# Coastal Web Atlases in the Chesapeake Bay Region: Examples from Virginia and Maryland

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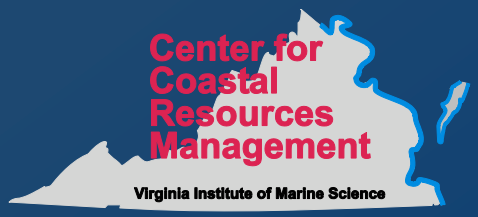
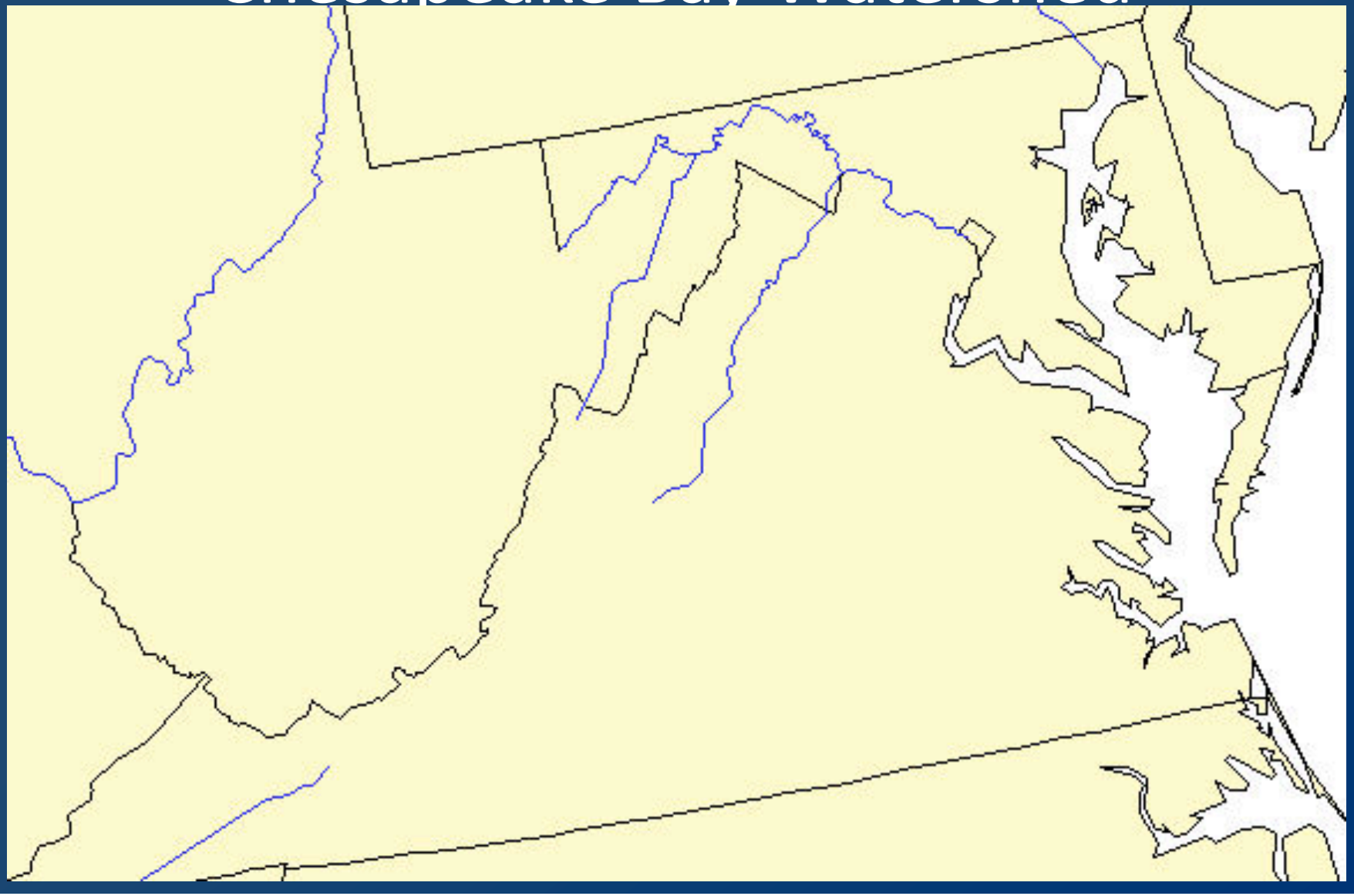
Virginia Institute of Marine Science




ICAN
International Coastal Atlas Network

# Where are we?

# Virginia – Maryland
# Chesapeake Bay Watershed



# Virginia

## Coastal Geospatial Education Mapping System

# Maryland

## Shorelines Onlines

# With respect to ICAN

International Coastal Atlas Network

- What works well
- Common problems
- Do they meet the definition of a coastal atlas?
- Are they interoperable?

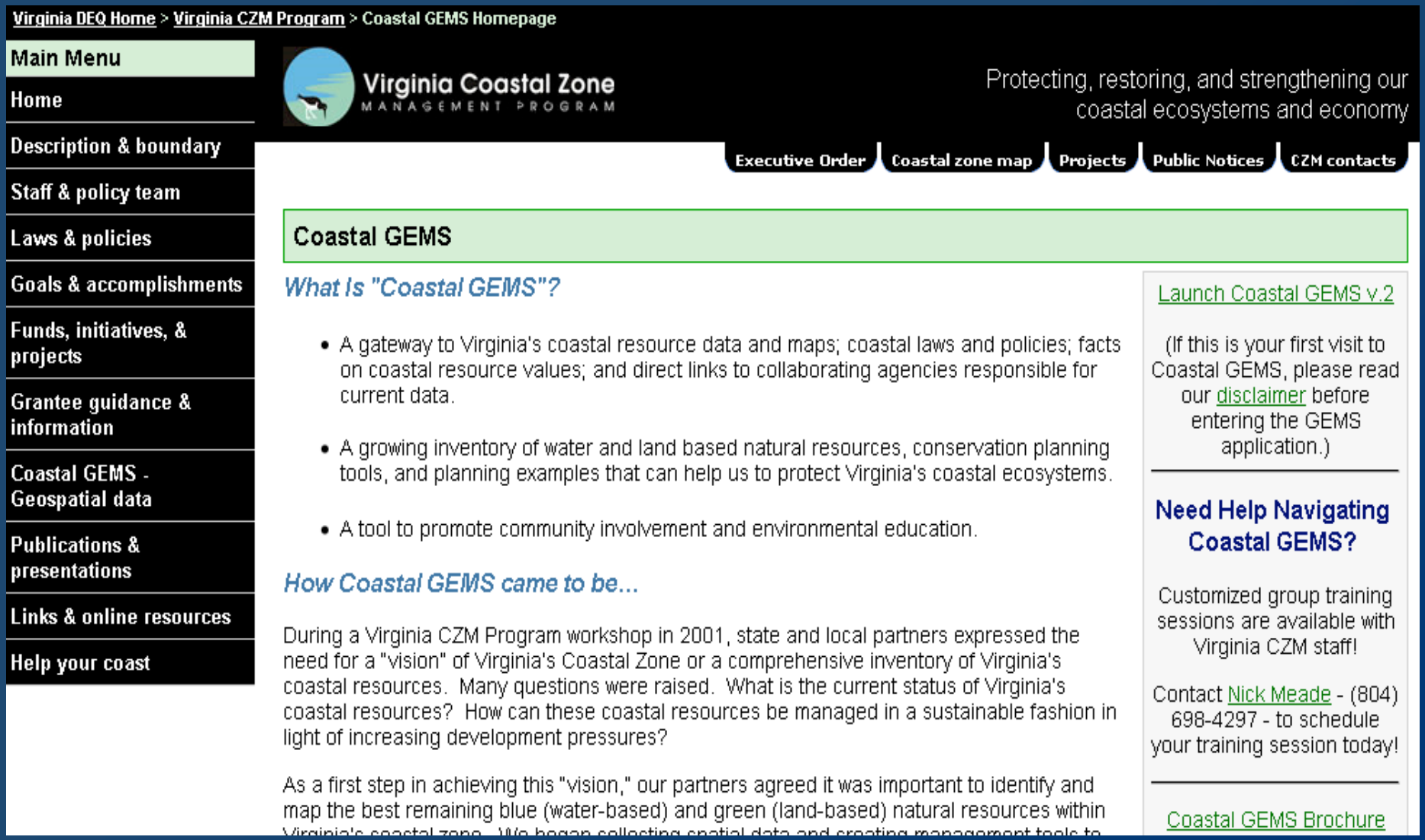
# VIRGINIA

## Coastal Geospatial and Education Mapping System

# GEMS

Virginia Coastal Zone
MANAGEMENT PROGRAM

# VA Coastal GEMS



# Data Categories

- Water Features
- Shoreline Features
- Land Features
- Wildlife
- Recreational Features
- Conservation Planning Tools
- Conservation Planning Examples
- Reference Layers

