Building Coastal Community Capacity to Plan for and Promote Sustainable Shoreline Management Approaches

Marcia Berman

Center for Coastal Resources Management

Virginia Institute of Marine Science

Building Coastal Community Capacity to Plan for and Promote Sustainable Shoreline Management Approaches

Marcia Berman
Center for Coastal Resources Management
Virginia Institute of Marine Science

CZMP Funded
Shoreline Management Initiatives

Chesapeake Bay Shoreline Inventory

Shoreline Management Plan Review

Aquatic Priority Conservation

Chesapeake Bay Shoreline Inventory

http//ccrm.vims.edu/gis_data_maps/shoreline_inventories/index.html

Data collection uses mapping grade GPS

- Insitu measurements
- geo-referenced digital attributes

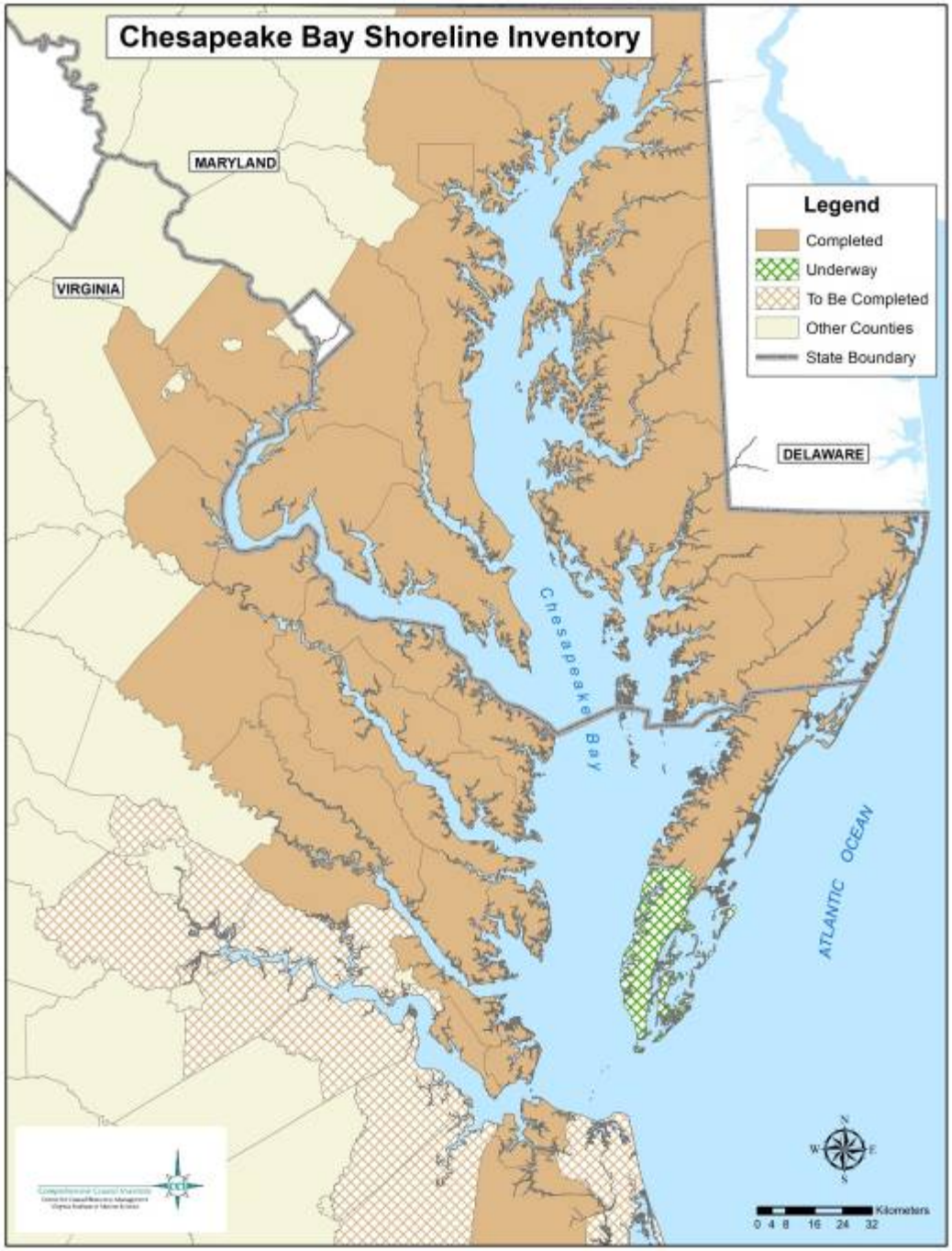
Data Processing Combines GPS and GIS Technology

Data

- Riparian Land Use
- Bank Condition: stability, height, cover
- Natural Buffers: marshes, beaches, phrag.
- Shoreline Features: erosion control, access

