

Virginia Commonwealth University, Center for Environmental Studies
Coastal Management GIS Support & Coastal GEMS
Maintenance: FY15 Annual Report

October 1st 2015 – September 30th 2016

NOAA Grant # NA15NOS4190164

Grant Year FY2015, Task #1.04



Virginia Coastal Zone
MANAGEMENT PROGRAM



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's Center for Environmental Studies and is funded by the Virginia Coastal Zone Management Program at the Virginia Department of Environmental Quality through Grant # NA15NOS4190164 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 #1.04 by the Virginia Coastal Zone Management Program's Coastal GIS Coordinator and by staff of Virginia Commonwealth University's Center for Environmental Studies during the grant year FY2015 (October 1st 2015 – September 30th 2016). For full-resolution map images, spatial data, or further documentation of tasks summarized in this report, contact nick.meade@deq.virginia.gov.

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Coastal GEMS Mapping Application

Hosting and Maintenance

Virginia Commonwealth University's Center for Environmental Studies (VCU CES) continued to host the Coastal GEMS online mapping application through the FY15 grant period and VCU CES 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 as per CZM staff request, and installing software and security upgrades. Coastal GEMS remained operational throughout the FY15 grant period and was only offline to install software/security updates or to refresh map services.

During the FY15 grant period, at CZM staff request, VCU CES staff updated the data and symbology on nine currently in production Coastal GEMS data layers.

Google Analytics Tracking

Google Analytics services for Coastal GEMS set up by VCU CES staff remained operational throughout the FY15 grant period. VCU CES staff created Google Analytics reports at CZM staff request by querying specific date ranges. From October 1, 2015 to September 30, 2016, Coastal GEMS received 1,395 visits from 963 unique visitors resulting in 1,643 pageviews and an average site visit time of 1 minutes and 16 seconds. More Google Analytics information for the Coastal GEMS mapping application during the FY15 grant period can be found in the appendix of this report.

Coastal GEMS Update

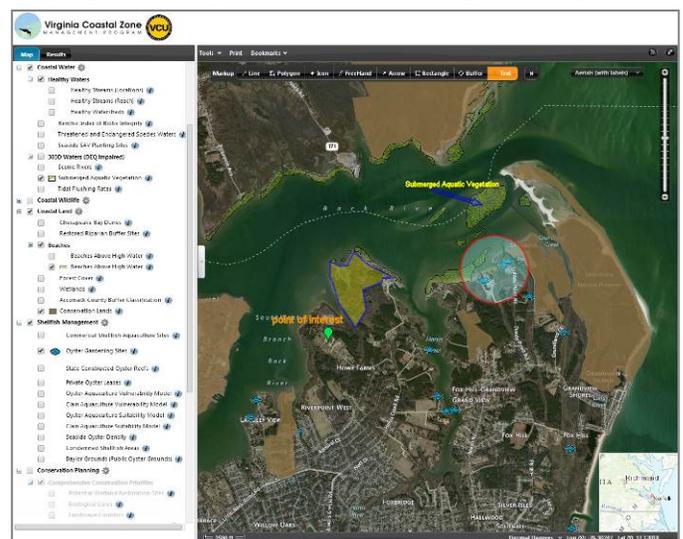
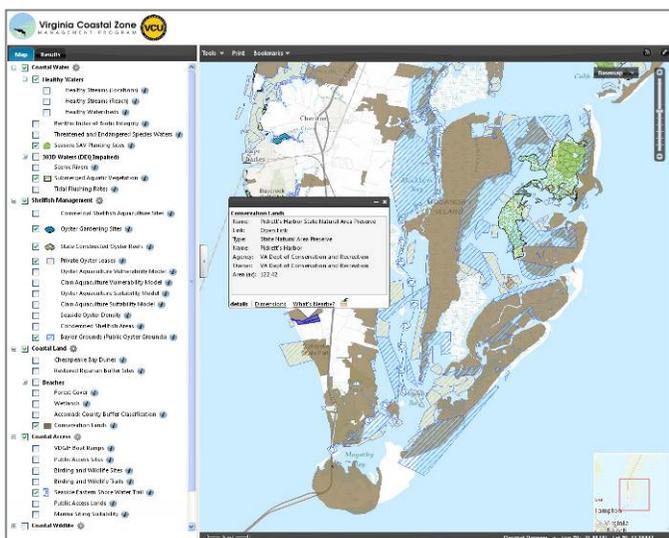
During the FY15 grant period the Coastal GIS Coordinator worked with VCU CES staff to produce proposals for FY14 and FY16 CZM funds to update and enhance the Coastal GEMS mapping application. Enhancements under the FY14 task will include the creation of an interactive 3D map viewer allowing Coastal GEMS users to visualize sea level rise in Virginia's coastal communities in 3D. Enhancements under the FY16 task will include the creation of map stories based on data hosted on Coastal GEMS and the creation of a new landing page with information about the Coastal GEMS application, data and partners, and links to the new map stories. Coastal GEMS mapping application updates under the FY16 task will incorporate software and user interface improvements to allow users to display multiple years of Virginia Base Mapping Program (VBMP) aerial imagery and additional basemaps, and load map services from other sources.

Coastal GEMS Data Management

The Coastal GIS Coordinator requested and obtained available data updates for current Coastal GEMS layers from data providers, processed/prepared data for display on GEMS, packaged symbolized data and uploaded to VCU CES to be added to Coastal GEMS. Coastal GEMS fact sheets were updated as necessary.

