NOAA OFFICE FOR COASTAL MANAGEMENT

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NOAA Disaster Response

February 6, 2025

National Ocean Service
National Oceanic and Atmospheric Administration

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CAMEO®

Computer-Aided Management of Emergency Operations: A software suite designed to help prepare for and respond to chemical emergencies.

GNOME

General NOAA Operational Modeling Environment: A software modeling tool used to predict how oil and other pollutants might move and spread on the water.

ERMA®

Environmental Response Management Application: An online mapping tool integrating static and real-time data in an easy-to-use format for environmental responders and decision-makers.

ESI Maps

Environmental Sensitivity Index Maps: Provide a concise summary of coastal resources at risk for contamination.

nowCOAST®

A GIS-based online web mapping service that provides frequently updated weather and ocean observations, coastal and marine weather warnings and forecasts, and potential storm surge flooding maps.

Digital Coast

A NOAA-sponsored partnership and website focused on helping communities address coastal issues by providing tools, training and data on everything from economic data to satellite imagery.

Storm QuickLook

A product that provides a synopsis of near real-time oceanographic and meteorological observations at locations affected by a tropical cyclone.

PORTS®

Physical Oceanographic Real Time System: A NOS service to deliver real-time oceanographic and meteorological data designed primarily for mariners, but with applications for coastal management and emergency operations.

IOOS®

Integrated Ocean Observing System: A network of regional ocean observing systems designed to track, predict, manage and adapt to changes in the ocean, coastal and Great Lakes environment.

ite

-Aided Management of Emergency Operations) software products have been valuable hazardous materials response and planning tools since the first products were introduced in 1986.

Responders at the scene of a chemical incident. Image credit: U.S. Coast Guard

CAMEO Software Suite: Core Programs

The CAMEO software suite consists of four core programs, which can be used together or separately. When they are used together, the programs interact seamlessly and information can be linked easily between them.

- **CAMEO Data Manager:** A tool for managing data about chemicals stored or transported in your community, especially data required under the Emergency Planning and Community Right-to-Know Act (EPCRA).
- **CAMEO Chemicals:** A program with response recommendations and physical properties for thousands of hazardous chemicals, and it also includes a tool for predicting possible hazards that could occur if chemicals mix. The program is available in several formats, including a **CAMEO Chemicals app** for iOS and Android.
- **ALOHA®:** A hazard model that estimates how a chemical cloud travels in the air after a spill and identifies areas where a threat to people may exist. It also models some types of fires and explosions.
- **MARPLOT®:** A mapping tool used for assessing geospatial information for emergency incidents and creating custom maps.

- Predict how wind, currents, and other processes might move and spread oil spilled on the water.
- Learn how these predictions of where and how oil might move are affected by *uncertainty* in observations and forecasts for ocean currents and wind.
- See how spilled oil is expected to change chemically and physically, known as *weathering*, during the time that it remains on the water surface.

To use GNOME, you describe a spill scenario by entering information into the program. GNOME then creates and displays an oil spill "movie" showing the predicted trajectory of the oil spilled in the scenario. In addition to this animation, GNOME estimates the amount of oil beached, still floating, or evaporated at specific times. Along with GNOME, most users also will want to download the Location Files for their regions of interest, such as the Gulf of Mexico or Pacific Region. Location Files contain prepackaged tide and current data and make it easier to work with GNOME.

GNOME was developed by the Emergency Response Division of NOAA's Office of Response and Restoration. **The latest version is GNOME 1.3.10, posted November 30, 2017.**

More Information about GNOME

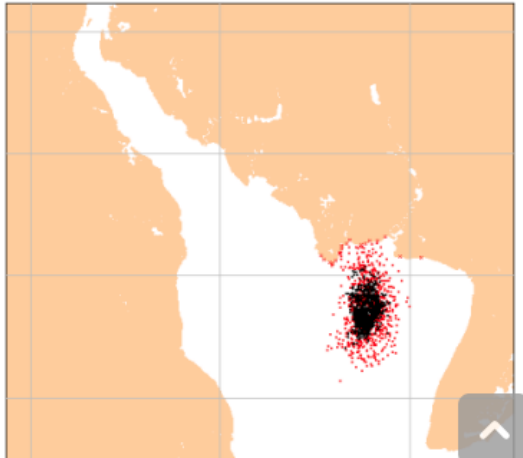
Downloading, Installing, and Running GNOME: Download a Windows or Mac version of GNOME and view instructions for installing and running it.

