

Comprehensive Coastal Resources Management Plan (CCRMP) for Local Governments

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<http://ccrm.vims.edu/>

What is a Comprehensive Coastal Resource Management Plan (CCRMP)?

- collection of modules that support comprehensive planning;
- provides guidance for localities in the following areas:
 - riparian lands management
 - tidal lands: wetlands, beaches, and dunes
 - subaqueous lands: SAV, oyster reefs
 - non-tidal wetlands

The CCRP is comprised of independent GIS-based modules

Comprehensive Shoreline Inventory

Tidal Wetlands Inventory

Non-Tidal Wetlands Assessment

Geospatial Shoreline Management Model

Climate Change Vulnerability Model

Conservation Targeting Tool

Shallow Water Use Conflict Assessment

Other Special Condition Models (e.g. Wetlands Mitigation Targeting)

CCRMP Modules

Comprehensive Shoreline Inventory

Tidal Wetlands Inventory

Non-Tidal Wetlands Assessment

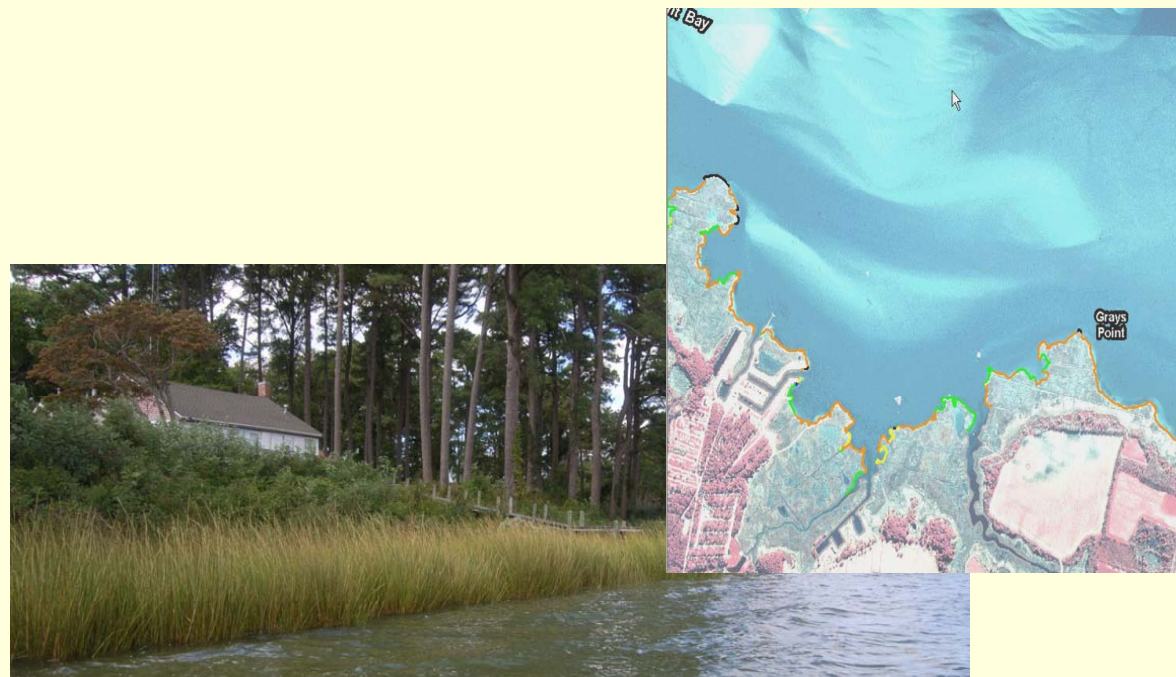
Geospatial Shoreline Management Model

Climate Change Vulnerability Model

Conservation Targeting Tool

Shallow Water Use Conflict Assessment

Geospatial Shoreline Management Model



Geospatial Shoreline Management Model

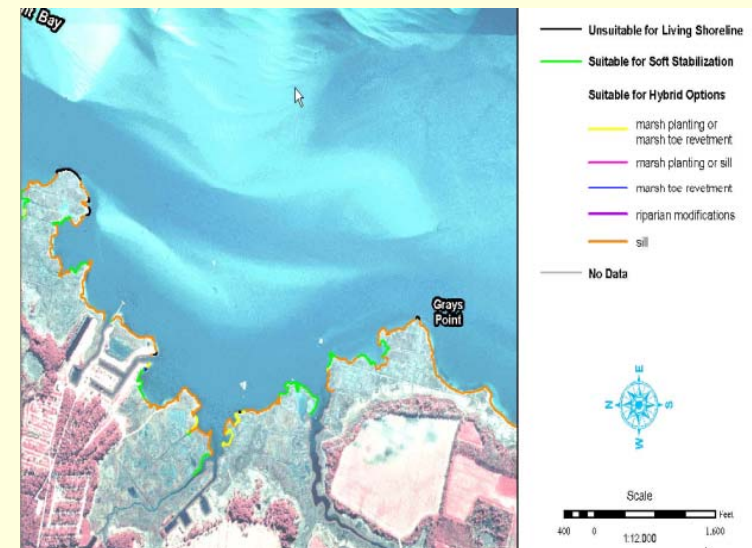
- Automated science-based decision support tool
- Developed using ArcGIS
- Consistent with the “Decision Tree” model
- Delivers 10 different options for erosion control

do nothing → **living shoreline** → **traditional**



Data layers used in the model

- marsh presence
- bank stability
- shallow bathymetry
- tree canopy
- bank height
- shoreline structures
- fetch



Chesapeake Bay Shoreline Inventory

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

Publications

Permit Reports

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Adobe Acrobat



CCRM Internal Site







Virginia Coastal Zone
MANAGEMENT PROGRAM



Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES



MARYLAND
DEPARTMENT OF
NATURAL RESOURCES





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

Chesapeake Bay Shoreline Inventory

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

Stafford County, Virginia Shoreline Situation Report Methods and Guidelines



Prepared By:
Comprehensive Coastal Inventory Program
Center for Coastal Resource
Management
Virginia Institute of Marine Science, College of William and
Mary, Gloucester Point, Virginia
May, 2004

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the Department of Environmental Quality through Grant #NA04NO8419
Department of Commerce, National Oceanic and Atmospheric Administration
Coastal Zone Management Act of 1972, as amended.

Special report to Applied Marine Sciences and Ocean Engineering No. 394 of the Virginia
Series



Worcester County, Maryland Shoreline Situation Report Methods and Guidelines



Prepared by the Comprehensive Coastal
Center for Coastal Resource Management, Virginia
College of William and Mary, Gloucester

This is a publication funded through the Maryland Coastal
Department of Natural Resources, pursuant to NOAA

October, 2003



Development of the Maryland Shoreline Inventory Methods and Guidelines for Baltimore County and the City of Baltimore



Prepared by the Comprehensive Coastal Inventory Program,
Center for Coastal Resource Management, Virginia Institute of Marine Science,
College of William and Mary, Gloucester Point, Virginia

This is a publication funded through the Maryland Coastal Zone Management Program,
Department of Natural Resources, pursuant to NOAA Award No. 14-03-329 CB4049

October, 2004



Shoreline Management Model presents eco-system based management options across the coastal profile:



- Shoreline actions
- Riparian and bank actions
- Upland actions



Recommendations

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management

Level 1. Undefended vs. Defended

Shoreline actions
Riparian and bank actions
Upland actions



Recommendations

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment

— Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management

Level 2. Defended

Shoreline actions

Riparian and bank actions

Upland actions

Areas of special consideration

Recommendations

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment

Riparian and Bank Actions

- No action needed
- Bank grading
- Vegetation management only

Upland Actions

- No action needed
- Upland management

Areas of Special Consideration for Navigation

- Treatment To Be Determined



Level One – Focus on Undefended

Recommendations

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management

Level Two – Focus on Defended

Recommendations

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment

Riparian and Bank Actions

- No action needed
- Bank grading
- Vegetation management only

Upland Actions

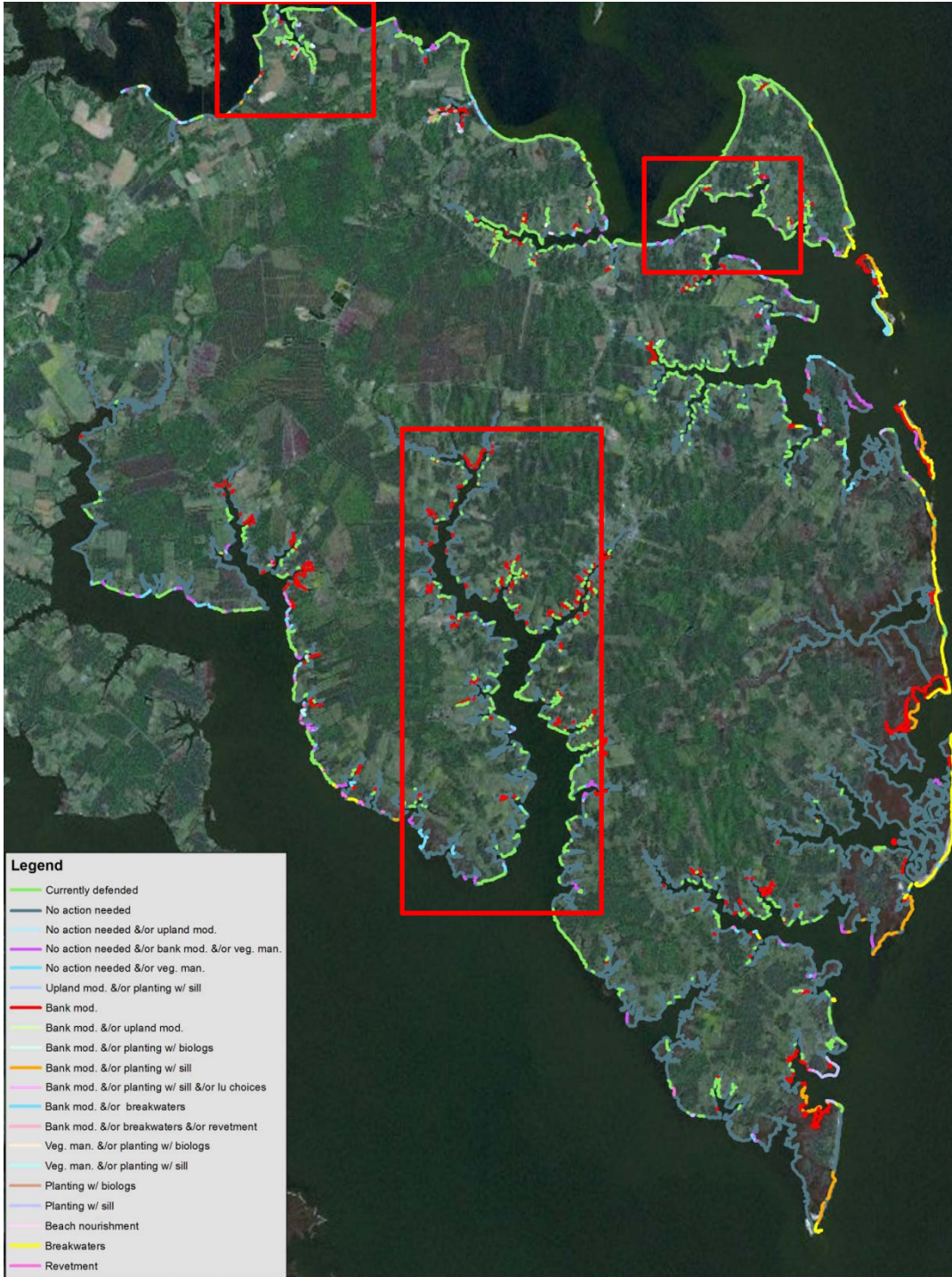
- No action needed
- Upland management

Areas of Special Consideration for Navigation

- Treatment To Be Determined

Mathews County Shoreline Management Model

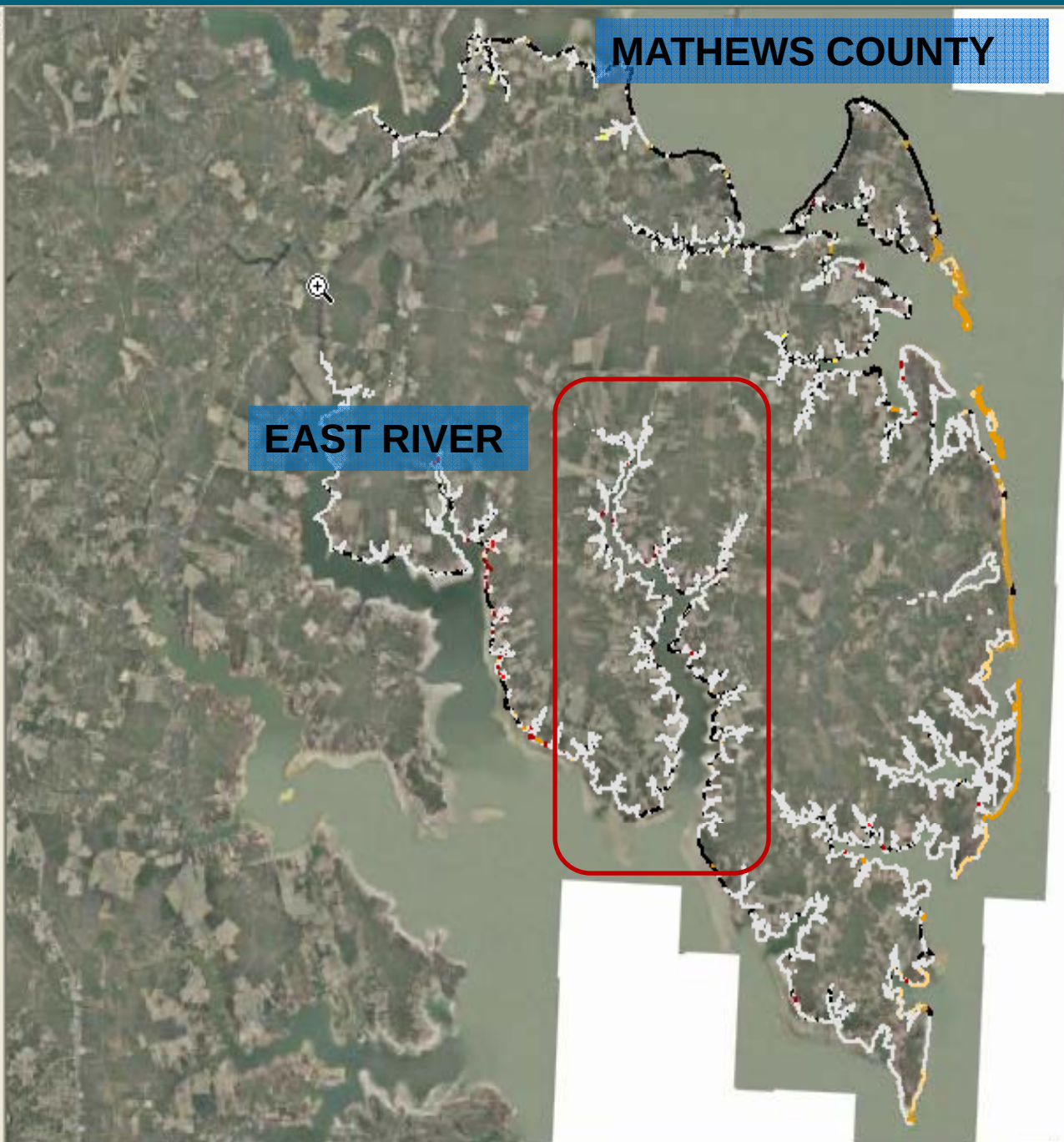
- Based on a complex decision matrix
- Multi-level model output
 - Focus on undefended
 - Focus on defended
 - Focus on special conditions
- 10 different treatment option



