CHESAPEAKE BAY COMPREHENSIVE WATER RESOURCES AND RESTORATION PLAN

Habitat GIT Meeting

9 May 2017

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Goal

Develop a comprehensive and integrated master plan that would assist with implementation of the 2014 Chesapeake Bay Agreement.

BACKGROUND

CBCP will result in a single, integrated restoration plan to:

- **Assist in guiding** implementation of actions that **protect**, **restore** and **preserve** the Bay
- **Adopt and Align** actions with what others are doing
- **Avoid duplication** of ongoing or planned actions by others
- Make maximum use of **existing information**
- **Identify** ecological problems, needs, and opportunities
- **Identify** projects for **further study** and **implementation**, including at least one for each Bay state and the District of Columbia

BENEFITS OF THE PLAN

- Establishes a program through which USACE can best deploy its technical, design, and construction experience and funding to partner with watershed stakeholders to help achieve the shared vision for the Chesapeake Bay watershed.
- Identifies opportunities for USACE technical assistance and funding by priority watershed:
  - Tier 1 and Tier 2 analyses at a larger scale present broad project types and opportunities for action among the Chesapeake Bay Partnership stakeholders and USACE.
  - Tier 3 analyses at a more local scale highlight how action at a more local level could assist regional partners achieve restoration goals and outcomes.
- Identify actions implementable by others (federal, state, and local government agencies and non-governmental organizations (NGOs)) to address problems outside of USACE mission areas.

STAKEHOLDER COLLABORATION

- ✓ Webpage: http://www.nab.usace.army.mil/Missions/Civil-Works/Chesapeake-Bay-Comprehensive-Plan/

- ✓ Email distribution list
- ✓ November Interagency Watershed Planning Collaboration Workshop
- ✓ Webinars (February 27 & April 20)

Upcoming:

- Webinar (June)
- Review of Draft Plan

STAKEHOLDER INPUT

Flooding and Storm Damages

Ecosystem Degradation

Economic and Social Vulnerability

Constraints, Inventory Existing Conditions

Future Forecasts

Identified Priorities by others

Composite Analysis

Action by others

Findings, Needs, and Opportunities

Strategies, Cost Ranges, Benefits

Actions for others under their authorities

USACE Actions Roadmap

FULL STRATEGY

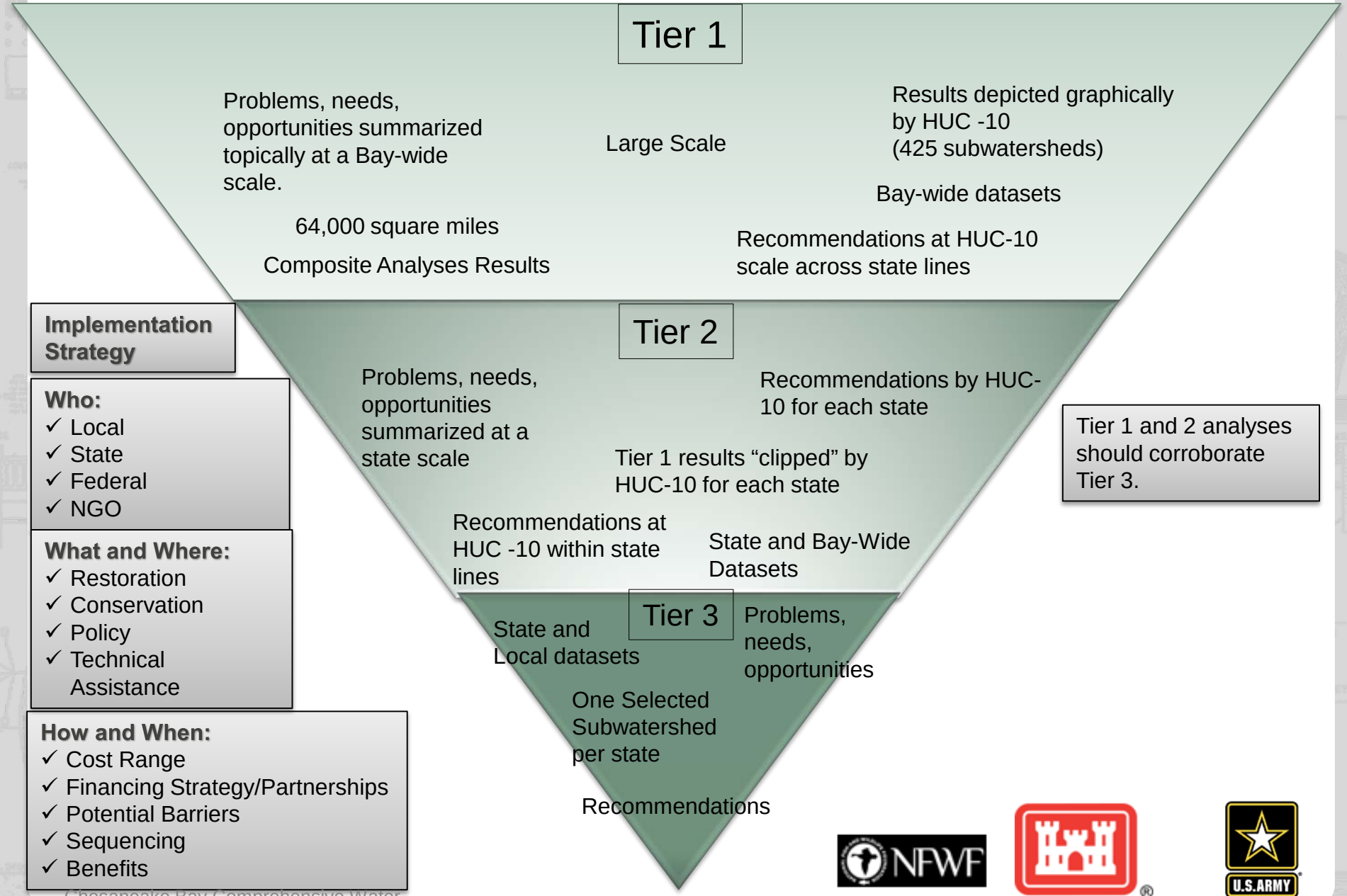
Funding and Implementation Strategy

Implementation Barriers, Sequencing

Costs/Benefits

State Plans

Geospatial Analysis Approach



Implementation Strategy

Who:
- ✓ Local
- ✓ State
- ✓ Federal
- ✓ NGO

What and Where:
- ✓ Restoration
- ✓ Conservation
- ✓ Policy
- ✓ Technical Assistance

How and When:
- ✓ Cost Range
- ✓ Financing Strategy/Partnerships
- ✓ Potential Barriers
- ✓ Sequencing
- ✓ Benefits

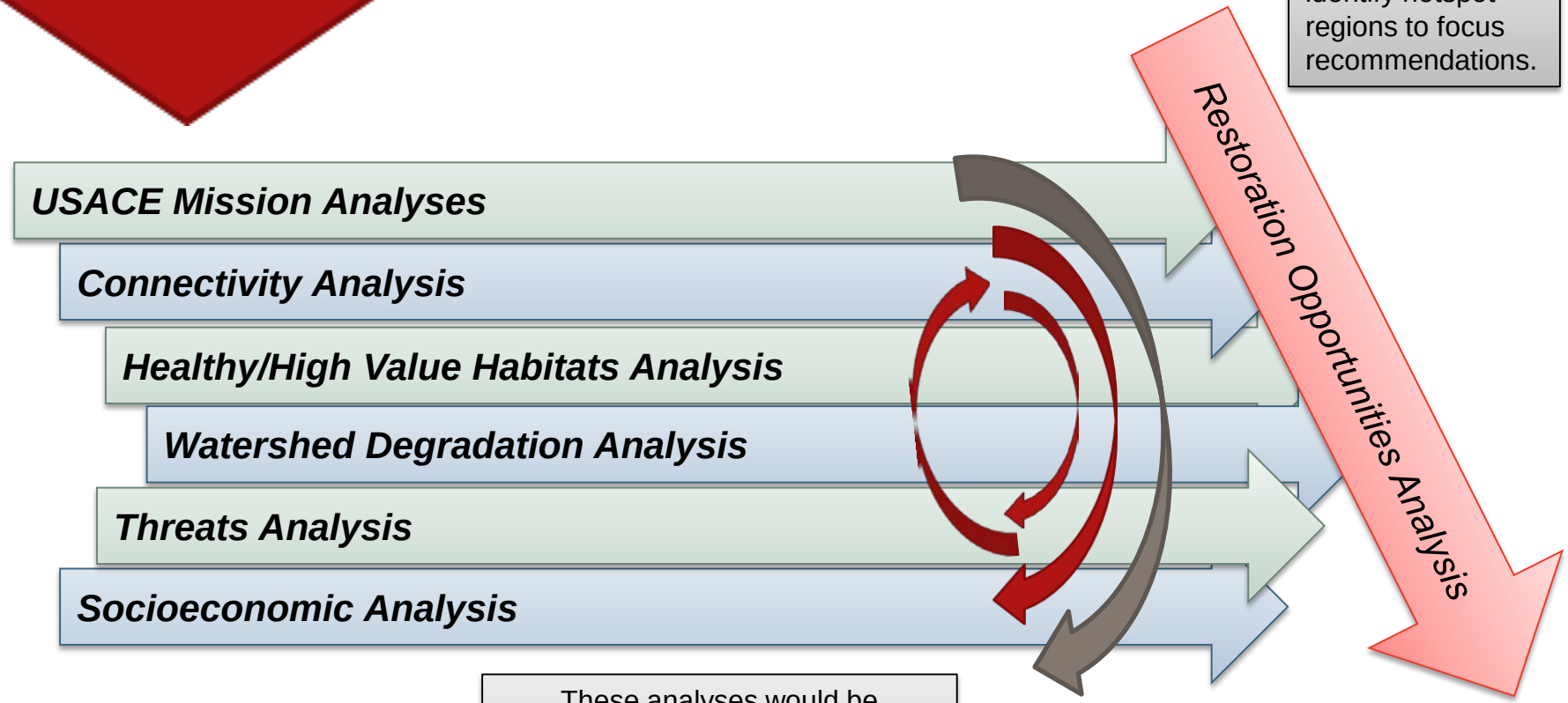
Tier 1 and 2 analyses should corroborate Tier 3.

PRIORITY SUBWATERSHEDS-TIER 3 ANALYSIS

State	Priority Subwatershed	Primary Restoration Focus/Product
NY	Upper Susquehanna River Watershed (including Upper Susquehanna & Chemung River sub-basins)	Stream restoration, wetland creation/restoration, riparian forest buffers
PA	Lower Susquehanna River Watershed	Stream restoration, legacy sediment, wetland creation/restoration
WV	Opequon Creek Watershed	Technical services & possible design-build opportunities – focus on green infrastructure
MD	Choptank River Watershed	Stream restoration & wetland creation, agricultural BMPs, blue/green infrastructure
DE	Nanticoke River	Stream restoration & wetland creation, agricultural BMPs
DC	Anacostia River	
VA	N/A – Interested in evaluation opportunities across the Chesapeake Bay drainage area to address problems	Wetlands restoration & creation/coastal shoreline erosion & management for resilience planning/fish passage

COMPOSITE ANALYSES + **Identified Priorities by others** + **Action by others**

The goal is to utilize GIS to identify hotspot regions to focus recommendations.