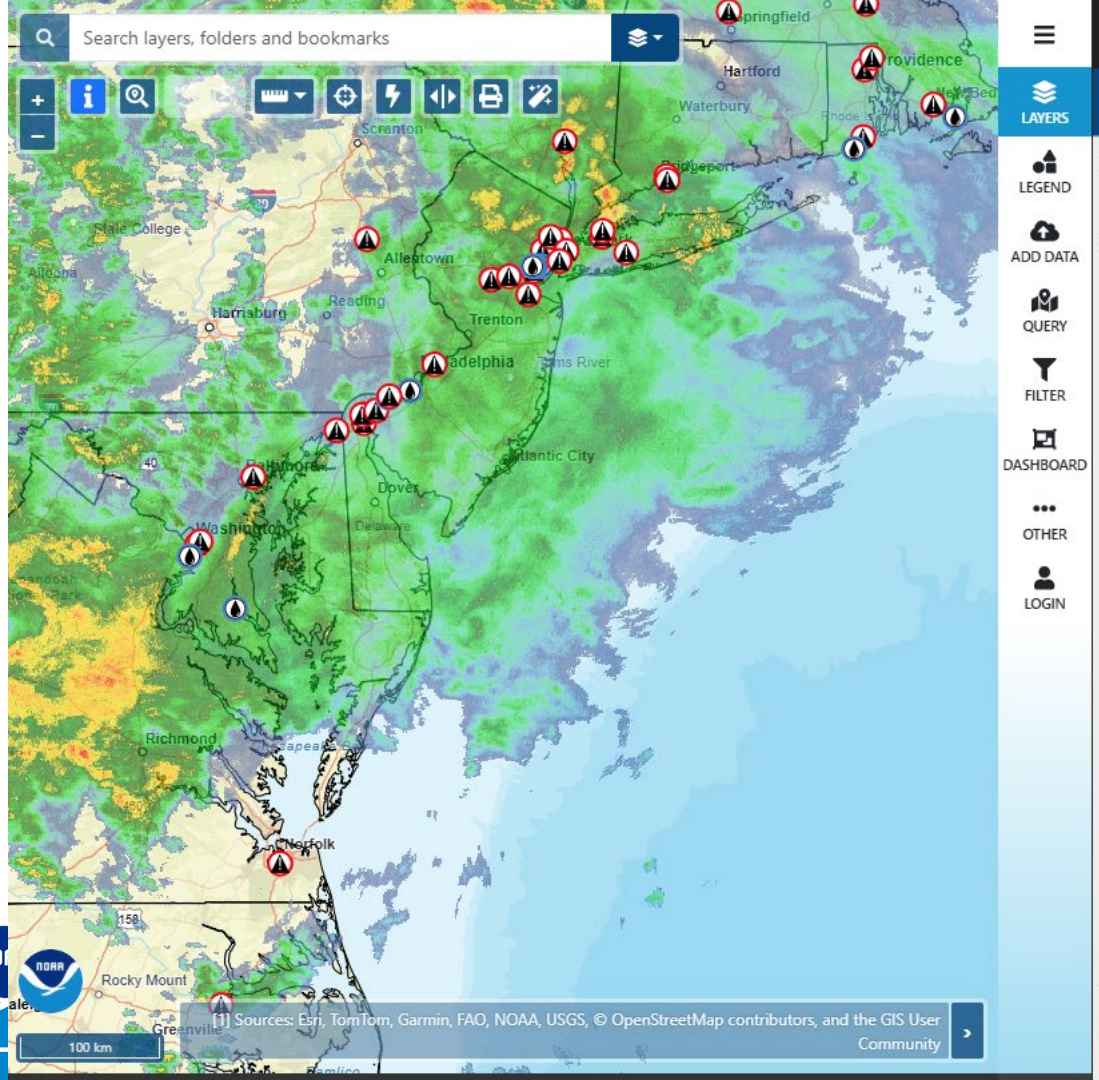
GNOME User's Manual and Tour: Download the GNOME Manual and try the *Learning the Basics* tour described in Chapter 2.

GNOME Location Files and Associated Resources: Find files you can use to model spill scenarios set in particular areas (such as Prince William Sound, Alaska, or Long Island Sound, New York) and example problems you can work to build your understanding of GNOME.

GNOME Toolkit: Get tools for displaying GNOME trajectories in ArcView 3.x and ArcMap 9.x/10.x.

Frequently Asked Questions about GNOME: Find answers to frequently asked questions (FAQs) about GNOME, including how to get Location Files and how to use GNOME's Diagnostic Mode to create Diagnostic





ERMA® | Atlantic

LAYERS

Bookmarks

LAYERS
LEGEND
ADD DATA
QUERY
FILTER
DASHBOARD
OTHER
LOGIN

Clear Layers | Collapse Folders | Show Active Layers

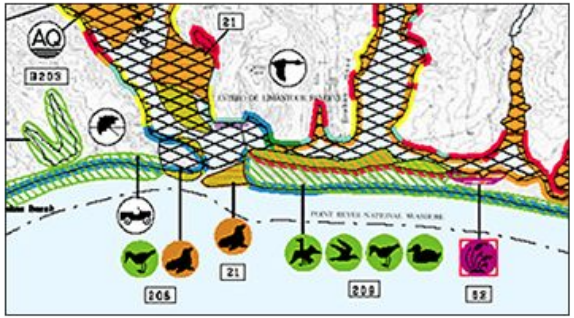
- Background Layers
- Admin Boundaries & Reference Features
  - Reference Features and World Boundaries/Places
  - Reference World Transportation
  - World Time Zones
  - Federal Agency Regions & Offices
  - Geopolitical Boundaries
    - 118th Congressional Districts (U.S. Census, 2022)
    - CACFP and SFSP Area Eligibility (USDA) (2020)
    - Municipal Boundaries, New Jersey (NJOIT 2014)
    - State Legislative Districts - Lower House (Atlantic)
    - State Legislative Districts - Upper House (Atlantic)
    - U.S. Counties (U.S. Census, 2016)
    - U.S. Federal Lands (USGS, 2020)
    - U.S. States and Provinces Boundaries
    - U.S. Population Density (U.S. Census 2020)
    - Tribal Lands
  - Grids & Graticules
  - Marine Jurisdictions
- Bathymetry & Hydrology
- Environmental Quality & Monitoring
  - Fish Consumption Advisories (EPA) (zoom dependent)

Environmental Sensitivity Index (ESI) Maps and Data

Environmental Sensitivity Index (ESI) maps provide a concise summary of coastal resources that are at risk if an oil or chemical spill occurs nearby. Examples of at-risk resources 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).

When a spill occurs, ESI maps can help responders meet one of the main response objectives: reducing the environmental consequences of the spill and the cleanup efforts. Additionally, ESI maps can be used by planners—before a spill happens—to identify vulnerable locations, establish protection priorities, and identify cleanup strategies.