Layers updated during the FY15 grant period include: Current Population, Population Change, Conservation Lands, Private Oyster Leases, Baylor Grounds, Oyster Aquaculture Vulnerability, Clam Aquaculture Vulnerability, Development Vulnerability Model, and Agricultural Value Model

Coastal GEMS can be accessed at:
www.coastalgems.org



Above: A screenshot from Coastal GEMS showing available markup functions
Left: A screenshot from Coastal GEMS showing selected layers on the Southern tip of Virginia's Eastern Shore

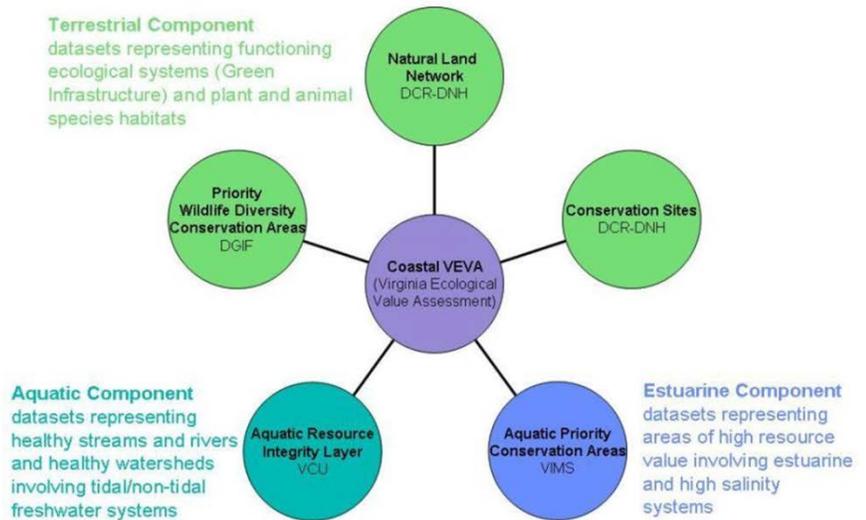
Coastal GIS Coordination

The Coastal GIS Coordinator responded to all Coastal GEMS data and information requests in a timely manner. In FY15 this included providing spatial data in requested formats to federal and state agencies, localities, academic institutions, environmental NGO's and private contractors and providing NOAA with Coastal GEMS fact sheet template and completed sample fact sheet for use as a model for MarineCadastre.gov "uses" pages. The Coastal GIS Coordinator also provided support for various products from VA CZM and VA CZM grantees as detailed below.

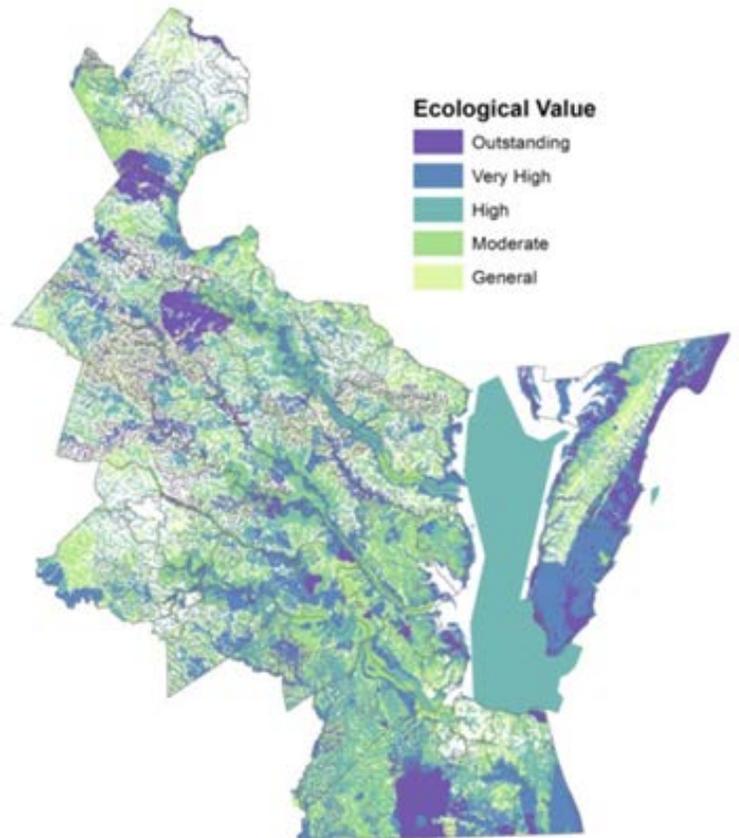
CZM Grantee Products

Coastal Virginia Ecological Value Assessment Update

The Coastal Virginia Ecological Value Assessment (VEVA) was developed in 2001 to provide guidance to local governments engaged in land use management and conservation planning. VEVA is a collaborative effort among several state programs to synthesize the best available natural resource information into a single geospatial product. In FY15 the Coastal GIS Coordinator worked with Coastal VEVA partners to begin the process of creating an updated Coastal VEVA dataset including organizing and leading meetings with staff from VCU CES, the Virginia Department of Conservation and Recreation's Natural Heritage Division (DCR-DNH), the Virginia Institute for Marine Science (VIMS), and the Virginia Department of Game and Inland Fisheries (DGIF) and working with DCR-DNH, DGIF, and VCU CES staff to produce proposals for FY14 and FY16 CZM funds to update the Coastal VEVA data synthesis as well as many of the key datasets it synthesizes. The Coastal GIS Coordinator operated as the CZM Project Manager for these tasks and has been working with VCU CES staff to create a survey for potential Coastal VEVA users as part of their FY14 task.



	May 2016	Summer 2016	Fall 2016	Winter 2016-Feb 2017	March 2017	Spring 2017	Summer 2017	Fall 2017	Winter 2017-18
FY14 Task 12 \$32,102	DCR VANLA update								
FY14 Task 13 \$36,949	VCU – GEMS Updates & VEVA	VEVA Use Survey	SLR 3D Viewer	Compile Survey Results	VEVA 2 Data and Model Prep				
FY14 Task 14 \$28,791	DGIF – PWDCA update								
FY16 Task 11 \$70,554			VCU GEMS Updates & VEVA 2 + outreach	GEMS software update & Landing Page	GEMS Map Stories	VCU Runs VEVA 2 + compiles metadata	VCU Outreach for VEVA		
FY 16 Additional Sec 306 \$30K			DGIF Chickahominy field work						
FY16 Task 93.02 \$95,000			DCR Chick field work & sub to VCU for Instar	DCR Chick field work & sub to VCU for Instar	DCR Chick field work & sub to VCU for Instar	DCR Chick field work & sub to VCU for Instar	DCR Chick field work & sub to VCU for Instar		