Direct Products

- **Maps**
- **Tabular Data**
- **Summary Report**
- **GIS Data**


Chesapeake Bay Shoreline Inventory
MARYLAND
VIRGINIA
DELAWARE
Legend
Completed
Underway
To Be Completed
Other Counties
State Boundary
Chesapeake Bay
ATLANTIC OCEAN
N
W
E
S
Kilometers
0 4 8 16 24 32

CZMP Funding for Shoreline Inventories

- Caroline County
- Stafford County
- Gloucester County
- New Kent County
- King George County
- City of Chesapeake
- City of Portsmouth
- City of Newport News
- York County
- Prince William County
- City of Fairfax
- Northampton County

Virginia Coastal Zone
MANAGEMENT PROGRAM

Publications

Permit Reports

Contact Us

Staff

Site Map

Permit Reports

Adobe Acrobat

CCRM Internal Site

Shoreline Situation Reports (VA)

- Accomack County SSR
- Caroline County
- Essex County and the Town of Tappahannock
- King and Queen County SSR
- King William County SSR
- Lancaster County SSR
- Mathews County SSR
- Middlesex County SSR
- Northumberland County SSR
- City of Norfolk SSR
- Piankatank River SSR
- City of Poquoson SSR
- Stafford County

Shoreline Situation Reports (MD)

- Baltimore County SSR
- Caroline County SSR
- Dorchester County SSR
- St. Mary's County SSR
- Somerset County SSR
- Wicomico County SSR
- Worcester County SSR

Prince William County Shoreline Inventory

- CCI is not responsible for misuse of these data.
- CCI does not oversee or assume responsibility for alterations to this product by users.
- CCI may not address specific questions from users who received the data through another party.
- Distribution of these data is not restricted. CCI, however, recommends metadata file(s) always remain with the data.
- CCI encourages noticeable errors be reported to CCI contact person identified in the metadata file.

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Postscript logos zipped	

Maps	Tables	Report	GIS Data & Metadata	Historical Report

Prince William County Map Inventory

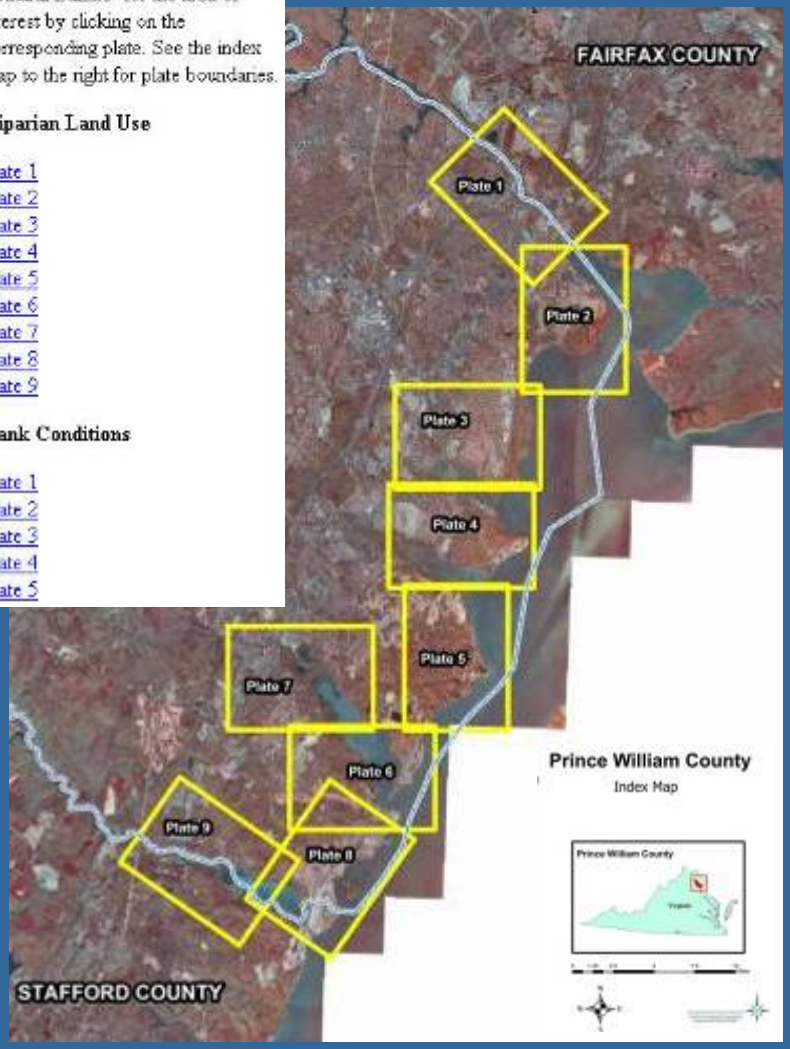
View "Riparian Land Use", "Bank Conditions ", "Shoreline Features" or "Natural Buffers" for the area of interest by clicking on the corresponding plate. See the index map to the right for plate boundaries.

