Assateague Island National Seashore North End Restoration Project Datasets and Contacts

Monitoring Summary

In order to evaluate the effectiveness of the North End Restoration Project, and also to examine any changing environmental conditions, there are a variety of monitoring projects currently underway coordinated by Assateague Island National Seashore (ASIS) and the US Army Corps of Engineers (USACE). See the GIS Datasets and Real-time Weather and Tide Data sections for more detailed information on data format, time of collection, and availability.

The ASIS monitoring is composed of two main types of resources: geologic, which documents where the island is and was, and biologic, which focuses on island habitat and the current and past status of important wildlife species on the island.

1) Geologic Monitoring
    a. Shoreline surveys - collected four times a year (once a season) by driving a GPS (global positioning system) along the wet/dry line left by a previous high tide to determine horizontal changes in shoreline location.
    b. Cross-island profiles - using a total station, elevations are collected at a break in slope along island transects, at every half-kilometer on the North End. These provide a measurement of vertical changes in back-barrier, dune, and beach elevations.
    c. Lidar (LIght Detection And Ranging) elevation surveys - collected annually. Lidar is a form of active remote sensing, and is a system installed on an aircraft that projects light lasers, which reflect off the earth surface, and each reflection point is given a precise X,Y, and Z coordinate. Although not as accurate as cross-island profiles, lidar provides seamless beach and dune topography.
2) Biologic Monitoring
    a. Piping plover reproductive success - information describing nest failures/mortality in the population utilizing northern Assateague Island for comparison to historic trends and identifies potential project-related changes.
    b. Piping plover distribution – distribution and abundance of plovers along northern Assateague Island during the breeding season for comparison to historic trends and for identification of potential project-related changes.
    c. Vegetation cover – landscape level changes in the distribution and abundance of primary vegetation cover alliances through northern Assateague Island for comparison to historic data and to identify potential project-related changes. Data will also contribute towards characterizing plover habitat through correlation with topographic and plover nest site and foraging habitat data.
    d. Fox distribution – number, location, and physical characteristics of fox den sites within the project area to assess potential project-related changes in fox habitat.

The monitoring performed by USACE staff further examines the geologic formations and process on northern Assateague Island. Data collected by the Corps include:

a. Surveys of areas to be mined – the areas to be mined, or dredged, for sediment to be placed on the north end of Assateague Island include the updrift fillet and the rest of the ebb tidal delta (or ebb shoal), flood tidal delta (shoal), and the navigation channels in the bay. Multi-beam sonar will be used to collect bathymetry data through these areas before and after each dredging event.
b. Hydrographic surveys of the inlet system – planned to be collected on an annual basis.
c. Profile surveys – using a sea-sled, beach profile surveys will be collected annually at half-kilometer intervals along the North End of Assateague Island. These profiles begin in the middle of the island, and extend to a point seaward of the depth of closure (point at which waves under average conditions do not move sediment along the ocean floor).
d. Wave, water, and current measurements – using existing directional wave gauges, continuous wave and water level data will be collected to assess the severity of storms impacting the area.
e. Aerial photography – provides a variety of information including a visual record of shoreline position, variations in beach formations, conditions of the beach and berm, and terrestrial beach width. Photographs are collected at various intervals dating back to the 1960's.
f. Sediment sampling – collected to document sediment characteristics of the dredge areas and adjacent beaches. Dredge samples are collected during dredging, and beach samples are collected during annual profiles.

Real-time Weather and Tide Data

USACE Off-Shore Wave Gauge

Contains wave height, period, direction, and water depth, collected every hour.

Assateague Island National Seashore Remote Automatic Weather Station (RAWS) Data

Weather conditions recorded on Assateague Island. The exact location of the station is given in the station metadata within this link.

NOAA Offshore Buoy 44009

Contains a variety of environmental/weather data (water temperature, wind direction and speed, atmospheric pressure, wave height and period)

NOAA Tide Gauges - Ocean City Inlet and Lewes, DE

Current tide and water level information.

NOAA Tide and Current Information

Click on the "New Zoomable Data Map" and you can then zoom into the Delmarva Peninsula. Choosing what 'Data Type' you are interested in on the left allows you to then access NOAA tide stations, tide predictions, historic tide data, and a variety of other tidal and meteorological data.

GIS Datasets

All GIS datasets will eventually be available for download, most through the National Park Service Natural Resources (NPS NR) Data Store. Please check the progress field in the table below to see if a dataset is currently available there, or is in a completed format. If you have any questions, or requests for data that are not available for download, contact Assateague Island National Seashore (ASIS). To see all ASIS metadata available on the NR Data Store, click here, and run a search under "All Records" (for search type) and "Assateague Island NS" (for park unit). The majority of these datasets were collected by ASIS and USACE. Lidar data was collected through a partnership between ASIS, the NPS Northeast Coastal & Barrier Network, USGS Center for Coastal and Watershed Studies, and NASA Wallops Island Flight Facility.

Dataset Title	Data Description	Dates	Progress
ASIS Shoreline Surveys	GPS is driven along the wet-dry line left by previous high tide. Stored as ESRI shapefiles.	1994-Present; usually collected each season (four times a year).	Currently stored as separate shapefiles, these will soon be combined into a shoreline database, and served on the NPS Data Store. Contact ASIS for current data.
ASIS Elevation Profiles	Survey-grade elevations collected at breaks in slope along cross-island transects, positioned at every kilometer on the North End, and at every 2 km south to the MD/VA state line. Stored as Microsoft Access database and ESRI Shapefiles.	1993-Present, collected twice a year.	Available through contacting ASIS.