# 55 Data Layers

## Water Features

- Commercial Shellfish Aquaculture Sites
- Oyster Gardening Sites
- State Constructed Oyster Reefs
- Baylor Grounds (Public Oyster Grounds)
- Private Oyster Leases
- Seaside SAV Planting Sites
- Submerged Aquatic Vegetation (SAV)
- Anadromous Fish Use Areas
- Fisheries Management Areas
- Threatened & Endangered Species Waters
- Healthy Streams

## Shoreline Features

- Beaches Above High Water
- Chesapeake Bay Dunes
- Wetlands (Tidal & Non-Tidal)
- Restored Riparian Buffer Sites
-

## Land Features

- Conservation Lands
- Forest Cover
- Barrier Island Ownership

## Wildlife

- Essential Wildlife Habitat
- Important Bird Areas
- Migratory Songbird Stopover Habitat

## Recreational Features

- VDGIF Boat Ramps
- Scenic Rivers
- Birding & Wildlife Trail Sites and Loops
- Seaside Eastern Shore Water Trail
- Public Access Sites

## Conservation Planning Tools

- Oyster Aquaculture Vulnerability Model
- Clam Aquaculture Vulnerability Model
- Biotic Stream Assessment (INSTAR) Sites
- Benthic Index of Biotic Integrity
- Historic & Cultural Value Model
- Predicted Growth Model
- Forest Economics Model
- Ecological Cores
- Landscape Corridors
- Agricultural Model
- Recreation Model
- Watershed Integrity Model
- Tidal Flushing Rates
- Condemned Shellfish Areas
- Accomack County Bayside Buffer Classification
- Clam Aquaculture Suitability Model
- Oyster Aquaculture Suitability Model
- Invasive Reed (Phragmites)
- Marina Siting Suitability
- Impediments to Fish Movement
- Impaired Waters

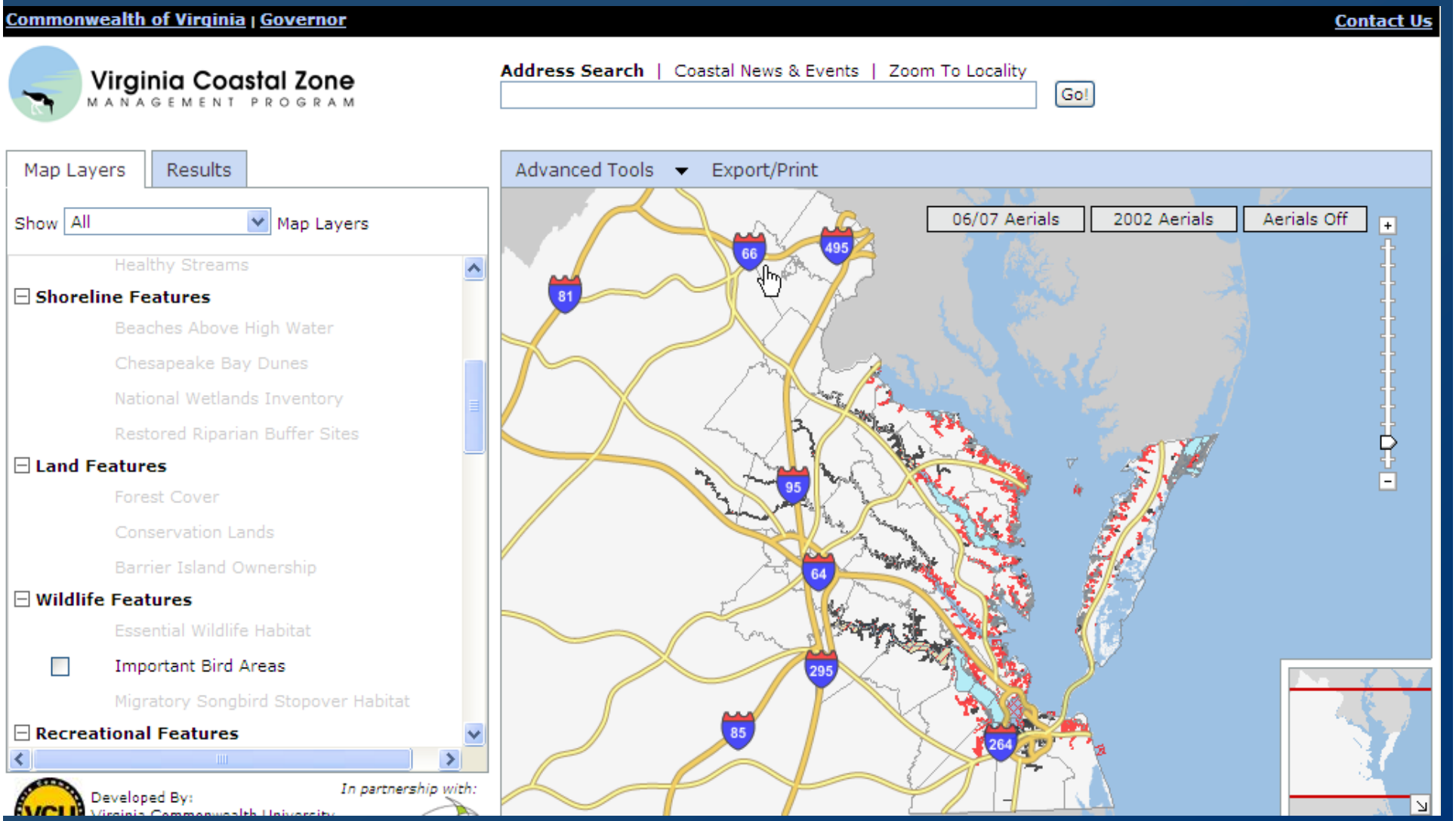
## Conservation Planning Examples

- Dragon Run Program Boundary
- Seaside Heritage Program Boundary
- Southern Watersheds Program Boundary
- Hampton Roads Conservation Corridors