Riparian Land Use

Plate 1
Plate 2
Plate 3
Plate 4
Plate 5
Plate 6
Plate 7
Plate 8
Plate 9

Bank Conditions

Plate 1
Plate 2
Plate 3
Plate 4
Plate 5

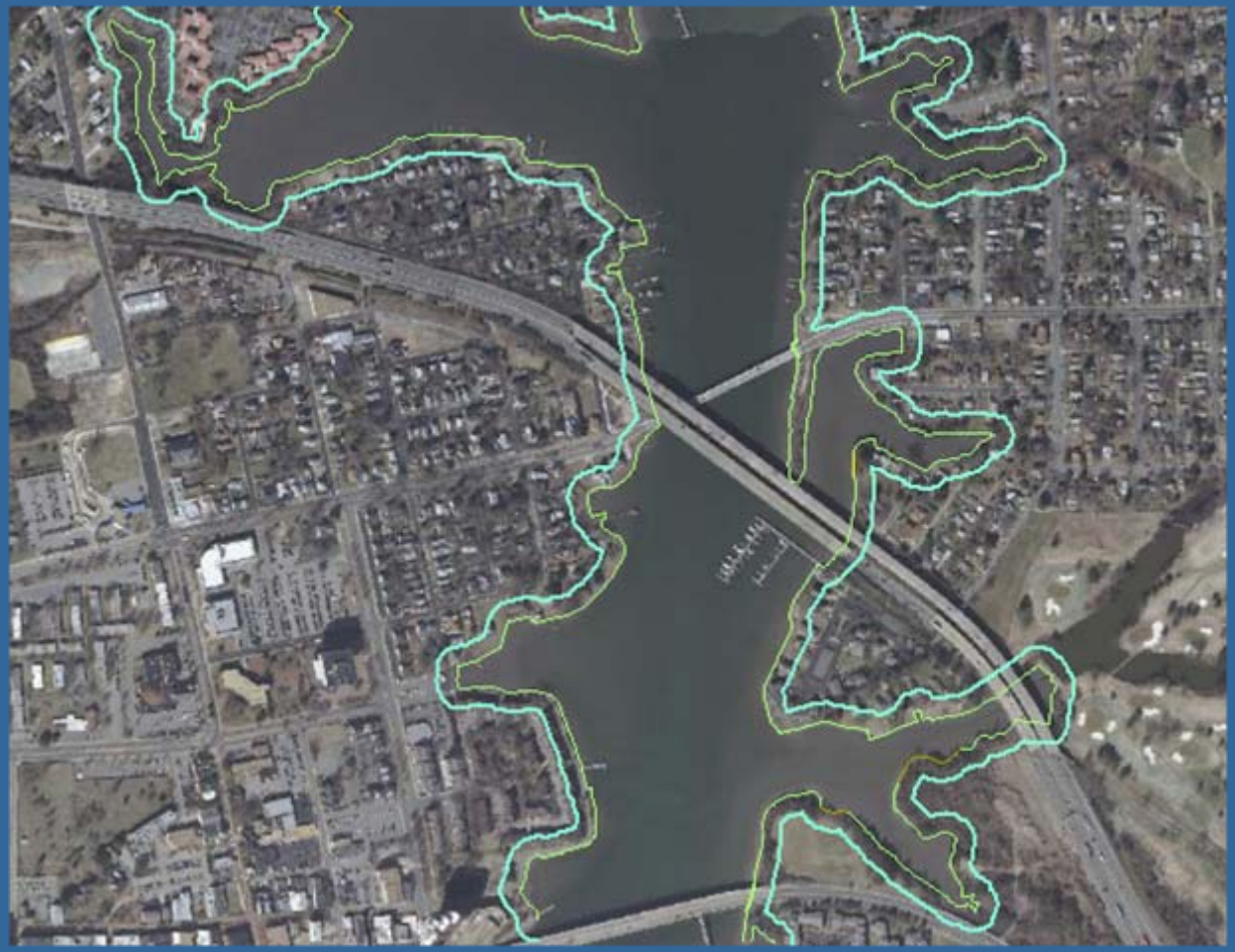


Riparian Landuse

Legend

- agriculture
- bare
- commercial
- forest
- grass
- industrial
- military
- paved
- residential
- scrub-shrub
- tree fringe
- tree fringe with canopy overhang

Bank Condition



Legend

- 0-5 ft, stable
- 0-5 ft, stable/undercut
- 0-5 ft, erosional
- 0-5 ft, erosional/undercut
- 0-5 ft, transitional
- 0-5 ft, transition/undercut
- 5-10 ft, stable
- 5-10 ft, stable/undercut
- 5-10 ft, erosional
- 5-10 ft, erosional/undercut
- 5-10 ft, transitional
- 5-10 ft, transition/undercut
- 10-30 ft, stable
- 10-30 ft, stable/undercut
- 10-30 ft, erosional
- 10-30 ft, erosional/undercut
- 10-30 ft, transitional
- 10-30 ft, transition/undercut
- >30 ft, stable
- >30 ft, stable/undercut
- >30 ft, erosional
- >30 ft, erosional/undercut
- >30 ft, transitional
- >30 ft, transition/undercut
- bare bank cover
- partial bank cover
- total bank cover

