

Coastal GEMS & Virginia's Coastal and Estuarine Land Conservation Program

*CZM Programs to Identify
Coastal Conservation Opportunities*

Kelly Price
Coastal Planner
Virginia Coastal Partners Workshop
December 6, 2007



Virginia Coastal Zone
MANAGEMENT PROGRAM



Coastal GEMS

Connects users to a *growing inventory* of

- water and land based natural resource data (blue-green infrastructure)
- conservation planning tools
- examples of good coastal planning decisions

Promotes *community involvement* in coastal land and water conservation decisions through

- fact sheets (coastal resource values, laws and policies)
- direct links to agencies responsible for current data



Better access to information = better decisions

Virginia DEQ - Virginia Coastal Zone Management Program - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.deq.virginia.gov/coastal/>

Commonwealth of Virginia | Governor

Virginia DEQ Home > Virginia Coastal Zone Management Program

DEQ
Virginia Department of
Environmental Quality

Search DEO

Virginia Coastal Zone
MANAGEMENT PROGRAM

Protecting, restoring, and strengthening our coastal ecosystems and economy

Executive Order Coastal zone map Projects Public Notices CZM contacts

New Five Year Strategy
Virginia CZM is developing strategies to address high priority needs in areas such as integrated coastal planning, use conflict resolution and managing shorelines to better prepare for coastal hazards, improve habitat and water quality...
[Coastal Needs Assessment and Strategies](#) (Focus is on [Living Shorelines](#), [Coastal GEMS](#), [Aquaculture Management](#), [Special Area Management Plans](#))

Virginia's Seaside
Virginia CZM is restoring and protecting a global treasure. Shorebirds, [seagrasses](#) and shellfish are already increasing as a result, as are ecotourism and aquaculture opportunities...

Land Acquisition
Virginia CZM acquires and protects sensitive coastal habitat. New federal funding may allow even more area to be protected...

Local Coordination
Virginia CZM partners with eight coastal

Coastal GEMS - Geospatial data

start | Inbox - Microsoft Out... | 2007 Mar 7 PMM GEM... | Virginia DEQ - Virginia... | 5:51 PM

<http://www.deq.virginia.gov/coastal/>



[Address Search](#) | [Coastal News & Events](#) | [Zoom To Locality](#)

Go!

Map Layers Results

Show All Map Layers

- Fisheries Management Areas
- Baylor Grounds (Public Oyster Grounds)
- Private Oyster Leases
- State Constructed Oyster Reefs
- Commercial Shellfish Aquaculture Sites
 - Hard clam
 - Soft clam
 - Oyster
 - Crab shed
- Oyster Gardening Sites
- Submerged Aquatic Vegetation (SAV)
- Seaside SAV Planting Sites
- Anadromous Fish Use Areas
- Threatened & Endangered Species Water

Advanced Tools Export/Print Help





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Go!

Map Layers Results

- Shoreline Features**
 - Beaches Above High Water
 - Man Influenced
 - Man Made
 - Natural
 - Chesapeake Bay Dunes
 - Man Influenced
 - Man Made
 - Natural
 - National Wetlands Inventory
 - Non-Tidal
 - Tidal
- Land Features**
 - Forest Cover
 - Conservation Lands
 - Barrier Island Ownership
 - VA Natural Landscape Assessment
- Wildlife**
 - Critical Wildlife Habitat
 - Important Bird Areas
 - Migratory Songbird Stopover Habitat
- Recreational Features**
 - VDGIF Boat Ramps

Advanced Tools Export/Print Help



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Map Layers Results

- wildlife**
 - Critical Wildlife Habitat
 - Important Bird Areas
 - Migratory Songbird Stopover Habitat
 - Critical Habitat
 - Important Habitat
- Recreational Features**
 - VDGIF Boat Ramps
 - Scenic Rivers
 - Seaside Eastern Shore Water Trail
 - Birding & Wildlife Trails
- Conservation Planning Tools**
 - Clam Aquaculture Suitability Model
 - Oyster Aquaculture Suitability Model
 - Biotic Stream Assessment (INSTAR) Sites
 - Impediments to Fish Movement (Dams)
 - Marina Siting Suitability
 - Seaside Invasive Reed (Phragmites)

Advanced Tools Export/Print Help



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In partnership with:



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Map Layers Results

Recreational Features

Conservation Planning Tools

- Clam Aquaculture Suitability Model
 - Not assessed
 - Optimal
 - Suitable
 - Unsuitable
- Oyster Aquaculture Suitability Model
- Biotic Stream Assessment (INSTAR) Sites
- Impediments to Fish Movement (Dams)
- Marina Siting Suitability
- Seaside Invasive Reed (Phragmites)

Conservation Planning Examples

- Seaside Heritage Program Boundary
- Southern Watersheds Program

Reference Layers

- County Boundaries
- Detailed Streams
- Roads

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Commercial Shellfish Aquaculture Sites

This layer shows commercial aquaculture sites, areas allocated for bottom aquaculture of shellfish (primarily oysters and hard clams). These data points are managed by Virginia Marine Resource Commission (VMRC) in order to better assess, plan, and manage aquaculture development throughout Virginia's coastal zone.

Please cite this data source:

Aquaculture Sites (2003). Virginia Institute of Marine Science.

Status of the data:

This layer was created in 2002. Updates are planned for 2007.

**To access this data or tool directly,
please go to this website:**

http://ccrm.vims.edu/blueinfrastructure/disclaimer_bi.html



An aerial view of clam aquaculture on Virginia's Eastern Shore. Photo courtesy of the Virginia Institute of Marine Science.

For original datasets, please contact:

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Virginia Institute of Marine Science.
PO Box 1346
Gloucester Point, VA 23062
phone: (804) 684-7188
fax: (804) 684-7179
email: marcia@vims.edu

Why should we care?