MATHEWS COUNTY

EAST RIVER

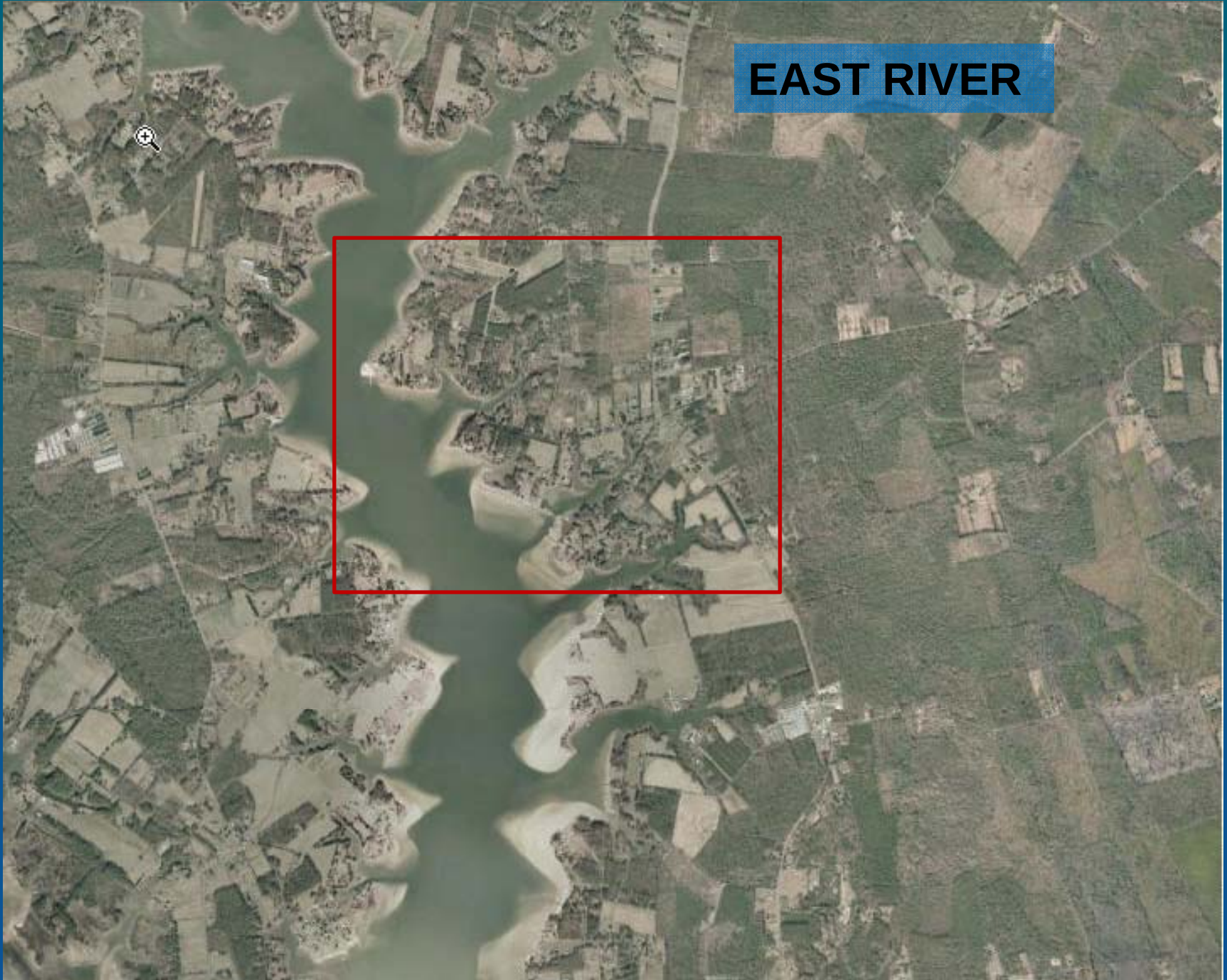
- Map 1**
- ☒ Map1_shoreline
 - Shoreline Actions
 - No action needed
 - Marsh with biologs
 - Marsh with sill
 - Offshore breakwaters
 - Offshore breakwaters or revetment
 - Revetment
 - Currently defended
 - ☐ Map1_bank
 - ☐ Map1_upland
 - ☒ Map2_def_shoreline
 - Shoreline Actions
 - No action needed
 - Marsh with biologs
 - Marsh with sill
 - Offshore breakwaters
 - Offshore breakwaters or revetment
 - Revetment
 - ☐ Map2_def_bank
 - ☐ Map2_def_upland
 - ☐ Map2_def_TBD
 - Areas of Special Consideration for Nav
 - Treatment To Be Determined
 - ☒ VBMP2006_2007



EAST RIVER



EAST RIVER



Level 1. Recommended Shoreline Actions

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

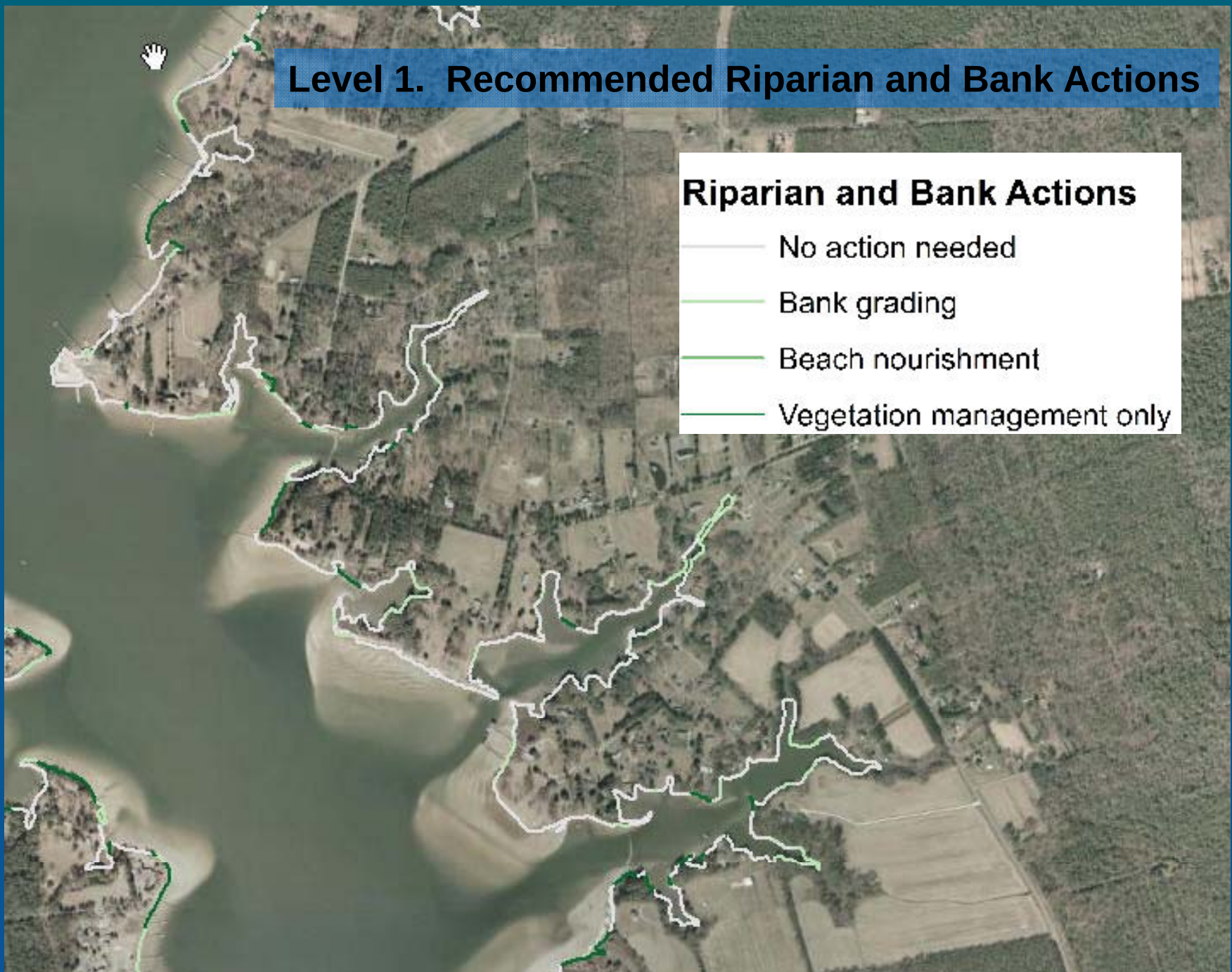




Level 1. Recommended Riparian and Bank Actions

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only





Level 1. Recommended Upland Actions

Upland Actions

— No action needed

— Upland management



Level 1. Three Tiers of Recommended Actions

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management





What about the Defended Shoreline?