Natural Buffers

Legend

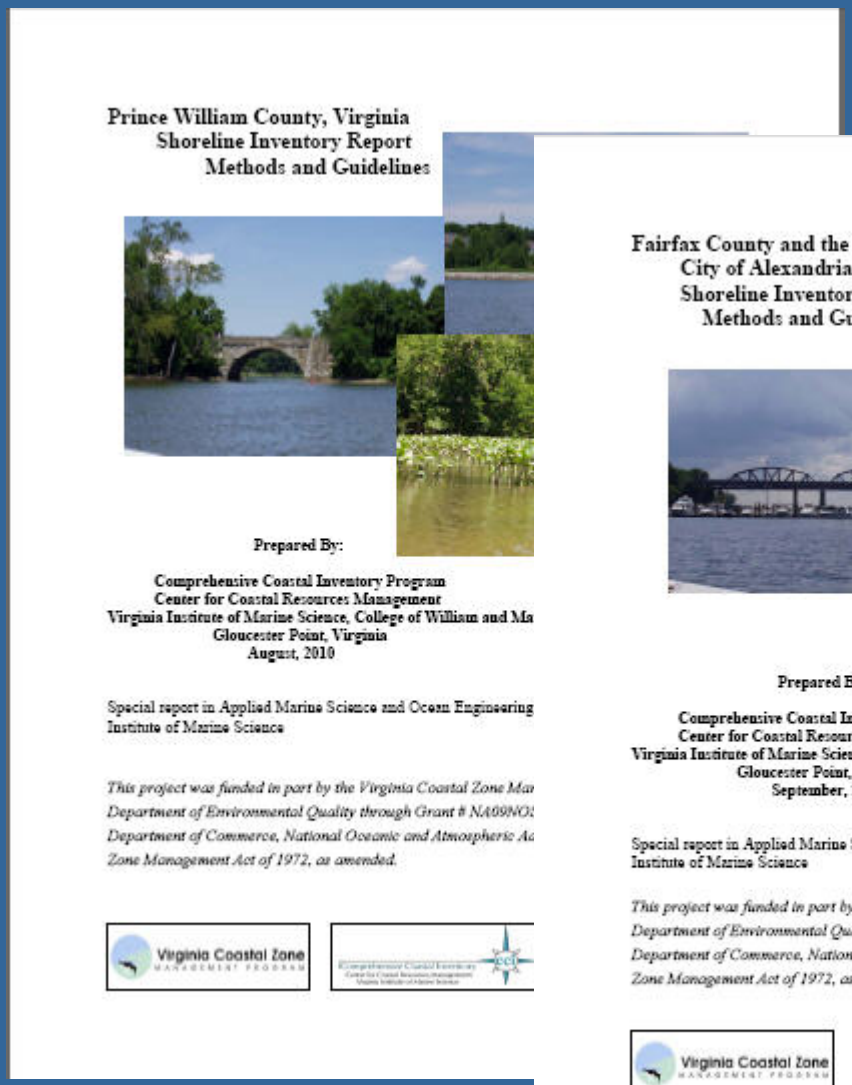
- beach
- embayed marsh
- extensive marsh
- fringe marsh < 5 feet
- fringe marsh 5-10 feet
- fringe marsh 10-15 feet
- fringe marsh > 15 feet
- *Phragmites australis*

Shoreline Features

Legend

- breakwater
- bulkhead
- debris
- dilapidated bulkhead
- groinfield
- jetty
- marina, <50 slips
- marina, >50 slips
- marsh toe revetment
- riprap
- unconventional
- wharf
- boat house
- dilapidated pier
- outfall
- pier
- private boat ramp
- public boat ramp

Reports



Prince William County, Virginia
Shoreline Inventory Report
Methods and Guidelines