Shellfish cultivation can have positive ecological effects, given that most of the shellfish cultivated (clams and oysters) are filter feeders. Filter feeders remove algae and fine sediment from the water column, thereby "cleaning" it and allowing sunlight to penetrate to the bottom so that underwater grasses can grow. Grass beds and oyster reefs also provide food and shelter for other marine organisms and therefore support biological diversity.

Shellfish cultivation can also provide tremendous economic value. On the Eastern Shore of Virginia, clam farms on both the seaside and the bayside lead the nation in production. In 2005 178 million hard clams were sold by aquaculturists valued at about \$27 million. This industry provided 133 full-time and 73 part-time jobs in 2005. Oyster cultivation is also on the rise with 2.8 million oysters sold in 2005 and projections for 5.2 million to be sold in 2006.

Links for more resource information:

VMRC's website on aquaculture <http://www.mrc.virginia.gov/aquacult.shtm>
Economic Value of Shellfish Aquaculture in Virginia http://www.vims.edu/adv/aqua/MRR2006_5.pdf

How is this resource managed?

The Virginia Marine Resources Commission issues permits and leases for aquaculture activities.

Through grants from the Virginia CZM Program between 1999 and 2003 VMRC developed a regulation authorizing the placement of certain aquaculture structures on leased shellfish ground (4 VAC 20-336-10 et seq.) and developed an abbreviated application process. They also prepared a booklet summarizing all of Virginia's laws and regulations pertaining to shellfish aquaculture and created a GIS data layer to identify existing aquaculture sites. To better accommodate more intensive "off bottom" aquaculture activities, VMRC developed draft legislation to provide a procedure for leasing areas of the water column for aquaculture purposes. This water column leasing program would have provided the aquaculture industry with necessary water rights and protection while minimizing potential conflicts with other user groups and existing natural resources. The 2004 Virginia General Assembly adopted this program as Senate Bill 605, however it was not to be implemented unless funds were appropriated to the program. Funds never were appropriated and the legislation has now expired. The legislation had been recommended by the Virginia Delegation to the Chesapeake Bay Commission and was based on the draft legislation developed during previous years of this CZM-funded Aquaculture Management Initiative.

Currently, clam aquaculture activities are "permitted" through the leasing of private oyster grounds.

Links for more information about how this resource is managed:

[On-Bottom Shellfish Aquaculture Regulations](http://www.mrc.virginia.gov/regulations/onbottom.shtm) <http://www.mrc.virginia.gov/regulations/onbottom.shtm>
[Aquaculture Management Grant to MRC](http://www.deq.virginia.gov/coastal/description/2002projects/95-02.html) <http://www.deq.virginia.gov/coastal/description/2002projects/95-02.html>
[Marking Leased Oyster Grounds](http://www.mrc.state.va.us/regulations/fr290.shtm) <http://www.mrc.state.va.us/regulations/fr290.shtm>

Why was this GIS data created?

This layer was created to inventory aquaculture activities in Virginia as part of the Aquaculture Management Project conducted by the Virginia CZM Program and the Virginia Institute of Marine Science. As individual permits are issued or denied, this data allows us to make better decisions as to where these activities should and should not occur.

Links to CZM-funded or other related projects:

[Blue Infrastructure Maps Grant](http://www.deq.virginia.gov/coastal/description/2003projects/95-02-03.html) <http://www.deq.virginia.gov/coastal/description/2003projects/95-02-03.html>
[Aquaculture Management Grant to VIMS](http://www.deq.virginia.gov/coastal/description/2002projects/94-02.html) <http://www.deq.virginia.gov/coastal/description/2002projects/94-02.html>

How was this GIS data created?

VMRC provided information on Aquaculture permitted sites that was incorporated into the ArcView shape files. Aquaculture sites were imported into ArcView and projected into UTM zone 18.

Future directions

VMRC recently upgraded their AutoCAD database to a format which easily converts to an ArcInfo Geographic Information System format. Updates to this data layer are expected to occur within the coming year.



Address Search | Coastal News & Events | Zoom To Locality

Map Layers Results

1 Matching Address Found

Accuracy of Match: address

425 Water St
Portsmouth 23704
LAT: 36.837166
LON: -76.296745

The Virginia Coastal Zone Management Program will hold its biannual Coastal Partners Workshop December 6 and 7, 2007 at the Renaissance Portsmouth Hotel and Waterfront Conference Center in Portsmouth, VA. The workshop will explore the impacts that climate change and population growth have in our coastal zone and on our coastal resources. The workshop also strives to identify strategies and solutions coastal zone managers and partners can put into practice to address these challenges. Please visit <http://www.deq.virginia.gov/coastal/workshopagenda.html> for more information about this workshop.

Advanced Tools Export/Print



2002 Aerials Aerials Off

Coastal Partners Workshop
425 Water St
Portsmouth 23704

1500 ft Scale 1:16000

36° 50' 18.04"N 76° 18' 45.15"W

Developed By: Virginia Commonwealth University Center for Environmental Studies

In partnership with: WorldView SOLUTIONS



Address Search | Coastal News & Events | Zoom To Locality

Go!

