





## Acknowledgements

This report was prepared by the Virginia Coastal Zone Management Program's Coastal GIS Coordinator. The Coastal GIS Coordinator position is provided through a contract with Virginia Commonwealth University and is funded by the Virginia Coastal Zone Management Program at the Virginia Department of Environmental Quality through Grant #NA22NOS4190187 from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

## Introduction

This report provides a summary of tasks performed and products created under task #1.03 by the Virginia Coastal Zone Management Program's Coastal GIS Coordinator and by staff of Virginia Commonwealth University Life Sciences during the grant year FY2022 (October 1st 2022 – September 30th 2023). Links are provided for web-based products where applicable. For full-resolution map images, spatial data, or further documentation of tasks summarized in this report, contact [nick.meade@deq.virginia.gov](mailto:nick.meade@deq.virginia.gov).

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## **Coastal GEMS Mapping Application**

### ***Hosting and Maintenance***

Virginia Commonwealth University Life Sciences continued to host the Coastal GEMS online mapping application through the FY22 grant period and VCU Life Sciences staff performed routine maintenance and updates on Coastal GEMS during this time.

Tasks included refreshing map services, updating data and cartography in the map file per CZM staff request, and installing software and security upgrades. Coastal GEMS remained operational throughout the FY22 grant period and was only offline to install software/security updates or to refresh map services. Coastal GEMS can be accessed at:

[www.coastalgems.org](http://www.coastalgems.org).

### ***Google Analytics Tracking***

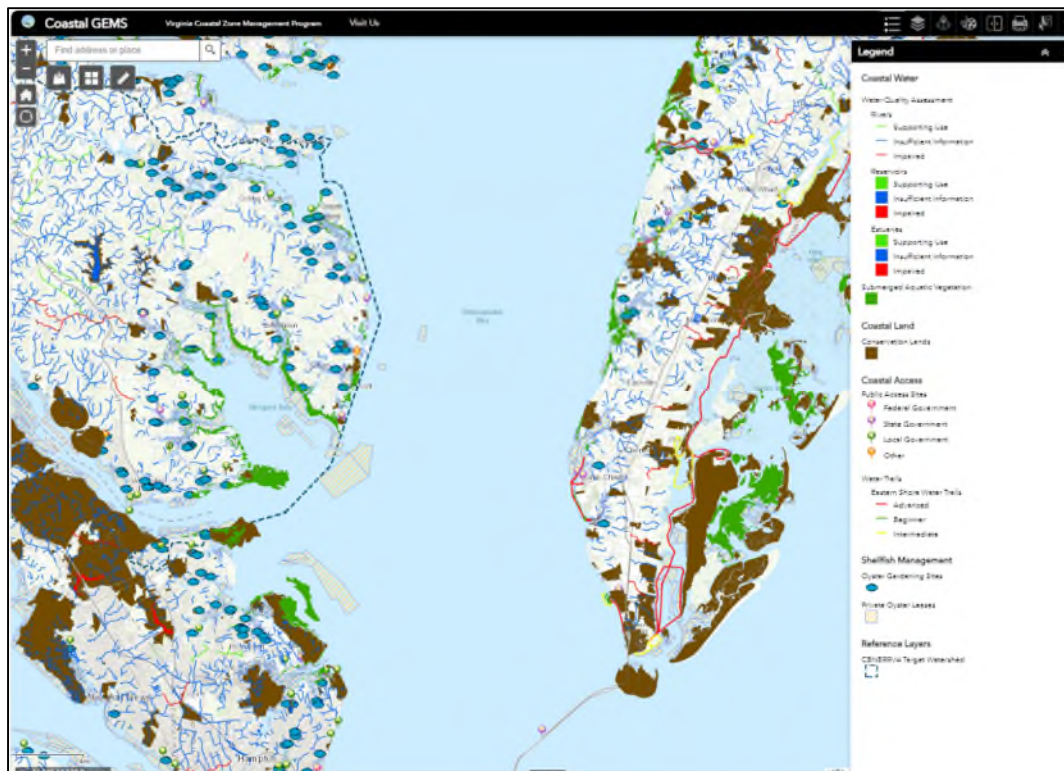
Google Analytics services for Coastal GEMS set up by VCU CES staff remained operational throughout the FY22 grant period. VCU CES staff created Google Analytics reports at CZM staff request by querying specific date ranges.