ESI maps and data are created by NOAA OR&R researchers, working with colleagues in state government agencies, federal government agencies, and industry. These maps and data would not be possible without **the support of these regional resource experts.**

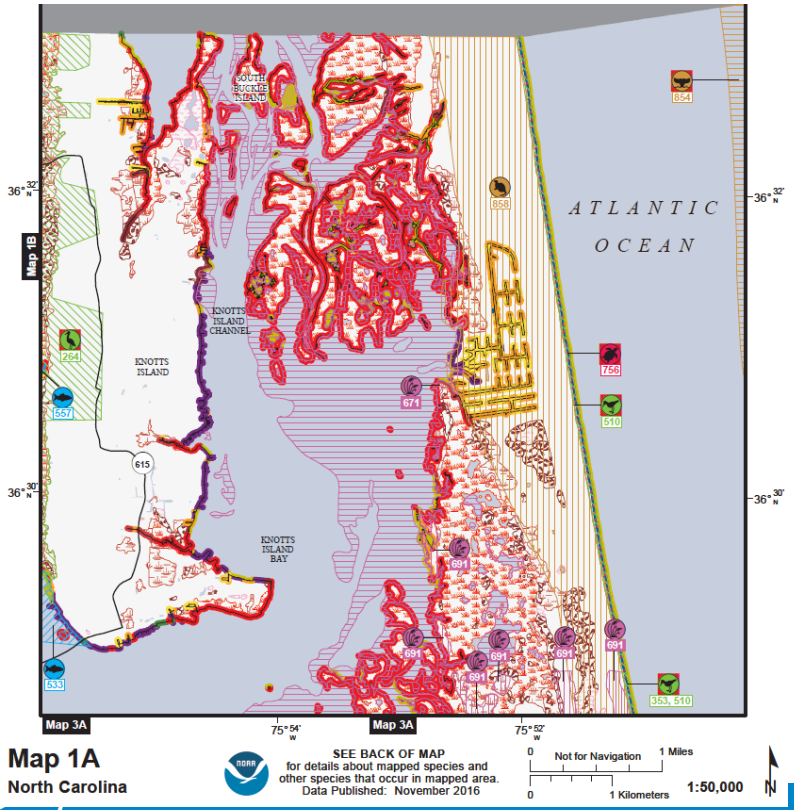


Shorelines on ESI maps are color-coded by sensitivity to oil. Symbols mark localized areas for biological and human-use resources.

Access the ESI Products

- Review ESI availability to learn what products are available in your region of interest.
- Download ESI maps and data in a number of formats.

ESI Maps



Map 1A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence J F M A M J J A S O N D
SAV	Submerged aquatic veg	High Ecological Value			Present	

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence J F M A M J J A S O N D	Nest	Mig.(S)
264	Wading	King rail	Concentration Area			High		-	-
	Wading	Least bittern	Migration	C		-		-	Apr-May
	Wading	Virginia rail	Concentration Area			High		-	-
353	Shorebird	Piping plover	Nesting	E	E	1 Pair		Apr-Aug	-
510	Shorebird	Piping plover	Wintering	E	E	1S		-	Feb-Apr
	Shorebird	Red knot	Migration		T	100S		-	Apr-Jun

FISH

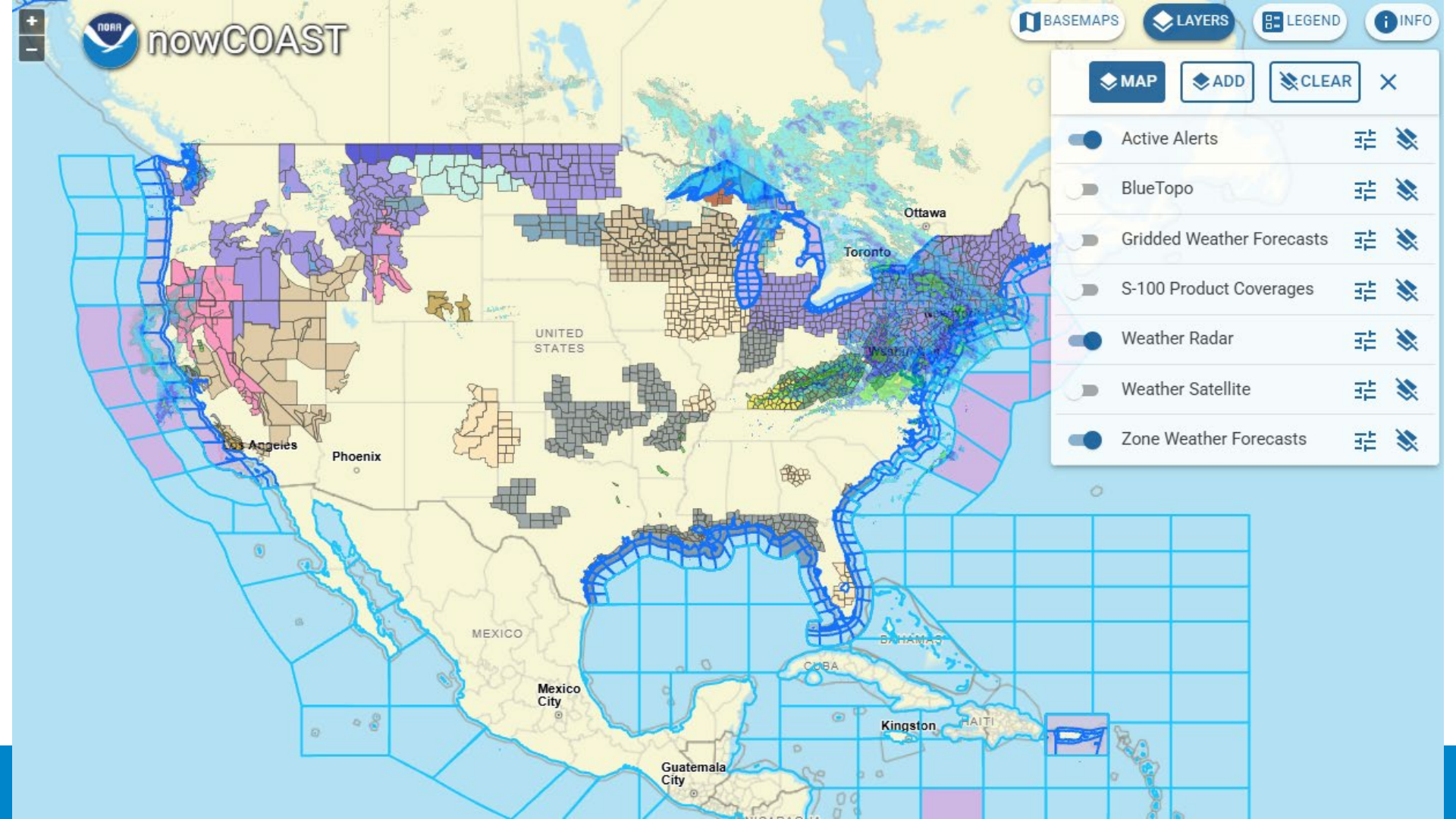
Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence J F M A M J J A S O N D	Spawn	Eggs
533	Diadromous	Alewife	Nursery Area			Present		-	-
	Diadromous	Blueback herring	Nursery Area			Present		-	-
557	Diadromous	Alewife	Spawning Area			Present		Mar-Jul	Mar-Jul
	Diadromous	American shad	Spawning Area			Present		Apr-Jun	Apr-Jun
	Diadromous	Blueback herring	Spawning Area			Present		Mar-Jul	Mar-Jul

