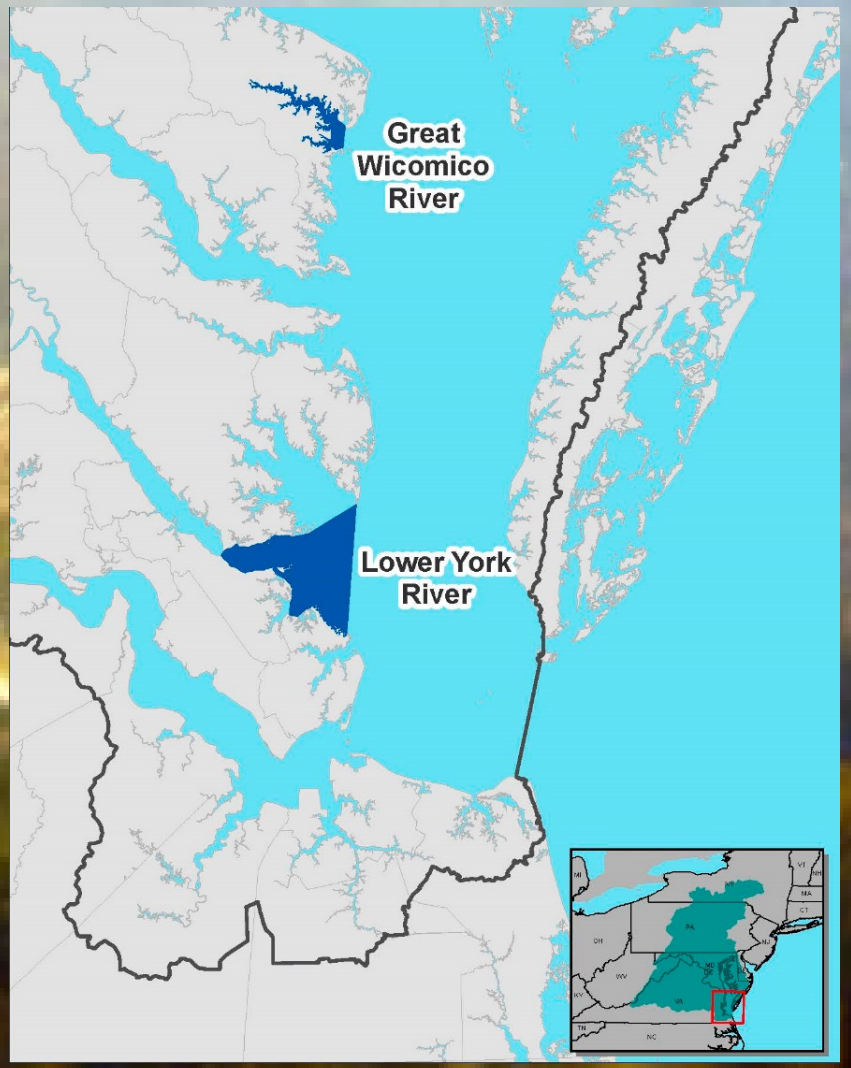
Next Tributaries for Oyster Restoration in Virginia: Great Wicomico and the Lower York River