Level 2. Recommended Shoreline Actions for Defended Areas

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment





Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment

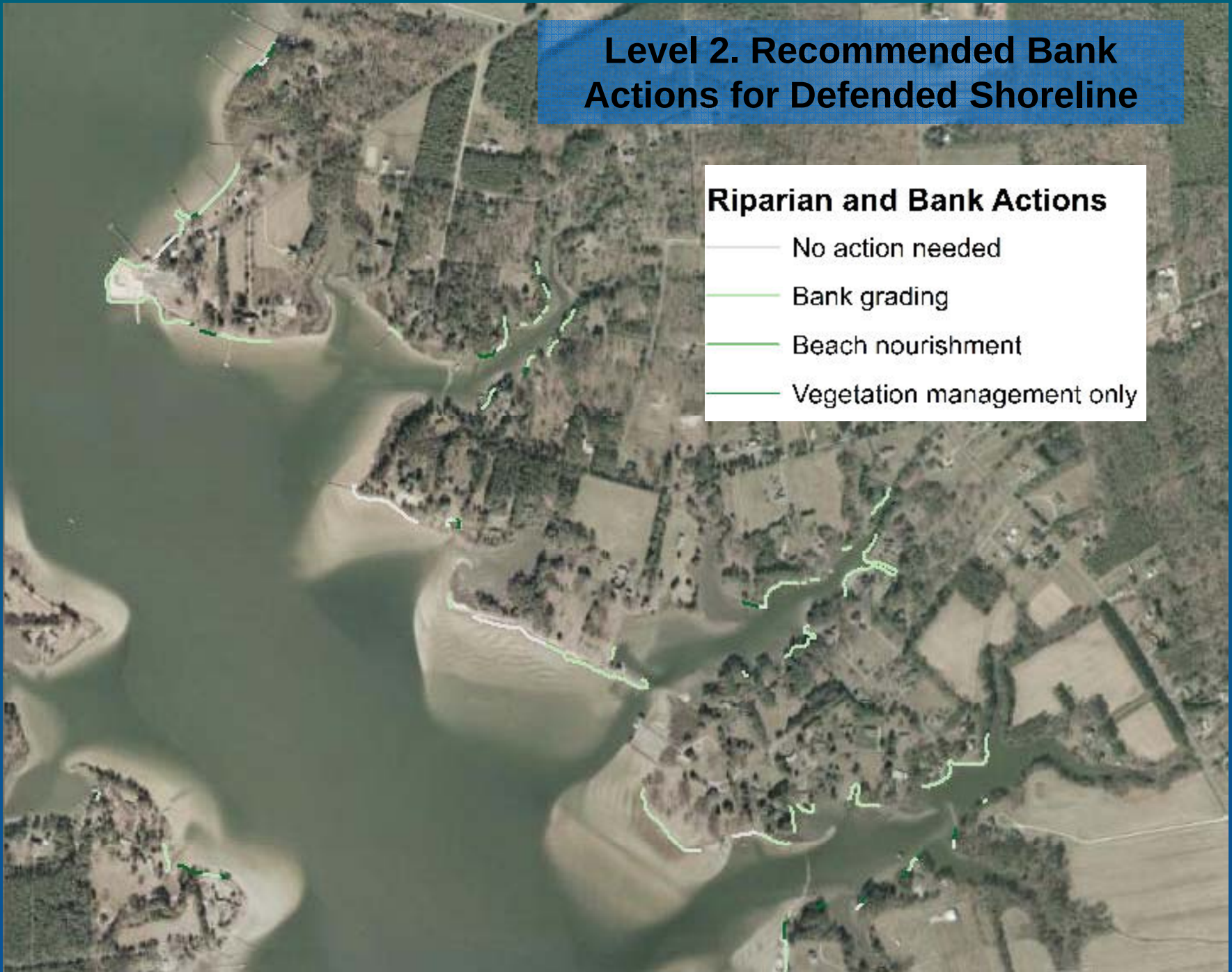




Level 2. Recommended Bank Actions for Defended Shoreline

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only





Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only



Level 2. Recommended Upland Actions for Defended Shoreline

Upland Actions

— No action needed

— Upland management



Level 2. Three Tiers of Recommended Actions for Defended Shoreline

Shoreline Actions

- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management



