

## **Avian Work Group Meeting #3**

**Tuesday, February 10th; 1:00pm – 2:30pm**

---

### **Materials:**

1. Ocean Planning Marine Life Characterization: Proposed Study Areas (pdf)
2. MDAT Avian Species Draft Work Plan (Word doc)
3. “Environmental Sensitivity Index (ESI) Mapping” 1-pager (pdf)
4. “ESI Maps Updated After Sandy Damage” 1-pager (pdf)

**Call in:** 888-748-4618 **Code:** 1126217

**GoTo Meeting Webinar Link:** <https://global.gotomeeting.com/join/848753301>

**GoTo Meeting ID:** 848-753-301

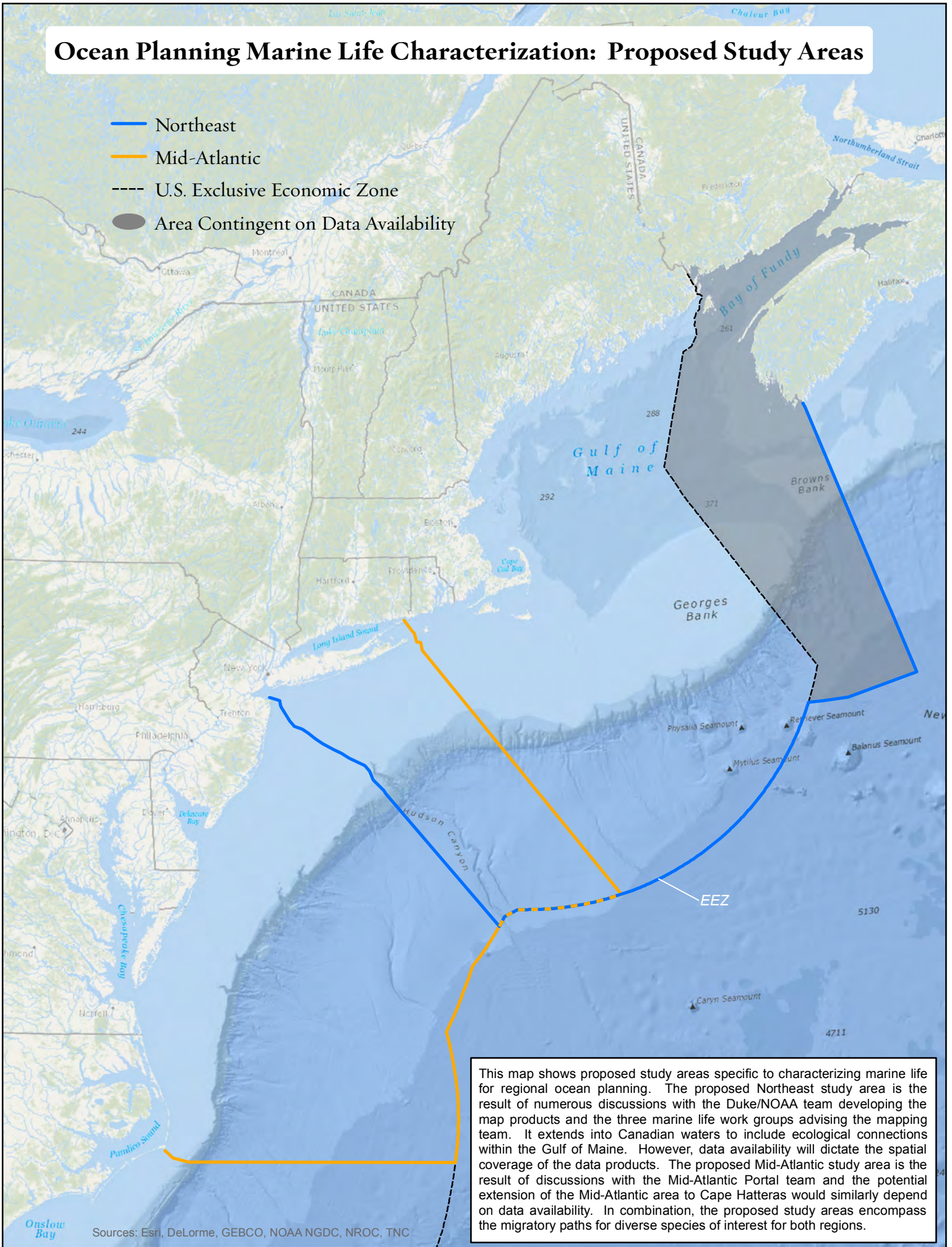
---

### **Agenda:**

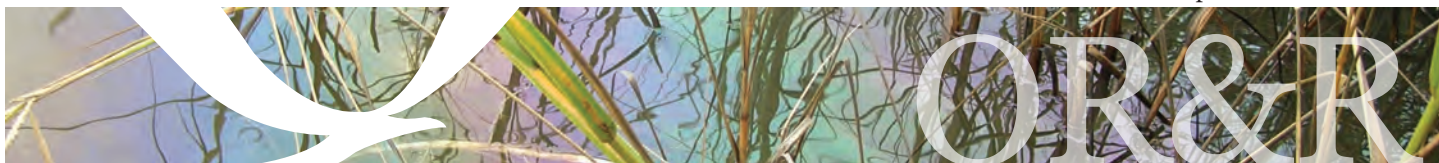
- I. Welcome, introductions, etc. (Nick Napoli and Emily Shumchenia, NROC)**
  - Roll call
  - Process for summarizing WG feedback to MDAT over past few months
  - Process for following up after this call
- II. Study Area (Nick Napoli, NROC)**
  - Work group feedback
  - Discussions with Mid-Atlantic
  - Discussion/questions
- III. MDAT Draft Workplan (Brian Kinlan, NOAA)**
- IV. Update on Environmental Sensitivity Index (ESI) products (Dan Dorfman, NOAA)**
- V. Other (Brian Kinlan, NOAA)**
- VI. Summary and Next Steps**

# Ocean Planning Marine Life Characterization: Proposed Study Areas

- Northeast
- Mid-Atlantic
- - - U.S. Exclusive Economic Zone
- Area Contingent on Data Availability



This map shows proposed study areas specific to characterizing marine life for regional ocean planning. The proposed Northeast study area is the result of numerous discussions with the Duke/NOAA team developing the map products and the three marine life work groups advising the mapping team. It extends into Canadian waters to include ecological connections within the Gulf of Maine. However, data availability will dictate the spatial coverage of the data products. The proposed Mid-Atlantic study area is the result of discussions with the Mid-Atlantic Portal team and the potential extension of the Mid-Atlantic area to Cape Hatteras would similarly depend on data availability. In combination, the proposed study areas encompass the migratory paths for diverse species of interest for both regions.



## Environmental Sensitivity Index Mapping

The most widely used approach to sensitive environment mapping in the United States is NOAA's Environmental Sensitivity Index (ESI). This approach systematically compiles information in standard formats for coastal shoreline sensitivity, biological resources, and human-use resources. ESI maps are useful for identifying sensitive resources before a spill occurs so that protection priorities can be established and cleanup strategies designed in advance. Using ESIs in spill response reduces environmental consequences of the spill and cleanup efforts.