Clockwise from top: A graphic showing the components of Coastal VEVA and the partners involved, the current Coastal VEVA map, and a table created as part of the Coastal VEVA update planning to visualize the multiple FY14 and FY16 grants related to the update

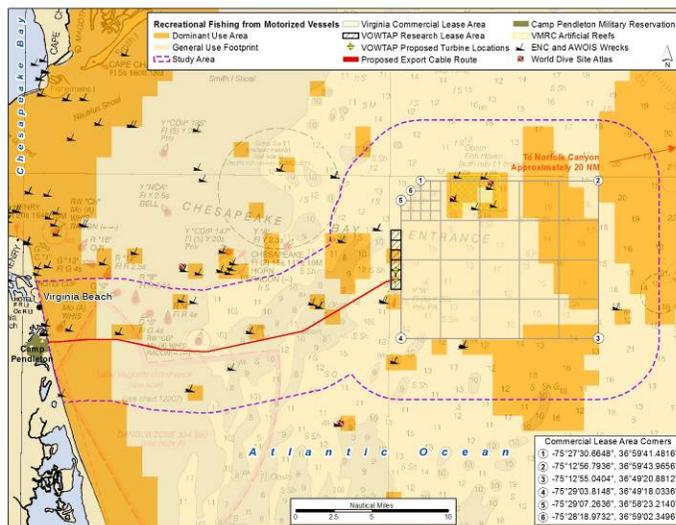
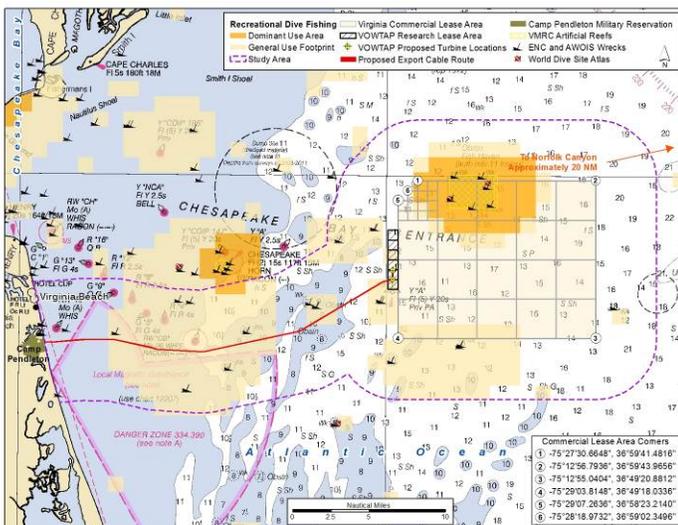
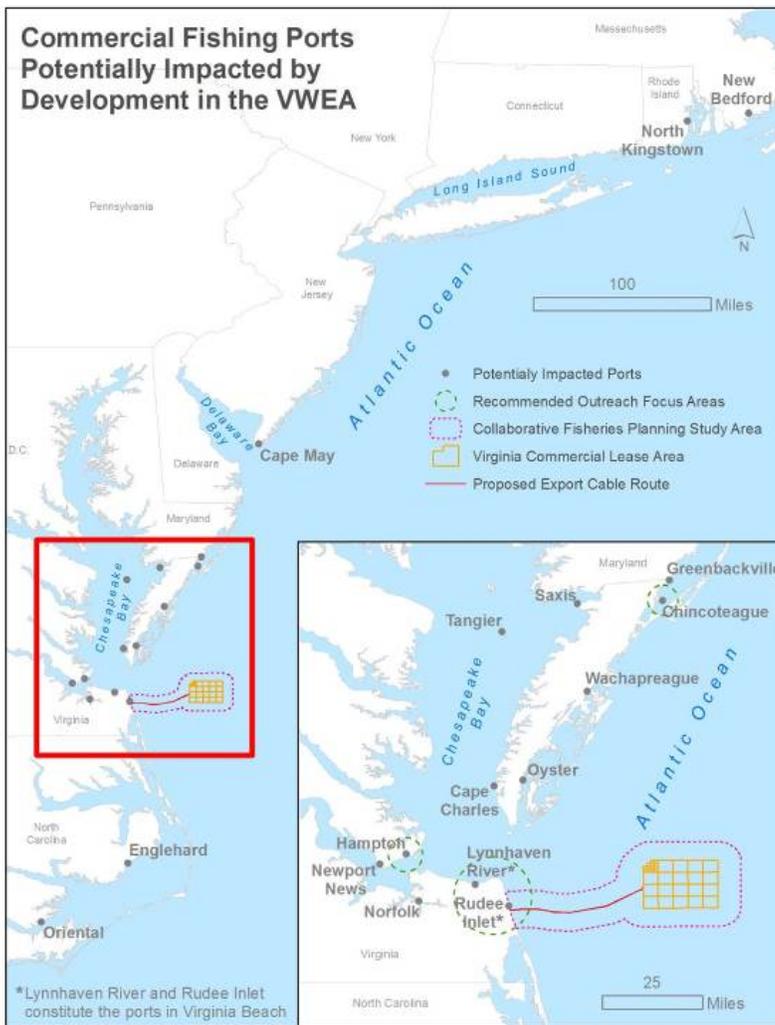
CZM Program Products

Collaborative Fisheries Planning

The Coastal GIS Coordinator continued to assist with the VA CZM led, Bureau of Ocean Energy Management (BOEM) and Virginia Department of Mines, Minerals, and Energy (DMME) funded project engaging fishermen through a collaborative process to minimize potential conflicts to fishing communities from the build out of VA's commercial wind energy area. In the FY15 grant period this included participating in regular calls with the project team as they worked to complete the final project report and draft BMPs regarding communication, design, operation, and environmental monitoring of a commercial wind facility. The Coastal GIS Coordinator created map layouts and drafted text describing VA Atlantic Coast Recreational Use data for the final report and worked with project team members to create a map of potentially impacted fishing ports for inclusion in BMP 1 – Communications Framework. The final report (including BMP's) can be found on the VA CZM website through the link at the bottom of this page.