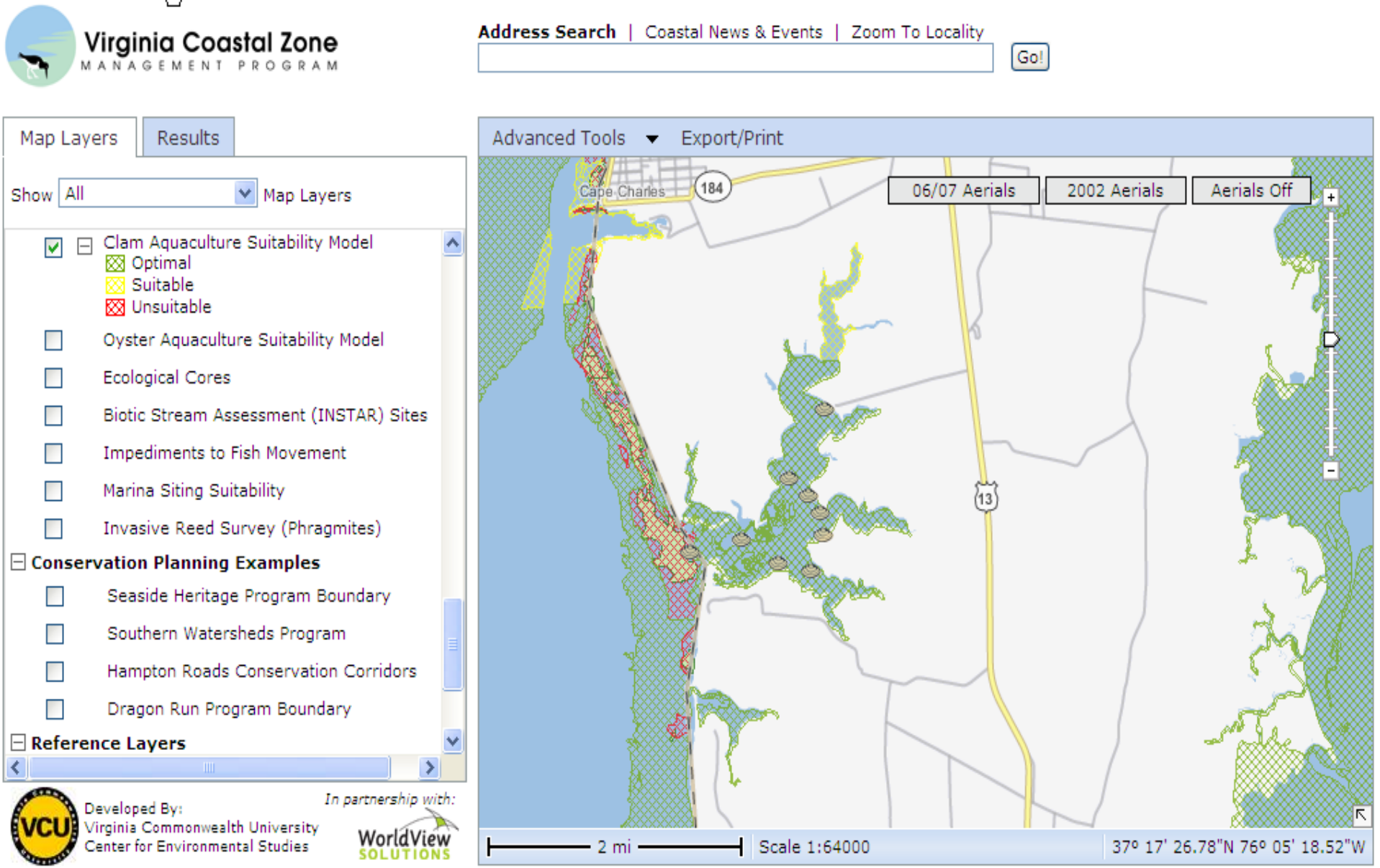
## Reference Layers

- County Boundaries
- Watershed Boundaries
- Detailed Streams
- Roads

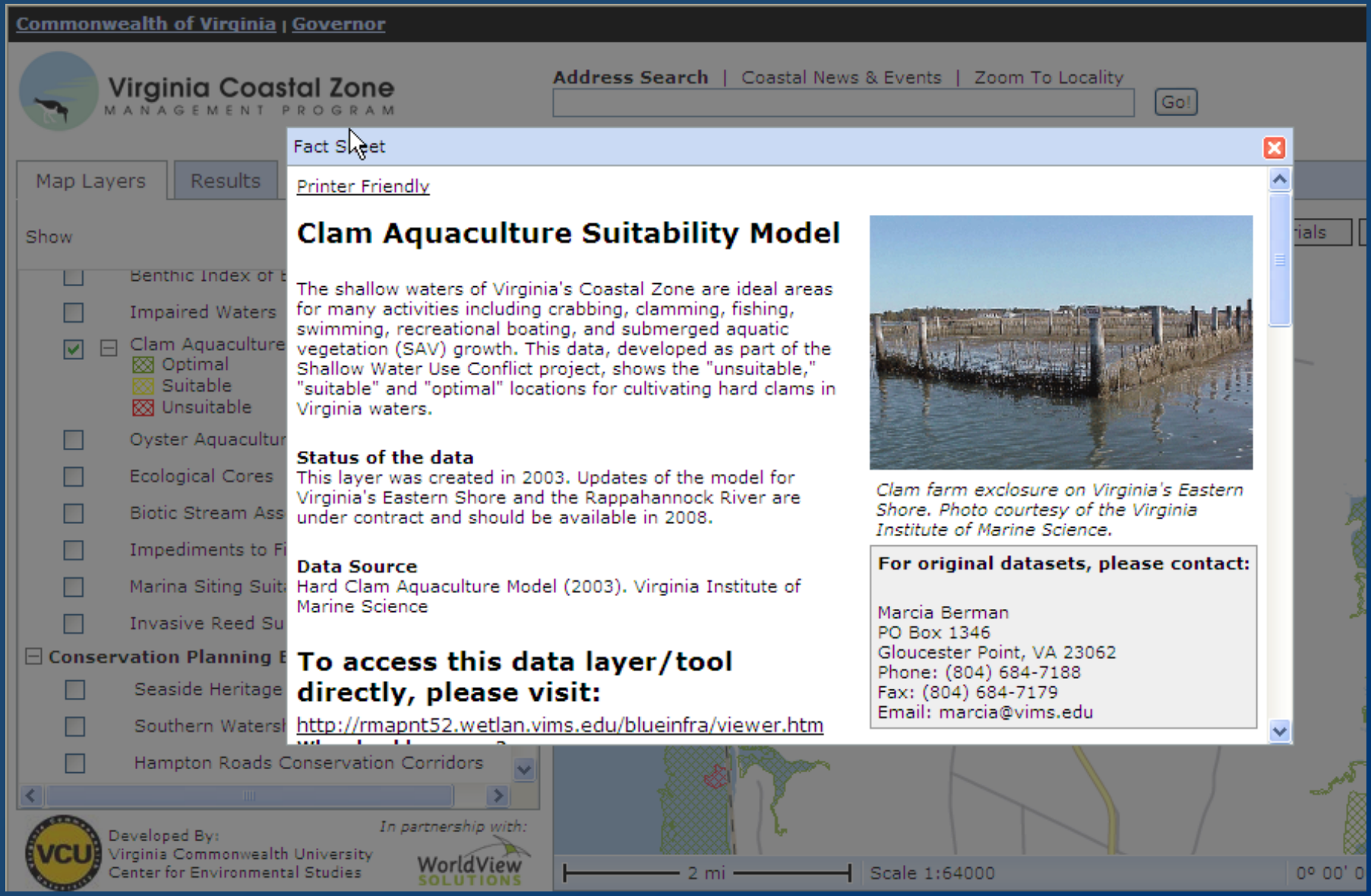
# VA Coastal GEMS



# Conservation Planning Tools



# Fact Sheets


Commonwealth of Virginia | Governor
Virginia Coastal Zone
MANAGEMENT PROGRAM
Address Search | Coastal News & Events | Zoom To Locality
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Map Layers
Results
Show
Impaired Waters
Clam Aquaculture
Optimal
Suitable
Unsuitable
Oyster Aquacultur
Ecological Cores
Biotic Stream Ass
Impediments to Fi
Marina Siting Suit
Invasive Reed Su
Conservation Planning E
Seaside Heritage
Southern Waters
Hampton Roads Conservation Corridors
Fact Sheet
Printer Friendly
Clam Aquaculture Suitability Model
The shallow waters of Virginia's Coastal Zone are ideal areas for many activities including crabbing, clamming, fishing, swimming, recreational boating, and submerged aquatic vegetation (SAV) growth. This data, developed as part of the Shallow Water Use Conflict project, shows the "unsuitable," "suitable" and "optimal" locations for cultivating hard clams in Virginia waters.
Status of the data
This layer was created in 2003. Updates of the model for Virginia's Eastern Shore and the Rappahannock River are under contract and should be available in 2008.
Data Source
Hard Clam Aquaculture Model (2003). Virginia Institute of Marine Science
To access this data layer/tool directly, please visit:
http://rmapnt52.wetlan.vims.edu/blueinfra/viewer.htm
Clam farm exclosure on Virginia's Eastern Shore. Photo courtesy of the Virginia Institute of Marine Science.
For original datasets, please contact:
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Fax: (804) 684-7179
Email: marcia@vims.edu
Developed By:
Virginia Commonwealth University
Center for Environmental Studies
In partnership with:
WorldView SOLUTIONS
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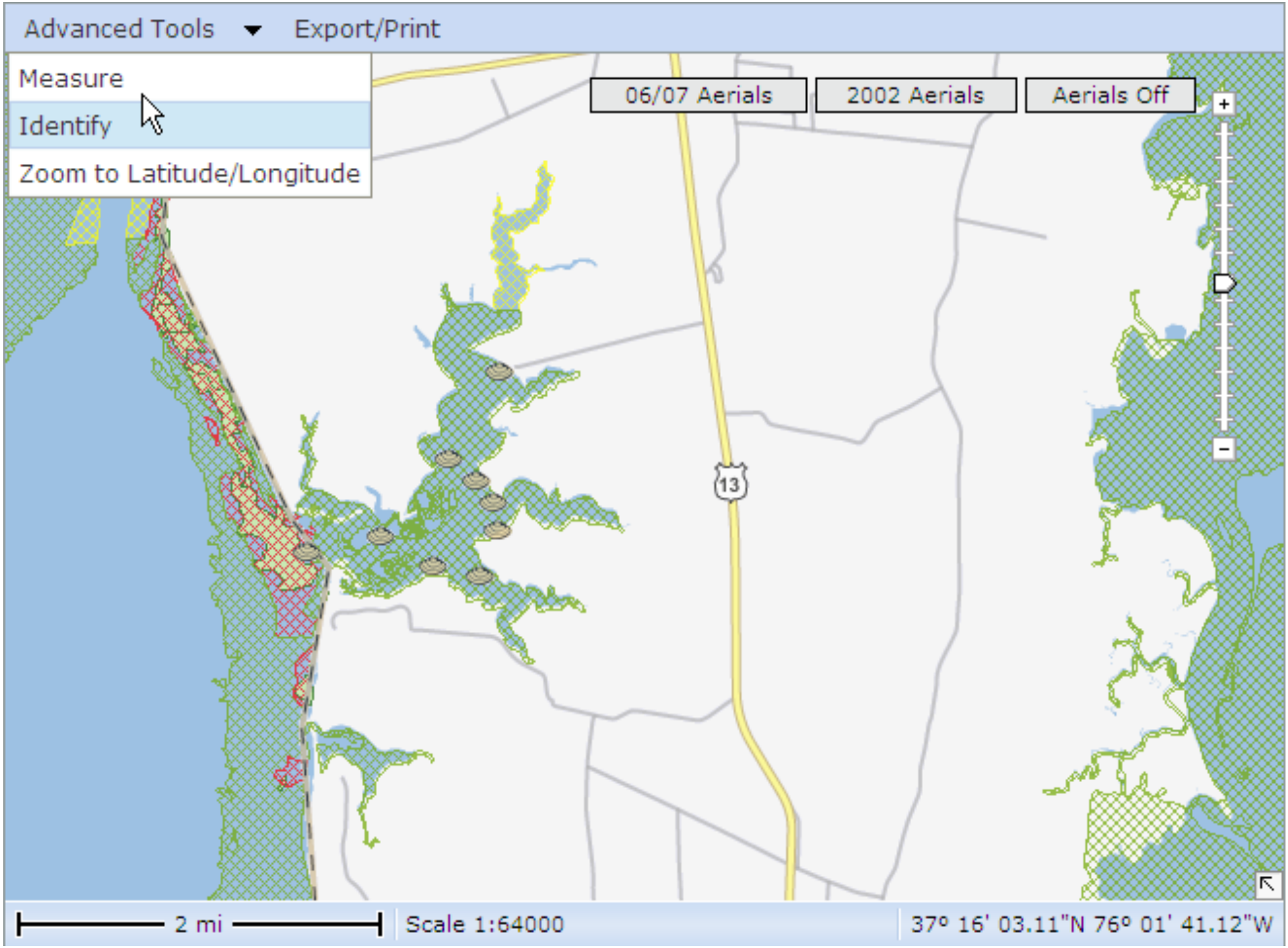
Scale 1:64000