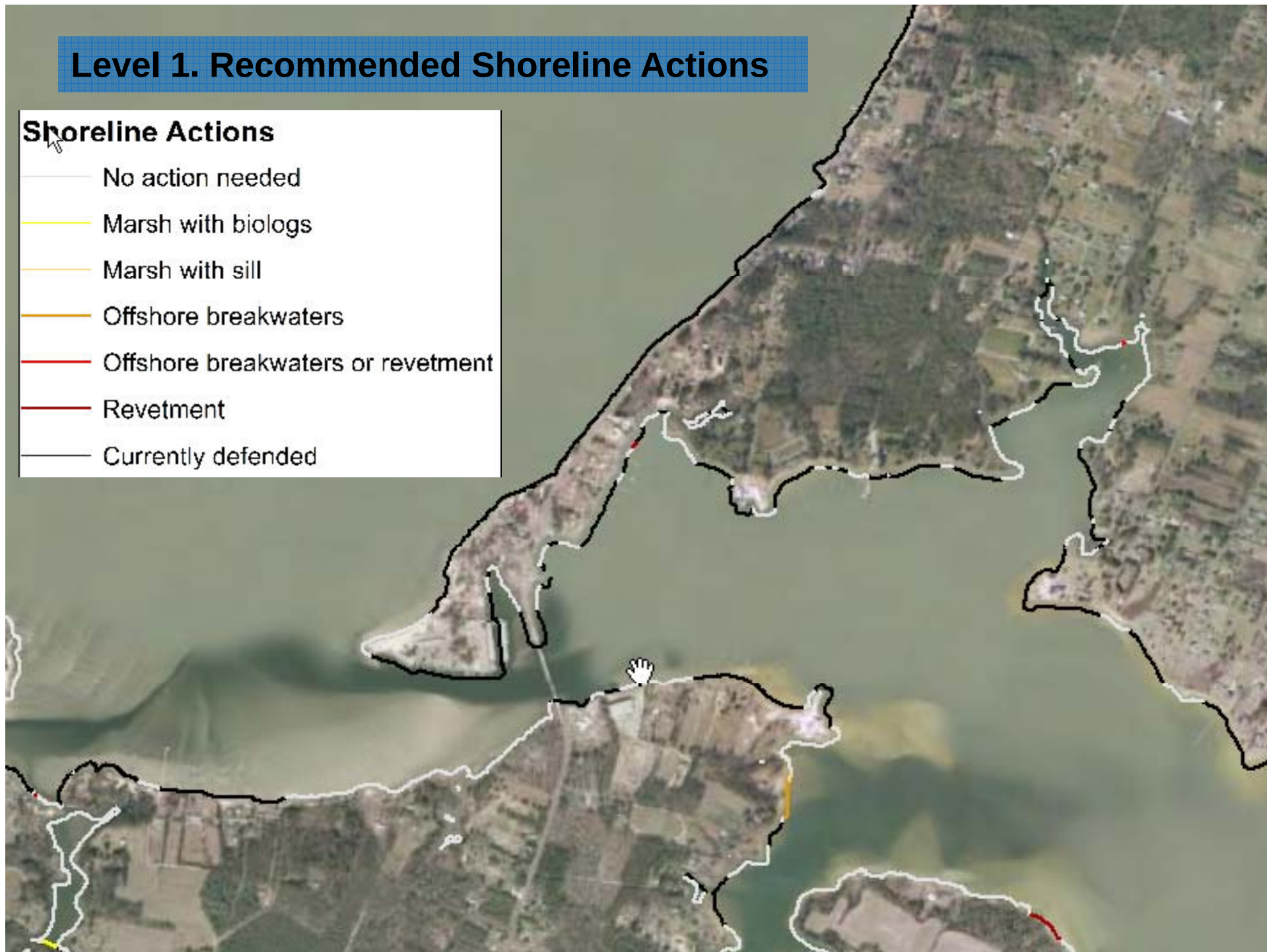
Gwynn Island



Level 1. Recommended Shoreline Actions

Shoreline Actions

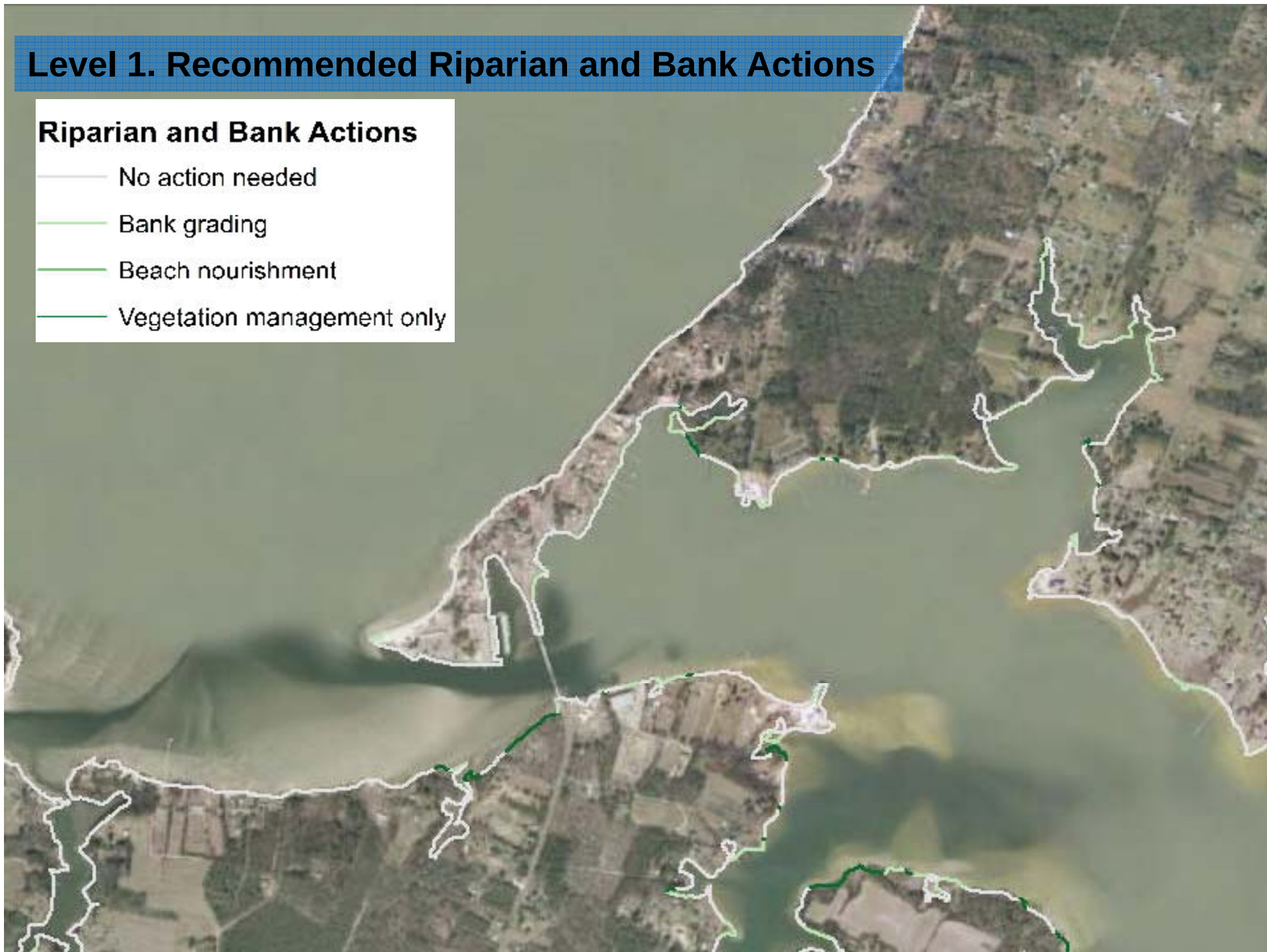
- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended



Level 1. Recommended Riparian and Bank Actions

Riparian and Bank Actions

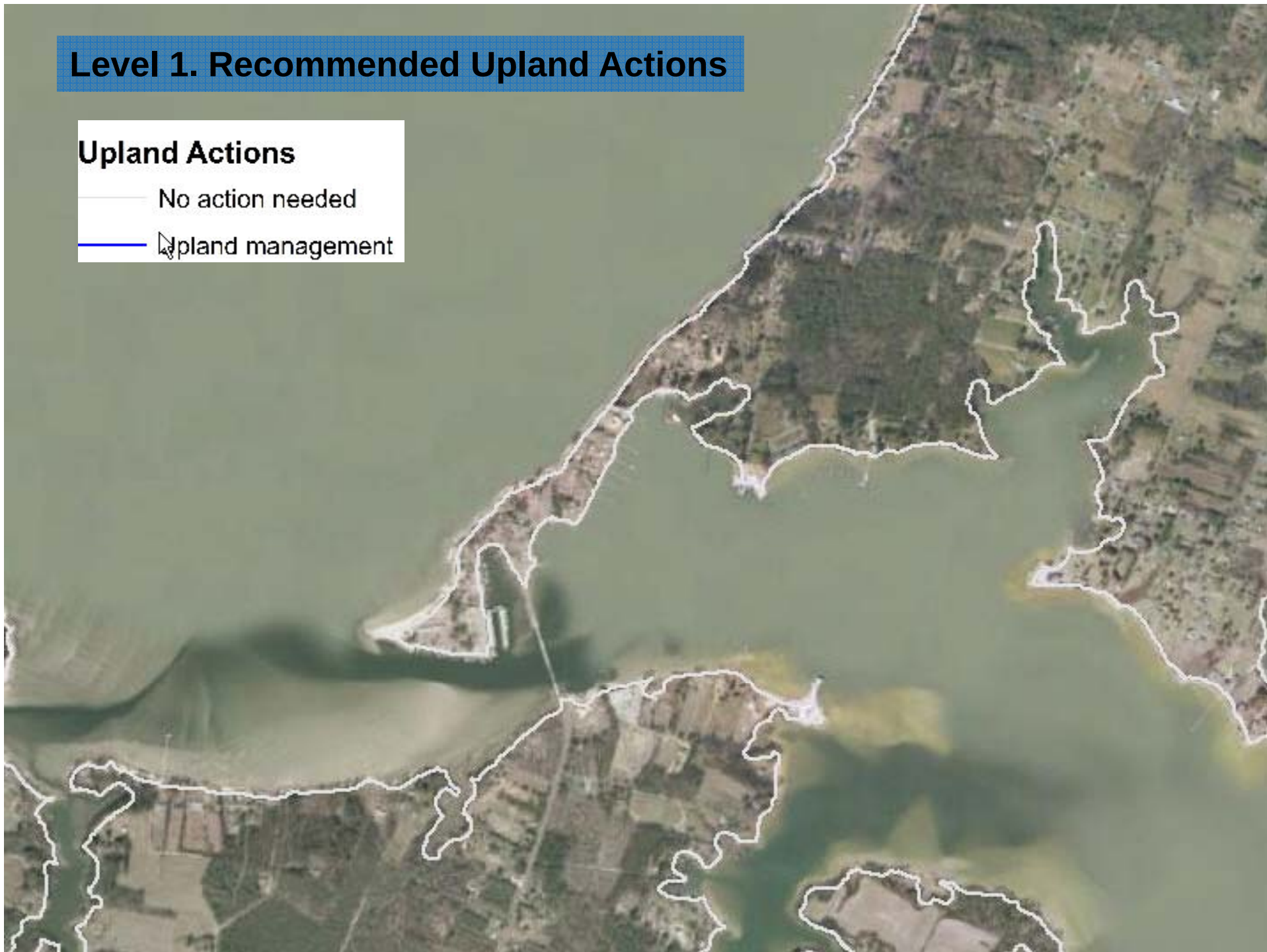
- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only



Level 1. Recommended Upland Actions

Upland Actions

- No action needed
- Upland management



Level 1. Three tiers of Recommended Actions

Shoreline Actions

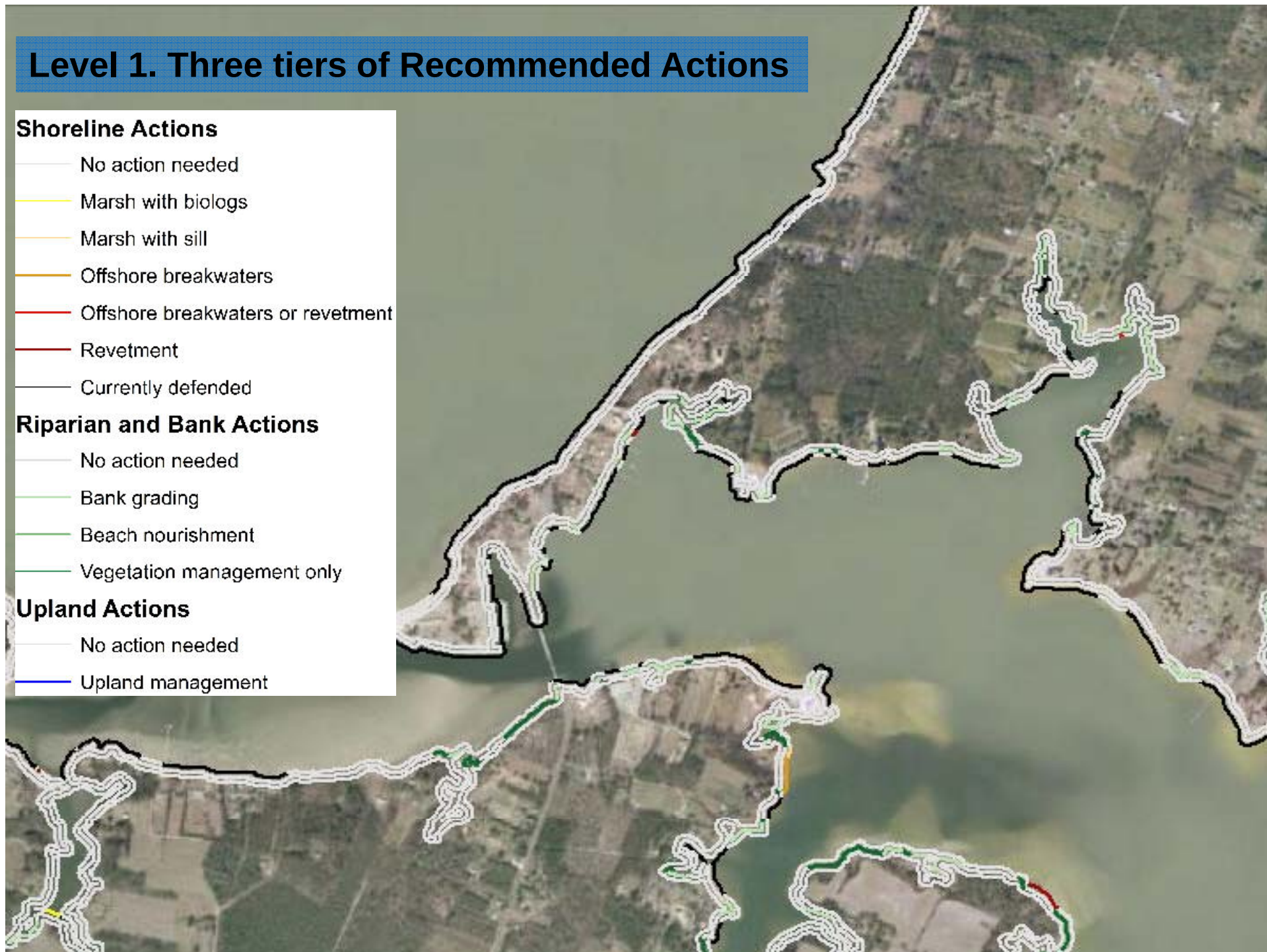
- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment
- Currently defended