From October 1, 2022 to September 30, 2023, Coastal GEMS received 967 pageviews from 506 users, resulting in 767 sessions with an average site visit time of 1 min and 30 sec. More Google Analytics information for the Coastal GEMS mapping application during the FY22 grant period can be found in the appendix of this report.

## **Coastal GEMS Data Management**

The Coastal GIS Coordinator requested and obtained available data updates for current Coastal GEMS mapping application and story map layers from data providers, processed/prepared data for display, packaged symbolized data and uploaded to VCU Life Sciences to update map services. Coastal GEMS fact sheets were updated as necessary. The Coastal GIS Coordinator worked with Virginia CZM and MARCO partners to create new story maps. Coastal GEMS can be accessed at: [www.coastalgems.org](http://www.coastalgems.org).

**Coastal GEMS Layers added or updated during the FY22 grant period:** Oyster Gardening, Public Access Sites, Eastern Shore Water Trails, Conservation Lands, Private Oyster Leases, CBNERR target watershed, Submerged Aquatic Vegetation, and Water Quality Assessment layers.



*Left: A screenshot of the Coastal GEMS v4 mapping application showing some of the new and updated data from the FY22 grant period.*

## Story Maps

**Story Maps rebuilt during the FY22 grant period:** The Coastal GIS Coordinator rebuilt Coastal GEMS story maps including: [Balloons on the Beach](#), [Deep Sea Treasures of the Mid-Atlantic](#), and working waterfront story maps for [ANPDC](#), [NNPDC](#), and [MPPDC](#).

All story maps created by the Coastal GIS Coordinator can be found through [the Coastal GEMS Story Maps page](#).

*Right:  
Screenshot of  
story maps page  
on the Coastal  
GEMS website.*





## Coastal GIS Coordination

### Data Requests

The Coastal GIS Coordinator responded promptly to all data and information inquiries. In the FY22 grant period this included requests from local, state, and federal agencies, academic institutions, NGO's, and private firms.

### Project Management

The Coastal GIS Coordinator performed VA CZM project manager duties in FY22 associated with task 1.04 to VCU (Coastal Management GIS Support and Coastal GEMS Maintenance) and worked with DWR, VIMS, and VCU staff to contract and manage projects to update Coastal VEVA component models.

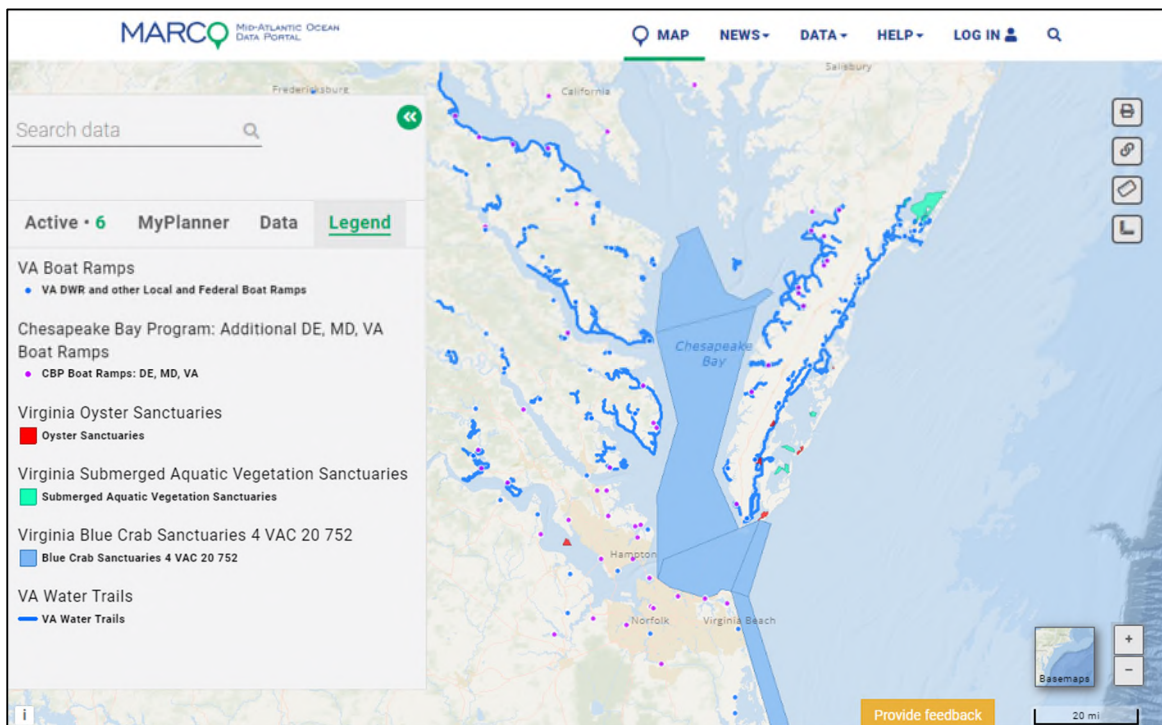
In FY22, the Coastal GIS Coordinator also worked with NOAA and VA CZM staff to determine need for, compile, and review FY23 data sharing plans.