Advanced Tools
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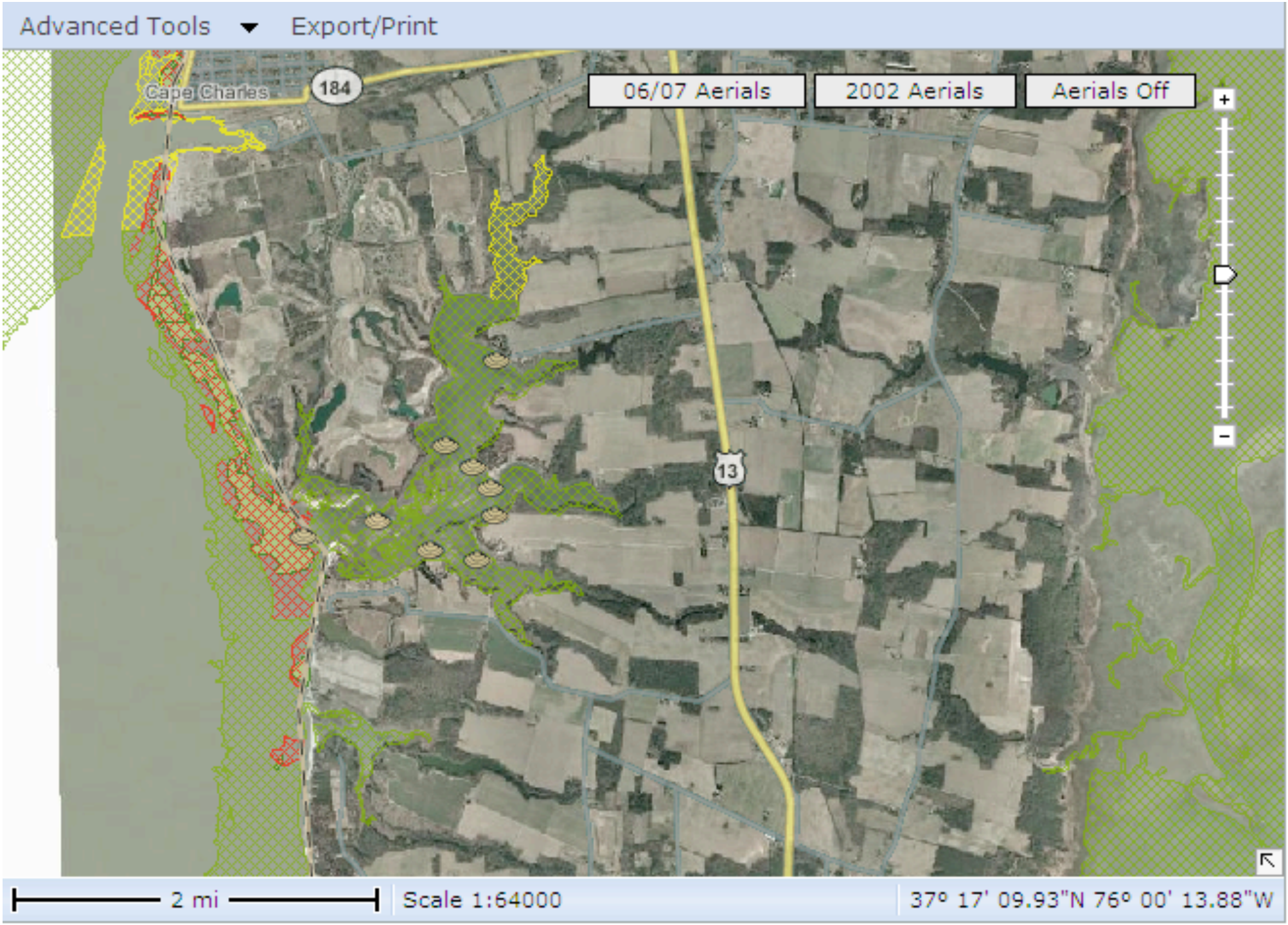
37° 16' 03.11"N 76° 01' 41.12"W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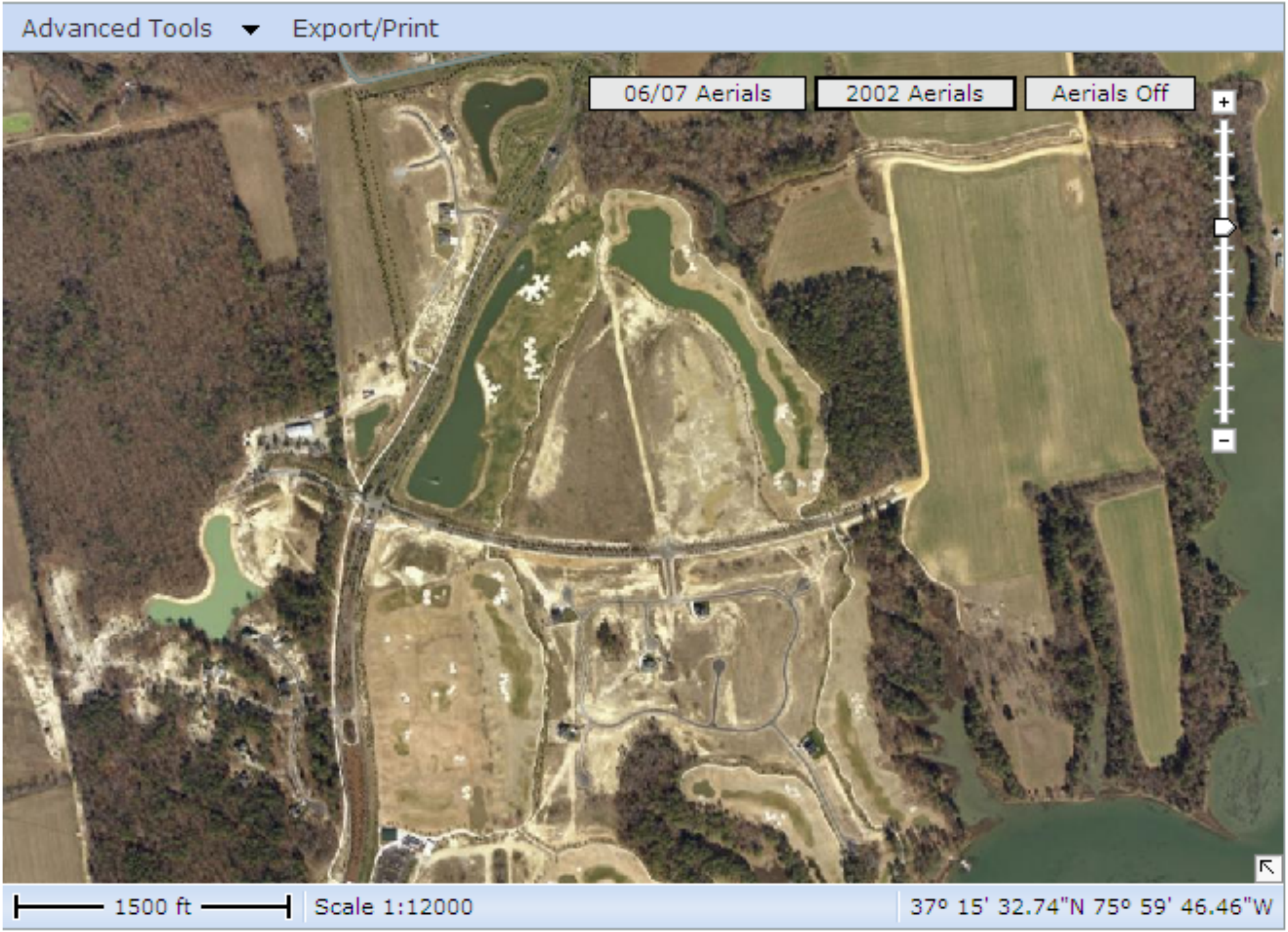