These analyses would be completed independently. The results will then be used with results from other analyses to answer questions and develop recommendations.

RESTORATION OPPORTUNITIES ANALYSES

- Where do opportunities exist to implement habitat restoration opportunities (**streams, freshwater fish, SAV, Oysters, black duck, riparian buffer**) to further Chesapeake Bay Agreement 2014 Goals and outcomes, maximize/optimize aquatic ecosystem restoration, flood risk management, and community resilience benefits?

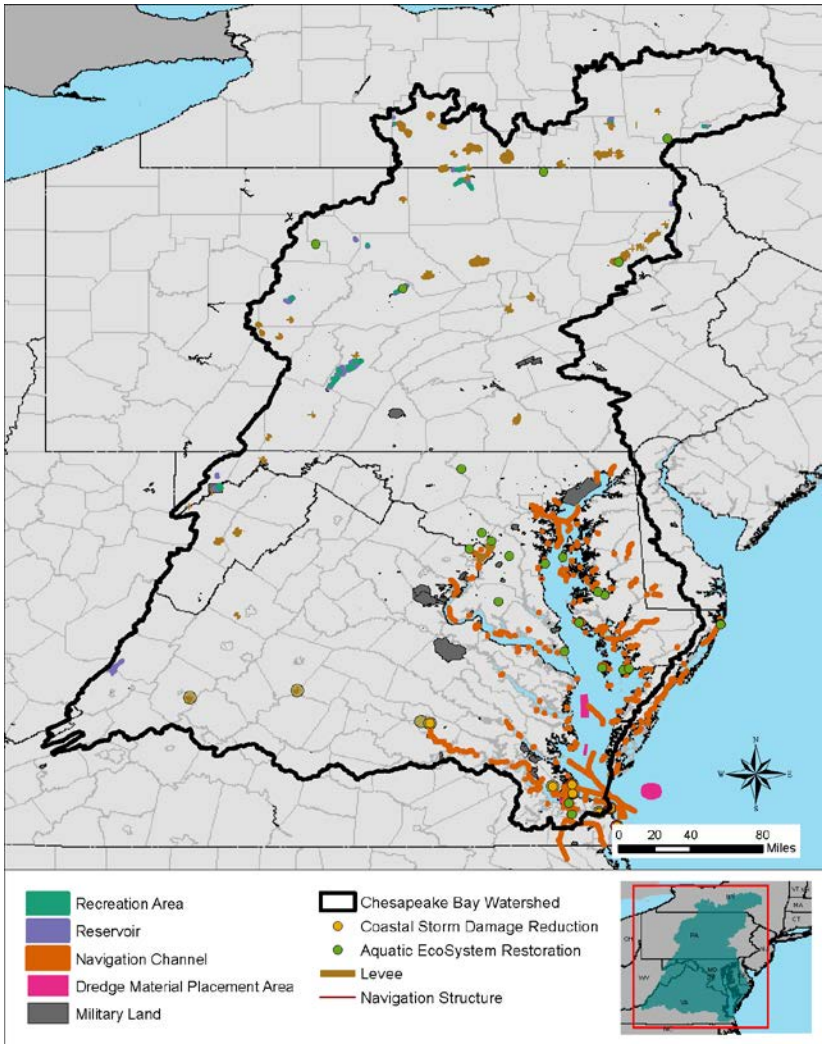
- Where do opportunities exist to implement **wetland** restoration opportunities and protect existing wetlands to further Chesapeake Bay Agreement 2014 Goals and outcomes, maximize/optimize aquatic ecosystem restoration, flood risk management, beneficial use of dredged material and community resilience benefits?

- Where do opportunities exist to improve habitat **connectivity** and human connectivity to **healthy habitats**?

- Where do **conservation** opportunities exist to increase connectivity, enhance restoration success, and address social and economic vulnerabilities.

- Where can **shoreline** and **streambank** opportunities for restoration and conservation be implemented to maximize/optimize aquatic ecosystem restoration and community resilience?

USACE MISSION AND MILITARY LANDS ANALYSIS



Where do USACE projects exist (ecosystem restoration, flood risk management, navigation, military, water supply, reservoirs, etc.)?

What are the geographic boundaries of each USACE authority?

Pertinent Data:

- Existing dams and reservoirs
- Existing restoration projects
- Navigational channels and structures
- Military lands
- Existing levees
- Existing coastal storm damage reduction features
- Existing dredged material placement sites