Riparian and Bank Actions

- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only

Upland Actions

- No action needed
- Upland management



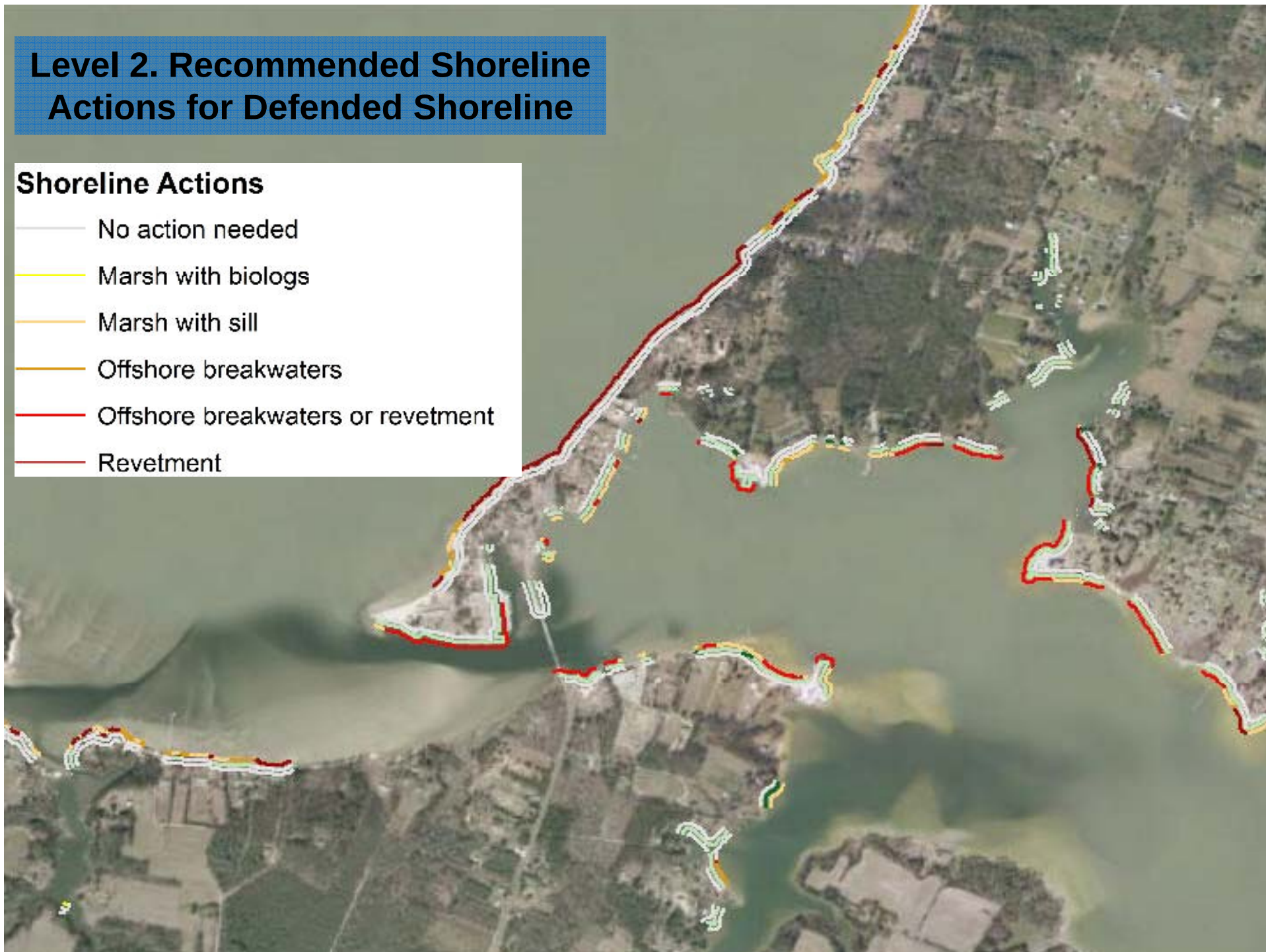
What about the defended shoreline?



Level 2. Recommended Shoreline Actions for Defended Shoreline

Shoreline Actions

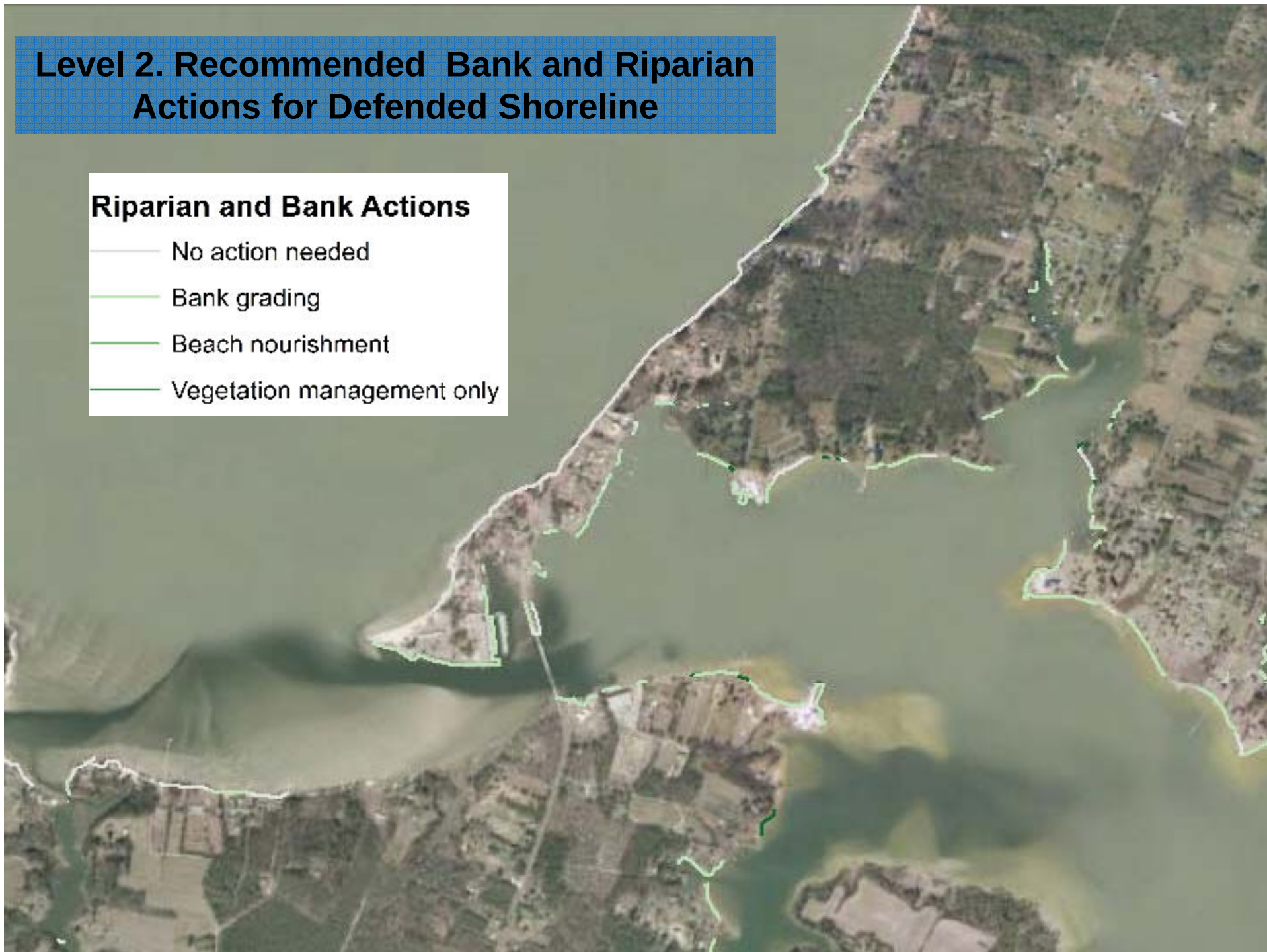
- No action needed
- Marsh with biologs
- Marsh with sill
- Offshore breakwaters
- Offshore breakwaters or revetment
- Revetment