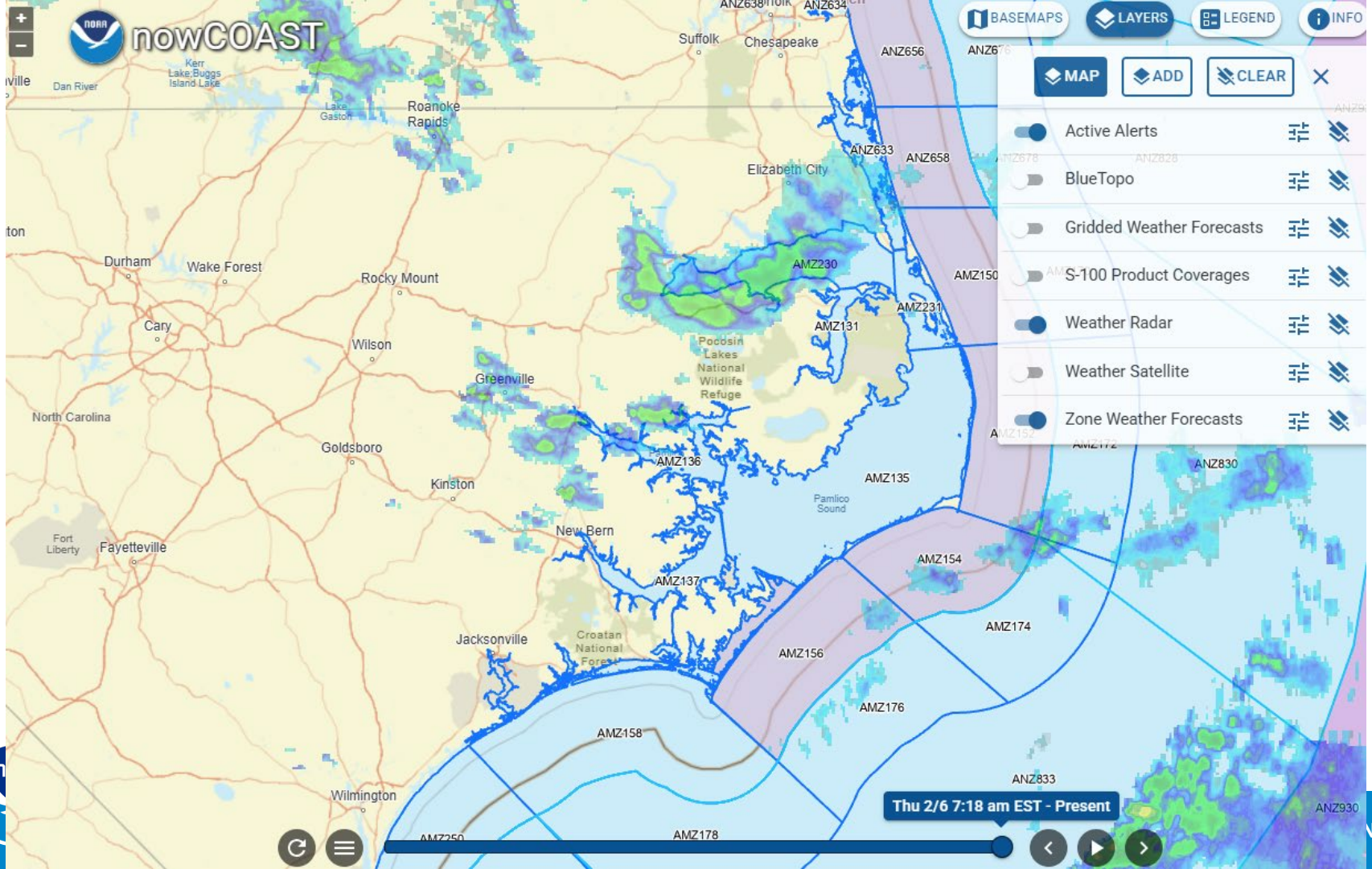
HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence J F M A M J J A S O N D
671	Plant	Winged primrose-willow	Vulnerable Occurrence			Current	
691	Upland	Rare upland community	Vulnerable Occurrence			Current	