Map Layers Results

Show All Map Layers

Water Features

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

Shoreline Features

- Beaches Above High Water
- Chesapeake Bay Dunes
- National Wetlands Inventory

Land Features

Advanced Tools Export/Print Help

Zoom to Latitude/Longitude

	Degrees	Minutes	Seconds	Quad
Latitude	<input type="text"/>	<input type="text"/>	<input type="text"/>	N
Longitude	<input type="text"/>	<input type="text"/>	<input type="text"/>	W

Go To Close

2002 Aerials Aerials Off



50 mi

Scale 1:2283758

39° 04' 56.14"N 77° 53' 06.12"W

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Address Search | Coastal News & Events | **Zoom To Locality**

- Northampton
- Hopewell
- Isle of Wight
- James City
- King and Queen
- King George
- King William
- Lancaster
- Manassas
- Manassas Park
- Mathews
- Middlesex
- New Kent
- Newport News
- Norfolk
- Northampton**
- Northumberland
- Petersburg
- Poquoson
- Portsmouth
- Prince George
- Prince William
- Richmond
- Spotsylvania
- Stafford
- Suffolk
- Surry
- Virginia Beach
- Westmoreland
- Williamsburg
- York

Go!

Map Layers

Results

Show All Map Layers

Water Features

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Shoreline Features

- Beaches Above High Water
- Chesapeake Bay Dunes
- National Wetlands Inventory

Land Features

- Forest Cover



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Address Search | Coastal News & Events | Zoom To Locality

Northampton [Go!]

Map Layers Results

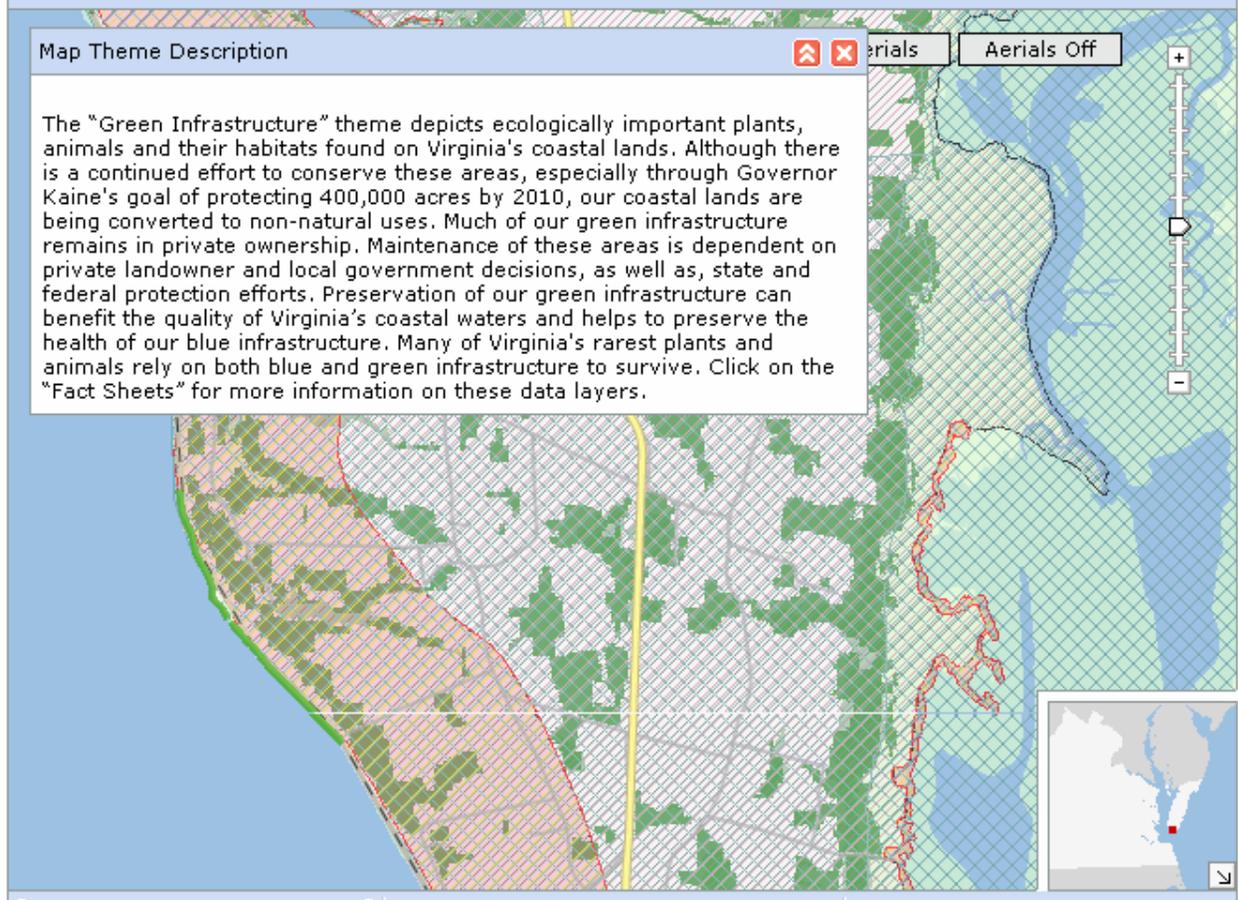
Show Green Infrastructure Map Layers

- Water Features**
- Shoreline Features**
 - Beaches Above High Water
 - Man Influenced
 - Man Made
 - Natural
 - Chesapeake Bay Dunes
 - Man Influenced
 - Man Made
 - Natural
 - National Wetlands Inventory
 - Non-Tidal
 - Tidal
- Land Features**
 - Forest Cover
- Wildlife**
 - Essential Wildlife Habitat
 - Important Bird Areas
 - Migratory Songbird Stopover Habitat
 - Critical Habitat
 - Important Habitat
- Recreational Features**

Advanced Tools Export/Print

Map Theme Description

The "Green Infrastructure" theme depicts ecologically important plants, animals and their habitats found on Virginia's coastal lands. Although there is a continued effort to conserve these areas, especially through Governor Kaine's goal of protecting 400,000 acres by 2010, our coastal lands are being converted to non-natural uses. Much of our green infrastructure remains in private ownership. Maintenance of these areas is dependent on private landowner and local government decisions, as well as, state and federal protection efforts. Preservation of our green infrastructure can benefit the quality of Virginia's coastal waters and helps to preserve the health of our blue infrastructure. Many of Virginia's rarest plants and animals rely on both blue and green infrastructure to survive. Click on the "Fact Sheets" for more information on these data layers.