Level 2. Recommended Bank and Riparian Actions for Defended Shoreline

Riparian and Bank Actions

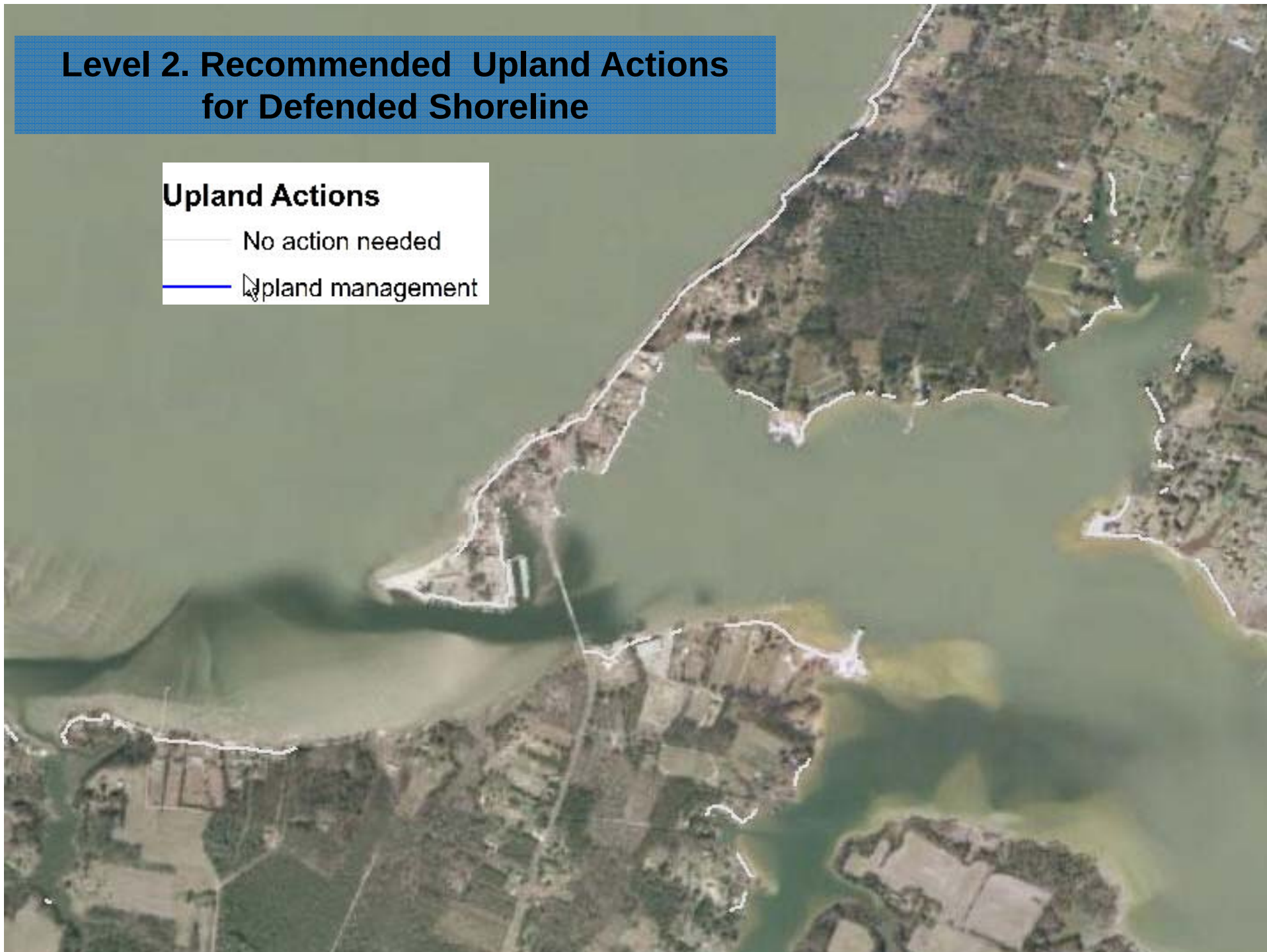
- No action needed
- Bank grading
- Beach nourishment
- Vegetation management only



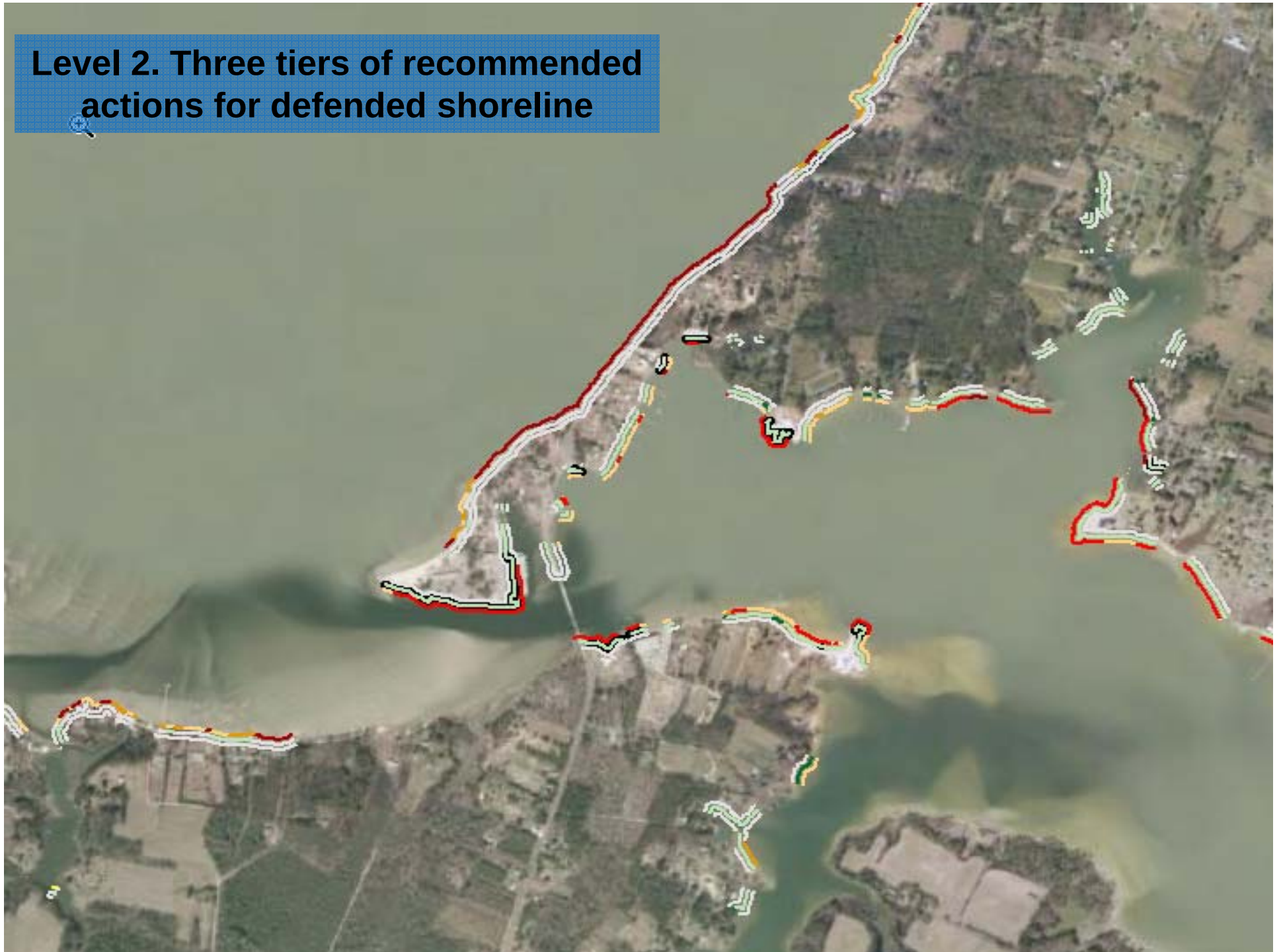
Level 2. Recommended Upland Actions for Defended Shoreline