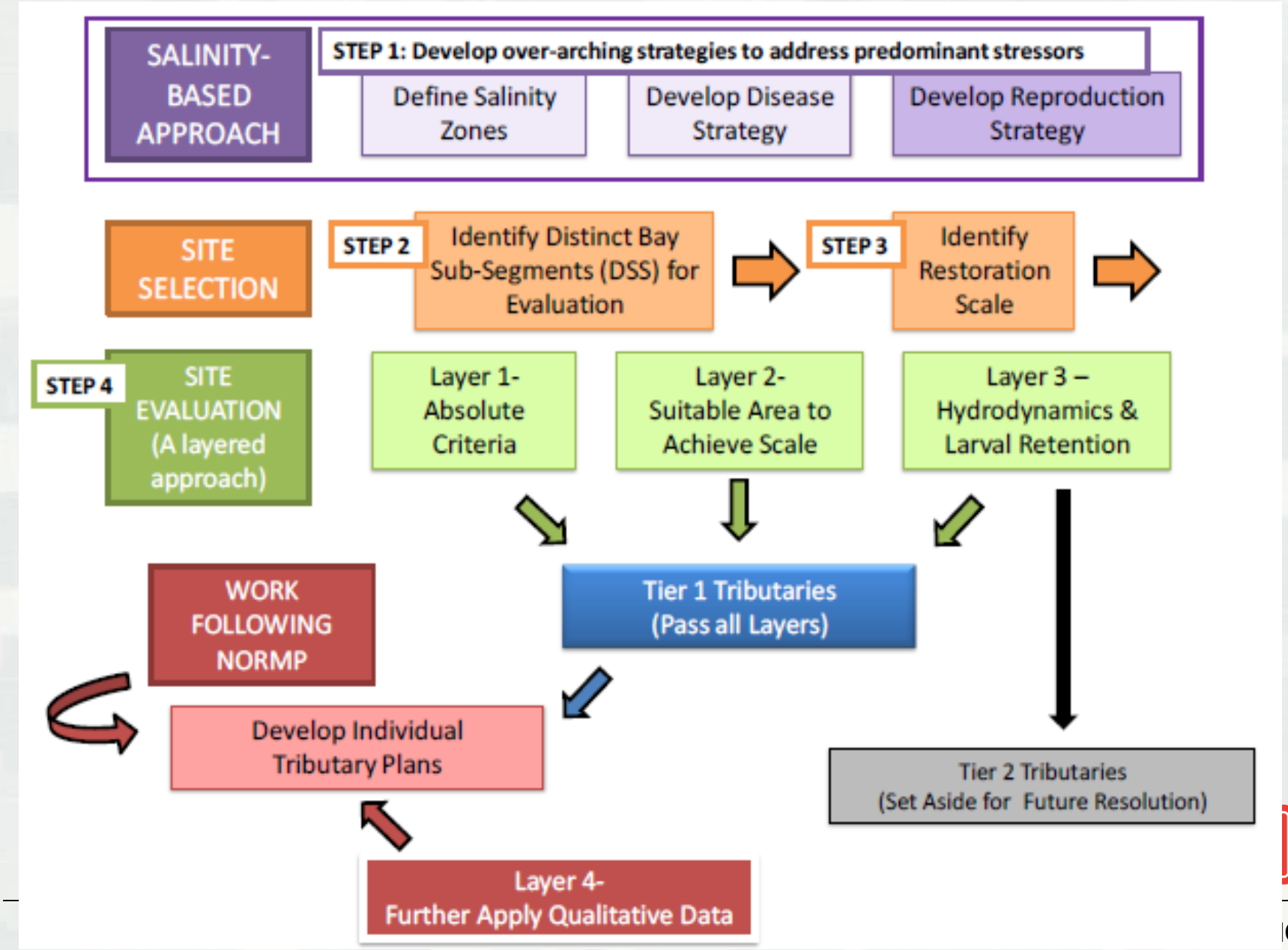
December 18, 2017

Virginia Interagency Oyster Team
Susan Conner
U.S. Army Corps of Engineers, Norfolk District