### GIS User Group Participation

During the FY22 grant period the Coastal GIS Coordinator continued participation in the State Agency GIS User Group, the MARCO Non-Consumptive Recreation Work Group and the MARCO Ocean Mapping & Data Team. In FY22 the Coastal GIS Coordinator also worked with MARCO Portal staff to provide Virginia data representing access, recreation, and conservation areas for inclusion in the MARCO Portal and continued involvement in NOAA NCCOS/CBNERR-VA Human Use Mapping Project including reviewing/commenting on draft map book and participating in a stakeholder workshop to review methods, maps, and summary findings.

### Coastal VEVA

During the FY22 grant period the Coastal GIS Coordinator continued work to update the Coastal VEVA conservation planning data synthesis including updating a spreadsheet of VEVA component models and input layers, convening two (October 11 and February 1) Coastal VEVA partners meetings to discuss component model updates, and working with CZM, DWR, VIMS, and VCU staff to contract and manage update projects. This work will continue in FY23.

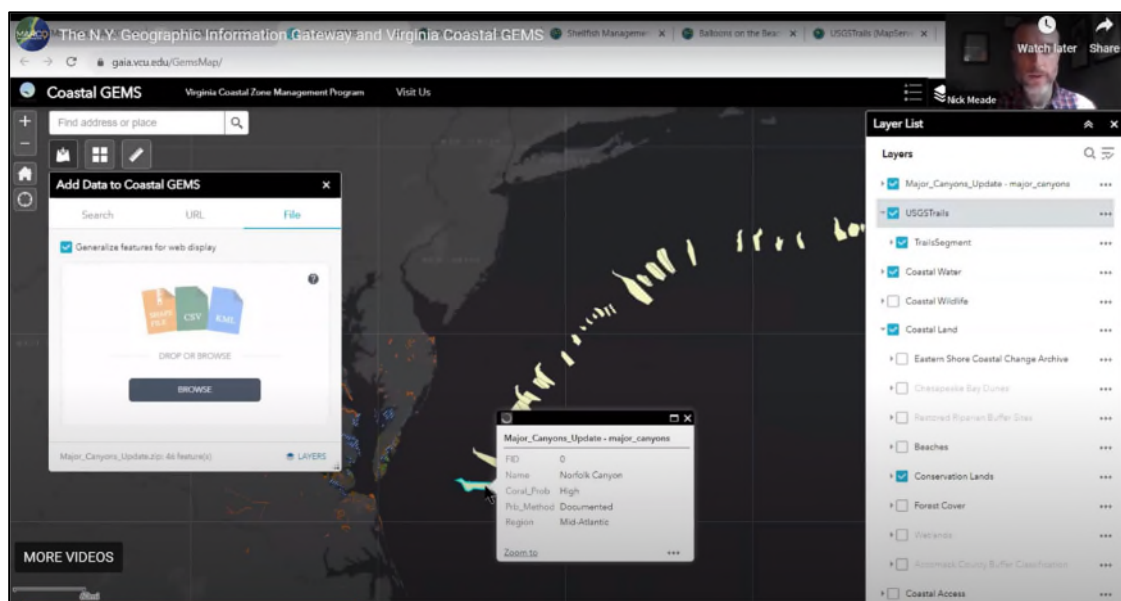


*Above: Screenshot from MARCO Portal showing Virginia data provided by Coastal GIS Coordinator.*

## Training and Outreach

### Coastal GEMS Demos

In FY22, the Coastal GIS Coordinator gave a presentation (including VA CZM Program overview) and live demo of Coastal GEMS highlighting features new to v4 to 35 participants as part of MARCO Portal instructional webinar. A recording is available through the [MARCO Portal blog here](#).