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence J F M A M J J A S O N D	Nest	Hatch
756	Turtle	Green sea turtle	Nesting	T	T	1 Nest		May-Aug	Jun-Sep
	Turtle	K. ridley sea turtle	Nesting	E	E	1 Nest		May-Aug	Jun-Sep
	Turtle	Leatherback sea turtle	Nesting	E	E	1 Nest		May-Aug	Jun-Sep
	Turtle	Loggerhead sea turtle	Nesting	T	T	0.3 Nests/Km		May-Aug	Jun-Sep

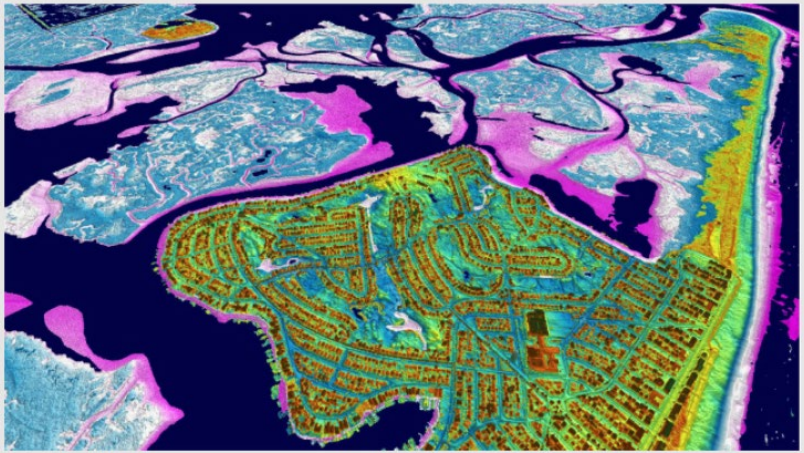

nowCOAST
BASEMAPS
LAYERS
LEGEND
INFO
MAP
ADD
CLEAR
Active Alerts
BlueTopo
Gridded Weather Forecasts
S-100 Product Coverages
Weather Radar
Weather Satellite
Zone Weather Forecasts
Ottawa
Toronto
UNITED STATES
Los Angeles
Phoenix
MEXICO
Mexico City
CUBA
Kingston
HAITI
Guatemala City


nowCOAST
BASEMAPS
LAYERS
LEGEND
INFO
MAP
ADD
CLEAR
Active Alerts
BlueTopo
Gridded Weather Forecasts
S-100 Product Coverages
Weather Radar
Weather Satellite
Zone Weather Forecasts
Thu 2/6 7:18 am EST - Present
Suffolk
Chesapeake
Dan River
Kerr Lake;Buggs Island Lake
Lake Gaston
Roanoke Rapids
Elizabeth City
Durham
Wake Forest
Rocky Mount
Cary
Wilson
Greenville
Pocosin Lakes National Wildlife Refuge
North Carolina
Goldsboro
Kinston
Pamlico Sound
New Bern
Fort Liberty
Fayetteville
Jacksonville
Croatan National Forest
Wilmington
ANZ656
ANZ633
ANZ658
AMZ230
AMZ150
AMZ231
AMZ131
AMZ136
AMZ135
ANZ830
AMZ154
AMZ137
AMZ174
AMZ156
AMZ176
AMZ158
ANZ833
ANZ930
AMZ178


DIGITAL COAST
Dive in to Get the Data, Tools, and Training That Communities Need to Address Coastal Issues

Working with Lidar

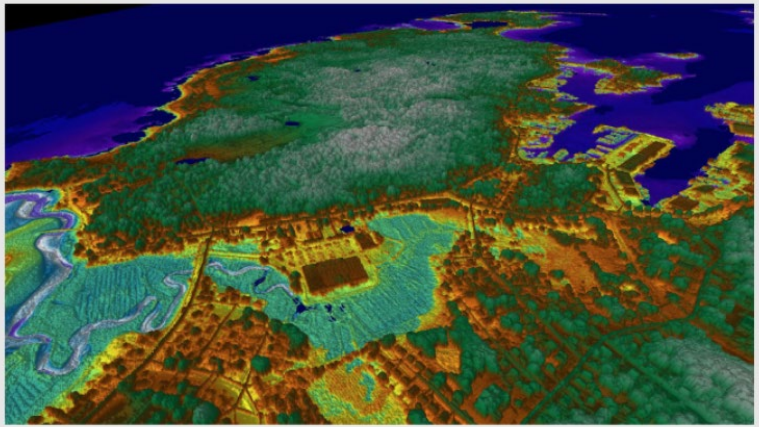
Define and Decide



Use a **checklist** to define the issue and a **decision tree** to decide if lidar is right for your project.

Launch

Identify Lidar-Derived Products



Quickly determine which lidar data products are needed for your project. Easily locate lidar data. See typical projects and the lidar products needed for your region.