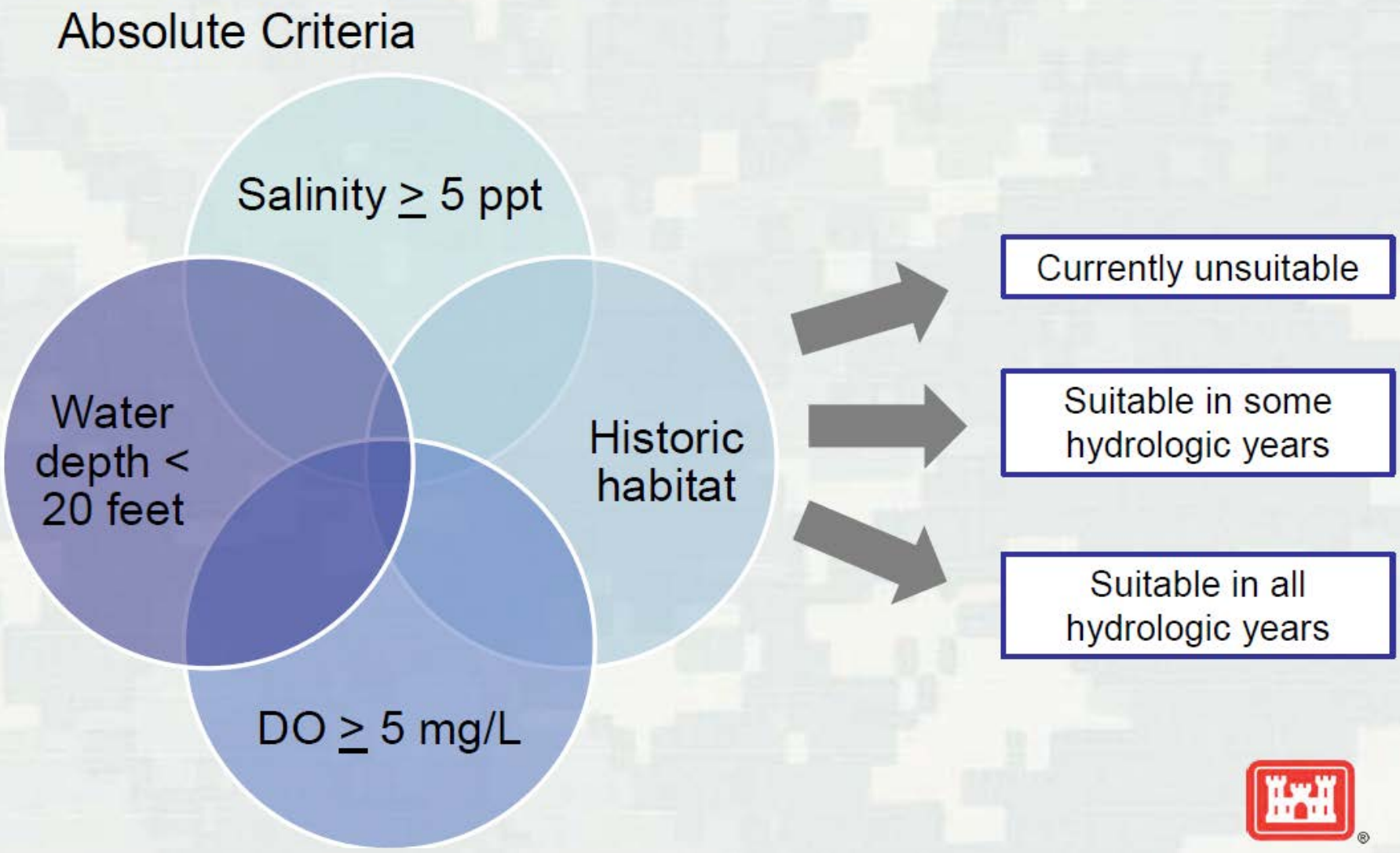
Purpose

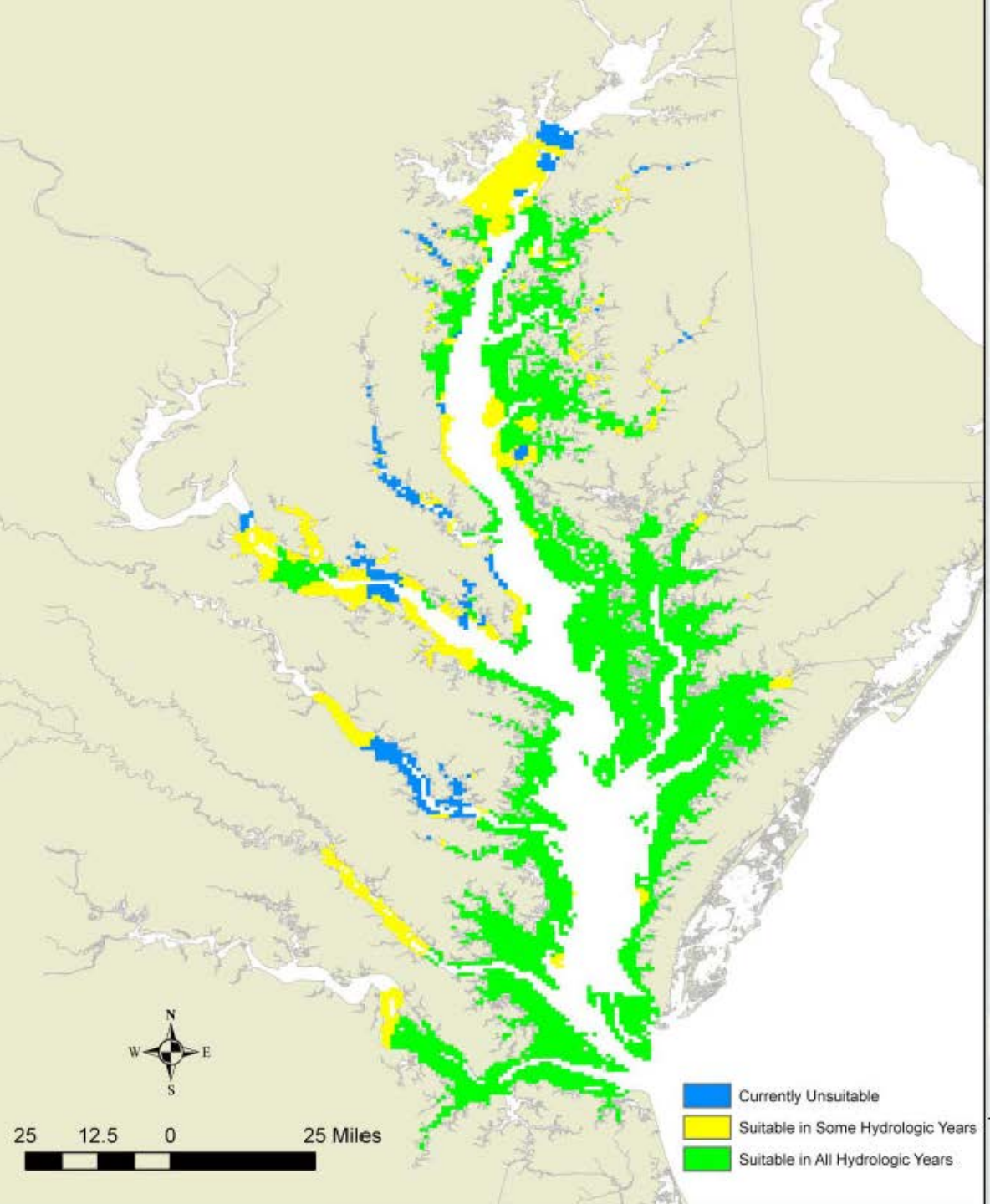
- To discuss the methodology and rationale used by the Virginia Interagency Oyster Team to select the next two tributaries for oyster restoration.
- Selection was based on:
  - Scientific criteria driving oyster restoration success as defined in the *Chesapeake Bay Native Oyster Recovery: Native Oyster Restoration Master Plan* (U.S. Army Corps of Engineers (USACE) et al. 2012)
  - Virginia Interagency Team Discussions
- Selection of the next two tributaries is important to plan interagency restoration efforts and identify funding needs.