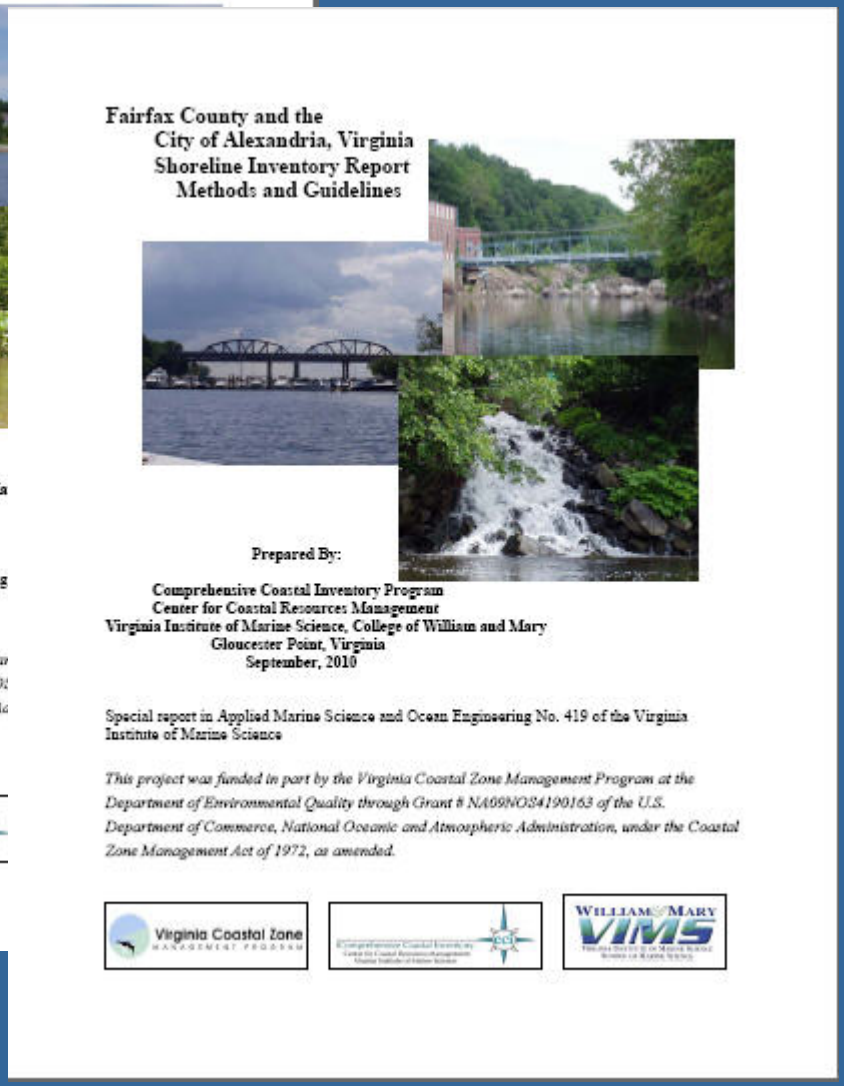
Prepared By:

Comprehensive Coastal Inventory Program
Center for Coastal Resources Management
Virginia Institute of Marine Science, College of William and Ma
Gloucester Point, Virginia
August, 2010

Special report in Applied Marine Science and Ocean Engineering
Institute of Marine Science

This project was funded in part by the Virginia Coastal Zone Mar
Department of Environmental Quality through Grant # NA09NO
Department of Commerce, National Oceanic and Atmospheric Ad
Zone Management Act of 1972, as amended.

Virginia Coastal Zone
MANAGEMENT PROGRAM



Fairfax County and the
City of Alexandria, Virginia
Shoreline Inventory Report
Methods and Guidelines

Prepared By:

Comprehensive Coastal Inventory Program
Center for Coastal Resources Management
Virginia Institute of Marine Science, College of William and Mary
Gloucester Point, Virginia
September, 2010

Special report in Applied Marine Science and Ocean Engineering No. 419 of the Virginia Institute of Marine Science

This project was funded in part by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant # NA09NOS4190163 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Virginia Coastal Zone
MANAGEMENT PROGRAM

WILLIAM & MARY
VIMS

Tables

MATHEWS WATERSHED	TOTAL MILES SURVEYED	BANK COVER (miles)			NATURAL BUFFER (miles)						
						MARSH					
		bare	partial	full	BEACH	embayed	extensive	fringe <5	fringe 5-10	fringe 10-15	fring
Blackwater Creek	13.32	0.80	0.81	11.71	0.00	0.12	0.00	6.90	1.48	0.23	2.
Chesapeake Bay	12.33	0.75	3.59	7.99	8.15	0.00	2.89	0.78	0.83	0.67	0.
Cobbs Creek	4.69	0.00	0.45	4.24	0.06	0.07	0.00	1.84	0.04	0.00	0.
Davis Creek	2.96	0.00	0.00	2.96	0.00	0.00	0.00	1.09	0.88	0.39	0.
Dyer Creek	6.22	0.00	0.01	6.21	0.10	0.00	2.70	1.26	1.55	0.23	0.
East River	56.32	1.23	1.60	53.50	0.29	0.47	0.77	32.45	7.01	1.68	5.
Garden Creek	14.36	0.05	0.00	14.30	0.07	0.00	13.46	0.46	0.08	0.04	0.
Gwynn Island	19.42	1.12	1.47	16.83	5.37	0.04	0.00	7.11	0.33	0.17	1.
Harper Creek	2.89	0.00	0.00	2.89	0.00	0.00	2.65	0.25	0.00	0.00	0.
Horn Harbor	27.42	0.43	0.11	26.88	0.33	0.80	5.62	14.18	2.13	0.97	1.
Lanes Creek	3.63	0.17	0.02	3.44	0.20	0.06	0.00	2.66	0.17	0.01	0.
Milford Haven	6.02	0.07	0.00	5.95	1.09	0.05	0.76	2.36	0.45	0.07	0.
Mobjack Bay	9.07	0.26	0.00	8.81	0.66	0.04	3.16	0.81	1.27	0.51	2.
North River	36.30	0.51	0.64	35.15	0.93	0.11	3.17	19.09	3.73	1.14	5.
Pepper Creek	9.00	0.00	0.00	9.00	0.00	0.14	3.11	1.50	1.15	0.45	2.
Piankatank River	16.69	0.49	1.39	14.80	5.02	0.19	0.34	5.32	0.26	0.00	0.
Put In Creek	7.87	0.11	0.28	7.47	0.00	0.00	0.00	5.12	0.88	0.15	0.
Queens Creek	11.12	0.54	0.29	10.29	0.34	0.14	0.00	6.55	0.64	0.20	0.
Rigby Island	3.91	2.98	0.00	0.93	3.55	0.00	0.00	0.00	0.00	0.00	0.
Sloop Creek	2.20	0.00	0.00	2.20	0.00	0.04	0.00	1.19	0.58	0.15	0.
Stoakes Creek	9.10	0.00	0.00	9.10	0.00	0.00	5.71	0.30	0.42	0.39	1.
Stutts Billups Creek	27.94	0.00	0.34	27.61	1.85	0.48	2.02	10.65	2.76	1.04	3.
Winter Harbor	38.14	0.23	0.80	37.12	1.23	0.87	23.45	5.88	2.33	1.15	2.
Total	340.92	9.73	11.81	319.38	29.24	3.62	69.81	127.73	28.98	9.65	31