Right: A map of potentially impacted fishing ports and recommended outreach focus areas for inclusion in the Communications Framework BMP.

Below: 2 of the 6 map layouts created by the Coastal GIS Coordinator showing fishing data from the VA Atlantic Coast Recreational Use project within the Collaborative Fishing Planning project study area.



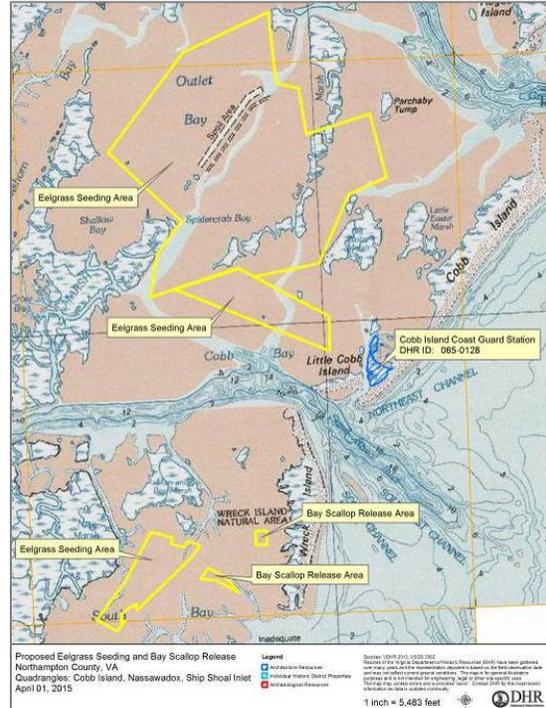
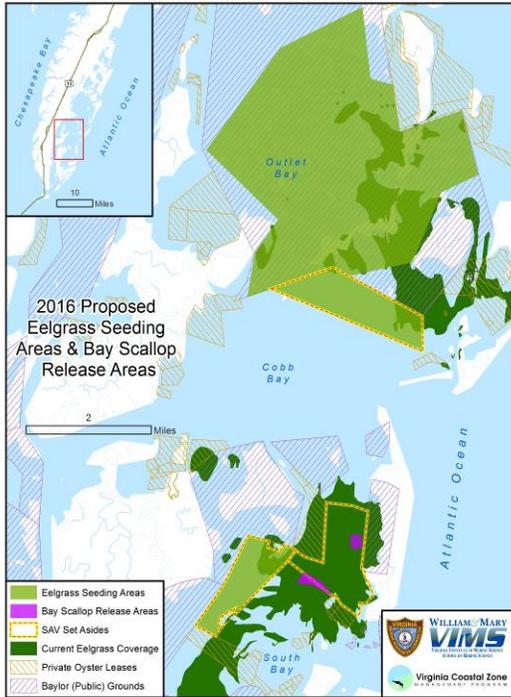
Collaborative Fisheries Planning for Virginia's Offshore Wind Energy Area Final Report:

<http://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/Virginia-Wind-Energy-Area-Collaborative-Fisheries%20Planning-Final-Report.pdf>

GIS Map Products and Services

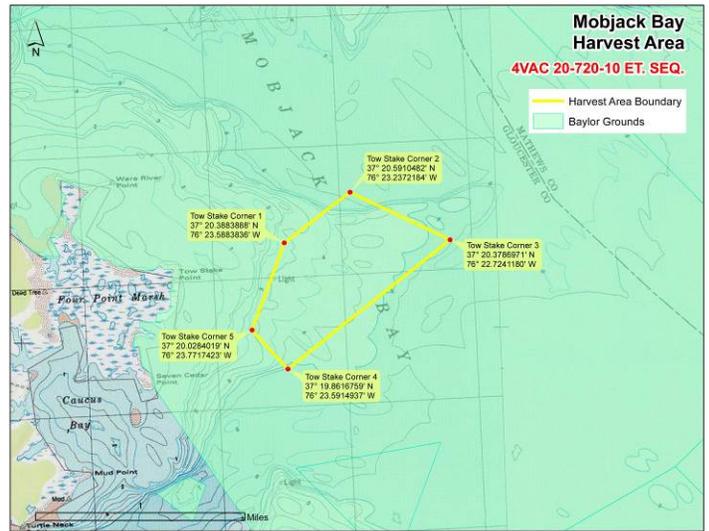
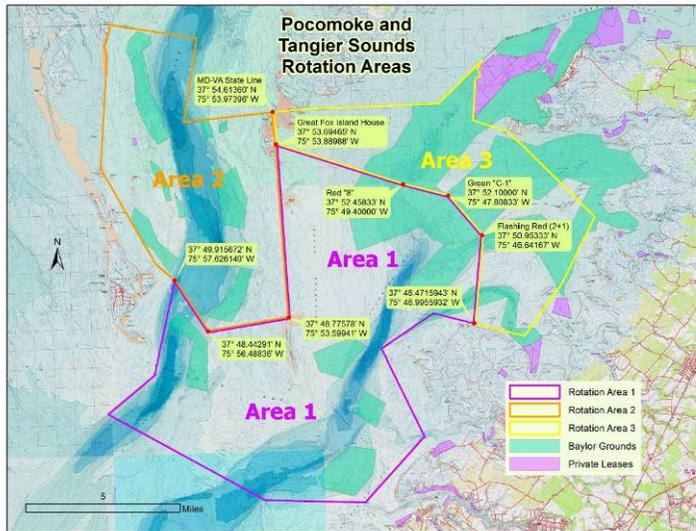
CZM Partner Request

The Coastal GIS Coordinator continues to provide GIS technical assistance as requested by VA CZM partners. In FY15 this included performing DHR GIS archive searches and creating maps required for 306a documentation and SHPO clearance for VA CZM grantee projects and working with Virginia Marine Resource Commission (VMRC) Conservation and Replenishment staff to update maps used for oyster harvest enforcement in Mobjack Bay and Pocomoke and Tangier Sounds.