Dataset Title	Data Description	Dates	Progress
USACE Elevation Profiles	Elevations collected along transects that run perpendicular to the general island direction. These profiles begin in the middle of the island and extend into the nearshore environment.	2003 - Present, collected once a year.	Collected by USACE, these data are also stored in ESRI shapefile format by ASIS. Contact ASIS for distribution information.
Sediment Samples	Sediment samples are collected during the annual USACE profiles.	2003 - Present, collected once a year.	Currently stored by USACE. Contact ASIS for distribution information and further details.
Lidar Topography	Lidar is a form of radar that uses light lasers to collect high-density elevation measurements (see here for a more detailed explanation of lidar by NOAA CSC). Lidar data at ASIS are stored as ESRI grids, and provide seamless topography over the entire beach, and most of Assateague Island. Since 2002, a multiple return survey instrument (EAARL) has been used to collect both a first return, and a bare earth survey.	1998 - Present, collected about once a year.	Grid surveys and some raw data are available on CD or DVD through contacting ASIS. Detailed metadata is also available on the NPS NR Data Store.

Dataset Title	Data Description	Dates	Progress
Aerial Photography	Aerial photography is one of the most useful datasets when examining changes in barrier island morphology. ASIS has a wide variety of these photographs, spanning from hard copy photos taken during the 1960's, up to true color digital, georeferenced photos collected in October, 2003.	1960's - Present, collected under various conditions.	Specific information on available photos, as well as the photos themselves, are available through contacting ASIS. Metadata and detailed information on all georeferenced images at ASIS is available on the NPS NR Data Store (search for 'All Records' under 'Search Type', 'Assateague Island NS' under 'NPS Unit', and 'Digital Orthophoto' under 'Category.'
Borrow and Placement Locations for Sediment Bypassing	Point locations of the borrow and placement locations. Collected by the USACE dredge ship Currituck during dredging.	2004 - Present, bypassing occurs twice a year.	Stored in ESRI shapefile format at ASIS. Contact ASIS for distribution information and further details.
Bathymetry	Grid datasets portraying bathymetry surveys collected by USACE to examine effects of sediment dredging.	Jan. 2003, Jan. 2004, Apr. 2004, and Sept. 2004.	Stored in ESRI grid format at ASIS. This data is currently not available to the public. Contact ASIS for further details.

Dataset Title	Data Description	Dates	Progress
Berm Notch Elevation Surveys	Elevation monitoring surveys collected by a GPS total station, over berm notches. Surveys collected once a month, except for piping plover season, which is May-Aug.	Jan. 2005 - Feb 2006	Available for download on the NR Data Store.
ASIS Biological Data	Datasets and reports containing information on Federal and State threatened and endangered plant and animal species as well as vegetation monitoring data designed to empirically quantify the effects of the project on Assateague Island's ecology and evolution.	1994 - Present	Some data is available on the NPS NR Data Store. Detailed information and datasets are also available through contacting ASIS.

Contacts

Name	Agency	Position	Email	Comments
Arthur Rodriguez	Assateague Island National Seashore (ASIS)	GIS Specialist	arty_rodriguez@nps.gov	Data management and GIS operations at ASIS. Contact Arthur for specific data requests or general questions about this document, or to get in touch with other researchers at ASIS.
Courtney Schupp	ASIS	Geologist	courtney_schupp@nps.gov	Monitoring of geological processes and formations on ASIS, point of contact for questions and comments about the North End Restoration Project.
Gregory Bass	US Army Corps of Engineers (USACE)		Gregory.P.Bass@nab02.usace.army.mil	
Robert Blama	USACE		Robert.N.Blama@nab02.usace.army.mil	
Woody Francis	USACE		WOODY.FRANCIS@nab02.usace.army.mil	
Amy Guise	USACE		Amy.M.Guise@nab02.usace.army.mil	

Scott Johnson	USACE		Scott.Johnson@nab02.usace.army.mil	
Nicholas Kraus	USACE		Nicholas.C.Kraus@erdc.usace.army.mil	
Jeffrey McKee	USACE		Jeffrey.A.McKee@nab02.usace.army.mil	
James Snyder	USACE		James.R.Snyder@nab02.usace.army.mil	
Christopher Spaur	USACE		Christopher.C.Spaur@nab02.usace.army.mil	Restoration plan formulation.
CJ Winand	USACE		C.J.Winand@nab02.usace.army.mil	
William Grosskopf	Offshore & Coastal Technologies, Inc.		wgrosskopf@offshorecoastal.com	
Dave Brinker	Maryland Department of Natural Resources (DNR)		dbrinker@dnr.state.md.us	

Jordan Loran	DNR		JLORAN@dnr.state.md.us	
Scott Smith	DNR		sasmith@dnr.state.md.us	
Darlene Wells	DNR		DWells@dnr.state.md.us	
Cathy Wazniak	DNR		CWAZNIAK@dnr.state.md.us	
Andy Moser	Fish and Wildlife Service (FWS)		andy_moser@fws.gov	
Sandy Coyman	Worcester County		scoyman@co.worcester.md.us	
Terrance McGean	Town of Ocean City		tmcgean@ococean.com	
Barry Drucker	Minerals Management Service (MMS)		barry.drucker@mms.gov	
Will Waskes	MMS		will.waskes@mms.gov	