MATHEWS WATERSHED	TOTAL MILES SURVEYED	0-5 FEET				
		erosional	erosional undercut	stable	stable undercut	trans
Blackwater Creek	13.32	1.07	0.65	11.46	0.00	0.
Chesapeake Bay	12.33	7.39	0.00	4.28	0.00	0.
Cobbs Creek	4.69	0.03	0.00	2.74	0.09	0.
Davis Creek	2.96	0.00	0.03	2.90	0.00	0.00
Dyer Creek	6.22	3.33	0.03	2.68	0.00	0.16
East River	56.32	0.45	1.97	52.43	0.00	0.93
Garden Creek	14.36	0.17	0.00	14.19	0.00	0.00
Gwynn Island	19.42	3.93	0.23	14.05	0.00	0.00
Harper Creek	2.89	0.00	0.00	2.89	0.00	0.00
Horn Harbor	27.42	1.03	0.11	26.21	0.00	0.03
Lanes Creek	3.63	0.36	0.00	3.27	0.00	0.00
Milford Haven	6.02	0.07	0.00	5.85	0.00	0.00
Mobjack Bay	9.07	0.13	0.00	8.82	0.00	0.12
North River	36.30	0.53	0.73	34.70	0.00	0.28
Pepper Creek	9.00	0.00	0.00	9.00	0.00	0.00
Piankatank River	16.69	0.10	0.31	8.90	0.11	0.15
Put In Creek	7.87	0.45	0.58	6.63	0.00	0.15
Queens Creek	11.12	0.24	0.49	8.26	0.00	0.00
Rigby Island	3.91	3.63	0.00	0.28	0.00	0.00
Sloop Creek	2.20	0.03	0.00	2.17	0.00	0.00
Stoakes Creek	9.10	0.00	0.00	8.98	0.12	0.00
Stutts Billups Creek	27.94	0.13	0.06	26.89	0.30	0.56
Winter Harbor	38.14	4.33	0.00	33.42	0.00	0.00
Total	340.92	27.40	5.19	291.00	0.62	2.58