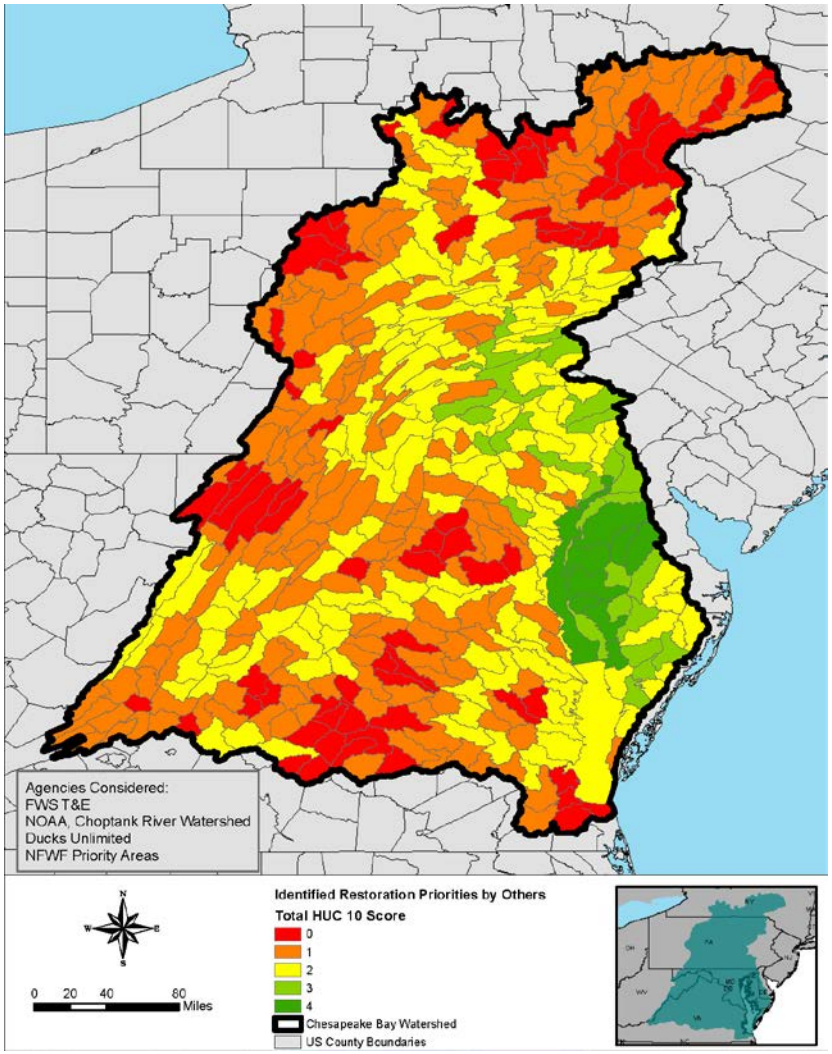
PRIORITIES BY OTHERS

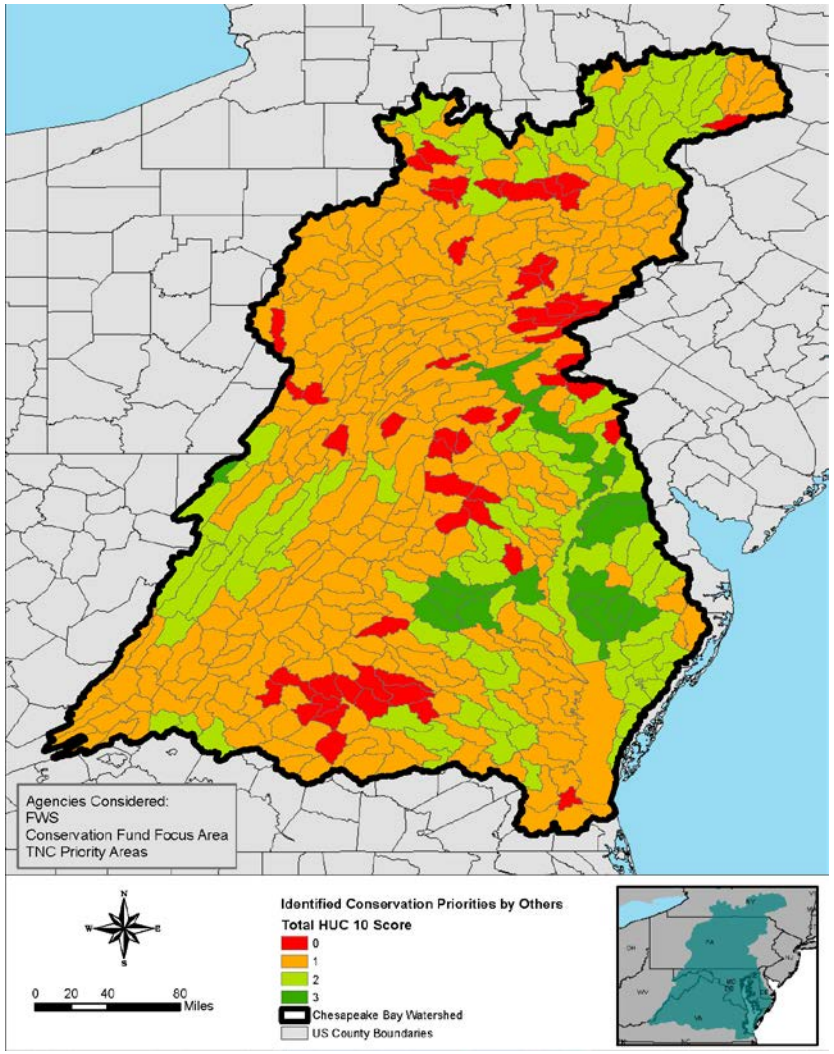
- ❖ What do compiled agency priorities look like spatially?
- ❖ How do the initiatives of various agencies align?

Agency Priorities (one layer/map)