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2 mi Scale 1:64000

37° 14' 53.01"N 75° 57' 11.45"W



Address Search | Coastal News & Events | Zoom To Locality

Go!

Map Layers Results

Show All Map Layers

Water Features

- Fisheries Management Areas
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- Oyster Gardening Sites
- Submerged Aquatic Vegetation (SAV)
- Seaside SAV Planting Sites
- Anadromous Fish Use Areas
- Threatened & Endangered Species Water

Advanced Tools Export/Print Help



2 mi Scale 1:64000 37° 19' 58.33"N 75° 48' 06.98"W



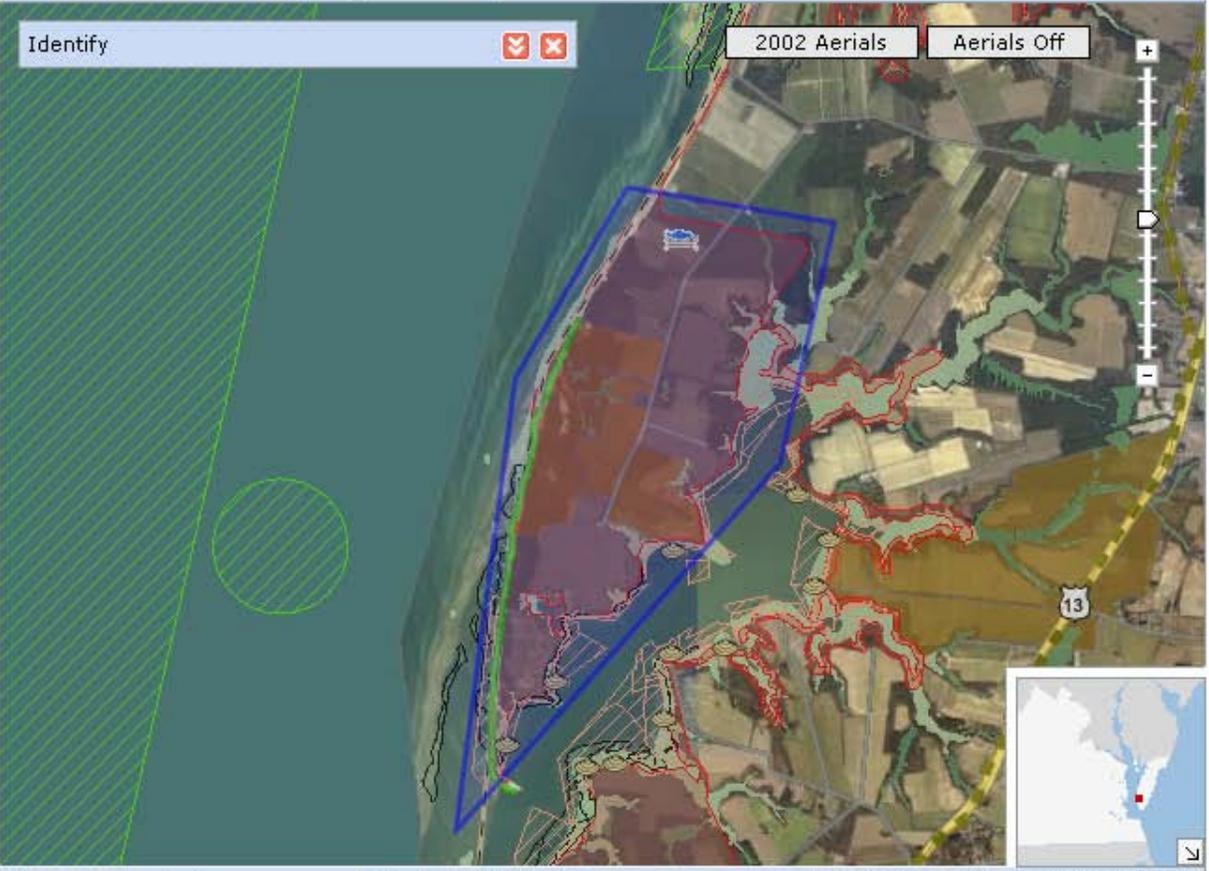
Address Search | Coastal News & Events | Zoom To Locality

Go!

Map Layers Results

- 71 Wetlands
- 3 Commercial Shellfish Aquaculture Sites
- 14 Private Oyster Leases
- 4 Conservation Lands
- 6 Chesapeake Bay Dunes
- 10 Submerged Aquatic Vegetation (SAV)
- 1 Impediments to Fish Movement

Advanced Tools Export/Print Help



2 mi Scale 1:64000 37° 19' 58.33"N 75° 48' 06.98"W



Address Search | Coastal News & Events | Zoom To Locality

Go!