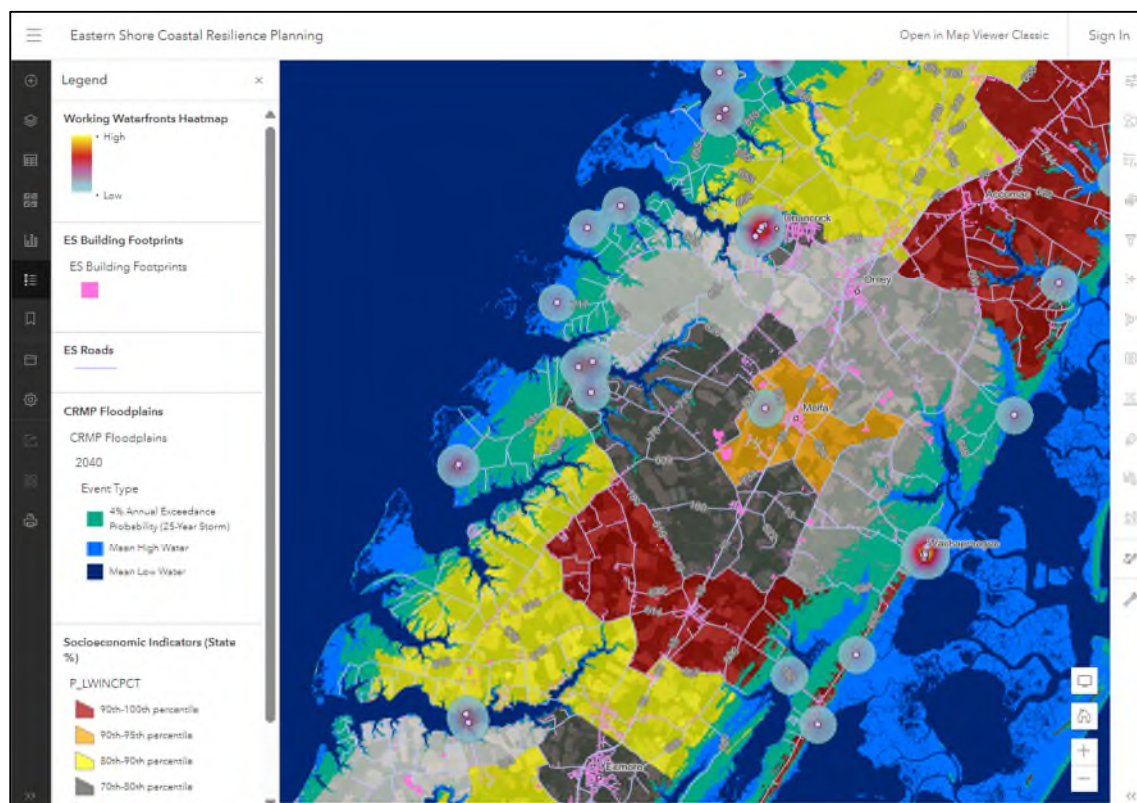


Left:  
Screenshot of  
the Coastal GIS  
Coordinator  
demoing  
Coastal GEMS  
during a  
MARCO Portal  
instructional  
webinar.

### CZM Technical Assistance

The Coastal GIS Coordinator provided technical assistance to VA CZM and partners during the FY22 grant period including participating in Eastern Shore Coastal Relocation group and [creating a web map](#) used to identify areas for targeted outreach including layers for working waterfronts, agricultural value, roads and building footprints, inundation scenarios, and socioeconomic indicators.

Right:  
Screenshot of  
web map  
created by the  
Coastal GIS  
Coordinator for  
use by the  
Eastern Shore  
Coastal  
Relocation  
group.