Launch

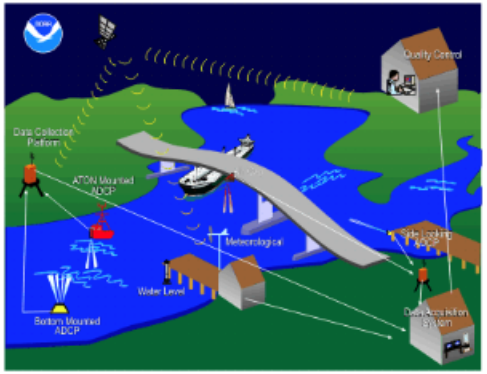
PORTS
Cape Cod/Buzzards Bay
Charleston Harbor
Cherry Point
Chesapeake Bay North
Chesapeake Bay South
Corpus Christi
Cuyahoga
DCA Incident Response
Delaware River and Bay
Freeport
Houston/Galveston Bay
Hudson River Estuary
Humboldt Bay
Jacksonville
Kings Bay
Kitsap
Lake Charles
Los Angeles/Long Beach
Lower Columbia River
Lower Mississippi River
Matagorda Bay
Miami
Mobile Bay
Morgan City

PORTS® (Physical Oceanographic Real-Time System)

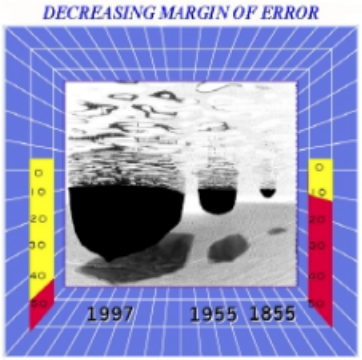
The National Ocean Service (NOS) is responsible for providing real-time oceanographic data and other navigation products to promote safe and efficient navigation within U.S. waters. The need for these products is great and rapidly increasing; maritime commerce has tripled in the last 50 years and continues to grow. Ships are getting larger, drawing more water and pushing channel depth limits to derive benefits from every last inch of draft. By volume, more than 95 percent of U.S. international trade moves through the nation's ports and harbors, with about 50 percent of these goods being hazardous materials. A major challenge facing the nation is to improve the economic efficiency and competitiveness of U.S. maritime commerce, while reducing risks to life, property, and the coastal environment. With increased marine commerce comes increased risks to the coastal environment, making marine navigation safety a serious national concern. From 1996 through 2000, for example, commercial vessels in the United States were involved in nearly 12,000 collisions, allisions, and groundings.

PORTS®

PORTS® is a decision support tool that improves the safety and efficiency of maritime commerce and coastal resource management through the integration of real-time environmental observations, forecasts and other geospatial information. PORTS® measures and disseminates observations and predictions of water levels, currents, salinity, and meteorological parameters (e.g., winds, atmospheric pressure, air and water temperatures) that mariners need to navigate safely.

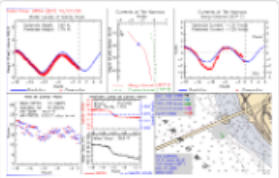


PORTS graphic including a ship, water level gage, current meter and data collection platform.



Draft Over the Years

Change in ship drafts over the years.



PORTS composite data display.

PORTS®

Charleston Harbor PORTS

PORTS® LINKS: Text-based PORTS® Screen | Mobile Device PORTS® Screen | NWS Marine Weather Forecast | Other Real-Time Weather Observations

MyPORTS (Custom PORTS® Screen)

LEGEND

- Water Levels Only
- Met Only
- Water Levels and Met
- Currents
- Wave Buoys
- Air Gap

FILTER PRODUCTS

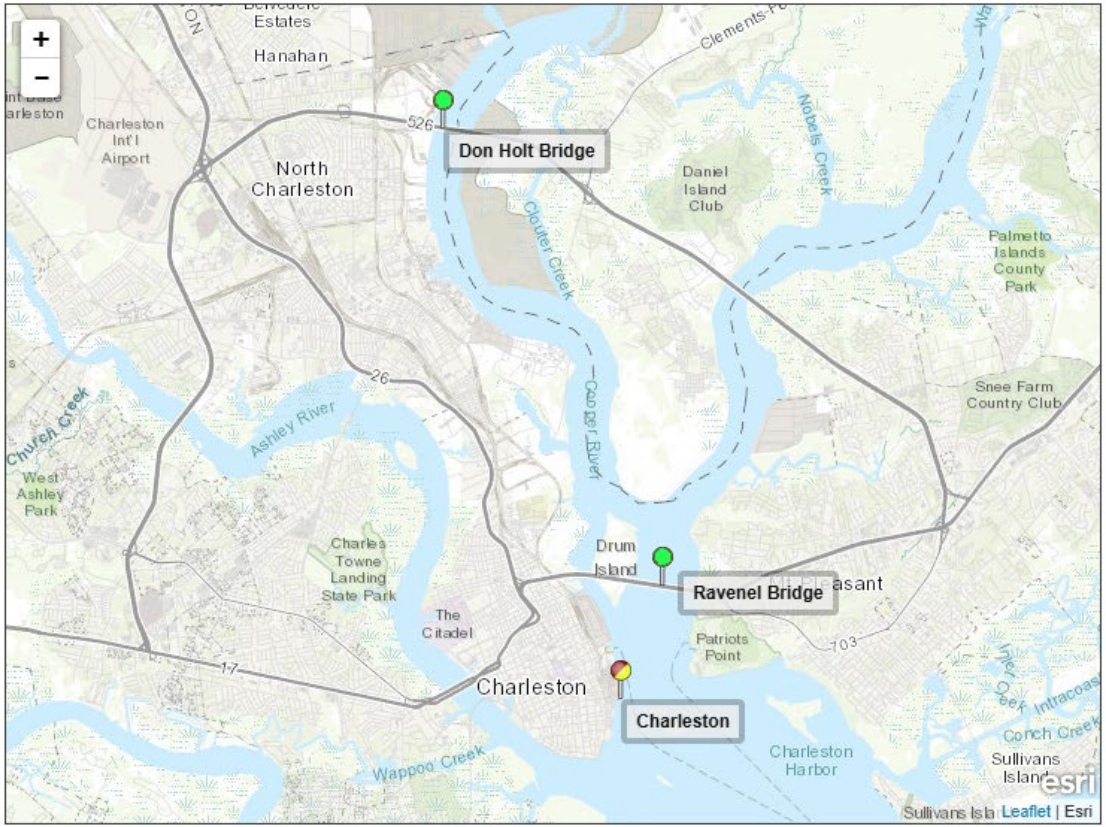
All Products

SHOW DATA

None

STATIONS

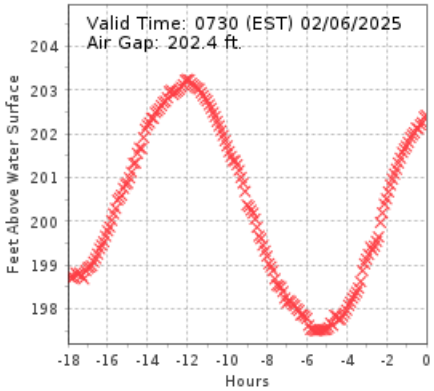
Don Holt Bridge
Ravenel Bridge
Charleston