Map Layers

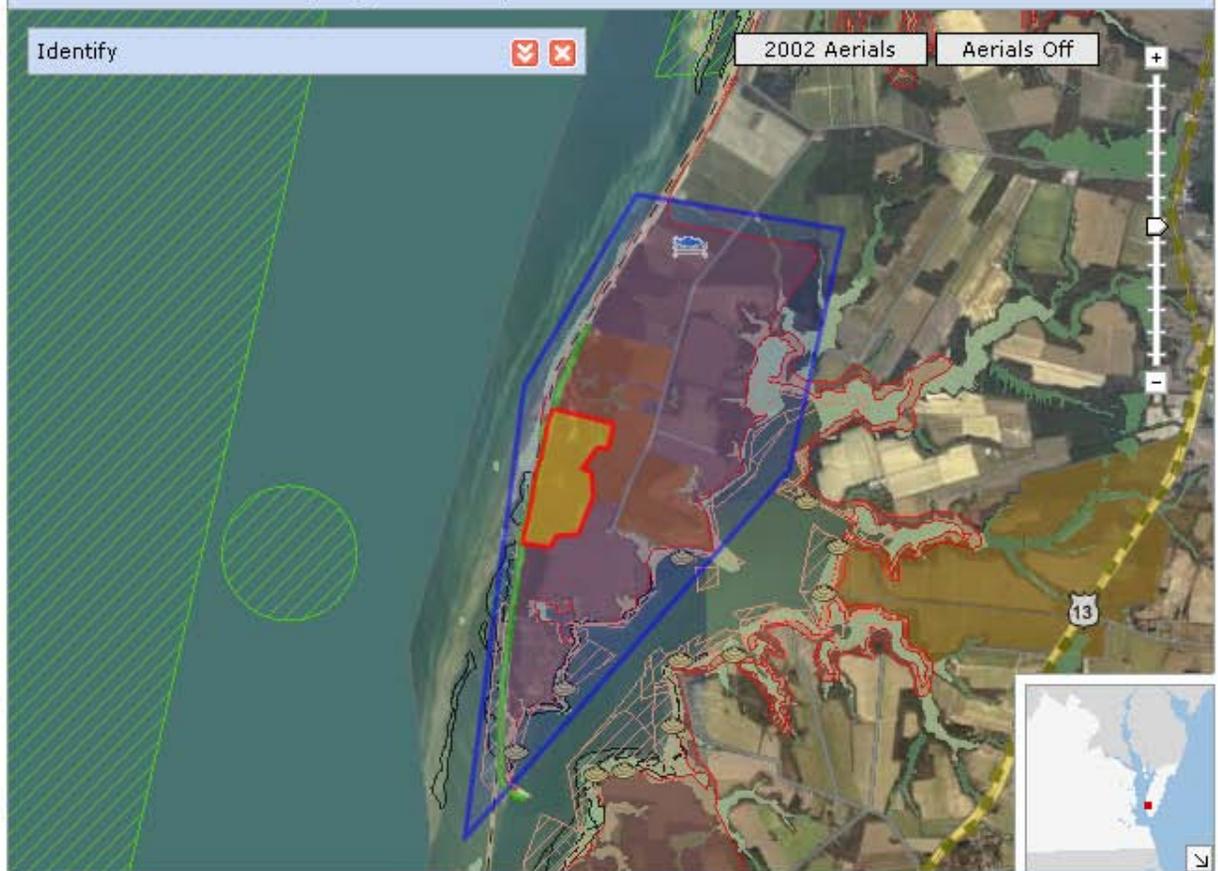
Results

Advanced Tools Export/Print Help

Identify

2002 Aerials

Aerials Off



71 Wetlands

3 Commercial Shellfish Aquaculture Sites

14 Private Oyster Leases

4 Conservation Lands

[View Factsheet](#)

Name of feature: Conservation Easement
Management Agency: Private

Name of feature: NHM-VOF-571
Management Agency: Private

Name of feature: Savage Neck
Management Agency: VA Dept. of Conservation and Recreation

Name of feature: Savage Neck
Management Agency: VA Dept. of Conservation and Recreation

6 Chesapeake Bay Dunes

10 Submerged Aquatic Vegetation (SAV)



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2 mi

Scale 1:64000

37° 19' 58.33"N 75° 48' 06.98"W



Address Search | Coastal News & Events | Zoom To Locality

Go!

Fact Sheet

Conservation Lands

This dataset contains the boundaries and attributes for public and certain private lands in Virginia that have potential significance for serving a variety of conservation and recreations roles. This dataset includes lands conserved and managed by The Nature Conservancy and the Virginia Outdoors Foundation. The full dataset shown in Coastal GEMS may not be available for download. Contact the VA Department of Conservation and Recreation for more information regarding this dataset.

Status of the data

September 2006, updated regularly as needed.

To access this data layer/tool directly, please visit:

<http://www.dcr.state.va.us/dnh/conslandindex.htm>

Why should we care?

Lands that are legally protected and managed as a natural area or habitat protect Virginia's exemplary natural communities, and rare and endangered species. They also serve to protect water quality by filtering runoff from adjacent developed areas and the protect air quality by absorbing carbon dioxide and producing oxygen. Lands under public ownership can offer many recreational benefits to Virginia's citizens such as hiking, wildlife watching, water access for canoeing or kayaking, camping and sunbathing. These



For original datasets, please contact:

David Boyd
 N/A
 Richmond, VA 23219
 Phone: (804) 371-4801
 Fax: (804) 371-2674
 Email: david.boyd@dcr.virginia.gov

Map Layers Results

- 71 Wetlands
- 3 Commercial Shellfish
- 14 Private Oyster Lease
- 4 Conservation Lands