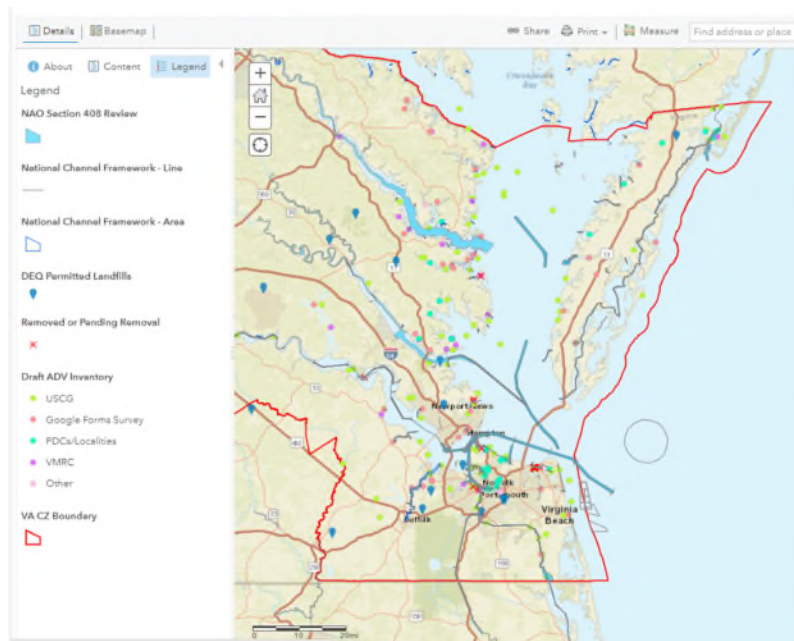




## GIS Map Products and Services

The Coastal GIS Coordinator continued to provide mapping support to the VA CZM Program in FY22, including:

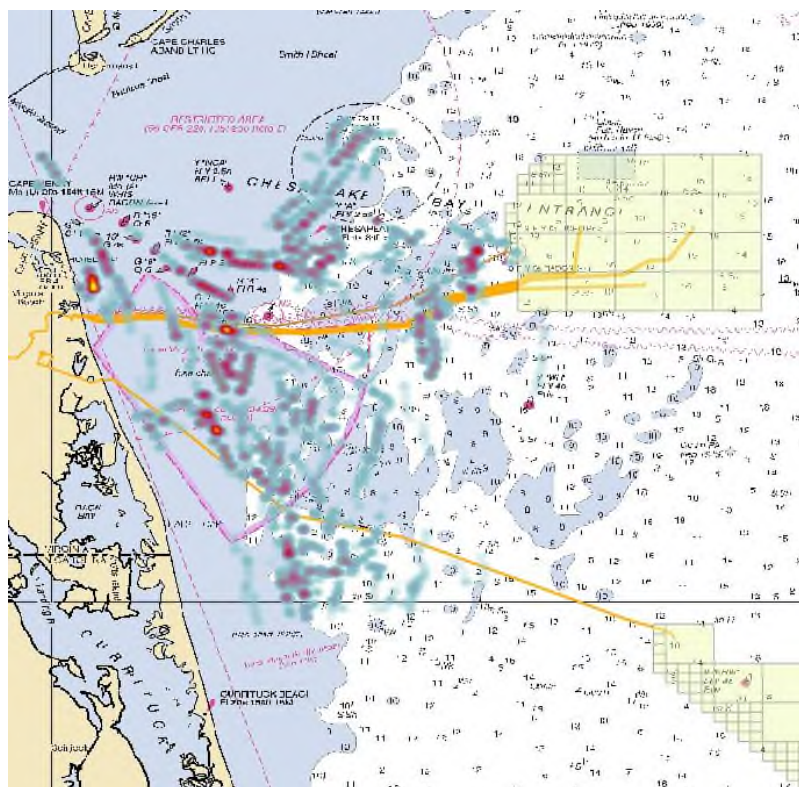
- Working with VA CZM staff to refine the [ADV inventory web map](#) including creating and updating ADV spatial data feature service, adding contextual layers, symbolizing data, and configuring pop-ups