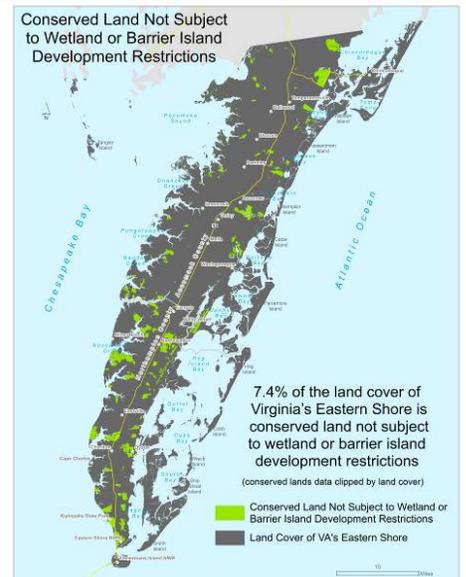
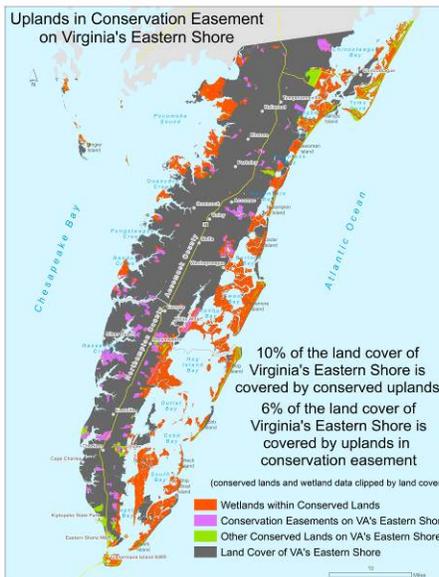
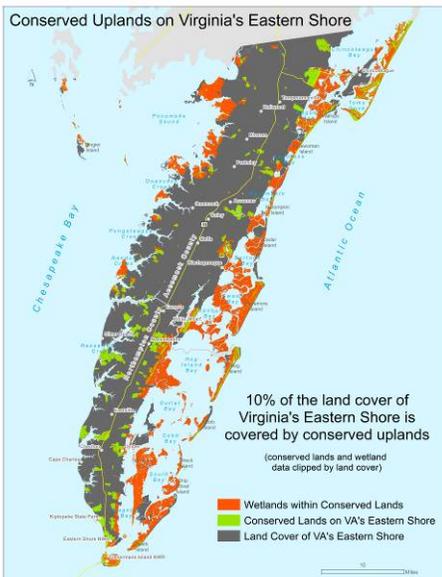
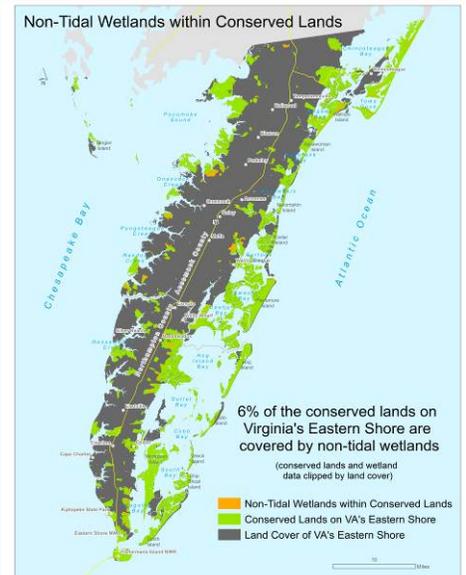
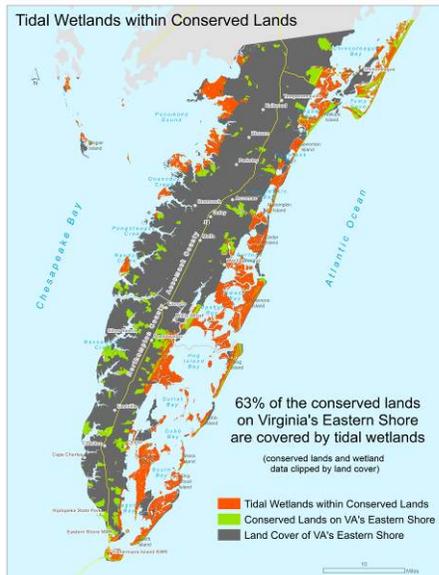
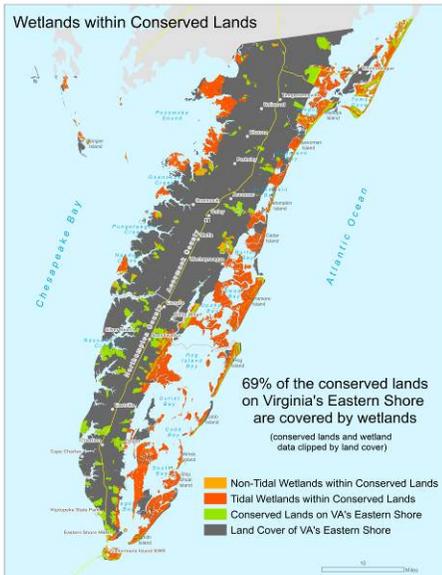
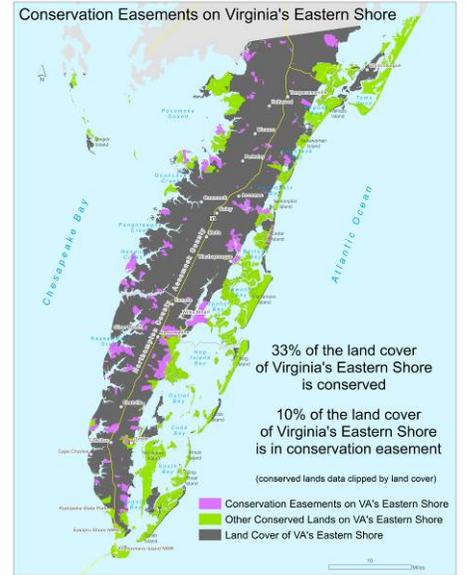
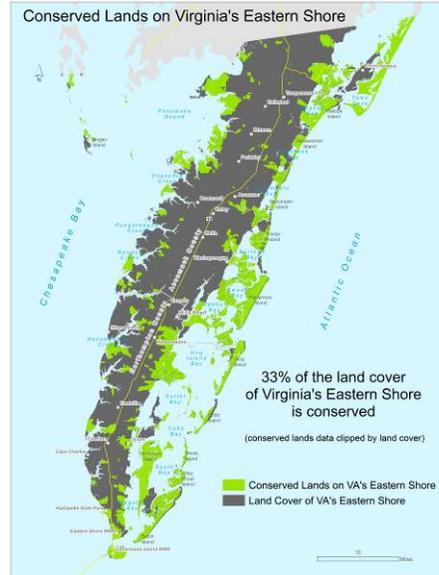
Above: Maps created by the Coastal GIS Coordinator for 306a documentation and SHPO clearance for the VIMS Seaside Restoration project