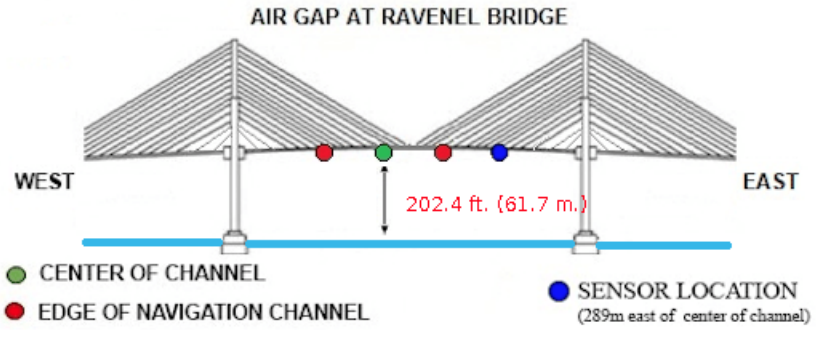


PORTS®: 8665353 Ravenel Bridge Air Gap, SC

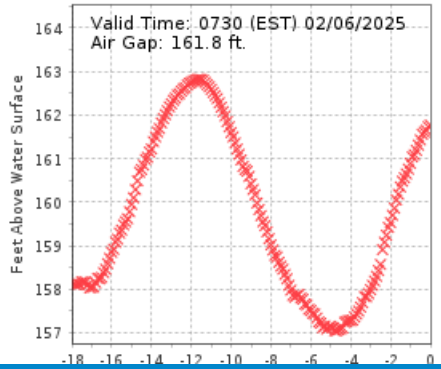
Summary | Air Gap | 3 Days Air Gap

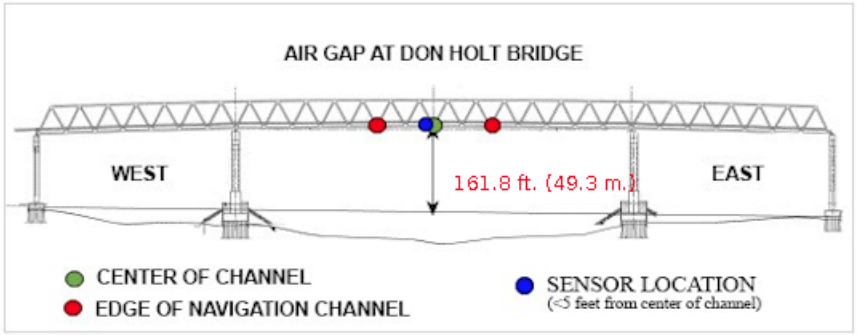
Air Gap at Ravenel Bridge



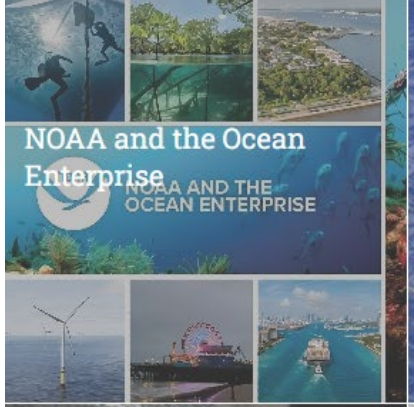


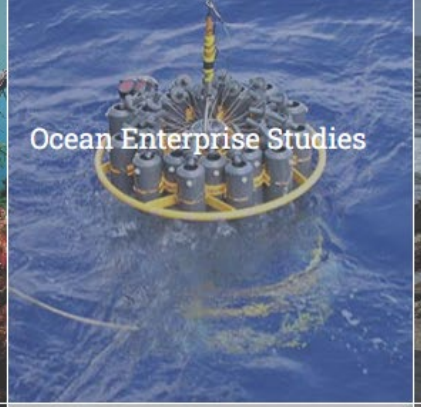
Air Gap at Don Holt Bridge






IOOS | Integrated Ocean Observing System
IOOS
ABOUT
COMMUNICATIONS
DATA
IOOS IN ACTION
REGIONS
COMMUNITY
IOOS is our eyes on the ocean, coasts, and Great Lakes. We are an integrated network of people and technology gathering observing data and developing tracking and predictive tools to benefit the economy, the environment, and public safety at home, across the nation, and around the globe.
Week of 2/2: System status NORMAL. To check individual assets and information, visit ioos.us and/or the Environmental Sensor Map.
My Interests Are...
All
IOOS is ISO Google Summer of Code mentors & projects!
Ocean Enterprise - IOOS Newsletter - Fall 2024
NOS, Canada's Ocean Supercluster enter into Ocean Enterprise MOU
'Life in the Ocean Touches Everyone': U.S. Rolls Out First National Ocean Biodiversity Strategy
Feedback