Left: Screenshot of ADV inventory web map

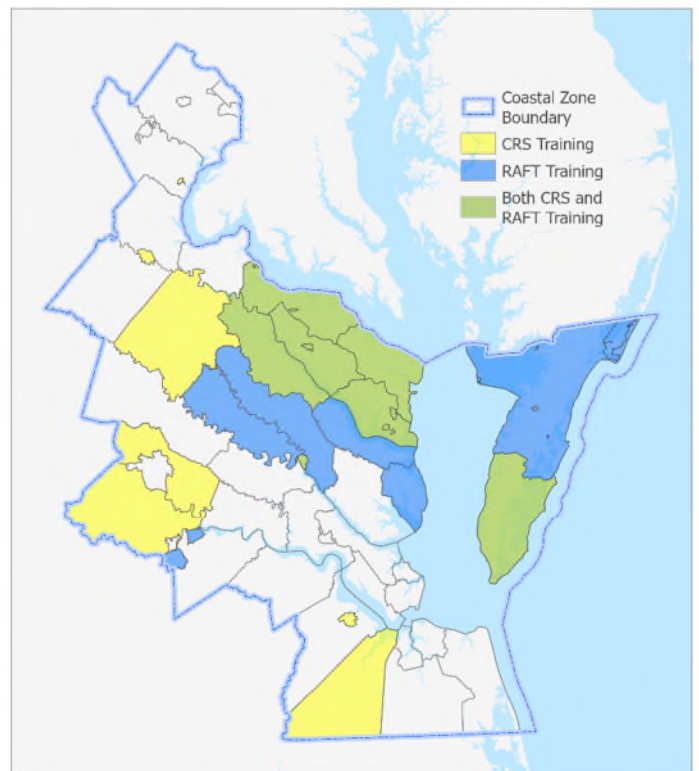
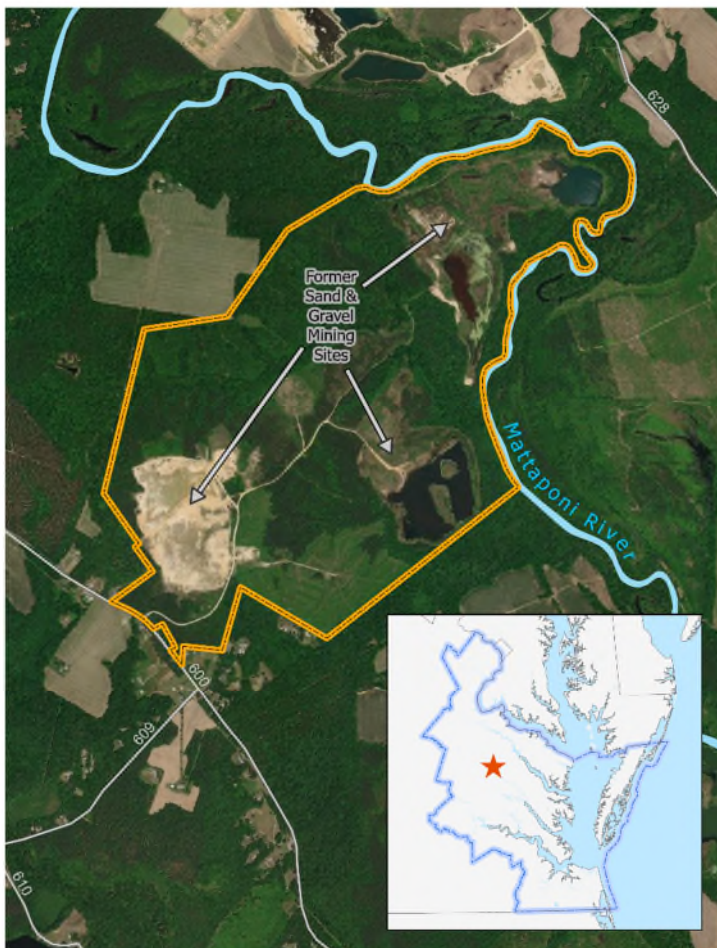
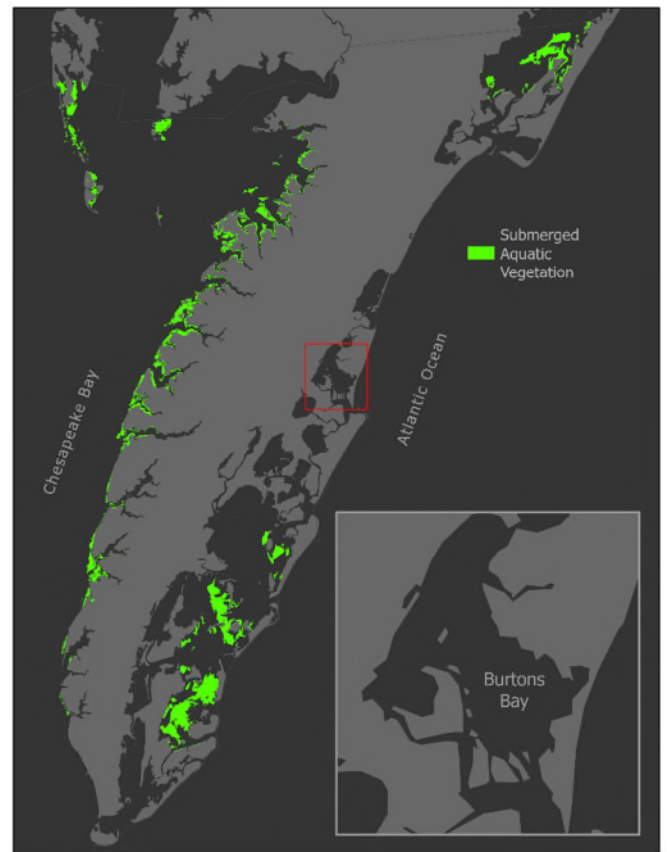
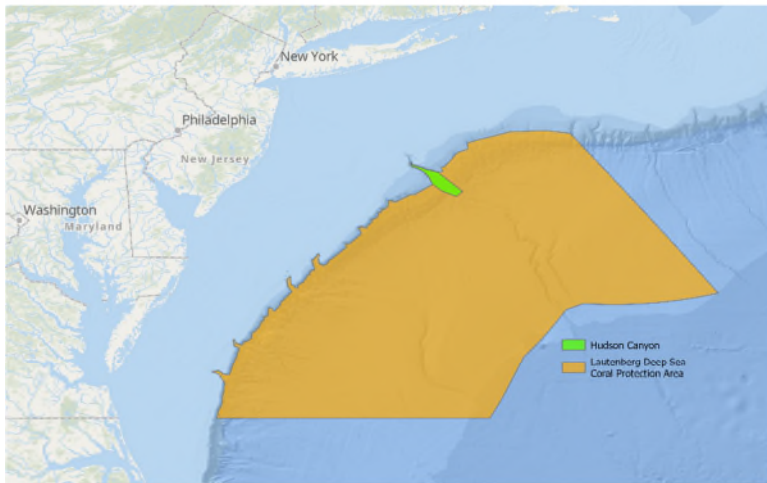
Below: One of several maps created from fishing plotter data for the VA Ocean Fisheries Coordinator