Below: Maps created by the Coastal GIS Coordinator used for oyster harvest enforcement by VMRC in Mobjack Bay and Pocomoke and Tangier Sounds



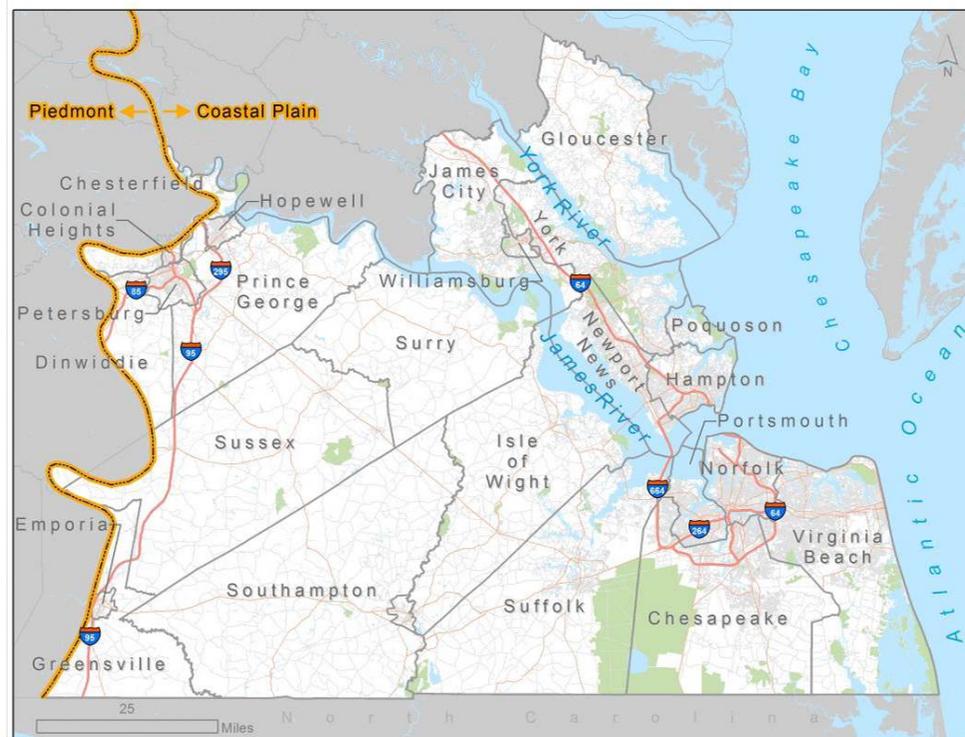
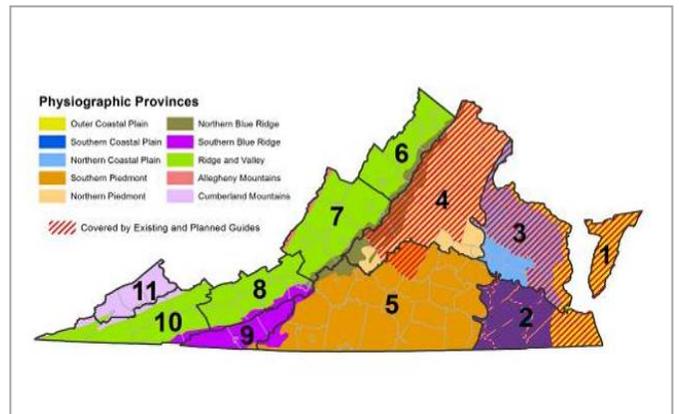
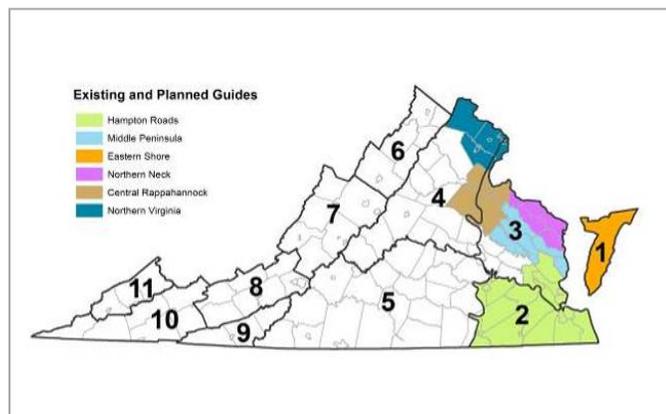
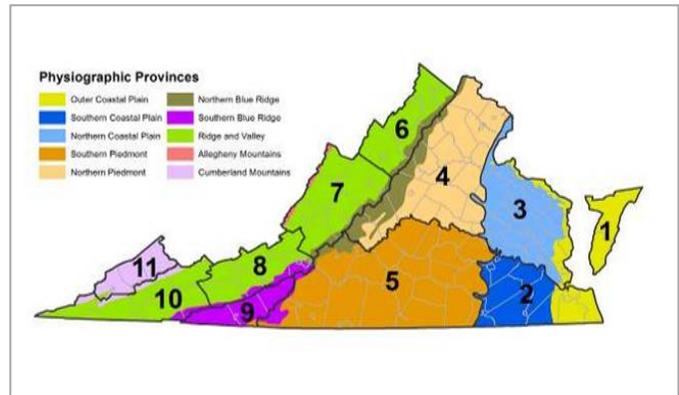
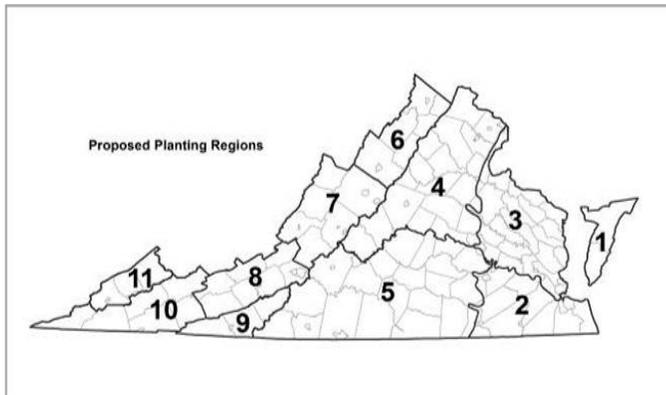
CZM Program Support