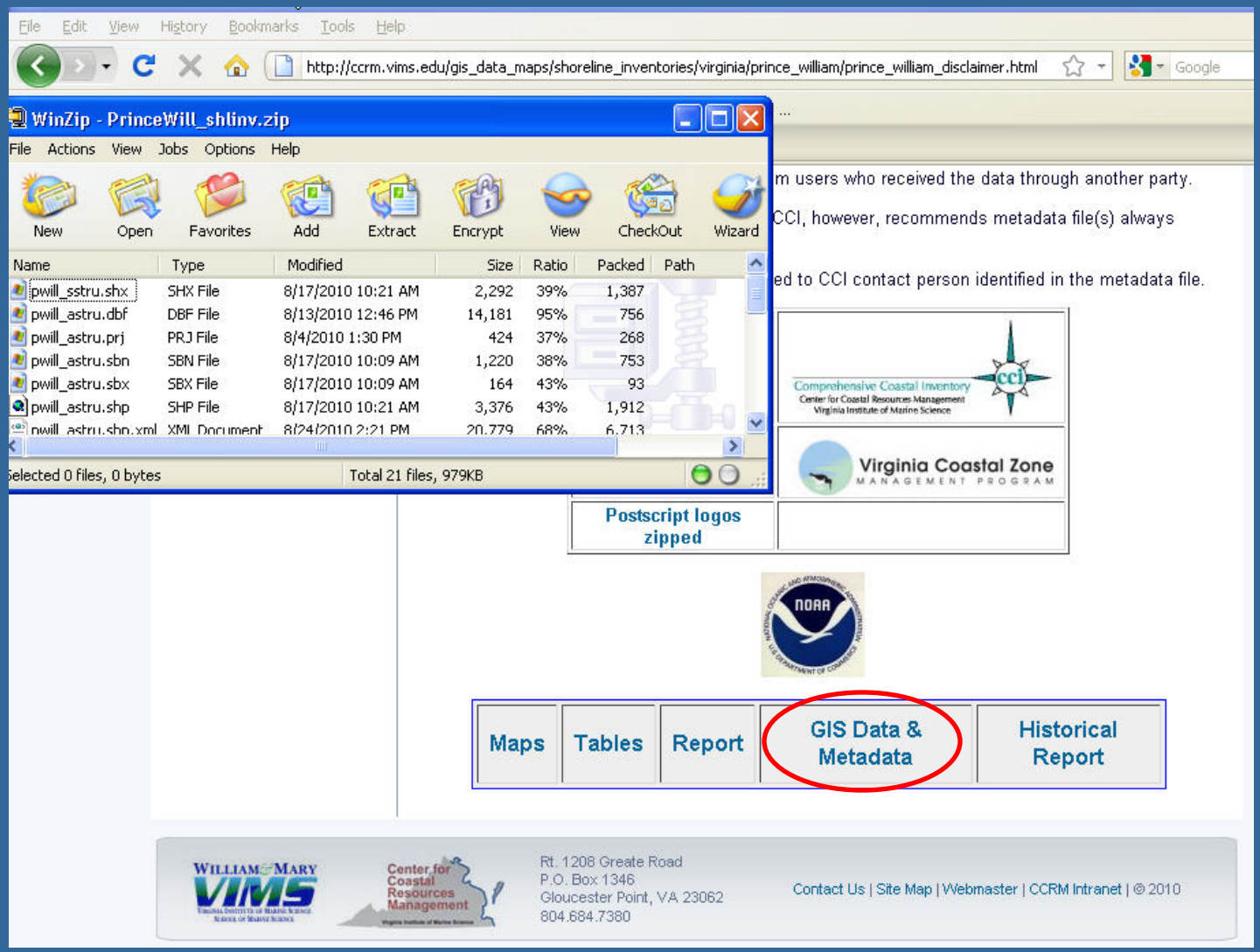
MATHEWS WATERSHED	0-5 FEET																													
Blackwater Creek	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chesapeake Bay	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cobbs Creek	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Davis Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dyer Creek	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
East River	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Garden Creek	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gwynn Island	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Harper Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Horn Harbor	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lanes Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milford Haven	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobjack Bay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
North River	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pepper Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Piankatank River	0.05	0.13	0.04	4.08	0.10	0.23	0.12	0.19	0.04	1.93	0.00	0.03	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Put In Creek	0.06	0.00	0.00	0.00	0.00																									
Queens Creek	0.08	0.11	0.19	1.65	0.00																									
Rigby Island	0.00	0.00	0.00	0.00	0.00																									
Sloop Creek	0.00	0.00	0.00	0.00	0.00																									
Stoakes Creek	0.00	0.00	0.00	0.00	0.00																									
Stutts Billups Creek	0.00	0.00	0.00	0.00	0.00																									
Winter Harbor	0.00	0.02	0.00	0.37	0.00																									
Total	0.67	0.40	0.27	9.29	0.32																									

Maps | Tables | Report | GIS Data & Metadata | Historical Report

Center for Coastal Resources Management
Rt. 1208 Greate Road
P.O. Box 1346
Gloucester Point, VA 23062
804.684.7380

Contact Us | Site Map | Webmaster | CCRM Intranet | © 2010

GIS Data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WinZip - PrinceWill_shlinv.zip
File Actions View Jobs Options Help
New Open Favorites Add Extract Encrypt View CheckOut Wizard
Name Type Modified Size Ratio Packed Path
pwill_sstru.shx SHX File 8/17/2010 10:21 AM 2,292 39% 1,387
pwill_astru.dbf DBF File 8/13/2010 12:46 PM 14,181 95% 756
pwill_astru.prj PRJ File 8/4/2010 1:30 PM 424 37% 268
pwill_astru.sbn SBN File 8/17/2010 10:09 AM 1,220 38% 753
pwill_astru.sbx SBX File 8/17/2010 10:09 AM 164 43% 93
pwill_astru.shp SHP File 8/17/2010 10:21 AM 3,376 43% 1,912
Selected 0 files, 0 bytes
Total 21 files, 979KB
m users who received the data through another party.
CCI, however, recommends metadata file(s) always
ed to CCI contact person identified in the metadata file.
Comprehensive Coastal Inventory
Center for Coastal Resources Management
Virginia Institute of Marine Science
Virginia Coastal Zone
MANAGEMENT PROGRAM
Postscript logos zipped
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Maps
Tables
Report
GIS Data & Metadata
Historical Report
WILLIAM & MARY VIMS
Center for Coastal Resources Management
Rt. 1208 Greate Road
P.O. Box 1346
Gloucester Point, VA 23062
804.684.7380
Contact Us | Site Map | Webmaster | CCRM Intranet | © 2010