- Providing GIS support to the VA Ocean Fisheries Coordinator by creating maps of CVOW turbine array and by converting commercial fishing plotter data to GIS and creating both maps and tabular outputs.
- Creating map layouts for VA CZM Magazine including ADV locations, the Lautenberg offshore coral protection area, an SAV restoration project on VA's Eastern Shore, the Upper Mattaponi Tribe land acquisition, and coastal zone localities which received CRS/RAFT training. (shown on next page)



*GIS Map Products and Services continued:*

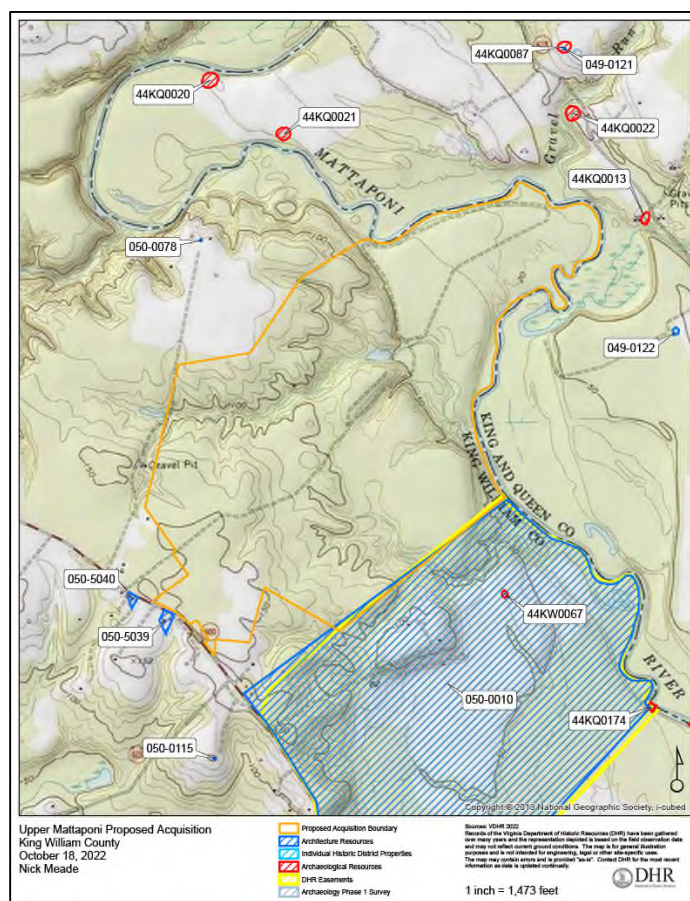
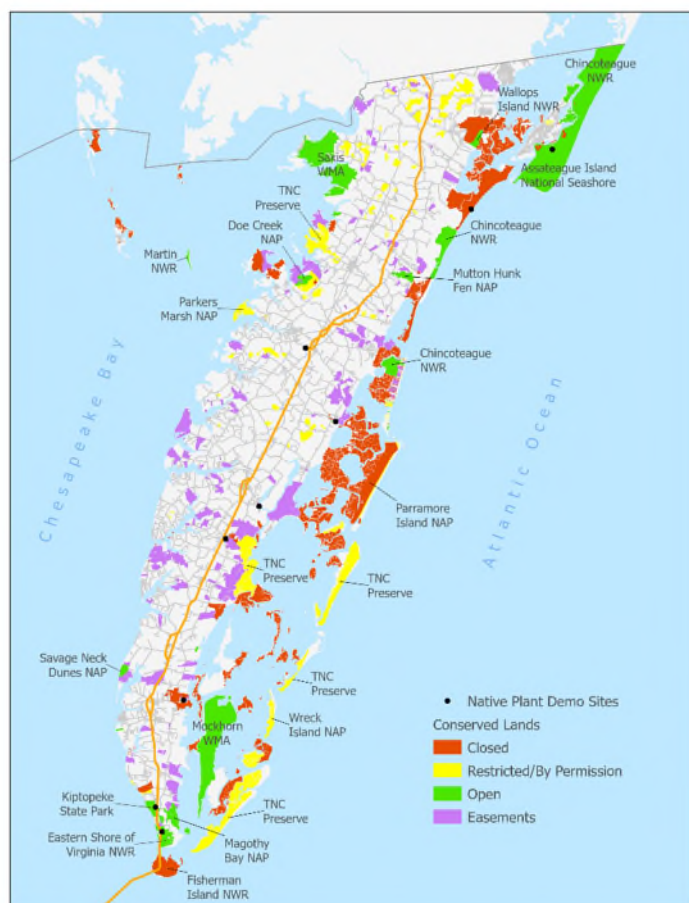
Clockwise from top left: Map layouts of offshore coral protection area, SAV restoration on VA's Eastern Shore, CZ localities which received CRS/RAFT training, and Upper Mattaponi Tribe land acquisition.