The Coastal GIS Coordinator performed GIS calculations and created a series of eight maps (displayed on this page) showing percent coverages of conservation easements, upland conservation easements, and conservation lands that could have been developed (i.e. without development restrictions due to being wetland or barrier island) on VA's Eastern Shore for use in an RFP for study of Economic Impacts of Conserved Lands and created large format prints for use at the Eastern Shore Economic Study kickoff meeting



CZM Program Support Continued

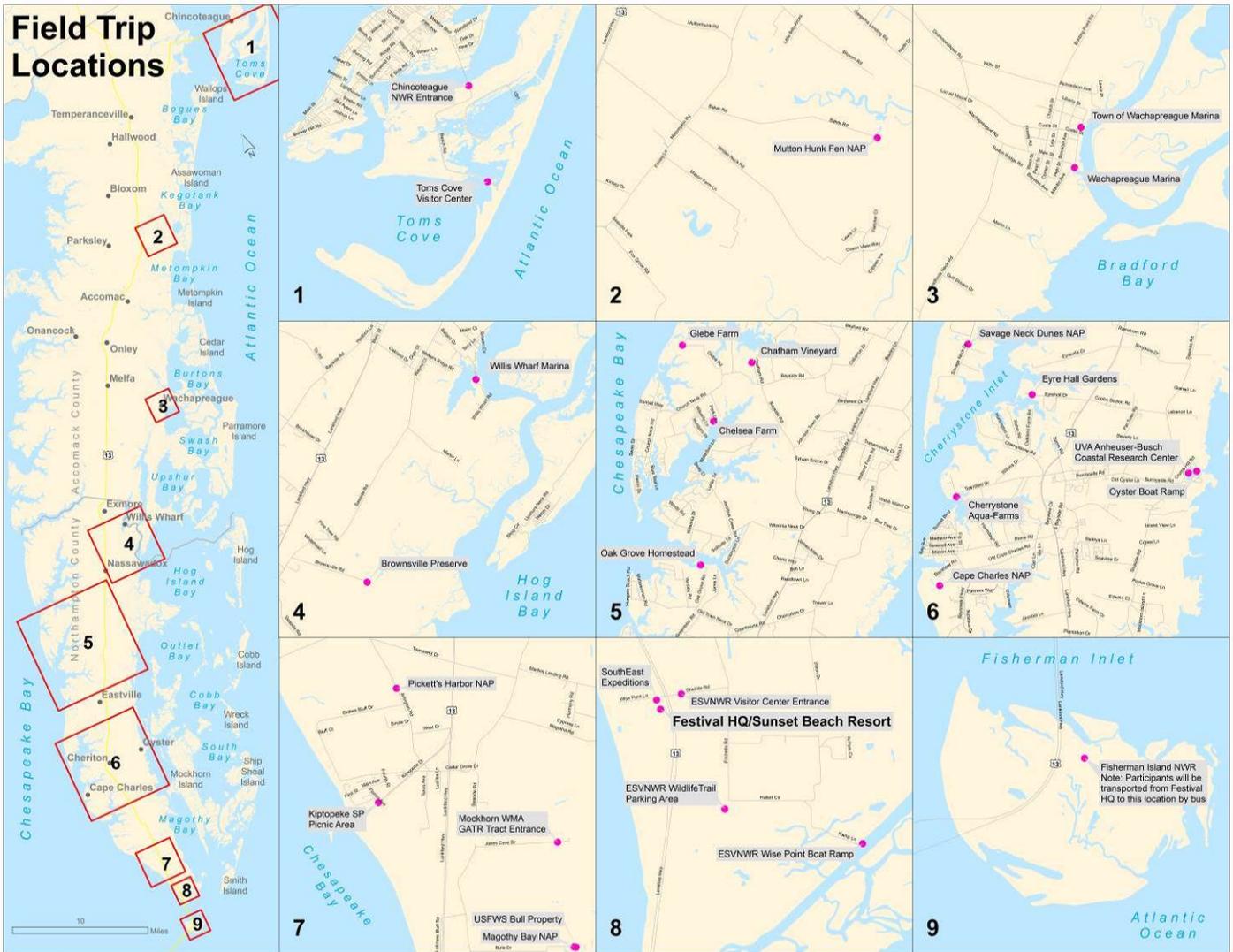
The Coastal GIS Coordinator worked with VA CZM outreach staff and DCR-DNH botany staff to delineate native planting regions and created series of maps showing planting regions including overlays with physiographic data and coverage of existing/planned native plant guides. The Coastal GIS Coordinator also worked with the VA CZM Outreach Coordinator to create a map to be included in the Southeast Virginia Native Plant Guide showing the geographic extent covered by the guide