Name of feature: Conservati
 Management Agency: Private

Name of feature: NHM-VOF-5
 Management Agency: Private

Name of feature: Savage Ne
 Management Agency: VA Dep
 Recreation

Name of feature: Savage Ne
 Management Agency: VA Dep
 Recreation

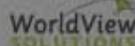
6 Chesapeake Bay Du

10 Submerged Aquatic Vegetation (SAV)



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2 mi

Scale 1:64000

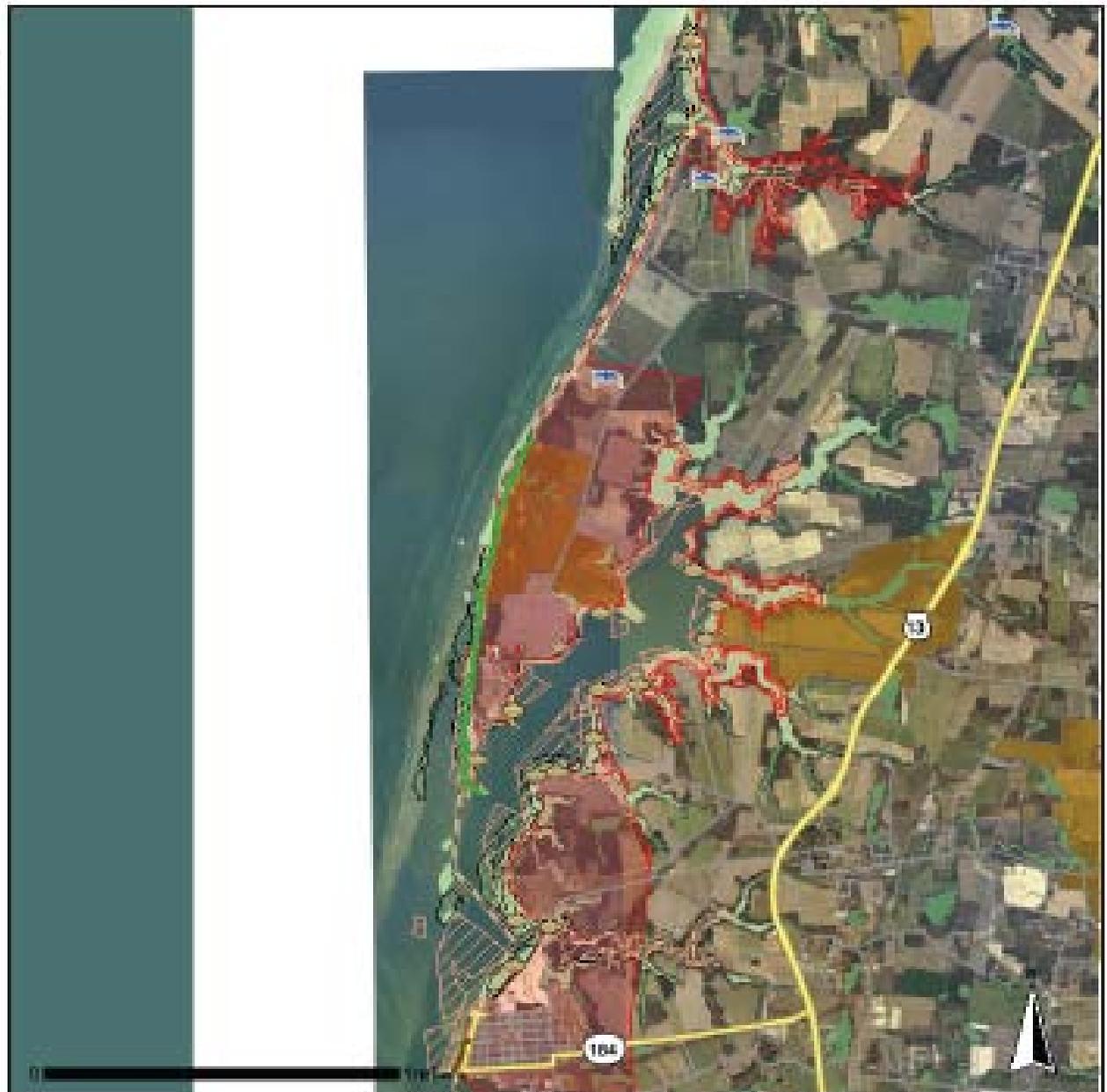
37° 19' 58.33"N 75° 48' 06.98"W



Virginia Coastal Zone MANAGEMENT PROGRAM

Legend

-  Bay/for Grounds (Public Oyster Grounds)
-  Private Oyster Leases
- Commercial Shellfish Aquaculture Sites
-  Hard clam
-  Soft clam
-  Oyster
-  Crab shed
-  Submerged Aquatic Vegetation (SAV)
- Chesapeake Bay Dunes
 -  Man Influenced
 -  Man Made
 -  Natural
- National Wetlands Inventory
 -  Non-Tidal
 -  Tidal
-  Conservation Lands
-  Critical Wildlife Habitat
-  Biotic Stream Assessment (INSTAR) Sites
-  Impediments to Fish Movement (Dams)





A Way To Use Coastal GEMS...

To prioritize lands for acquisition for the
Virginia Coastal and Estuarine Land
Conservation Program!

Virginia's CELCP Plan

- Provides:
 - An assessment of priority conservation needs
 - Guidance for the nomination and selection of conservation projects within the Commonwealth
- Plan Components:
 - Lands and values to be conserved
 - Priority project areas
 - Summary of Virginia's conservation planning efforts
 - State evaluation process and project scoring criteria

Natural Heritage
Conservation Sites
(DCR - Natural Heritage)

+

Tier 1 Essential Habitat
(DGIF)