Why a Chesapeake Bay Wide Shoreline Inventory

- Consistent classification of shoreline conditions across state and county boundaries;
- Framework layers for coastal marine spatial planning;
- Baseline data for geo-spatial analysis and modeling

Geo-Spatial Modeling and Analysis

- Shoreline Management Plans
- Shoreline Management Model
- Shallow Water Use conflict
- Maryland Erosion Vulnerability Assessment

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Geo-Spatial Modeling and Analysis

- Shoreline Management Plans
- Shoreline Management Model
- Shallow Water Use conflict
- Maryland Erosion Vulnerability Assessment

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Developing SMPs to Meet Local Government Needs

- Evaluated an audience of nearly 62 managers
- Presented 14 different elements for inclusion
- Presented variations in format and design

Virginia Coastal Zone
MANAGEMENT PROGRAM

Center for Coastal Resources Management
Virginia Institute of Marine Science

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SCHOOL OF MARINE SCIENCE
www.vims.edu

Content

- Shoreline Inventory
- Geology
- Historic Shoreline An.
- Wave Climate An.
- Tidal Wetlands Inv.
- SAV Distribution
- Impaired Waters
- Shellfish Resource Data
- Fish Management Areas
- Bathymetry
- Flood Zones
- Priority Conservation Areas
- Mgt. Recommendations
- Structure Design/Cost Est.

Content

4. Shoreline Inventory
- Geology

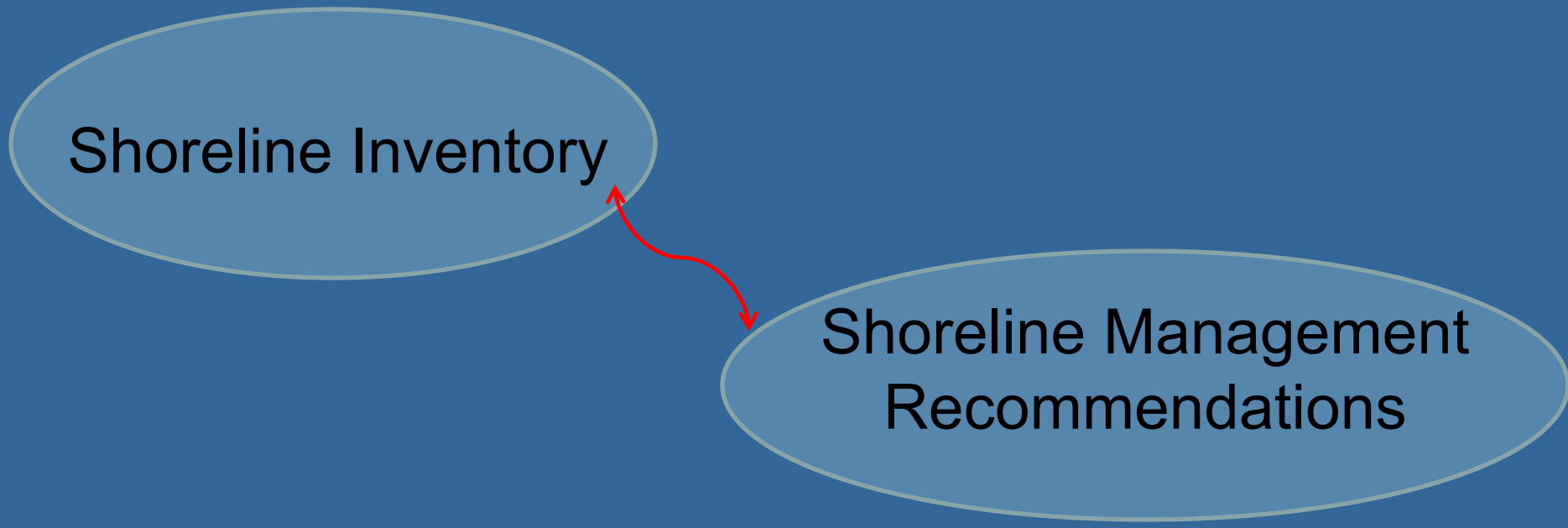
2. Historic Shoreline An.
- Wave Climate An.

3. Tidal Wetlands Inv.
- SAV Distribution
- Impaired Waters
- Shellfish Resource Data
- Fish Management Areas
- Bathymetry
- Flood Zones
- Priority Conservation Areas

1. Mgt. Recommendations

2. Structure Design/Cost Est.

Data → Product



Shoreline Management Recommendations

- **Recommend erosion control strategies using an eco-system based management approach**

…to minimize impacts to the natural coastal landscape

Questions?

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