potential of a waiver to extend the Time of Year Restriction based on the project impact. Waivers would need approval by both DNREC and federal agencies.

Estimated Dredge Material Used:

Dependent on availability of the dredging company, availability of source material, weather conditions and the Time of Year Restriction, DNREC intends to move anywhere from 300,000 to 500,000 cubic yards of material this winter. Any additional material placement would occur as a second phase to the project.

Permitting Overview

Emergency Sand Replenishment Project:

- Starting late this fall, DNREC will perform an emergency sand replenishment project to protect the beach and Delaware Route 1 during the winter storm season.
- The project will potentially dredge from the Indian River Flood Shoal, Middle Island Shoal and Burton Island Shoal near Masseys Ditch.

Permitting Process for Indian River Flood Shoal Dredging

US Army Corps of Engineers:

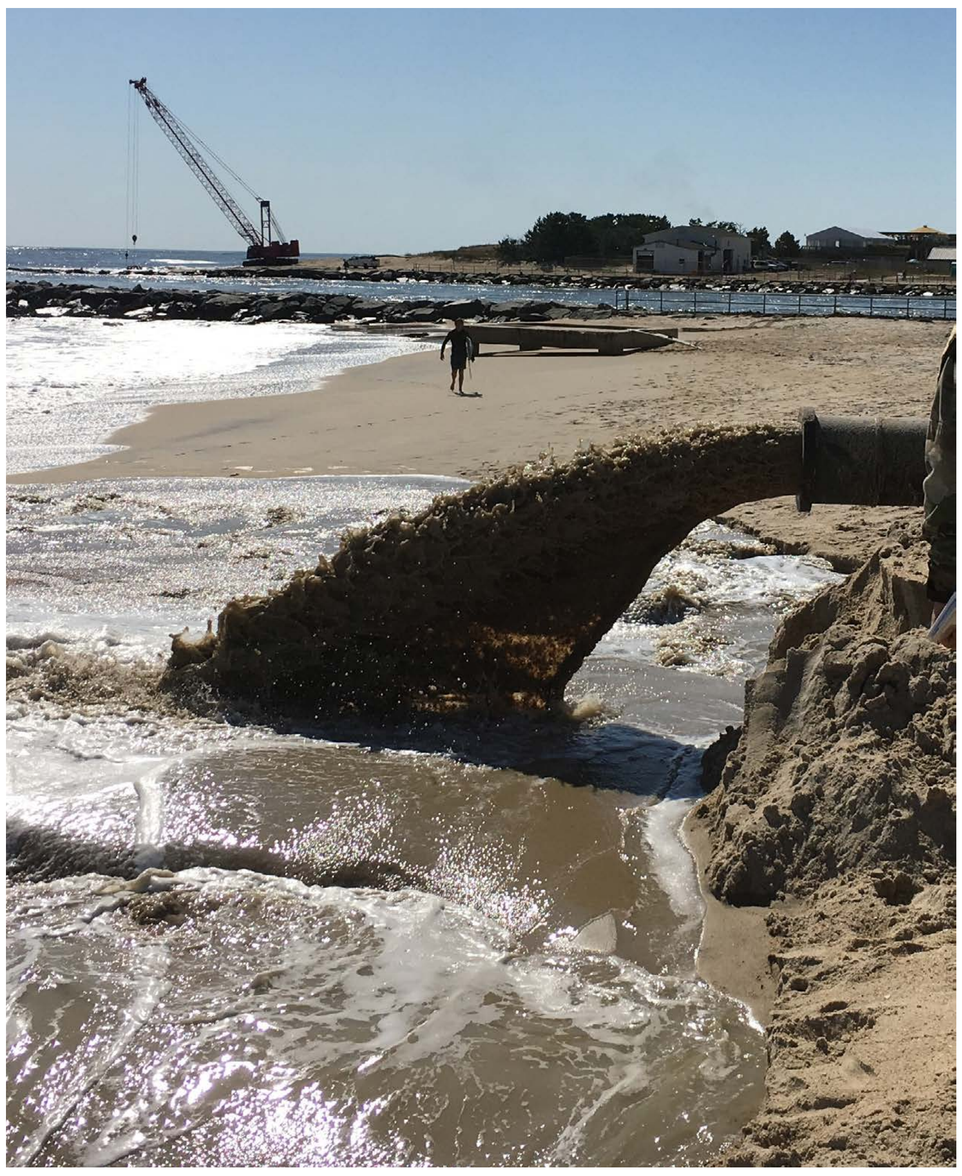
- Special (Emergency) Permit Processing Procedures (Approved August 23, 2024)
- Clean Water Act Section 404 Individual Permit (Pending)
  - Permit cannot be issued without the 401 Water Quality Certification AND the CZM Federal Consistency Approvals listed below.
  - 45-days needed for approval once permit application package is submitted, includes a public comment period
  - Reasonable Period of Time- November 10, 2024
- Section 408 Review (Pending)
  - Submitted and approved concurrently with the Individual Permit

DNREC:

- Emergency Waiver of the Subaqueous Lands Act (Approved Aug 19, 2024)
- Clean Water Act Section 401 Water Quality Certification (Pending)
  - 3-week public comment period (Posted 9/18 to 10/8)
- Coastal Zone Management (CZM Act Federal Consistency Review (Pending)
  - 30-day public comment period (posted 9/11 to 10/11)

Sand Bypass System

- DNREC has been working with the U.S. Army Corps of Engineers on reviving the sand bypass system that provides sand to the beach at the northside of the Indian River Inlet.
- The sand bypass was routinely inoperable due to mechanical breakdowns leading to the decision to update the motor.
- A new system had to be engineered and bid out following state procurement guidelines.



- Funding challenges for the replacement prolonged the engine replacement process.
- The system has been inoperable for the last several years as it has been undergoing a conversion from diesel to a more reliable electric powered motor.
- Delays have occurred due to supply chain issues on specialty parts (designed to withstand saltwater conditions) and changes to the engineering and design.
- The current schedule calls for a return to service in December but the sand bypass will not be operating until after the nourishment project is complete in early spring.

Future Plans:

- Once up and running, the Department hopes to pump up to 100,000 cubic yards annually to help off-set the continuous loss of sand on the North Inlet Beach. Annual cubic yards pumped will be dependent on available sand.
- The use of the sand bypass is not a solution in itself for sand loss.