+

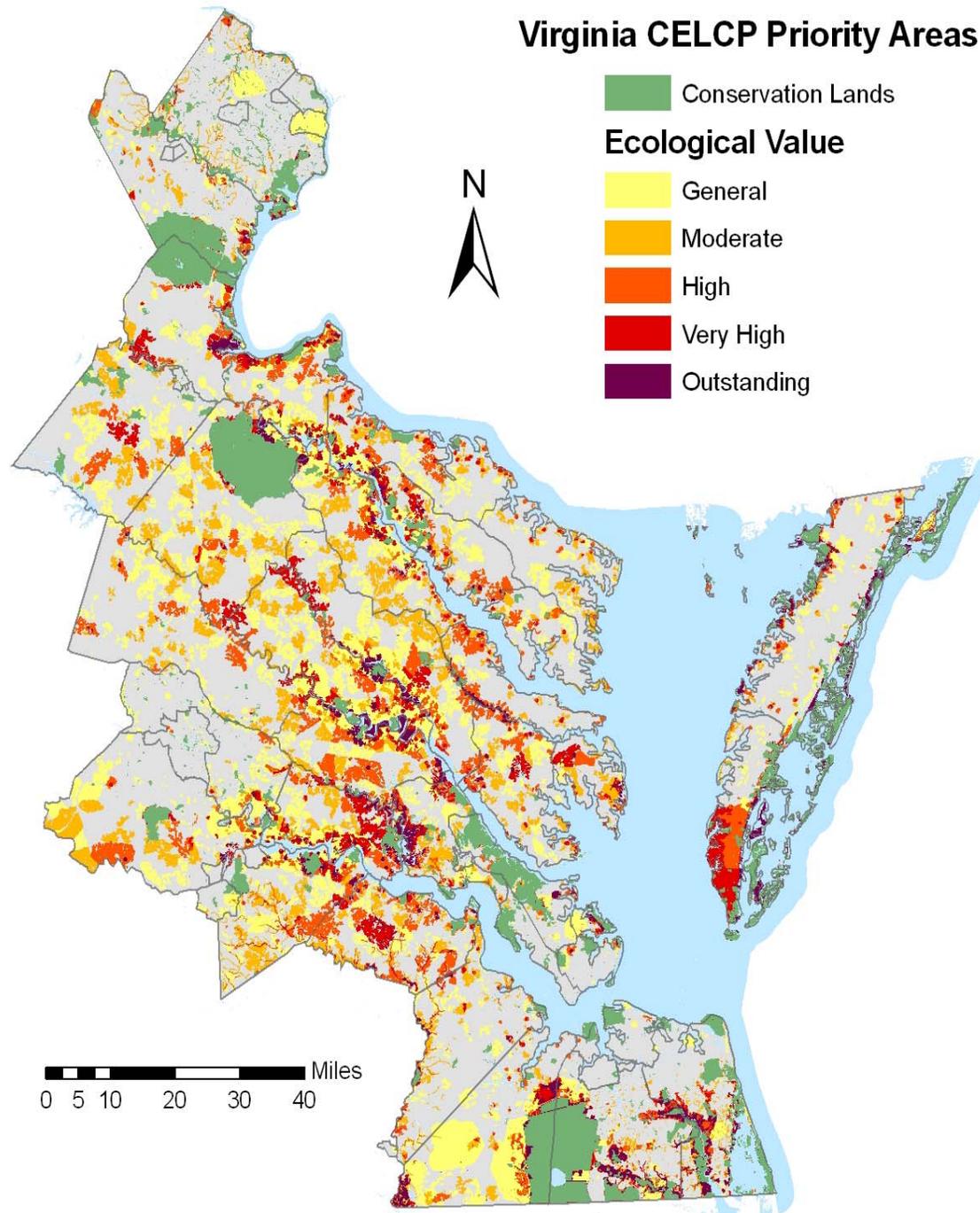
VA Natural Landscape
Assessment Cores (C1, C2, C3)
(DCR - Natural Heritage)

+

Tier 2, 3, 4 species locations
(DGIF)

+

Important Bird Areas
(VA Audubon)