37° 17' 09.93"N 76° 00' 13.88"W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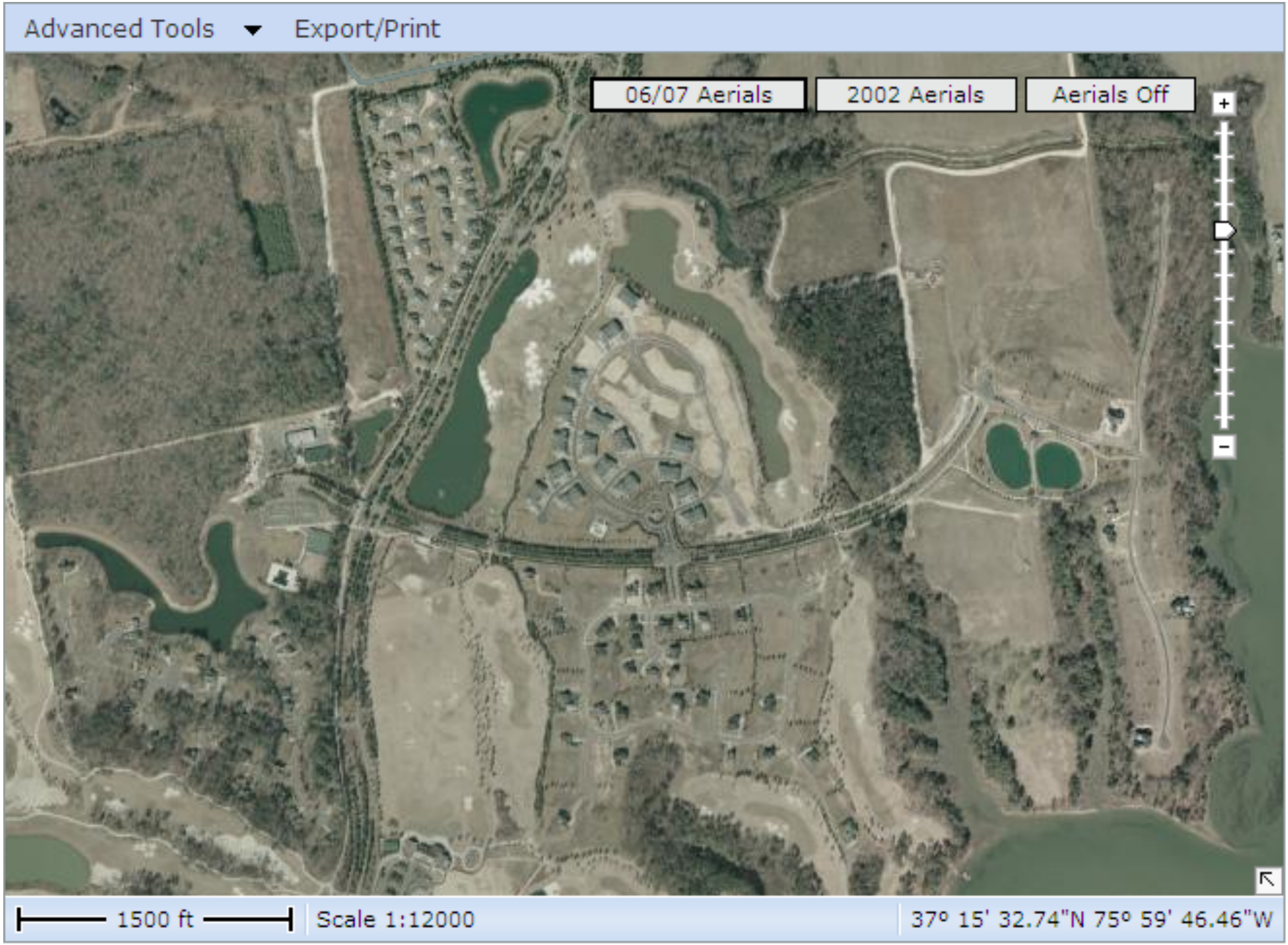
37° 15' 32.74"N 75° 59' 46.46"W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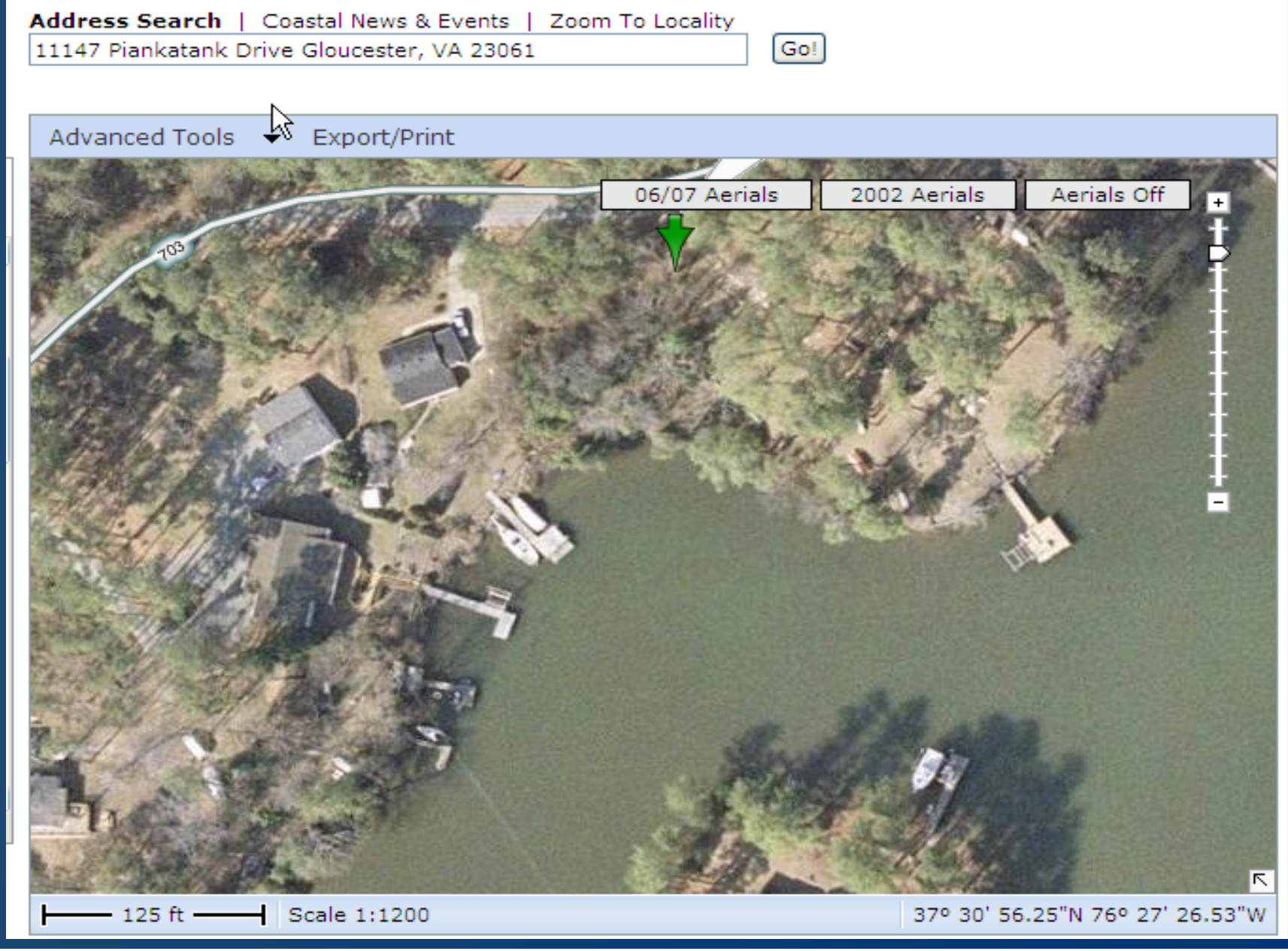
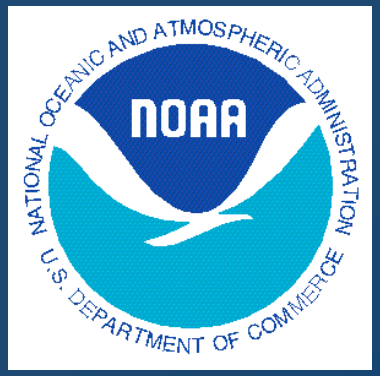
# Address Search