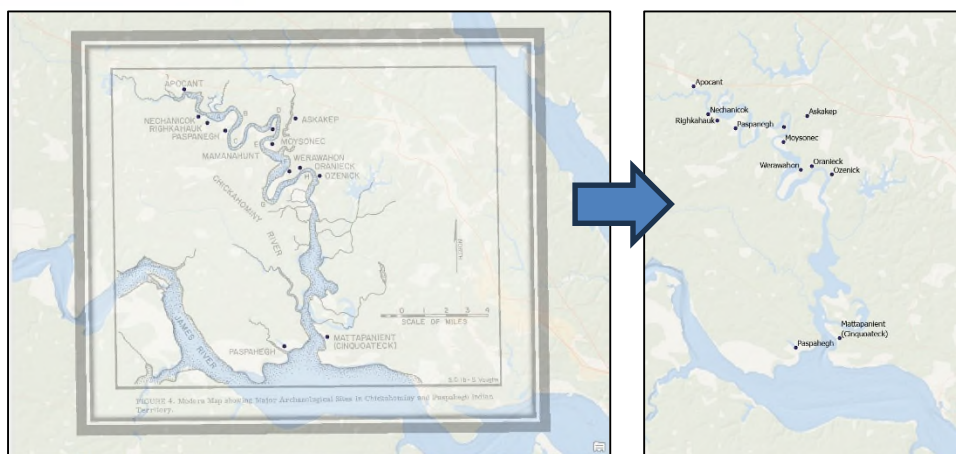


## GIS Map Products and Services continued:

- a map to confirm for USGS staff that their long-term monitoring site was not within the UMIT parcel boundary
- a layout of conserved lands symbolized by access type for the Eastern Shore native plant guide
- maps of proposed Upper Mattaponi Indian Tribe land acquisition for CZM display at Flood Resilience Reception;
- a GIS point layer of locations of historic Tribal villages of the Chickahominy Tribe georeferenced from a static map for potential inclusion on Coastal GEMS.
- Completed SHPO clearance for VIMS SAV restoration, Upper Mattaponi land acquisition, and DWR Eastern Shore Restoration projects, including creating archive search maps and submitting applications using DHR's online ePIX system.



Clockwise from top left:  
Map layout for Eastern  
Shore Native Plant Guide,  
DHR archive search map  
for Upper Mattaponi land  
acquisition, and  
georeferencing a map of  
locations of historic Tribal  
villages of the  
Chickahominy Tribe.



## Appendix

### Google Analytics