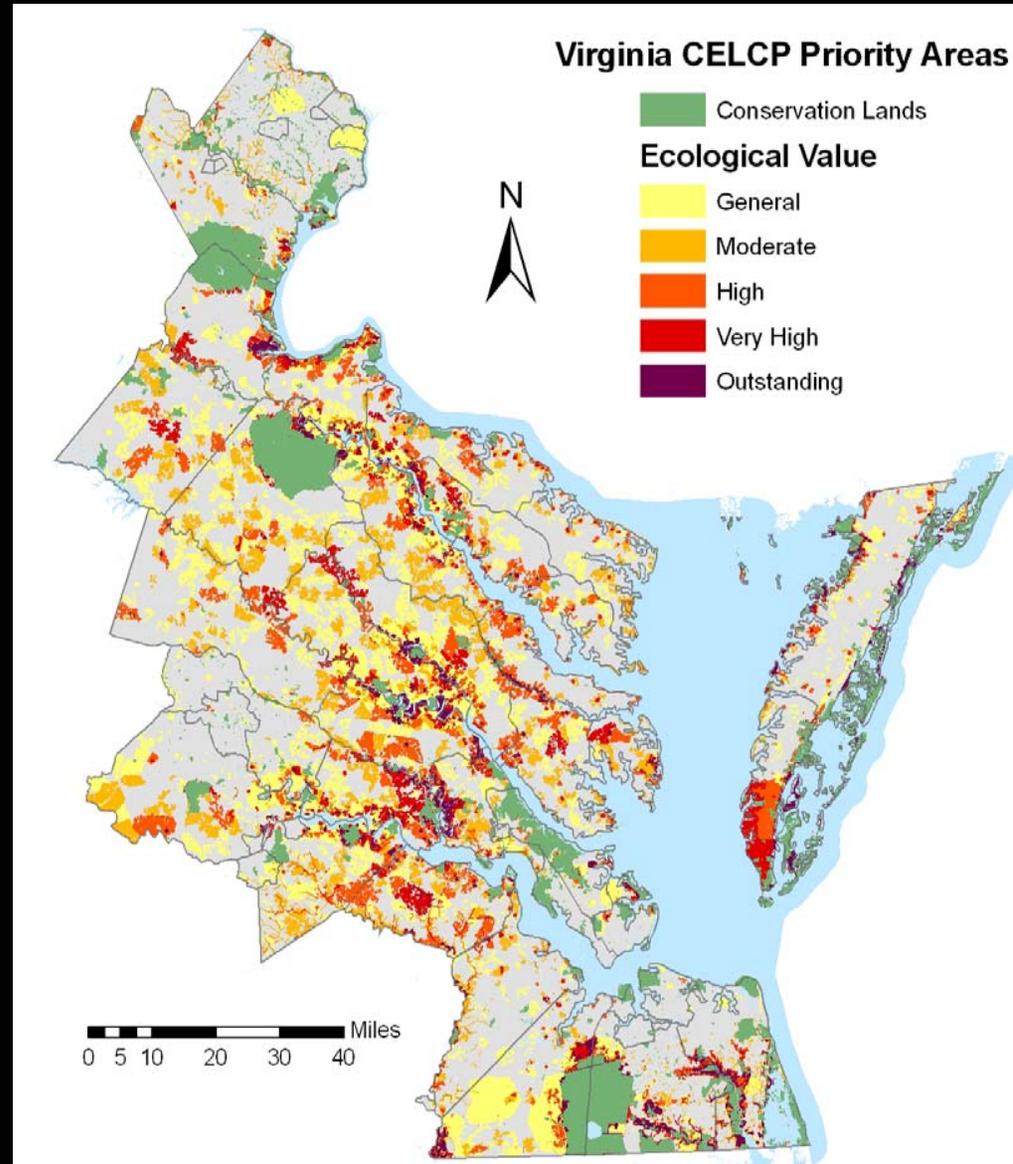


A Way To Use Coastal GEMS...

To prioritize lands for acquisition for CELCP!

Overlay GEMS layers from various agencies and conservation organizations:

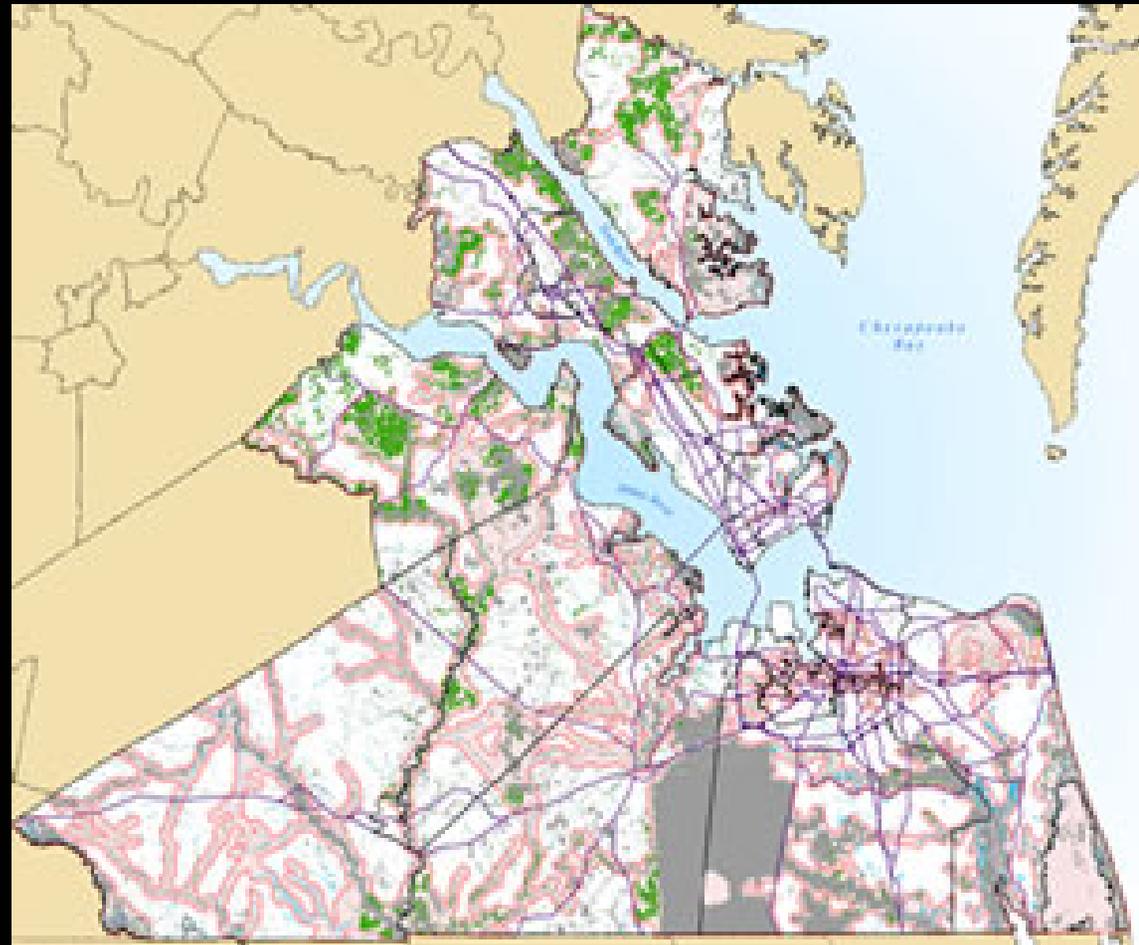
- DCR
- DGIF
- TNC
- CZM
- Audubon IBA's
- Proximity to blue infrastructure (VIMS, VCU, VMRC)



Virginia CZM Program's Conservation Corridor Strategy

Available Section 309 Funding

FY08	\$71,000
FY09	\$120,000
FY10	<u>\$125,000</u>
	\$316,000



Hampton Roads Conservation Corridor



THANK YOU!

Visit our CZM Exhibit to:

Use Coastal GEMS!

Review Virginia's CELCP Plan!

Kelly Price

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