# Implementation and Feedback of Coastal GEMS

- Workshop
  - Training:  CWA developers
  - Active Users : representing target audience
  - Monitors: representing data developers
- Feedback
  - none

# Maryland Shorelines Online




# MD Shorelines Online

MARYLAND
shorelinesonline

home
contact us

- Home
- Mapper
- Education and Outreach
- Assistance
- Coastal Hazard Management
- Interactive Mapping
- News and Events

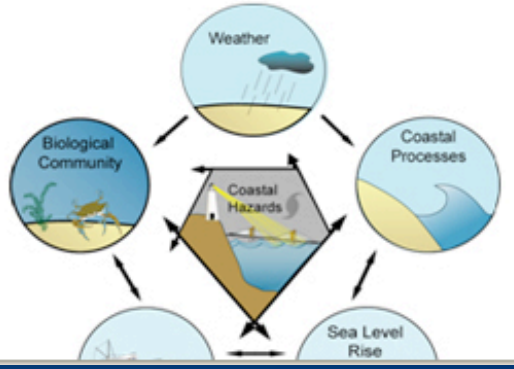
*Maryland Shorelines Online* is a coastal hazards web portal, centralizing information and data on shoreline and coastal hazards management in Maryland.

This website works to enhance coordination and understanding of shoreline management processes, assistance, and practices appropriate for maintaining the rich cultural and natural resources associated with the State's coastal and shoreline areas. This site is a resource for many groups including:

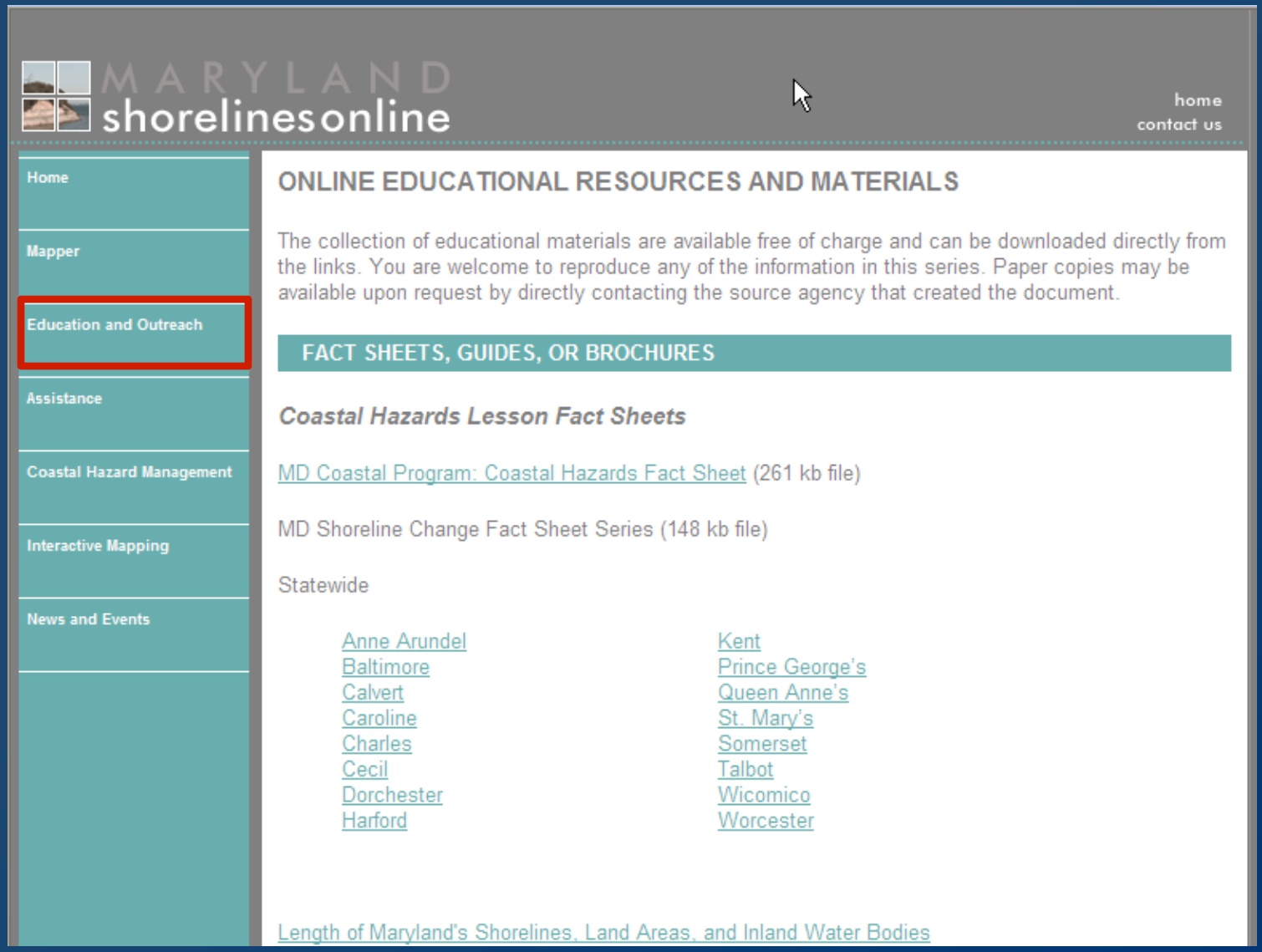
**Coastal Managers** - State and local planners and regulators will benefit from this site when interfacing with the pubic that have questions on Maryland's coastal hazards and the law/regulations/permits that guide activities in the coastal zone. An interactive mapping tool, Maryland Shoreline Changes Online and the Comprehensive Shoreline Inventory will also assist in better understanding the risk to coastal development and communities from natural hazards.