Sensitive environment mapping is an integral component of overall spill planning. Sensitivity maps are not an end in themselves; rather, they are a starting point for prevention, planning, and response actions. The resource definitions in NOAA's sensitivity maps provide guidance for local organizations developing spill plans. Manuals such as the Mechanical Protection Guidelines, the Shoreline Assessment Manual, and the Shoreline Assessment Job Aid are examples where the ESI definitions are the basis for effective, site-specific planning.



In addition to the sensitivity-classified shoreline, ESI data use polygons, lines, and points to depict locations of oil-sensitive animals and their habitats, as well as the location of human-use areas that are vulnerable to oil spills or that could be used as access points for oil spill cleanup.



ESI shoreline rank 7: Exposed Tidal Flats (Massachusetts)

### ESI Data Formats

Previously published as large, laminated maps bound into atlases, ESI maps are now produced in a number of electronic formats:

**PDF** (Portable Document Format): The PDF files provide a static view of the region. The area mapped is divided into an "atlas" of maps that can be viewed and printed. Each map depicts the ESI-ranked shoreline, and summarizes the biological and human-use resources that occur in the area. As with the more "traditional" laminated atlas product, the ESI PDFs include introductory pages that describe the species mapped, data sources, anecdotal information about the region, as well as representative photos, descriptions, and response considerations for each shoreline type mapped.

**Geodatabase** format with an ArcMap map document (.mxd) and layer files: This is the preferred GIS file format. The .mxd displays the standard ESI symbology, and includes all the data tables with links established. Several **ESI Tools** are available to help you work with the geodatabase files.

**Threatened and Endangered Species (T&E) Geodatabase:** The T&E geodatabase is a subset of the ESI data that focuses on species and habitats that were listed as threatened or endangered at the time of the atlas publication. A map document (.mxd) and layer files are also included.

**Shapefiles** and data tables (.dbf)

**ArcExport files (.e00):** The ArcExport files include the Arc geographic coverages, along with the relational and desktop data tables in ArcInfo and text formats.