Above: Maps showing planting regions including overlays with physiographic data and coverage of existing and planned native plant guides

Left: A map showing the geographic extent covered by the Southeast Virginia Native Plant Guide

CZM Program Support Continued



The Coastal GIS Coordinator created maps for the Eastern Shore Birding and Wildlife Festival including a map for a rack card showing the festival location and drive times (left) and a large scale map showing the locations of all of the festival field trips to be displayed at the festival registration area (above)

Appendix

Google Analytics

coastalgems v.3
All Web Site Data

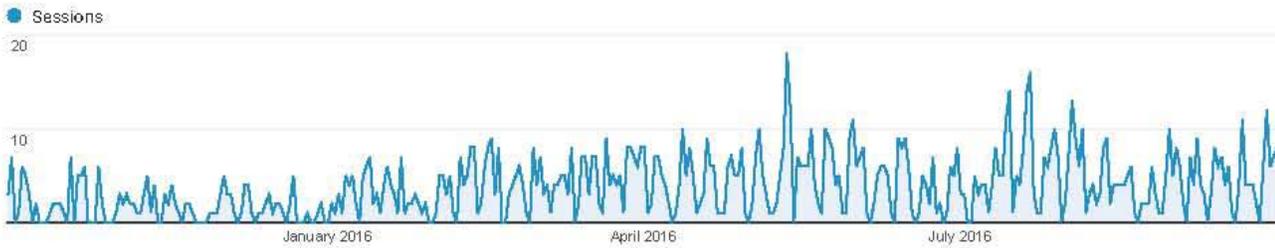
[GO TO REPORT](#)

Audience Overview

Oct 1, 2015 - Sep 30, 2016

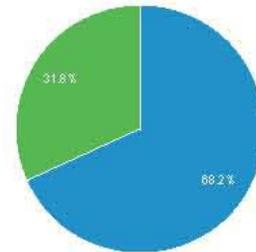
All Users
100.00% Sessions

Overview



Sessions 1,395	Users 963	Pageviews 1,643
Pages / Session 1.18	Avg. Session Duration 00:01:16	Bounce Rate 89.18%
% New Sessions 68.17%		

■ New Visitor ■ Returning Visitor



Language	Sessions	% Sessions
1. en-us	1,240	88.89%
2. pt-br	79	5.66%
3. es-es	14	1.00%
4. en-gb	10	0.72%
5. pt-pt	7	0.50%
6. it-it	6	0.43%
7. en	5	0.36%
8. es-mx	5	0.36%
9. vi	5	0.36%
10. c	3	0.22%

Oct 1, 2015 - Sep 30, 2016

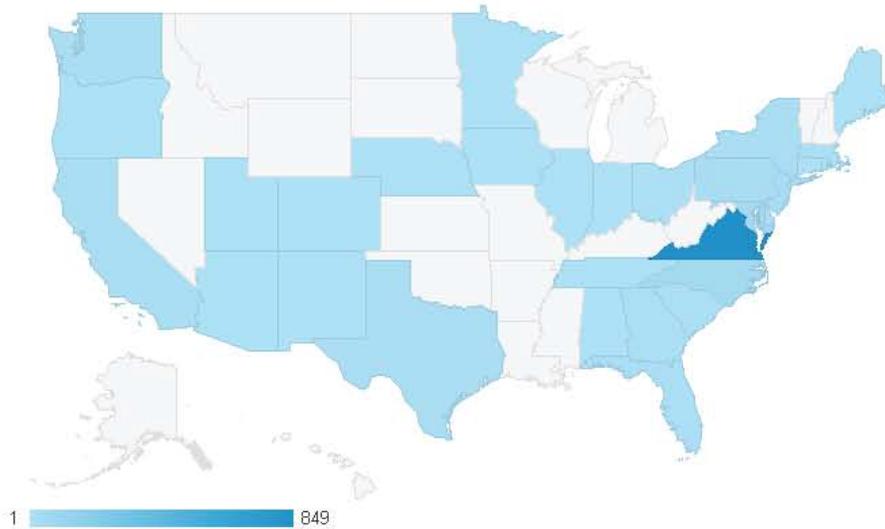
Location

ALL » COUNTRY: United States

All Users
87.74% Sessions

Map Overlay

Summary



Region	Acquisition			Behavior			Conversions		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration	Goal Conversion Rate	Goal Completions	Goal Value
	1,224 % of Total: 87.74% (1,395)	64.54% Avg for View: 68.17% (-5.32%)	790 % of Total: 83.07% (951)	88.15% Avg for View: 89.18% (-1.15%)	1.20 Avg for View: 1.18 (1.69%)	00:01:24 Avg for View: 00:01:16 (11.14%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. Virginia	849 (69.36%)	60.19%	511 (64.68%)	87.99%	1.22	00:01:37	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. North Carolina	60 (4.90%)	60.00%	36 (4.56%)	83.33%	1.18	00:00:57	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Maryland	54 (4.41%)	72.22%	39 (4.94%)	87.04%	1.15	00:01:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. District of Columbia	33 (2.70%)	84.85%	28 (3.54%)	81.82%	1.21	00:00:50	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. New Jersey	28 (2.29%)	32.14%	9 (1.14%)	92.86%	1.07	00:00:31	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Pennsylvania	28 (2.29%)	71.43%	20 (2.53%)	89.29%	1.14	00:02:45	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. New York	24 (1.96%)	87.50%	21 (2.66%)	95.83%	1.04	00:00:09	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. California	21 (1.72%)	95.24%	20 (2.53%)	95.24%	1.05	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Texas	19 (1.55%)	73.68%	14 (1.77%)	84.21%	1.21	00:01:10	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. Washington	19 (1.55%)	94.74%	18 (2.28%)	94.74%	1.05	00:00:51	0.00%	0 (0.00%)	\$0.00 (0.00%)

Rows 1 - 10 of 32