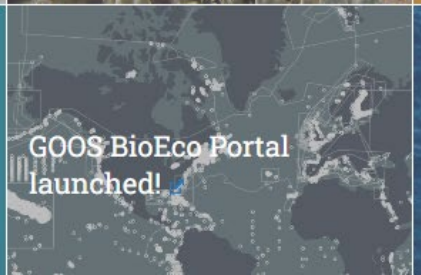




Biden-Harris Administration identifies 4 business 'accelerators' to boost the Blue Economy

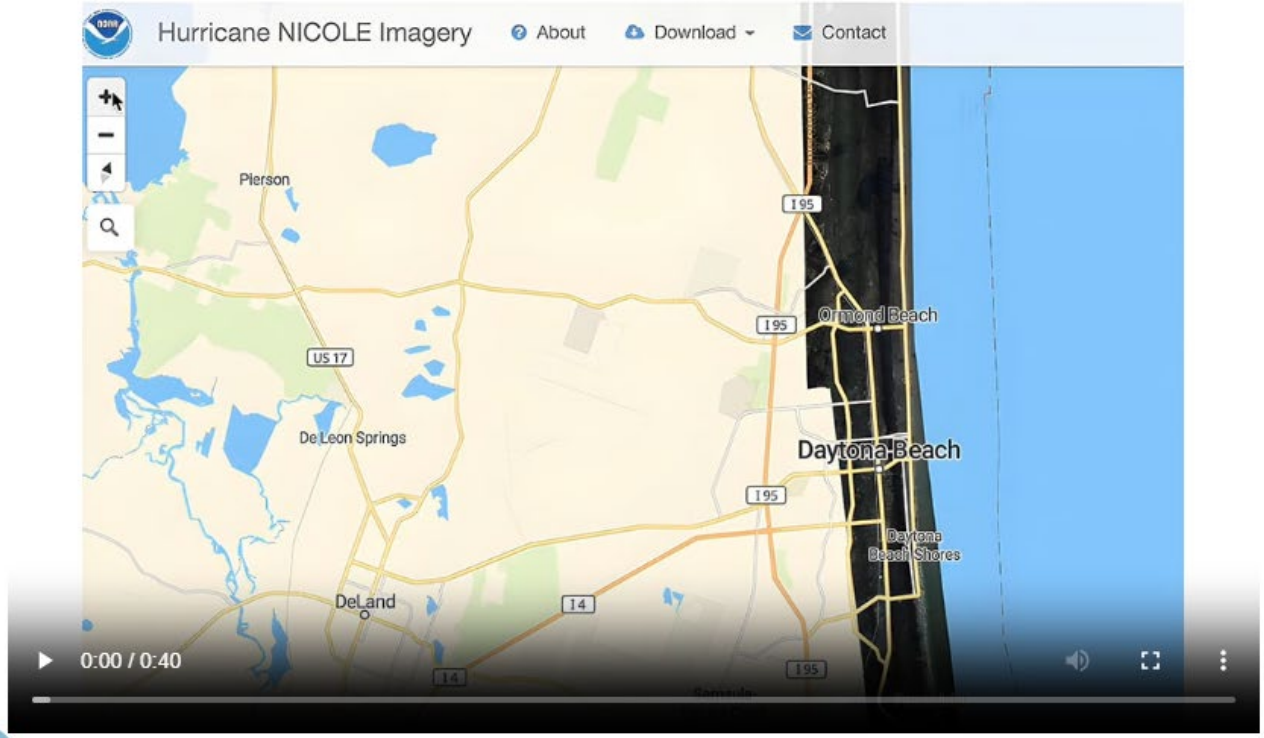
A Welcome and a farewell for the U.S. IOOS Advisory Committee

DOE and NOAA Announce Winners of Ocean Observing Prize BUILD Contest



NOAA's Emergency Response Imagery

How to use the **National Geodetic Survey's online viewer** to explore aerial images following major natural disasters.



More **Information**

- Tips on Viewing National Geodetic Survey Aerial Imagery
- National Geodetic Survey Emergency Response Imagery
- National Geodetic Survey Remote Sensing Division
- NOAA Office of Marine and Aviation Operations
- NOS Aerial Photography and Shoreline Mapping

Emergency Response Imagery

National Geodetic Survey

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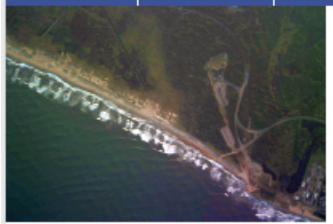

The imagery posted on this site was acquired by the NOAA Remote Sensing Division to support NOAA homeland security and emergency response requirements. In addition, it will be used for ongoing research efforts for testing and developing standards for airborne digital imagery.

Tips for navigating the Emergency Response Imagery Viewer.

Navigation

National Geodetic Survey

Pre-Event Imagery

Contact Us

Content and Technical Issues

Comments and Policy Issues

Emergency Response Imagery:

California Fire (2025)
Hurricane Milton (2024)
Hurricane Helene (2024)
Hurricane Francine (2024)
Hurricane Debby (2024)
Hurricane Lee (2023)
Hurricane Idalia (2023)
Maui Fire (2023)
Hurricane Nicole (2022)
Hurricane Ian (2022)


Johnson City
I 81
Morristown
US 11E
Greeneville
Jefferson City
US 321
Newport
Boone
Elkin
North Wilkesboro
US 421
US 321
Lenoir
US 19
Spruce Pine
US 64
I 40
Mars Hill
Statesville
Hickory
Morganton
Marion
I 40
Weaverville
Asheville
I 40
Newton
I 77
Salisbury
Mooresville
US 321
Canton
Waynesville
Cornelius
Kannapolis
US 321
Bryson City
Sylva
Fletcher
Mills River
Hendersonville
Huntersville
Concord
NC 49
I 77
Forest City
Shelby
I 85
Gastonia
Charlotte
US 221
Brevard
I 485
Franklin
I 26
I 485
I 26
Gaffney