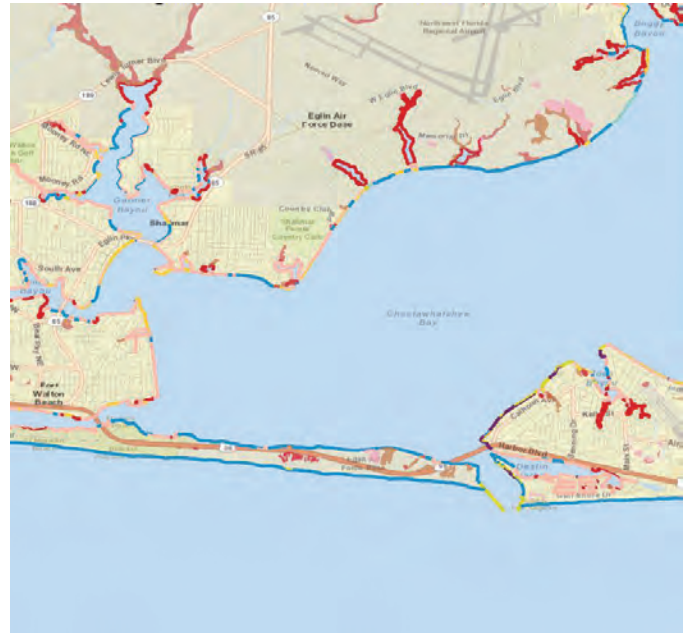
## How to Get ESI Data

From the NOAA Office of Response and Restoration website, you can download free ESI maps and data in a variety of formats: [http://response.restoration.noaa.gov/esi\\_download](http://response.restoration.noaa.gov/esi_download).

If you are unable to download the data, please contact us. If necessary, we can produce a CD/DVD data product.

In addition, NOAA now offers several online options (currently in beta version) that allow you to explore and query ESI mapping data. The project to bring ESIs online is comprised of three distinct services:

1. **ESI Data Viewer:** The ESI Data Viewer allows you to pick your region of interest (divided up by ESI atlas boundaries), turn on individual ESI layers to query, and view and download individual ESI PDF maps.
2. **ESI Threatened and Endangered Species:** A second product in this effort is an online viewing option for the T&E data layers.
3. **National ESI Shoreline:** In this third product, the shorelines from approximately 45 ESI atlases were merged to create a seamless, attributed shoreline.



Sample ESI map, showing color-coded shoreline types.

## Keeping up with Changing Shorelines

The coastal environment is constantly changing and ESI maps need to be updated periodically to reflect the changes caused by human use, erosion, climate change, and coastal storms, such as post-tropical cyclone Sandy in 2012. Updated maps will encompass new technology and consider additional data content to increase their utility in other disaster situations.

To support this goal, the ESI maps being developed after Sandy's destructive impacts will contain some additional data elements and layers. These may include such things as flood inundation and storm surge areas, environmental monitoring stations, tide stations, and offshore renewable energy sites. The end products will provide emergency planners and responders with a better tool for protecting the northeast and mid-Atlantic shoreline when the next coastal disaster occurs.

For additional information about ESI data go to: <http://response.restoration.noaa.gov/esi>

or write:  
orr.esi@noaa.gov

Find more technical insights into OR&R's work with ESI maps and data on the NOAA ESI blog: <http://noaaesi.wordpress.com>.

BIOLOGICAL RESOURCES																				
Birds																				
Subelement	Species	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	NESTING	MIGRATING	MOLTING	
Diving	Brown pelican	C	-		X	X	X	X	X	X	X	X	X	X	X	X				
	Common loon				X	X	X	X	X	X	X	X	X	X	X	X				
	Double-crested cormorant			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X				
Gull/Tern	Black skimmer	C	-						X	X	X	X	X	X	X	X	May-Sep			
	Black tern			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Common tern			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Forster's tern			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Gull-billed tern			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X				
	Herring gull			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Laughing gull			-	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug			
	Least tern			-	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug			
Pelagic	Ring-billed gull			-	X	X	X	X	X	X	X	X	X	X	X	X				
	Royal tern			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
Raptor	Sandwich tern			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
Shorebird	Northern gannet			-	X	X	X	X	X	X	X	X	X	X	X	X				
	Bald eagle			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Jun			
	Osprey			-	X	X	X	X	X	X	X	X	X	X	X	X				
	Wading	Black-bellied plover			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Dunlin			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Least sandpiper			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Lesser yellowlegs			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X			
		Piping plover			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Red knot			3	X	X	X	X	X	X	X	X	X	X	X	X			
		Ruddy turnstone			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Sanderling			COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Semipalmated plover			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X			
		Short-billed dowitcher			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X			
	Snowy plover			37-63-NESTS	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug			
	Willet			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul			
Wilson's plover			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X					
Wading	Great blue heron			COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Great egret			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X				
	Green heron			LESS-COMMON	X	X	X	X	X	X	X	X	X	X	X	X				
	Reddish egret			OCCASIONAL	X	X	X	X	X	X	X	X	X	X	X	X				

Sample "back of the map," showing when species are present in the map area, as well as their threatened/endangered status, concentration (abundance), seasonality, and breeding times. The digital data tables contain additional information, including source information for each instance of a species being mapped.