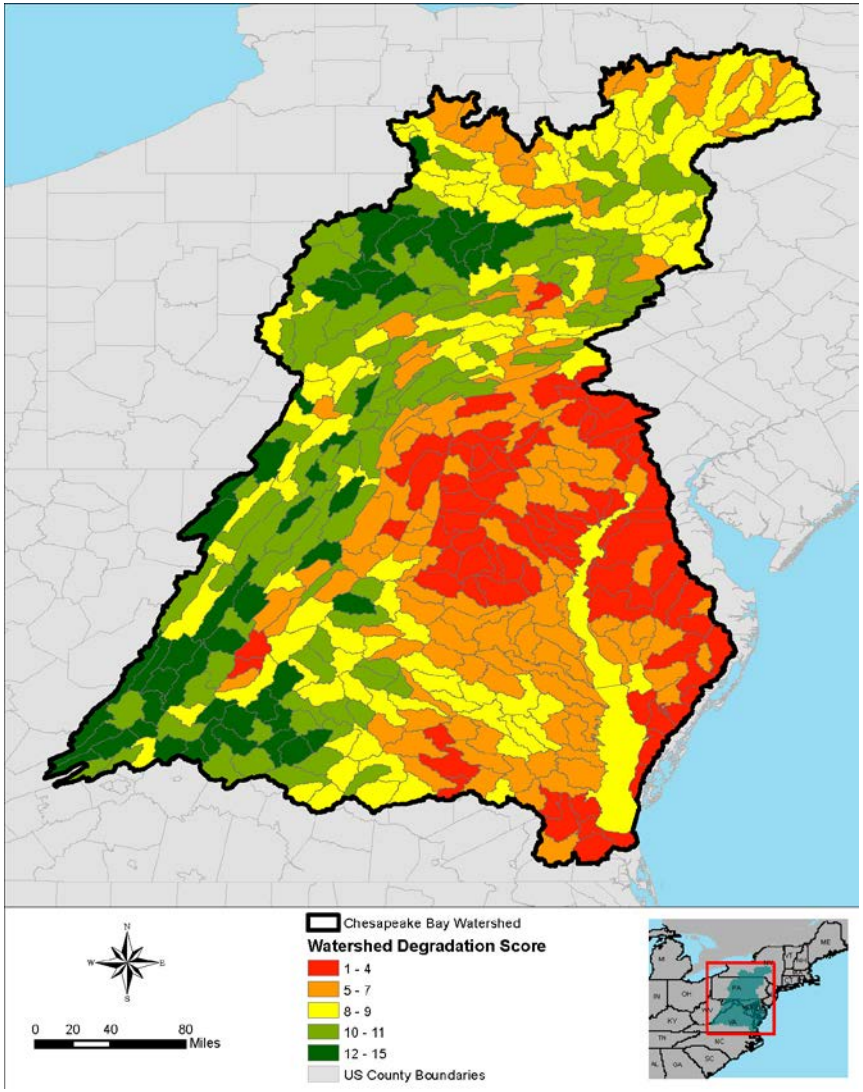
- ➢ Federal agency prioritized areas
  - ➢ FWS
  - ➢ NOAA - Choptank River watershed
  - ➢ USDA - Forest Legacy Areas
  - ➢ DOD – sentinel landscapes ACUB (Army Buffers) NFWF Business Plan Focus Areas
- ➢ Ducks Unlimited Focus/Project Areas
- ➢ Conservation Fund Focus Areas
- ➢ TNC Priority Areas
- ➢ Input from February webinar
- ➢ Input from November workshop

PRIORITIES BY OTHERS





WATERSHED DEGRADATION



What subwatersheds are the most degraded?

Can we summarize the primary problems regionally?

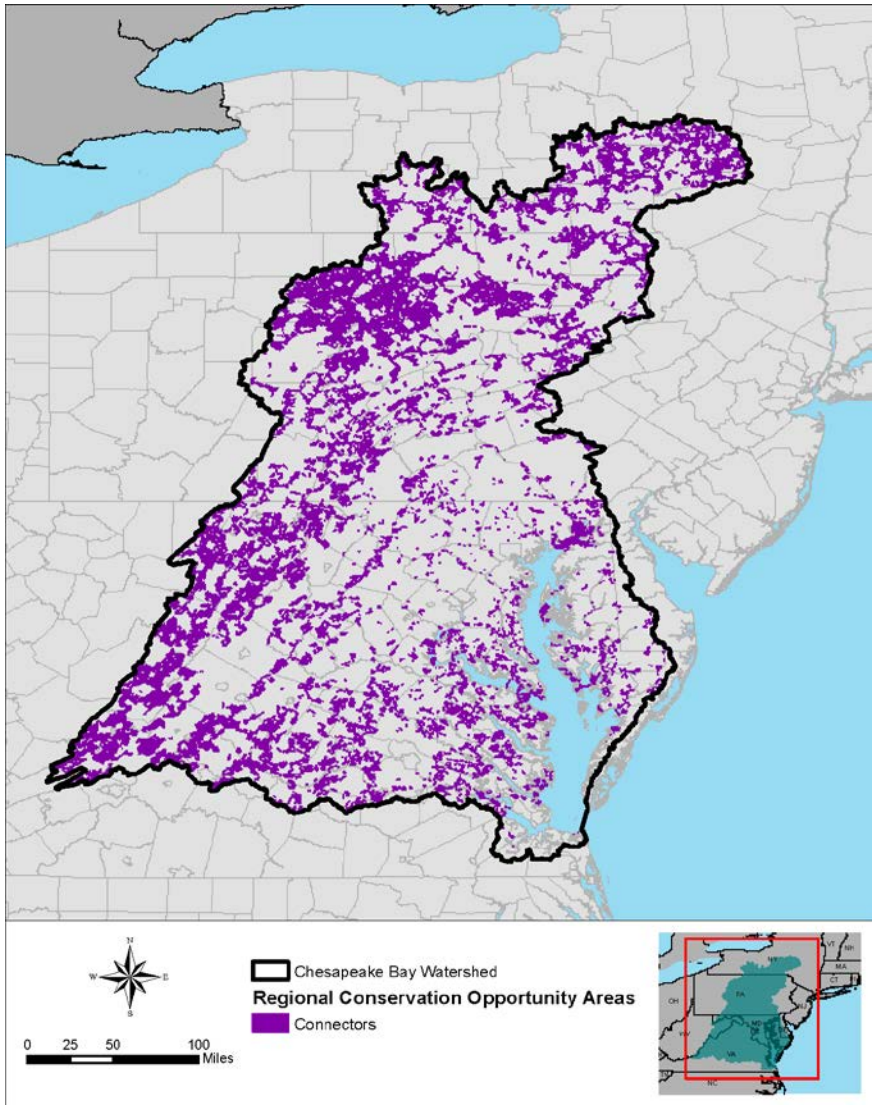
Pertinent data:

- Percent impervious cover
- Percent forest
- Percent forested riparian buffer
- Impaired streams on 303(d) list-% of stream length impaired in subwatershed
- CBP – Stream IBI – rating in subwatershed
- CBP - N and P – top 25% of all Chesapeake Bay NHD catchments for N and P yields, respectively

WATERSHED DEGRADATION - PROPOSED SCORING SCHEME

Parameter	Data Source	Metric	Scoring
Landuse (measures of landscape alterations from development)	Chesapeake Conservancy 2016	Percent impervious cover. Scoring based on MDNR General Guidelines for Impervious Surface Thresholds.	0 = >25% 1 = 10- 25% 2 = 2-10 % 3 = <2 %
	Chesapeake Conservancy 2016	Percent forest cover. Scoring based on goals set and relationships determined in USFS State of Chesapeake Forests (2006)	0 = 0-30% 1 =>30-37 2 =>37-51% 3 = >51
	EPA 2010 (Army Comp Plan)	Percent of stream network within subwatershed with forest (riparian buffer). Scoring based on goals set and relationships determined in USFS State of Chesapeake Forests (2006).	0 = 0-56% 1 = >56-63% 2 = >63-70% 3 = >70%
Stream health- water quality	303(d) Impaired waterways list (EPA)	Stream miles listed as impaired within subwatershed (scoring based on groups determined using Natural Breaks Method (Jenks) in GIS).	0 = 84.64 - 183.33 1 = 34.45 - 84.64 2 = 0.02 - 34.45 3 = 0
Stream health- biological integrity	Chesapeake Bay Program Benthic Index of Biotic Integrity 2000-2010 (watershed-wide B-IBI)	Subwatershed rating assigned by Chesapeake Bay Program based on B-IBI determined by stream monitoring.	0 = NA 1 = poor or very poor 2 = good or fair 3 = excellent
Nitrogen and Phosporus Impairments	SPARROW model output	Top 25 % of all Chesapeake Bay NHD catchments for nitrogen and phosphorus yields	0 = a subwatershed in the top 25% for N and P 1 = a subwatershed in the top 25% for N or P 3 = not a subwatershed in the top 25% for N or P

CONNECTIVITY ANALYSIS

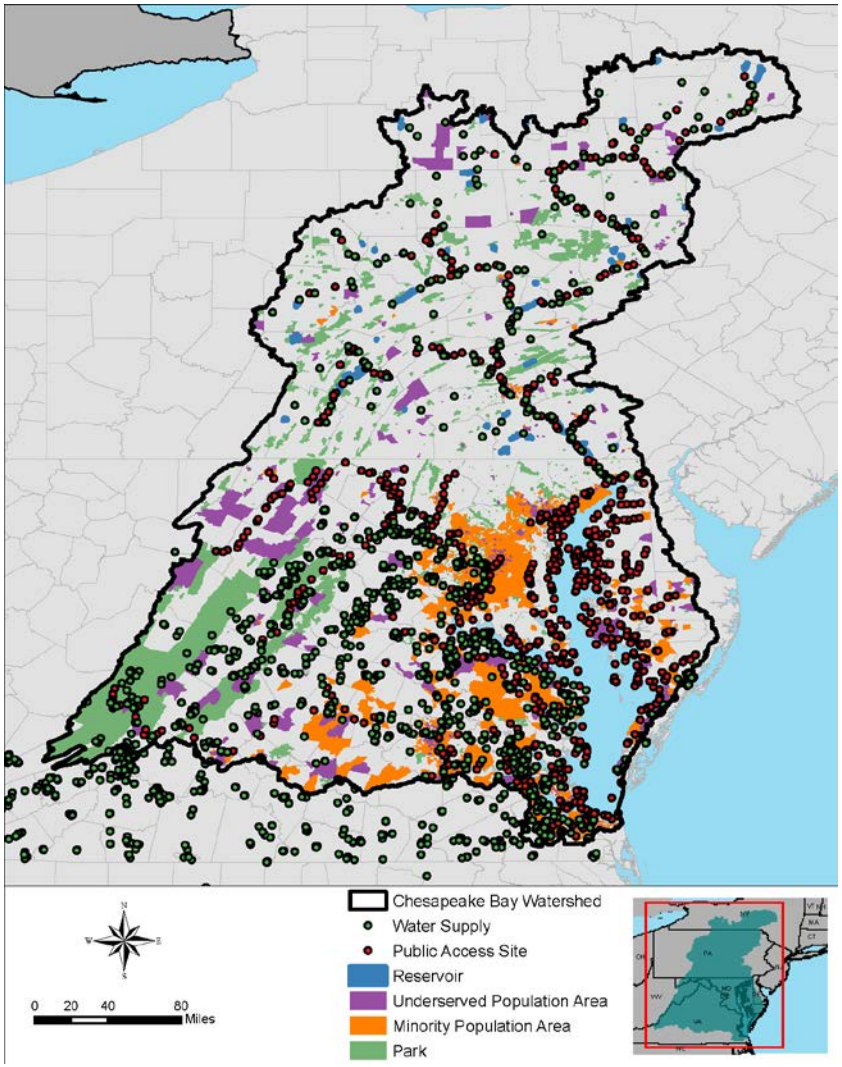


Where are the corridors and other landscape features that are critical connectors in the watershed?