**Property Owners** can gain more information on their risk and vulnerability from erosion, flooding and inundation, as well as determine technical and financial assistance available when determining the best option to mitigate coastal hazards.

**Marine Contractors** – This site represents a resource to determine the historical rates of shoreline change and technical information on protection and restoration approaches like "living shorelines" to address shoreline erosion.



# Educational Materials



# Coastal Hazard Management

MARYLAND shorelinesonline

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- Home
- Mapper
- Education and Outreach
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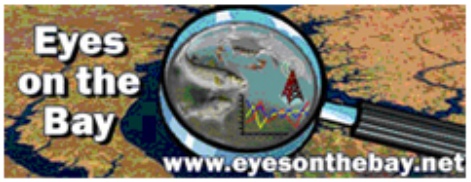
  - Technology, Data, and Research
  - Modeling and Monitoring
  - Planning
  - Case Studies in Coastal Management
  - Living Shorelines
- Interactive Mapping
- News and Events

## MODELING AND MONITORING

### *Real-time Data and Monitoring*

Events like the Indian OceanTsunami have brought to light the need for more integrated ocean observing and monitoring capabilities. Integrated observing systems can significantly improve emergency response and preparedness efforts for large-scale coastal hazard events by increasing alert and evacuation periods and enhancing prediction of the magnitude and potential impact of the event.

A number of observing systems currently provide a "real-time" look at conditions in the Coastal Zone. The following observing systems, ranging from a regional to global scale, are available online.




w monitoring technologies coupled ring programs to allow natural nd the public to better understand, restore the health of Maryland's rces via the Internet.

The water and habitat quality monitoring data characterize existing conditions and long-term trends, detect water quality changes in response to management actions, and protect living resources.

**Chesapeake Bay Observing System**

CBOSprovides real-time information on Bay conditions via the Internet. One goal for the creation of CBOS was the need for long-term measurements on forces driving the motion of Bay waters.

# Interactive Mapping
# MD Shoreline Changes Online

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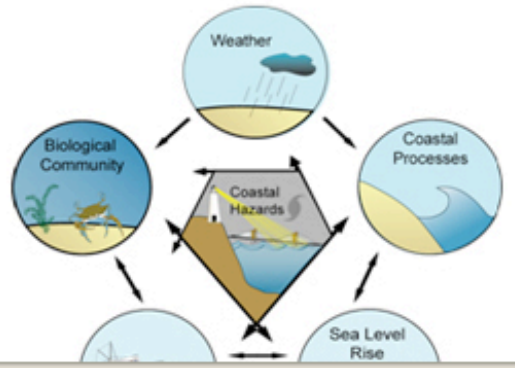

# Maryland Shoreline Changes Online

- Blue Infrastructure
- Coastal Bays
- Rates of Change
- Historical Shorelines
- Shoreline Inventory
- Littoral Drift Maps
- Transportation
- Hydrology
- Storm Surge Areas
- Watersheds
- Municipal Boundaries
- Sea Level Rise Vulnerability
- Imagery
- Boundaries

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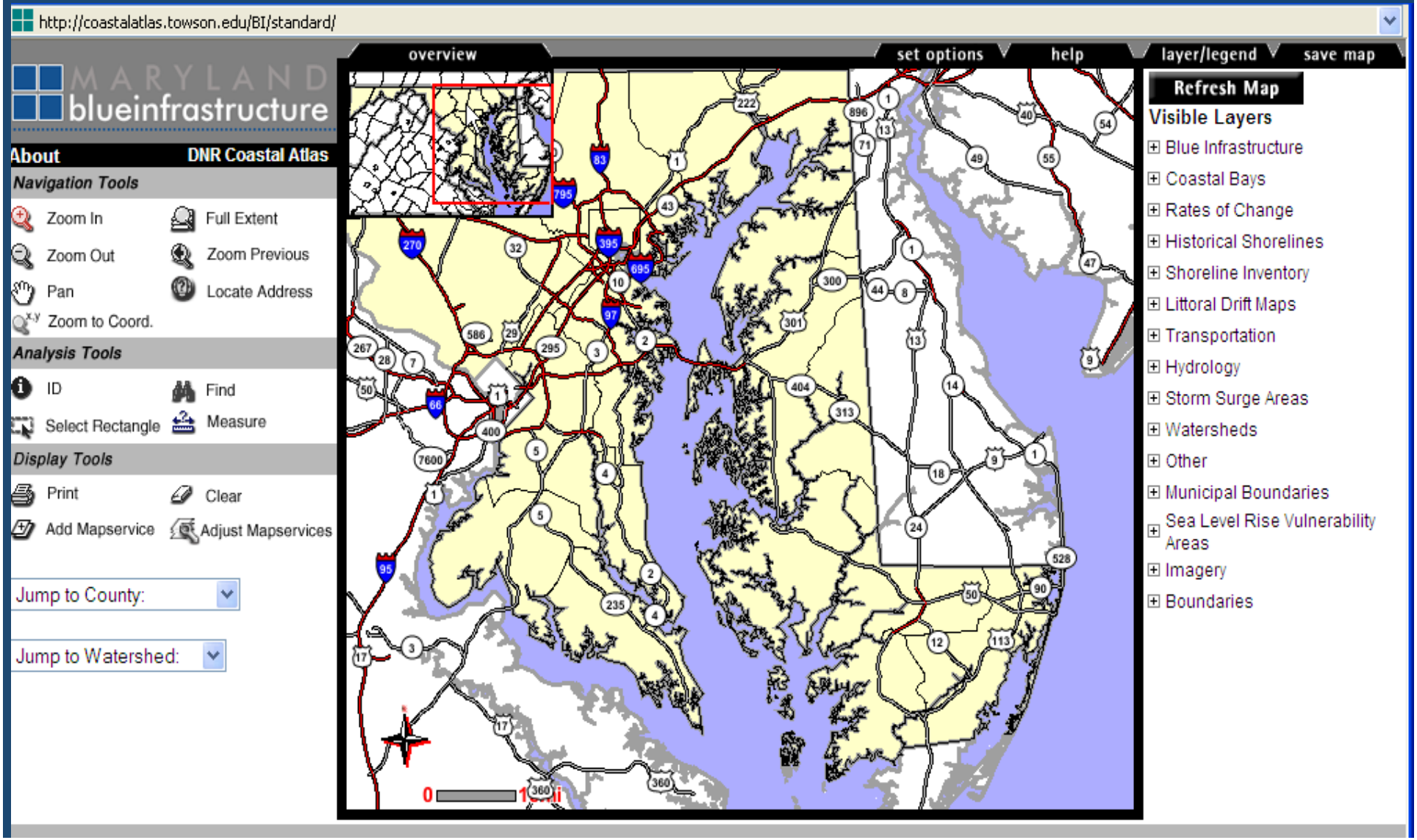