## NOAA's Office of Response & Restoration—Protecting our Coastal Environment

For further information about NOAA's Office of Response and Restoration, please visit our website at

<http://response.restoration.noaa.gov> or call (301) 713-2989.





## ESI Maps Updated After Sandy Damage

**I**n October 2012, Hurricane Sandy roared toward the mid-Atlantic coast. Even as the hurricane transitioned to a post-tropical cyclone, wind, waves, and storm surge wreaked havoc along the Atlantic Coast, especially to the coasts of New York, New Jersey, and Connecticut. In addition to causing devastating damage to homes, businesses, and infrastructure, Sandy's forceful winds and flooding caused considerable change to shorelines, particularly in the metropolitan New York area, northern Long Island, Connecticut, and New Jersey.

### Tools for Coastal Disasters

In the wake of Sandy, under the Disaster Relief Appropriations Act of 2013, funds were allocated to update the Office of Response and Restoration's existing north- and mid-Atlantic Environmental Sensitivity Index (ESI) maps to reflect changes caused by the storm and to add information that would enhance the maps' value when another disaster strikes. Historically used mostly for oil and chemical spills, these maps have also proved to be effective tools in preparing for and responding to storms and hurricanes.

ESI maps provide a concise summary of coastal resources that could be at risk in a disaster. Examples include biological resources (such as birds and shellfish beds), sensitive shorelines



(such as marshes and tidal flats), and human-use resources (such as public beaches and parks). They are used by both disaster responders during a disaster and planners before a disaster.

In the region affected by Sandy, maps will be updated from Maine to South Carolina. The ESI maps are produced on a state or regional basis. They typically extend offshore to include all state waters, and go inland far enough to include coastal biology and habitats, and human-use resources that may be at risk or of utility in the event of a spill.

In addition to the outer coastal regions, navigable rivers, bays, and estuaries are included. In the northeast, these include the **Hudson River** and **Chesapeake Bay**, which are among the areas being updated with the Sandy funding. Mapping of **Delaware Bay** was started just prior to the storm, so is not included as part of the Sandy project.

The **Long Island Sound** update is underway. NOAA's Office of Response and Restoration is partnering with the Center for Coastal Monitoring and Assessment (CCMA) in NOAA's National Centers for Coastal Ocean Science to develop the biological and human-use information for this region. This partnership takes advantage of studies CCMA currently has underway, as well as contacts they have made with the biological experts in the area.

The remaining Sandy update area is divided into 6 additional regions. One is South Carolina, where work has also begun. Over the next few months, the shoreline and biological work will be in full operation for the remaining regions: Maine and New Hampshire; Massachusetts and Rhode Island; Maryland and Virginia (including Chesapeake Bay); the New York/New Jersey



metro area, Hudson River and southern Long Island; and North Carolina. The goal is to have all updates completed by the end of 2016.

### **Keeping up with a Changing Shoreline**

The coastal environment is constantly changing and ESI maps need to be updated periodically to reflect not just storm damage, but changes to resources caused by human use, erosion, and climate change. The new maps will be created with a broad range of potential disasters in mind.

To support this goal, some additional data elements and layers are being considered for the ESI maps developed as part of the post-Sandy effort. These may include such things as flood inundation and storm surge areas, environmental monitoring stations, tide stations, and offshore renewable energy sites.

The end products will provide emergency planners and responders with a better tool for protecting the northeast and mid-Atlantic shoreline when the next coastal disaster occurs.

### **How to Get ESI Data**

Download ESI maps and data at:  
[http://response.restoration.noaa.gov/esi\\_download](http://response.restoration.noaa.gov/esi_download)

For additional information about ESI maps and data, go to:  
<http://response.restoration.noaa.gov/esi>

or write:  
[orr.esi@noaa.gov](mailto:orr.esi@noaa.gov)

Find more technical insights into OR&R's work with ESI maps and data on the NOAA ESI blog: <http://noaaesi.wordpress.com>.



*Credit: U.S. Air Force*

---

*NOAA's Office of Response & Restoration—Protecting our Coastal Environment*

---

**For further information about NOAA's Office of Response and Restoration,  
please visit our website at**

**<http://response.restoration.noaa.gov> or call (301) 713-2989.**