Upland Actions

- No action needed
- Upland management



Level 2. Three tiers of recommended actions for defended shoreline



Areas of Special Consideration



**Level 2. Recommend shoreline actions
for defended shoreline**

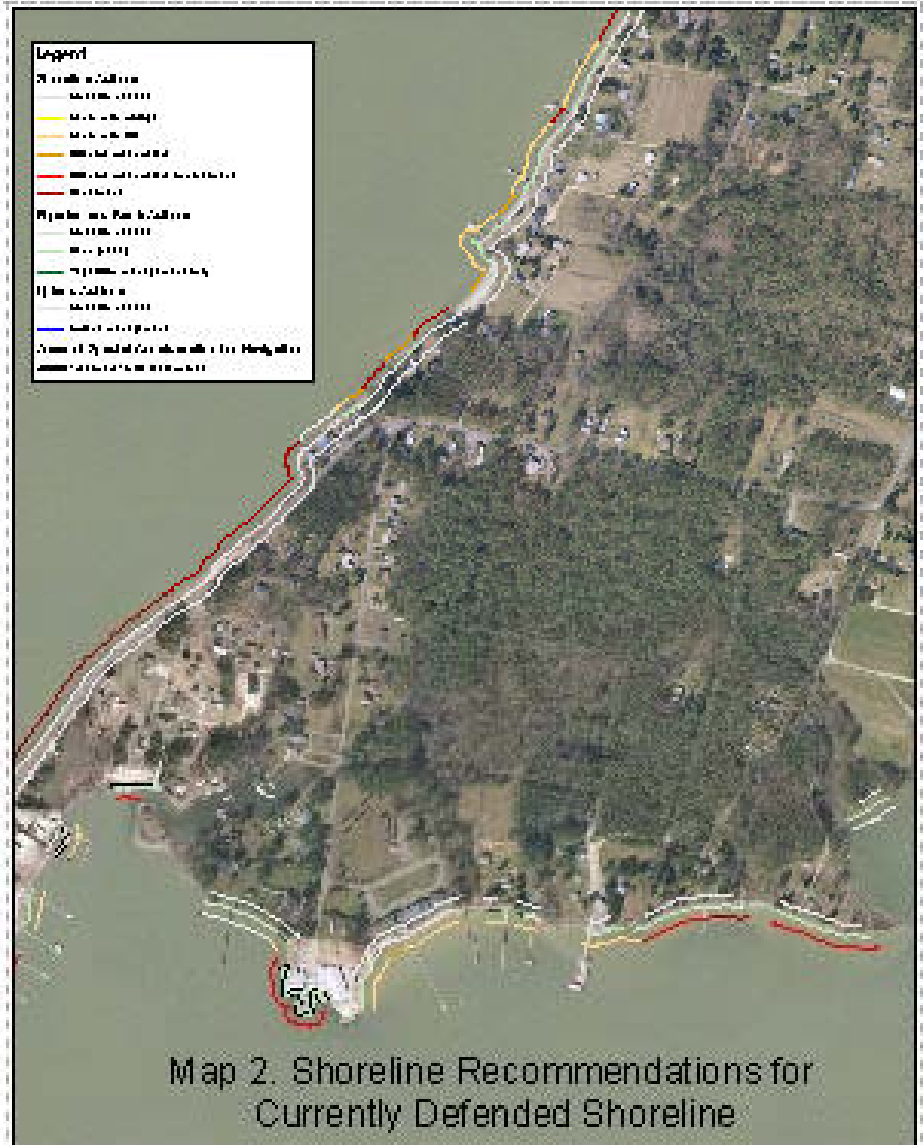


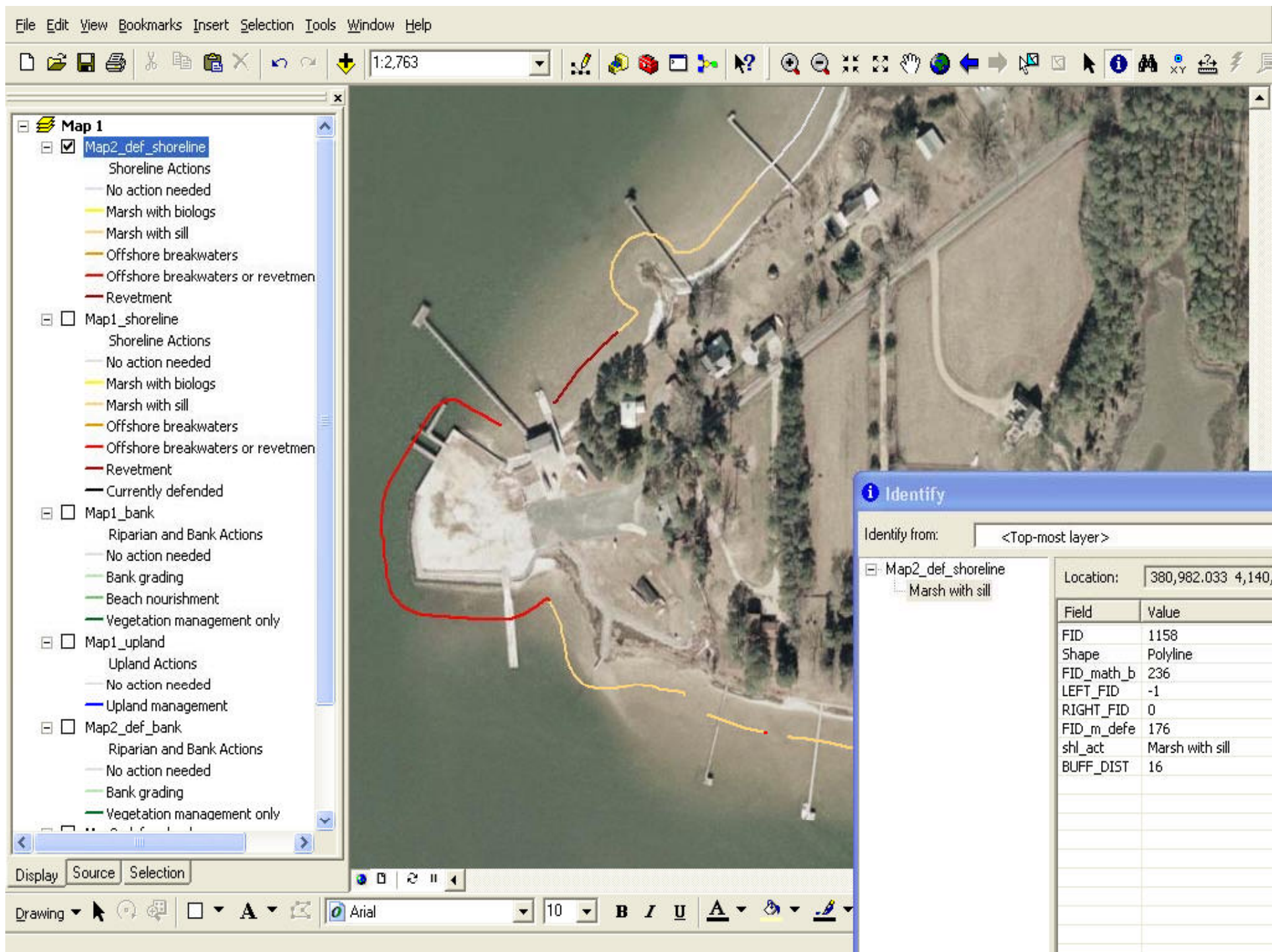
Product Delivery

Level 1



Level 2





Modules of a CCRMP

Comprehensive Shoreline Inventory

Tidal Wetlands Inventory

Non-Tidal Wetlands Assessment

Geospatial Shoreline Management Model

Climate Change Vulnerability model

Conservation Targeting Tool

Shallow Water Use Conflict Assessment

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