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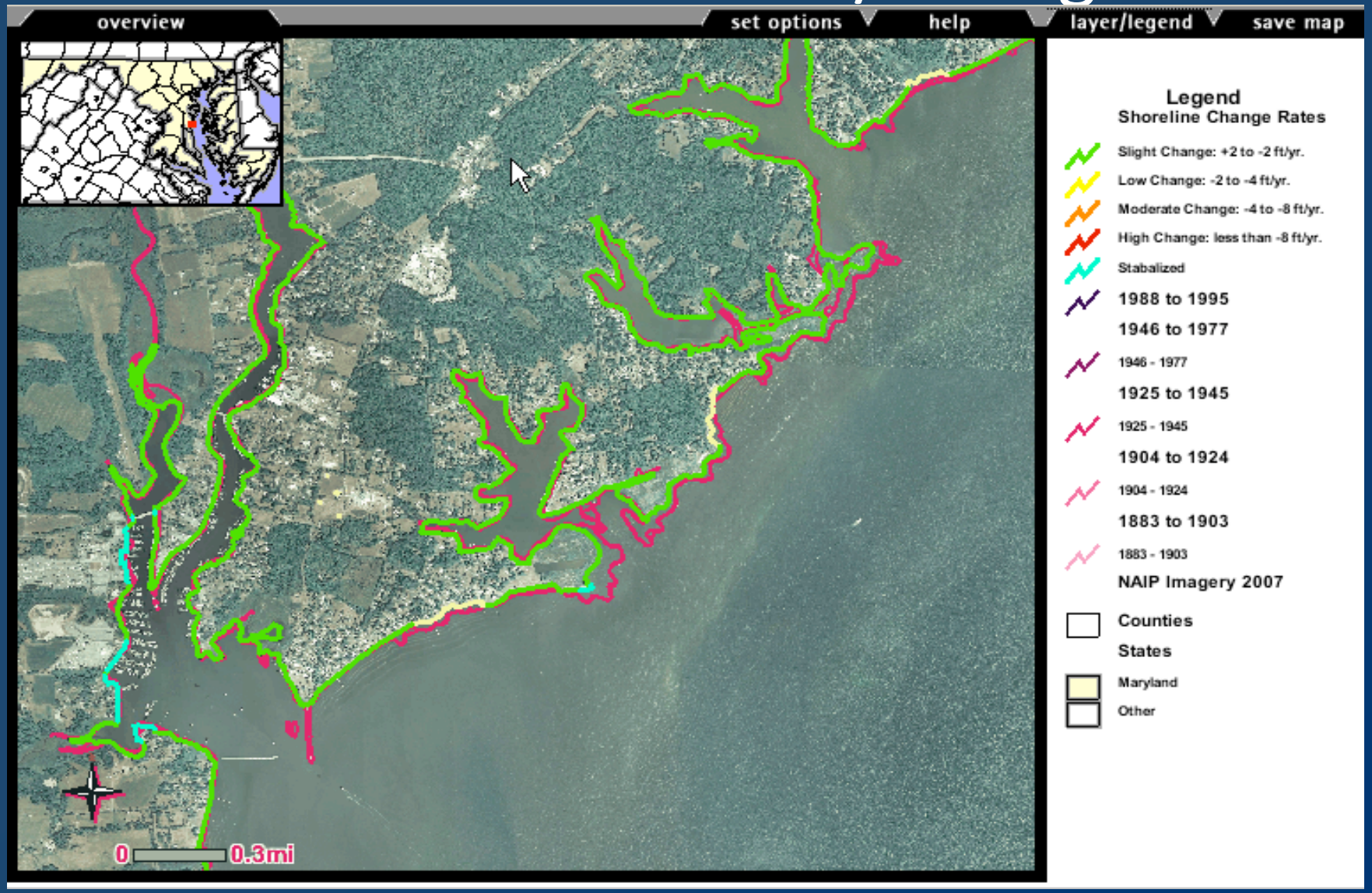
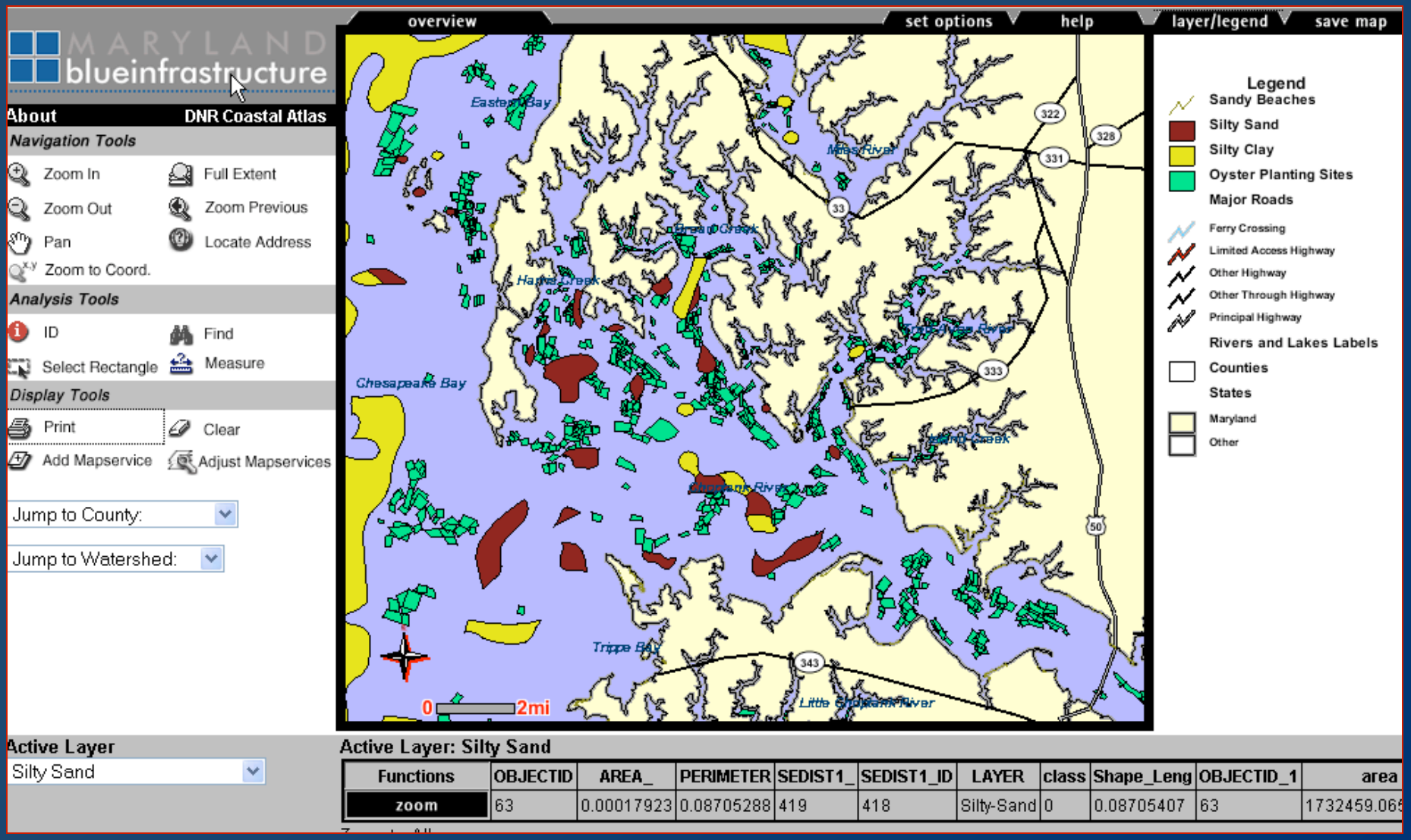
# Shoreline Changes Online

## Historical Shorelines/Change Rates



# Shoreline Changes Online

## Blue Infrastructure



# Implementation and Feedback of Maryland Shorelines Online

- Workshop
  - Interim Training:  data developers
  - Active Users : representing target audience
  - Feedback:  feedback surveys

# Observations with respect to


- What works well
  - data partners
  - simple /familiar layout
  - comprehensive
- Common problems
  - Offsite management
  - Cartographic challenges
  - Loading speeds
  - Metadata completeness
- Do they meet the definition of a “coastal atlas”?
- Are they interoperable?
  - Benefits  for collaboration are not obvious
  - No incentives

# Chesapeake Bay Coastal Atlases in Review

**VA Coastal GEMS**

- NOAA funded
- Developed and served offsite
- ArcIms
- Data partners
- Baseline and modeled data
- Interactive map interface

**MD Shorelines Online**

- NOAA funded
- Developed and served offsite
- ArcIms
- Data partners
- Baseline and modeled data
- Web portal with map interface

# Recent Progress

- Regional meeting with Chesapeake Bay CWA managers
- Reviewed programmatic structure
- Demonstrated the prototype
- Opportunities for collaboration

# Observations

- Observed disconnect between developers and end users
- Incentives for participation are not clear or obvious to management level