Pertinent Data:

- RCOA (Regional Conservation Opportunity Areas) connector habitats

SOCIOECONOMIC ANALYSIS



- What locations are important for recreation and public access?
- Where are minority and low income populations located (underserved)?
- What locations are important for water supply and source water protection?
- What locations are important due to cultural or historical significance?

Pertinent Data:

- Water quality protection areas
- National, state, and local parks
- Public access points
- Minority populations
- Low income populations

HEALTHY/HIGH VALUE HABITATS

- Where are the healthy habitats in the watershed?
- Performed 2 analyses – one focused on the watershed and one focused on the mainstem and shoreline

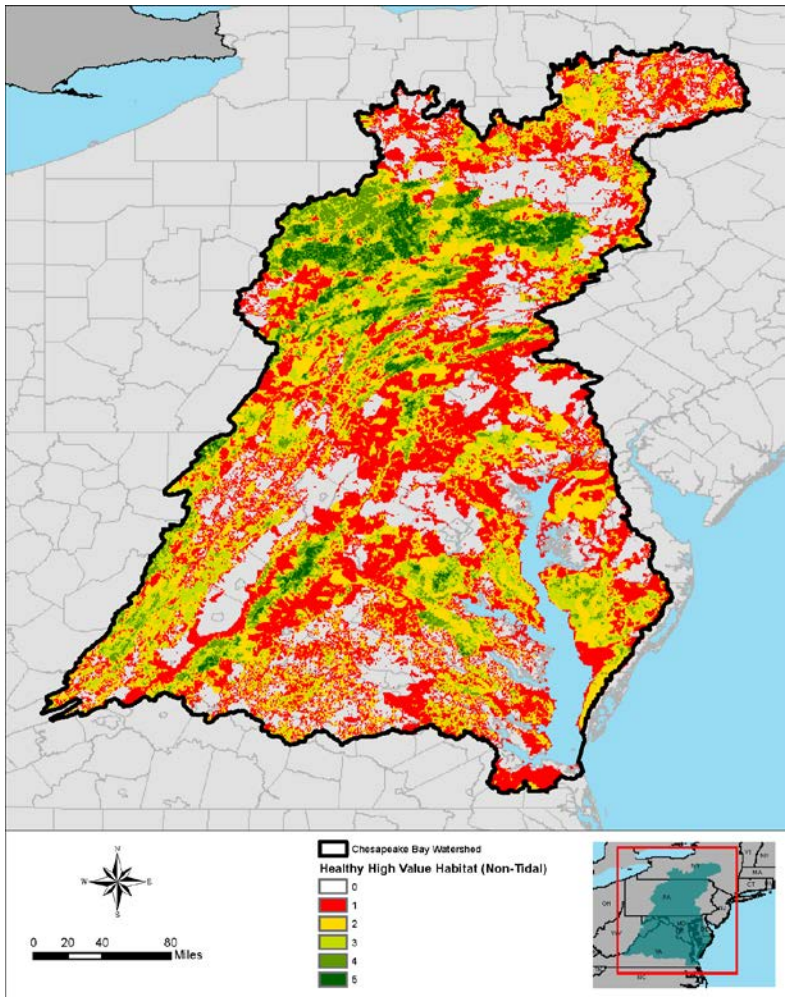
Pertinent data-watershed compilation:

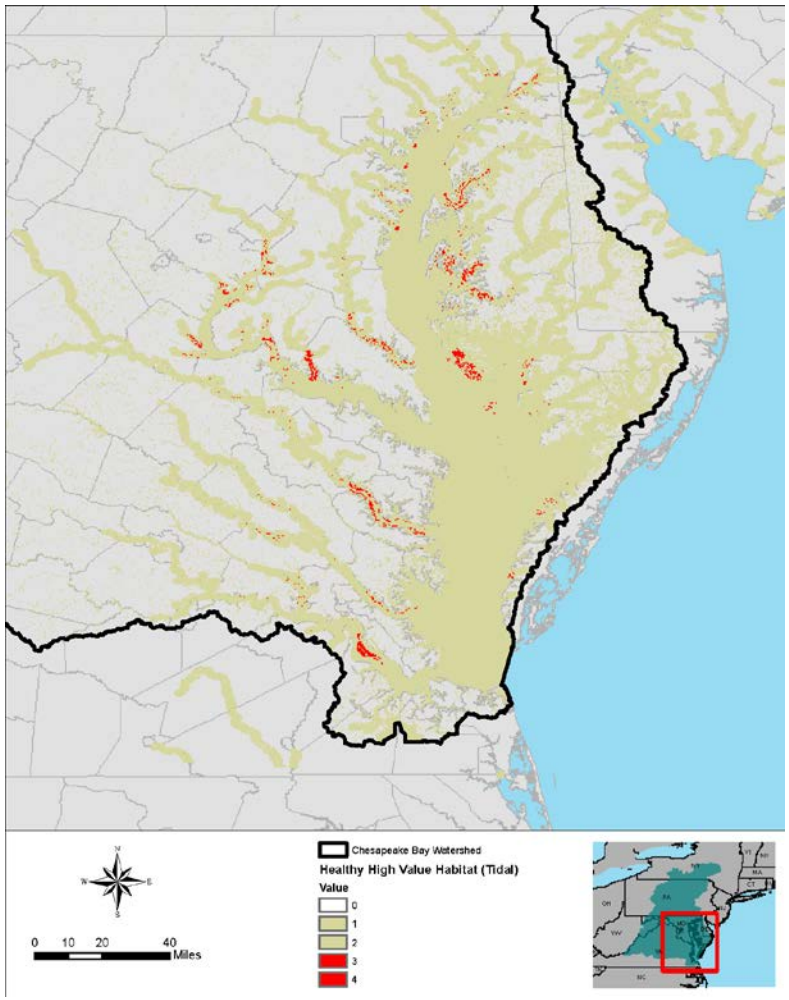
- State-identified healthy watersheds
- Brook Trout catchments
- Index of Ecological Integrity
- Audubon Important Bird Areas
- RCOA Core and connectors
- Black Duck Focus Areas

Pertinent data – mainstem/shoreline

- Oyster reefs – potential oyster habitat
- Existing brook trout streams
- SAV beds
- Nesting locations of wading and waterbirds

HEALTHY/HIGH VALUE HABITATS





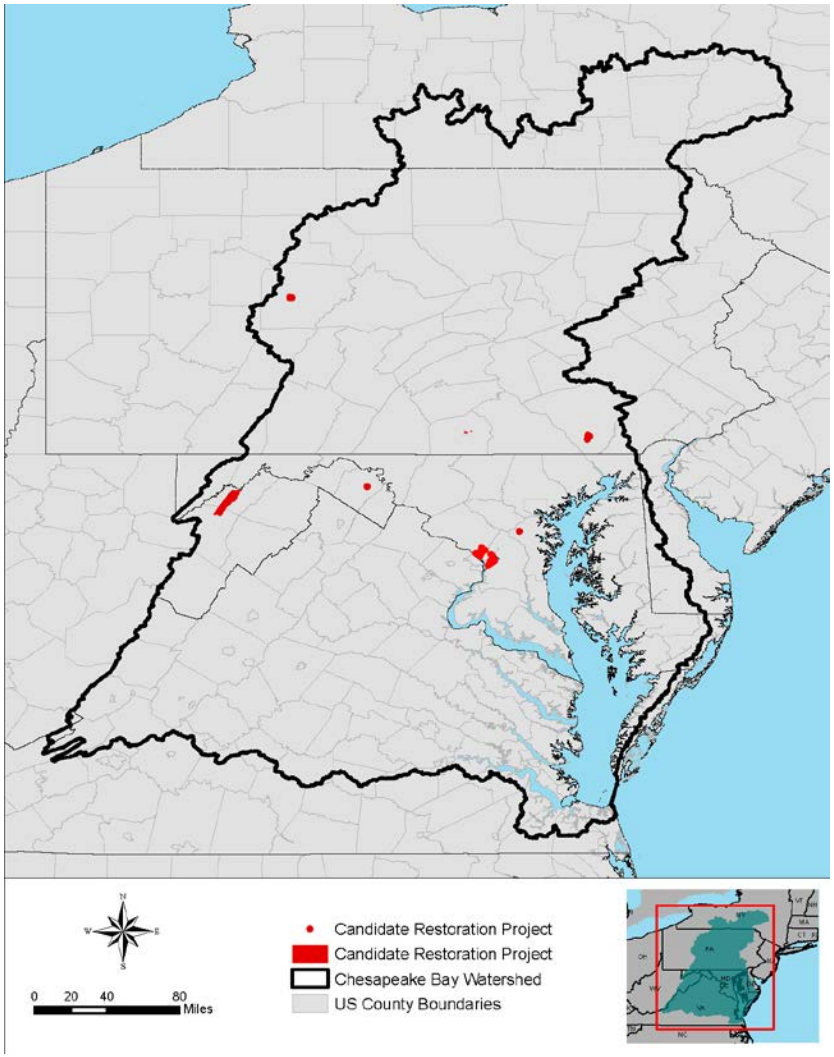
THREATS ANALYSIS

- What areas are threatened by urbanization and climate change in the watershed?
- What areas are prone to increased/persistent flooding in the future?

Pertinent data:

- Eroding shorelines/vulnerable shorelines
- Uncontrolled N and P loads
- USACE SLR curves
- Areas threatened by more frequent normal flooding
- Resources at risk to coastal storms
- Non-tidal flooding
- Tidal marsh migration corridors
- Future projected development
- National Fish Habitat Assessment (risk of current habitat degradation)
- FWS data

CANDIDATE RESTORATION PROJECTS



- Received 14 candidate restoration projects from 11 agencies
- Cost range: $40K - $30M
- Screening process
- Incorporate into implementation strategy
- FY 2019 budget

ECOSYSTEM SERVICES

Ecosystem goods and services are socially valued aspects or outputs of ecosystems that depend on self-regulating or managed ecosystem structures and processes.

Some examples: water purification & waste treatment, human health, natural hazard mitigation, property & infrastructure protection, human safety, navigation, recreation, climate regulation, carbon sequestration

Feedback requested:

1. What are good resources/references that provide information on ecosystem services, preferably in the Chesapeake Bay?
2. What projects have you implemented or planned where you evaluated ecosystem services?
3. Did you have funding partners, and if so, who that were interested in implementation for eco services?

Email to Anna.M.Compton@usace.army.mil

IMPLEMENTATION
PROGRAMS AND FINANCING

Feedback requested:

1) What partnership programs have helped you implement a project?

   Examples:

   PA - Growing greener program

   EPA - Section 319

2) Are there innovative financing strategies that you have used to implement projects?

Email to Anna.M.Compton@usace.army.mil

NEXT STEPS

- ❑ Stakeholder webinar - June
- ❑ Draft Report for review – Fall 2017
- ❑ Final Report - Summer 2018

WE WANT TO HEAR FROM YOU!

All the slides and content (including some additional background slides) will be posted on the study website and add website.

Email ChesBayCompPlan@usace.army.mil or Anna.M.Compton@usace.army.mil with follow-up questions.

Priority feedback:

- Restoration Opportunity Analyses.
- Selected subwatersheds for Tier 3 analyses for each jurisdiction.