Master Plan Oyster Suitability Analysis



Tributary Evaluation and Prioritization





Suitability Analysis Results

- Salinity
  - Surface
  - Bottom
- Bottom DO
- Water Depth

Total Suitable Area

MD= 513,000 acres

VA= 580,000 acres

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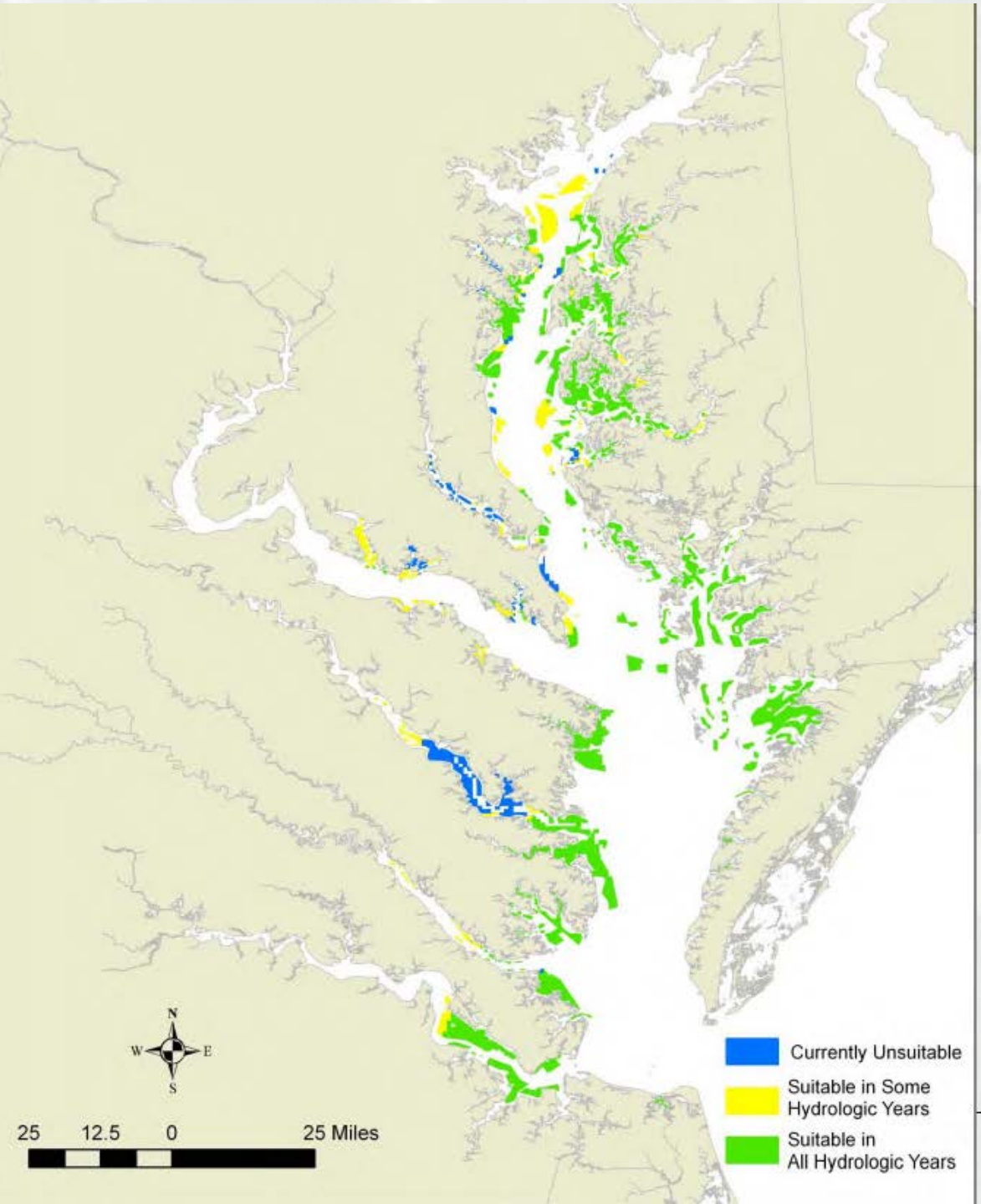

Suitability Analysis Results within Yates/Baylor Boundaries

- Salinity
  - Surface
  - Bottom
- Bottom DO
- Water Depth
- Yates and Baylor Grounds

Total Suitable Area

MD= 132,000 acres

VA= 121,000 acres

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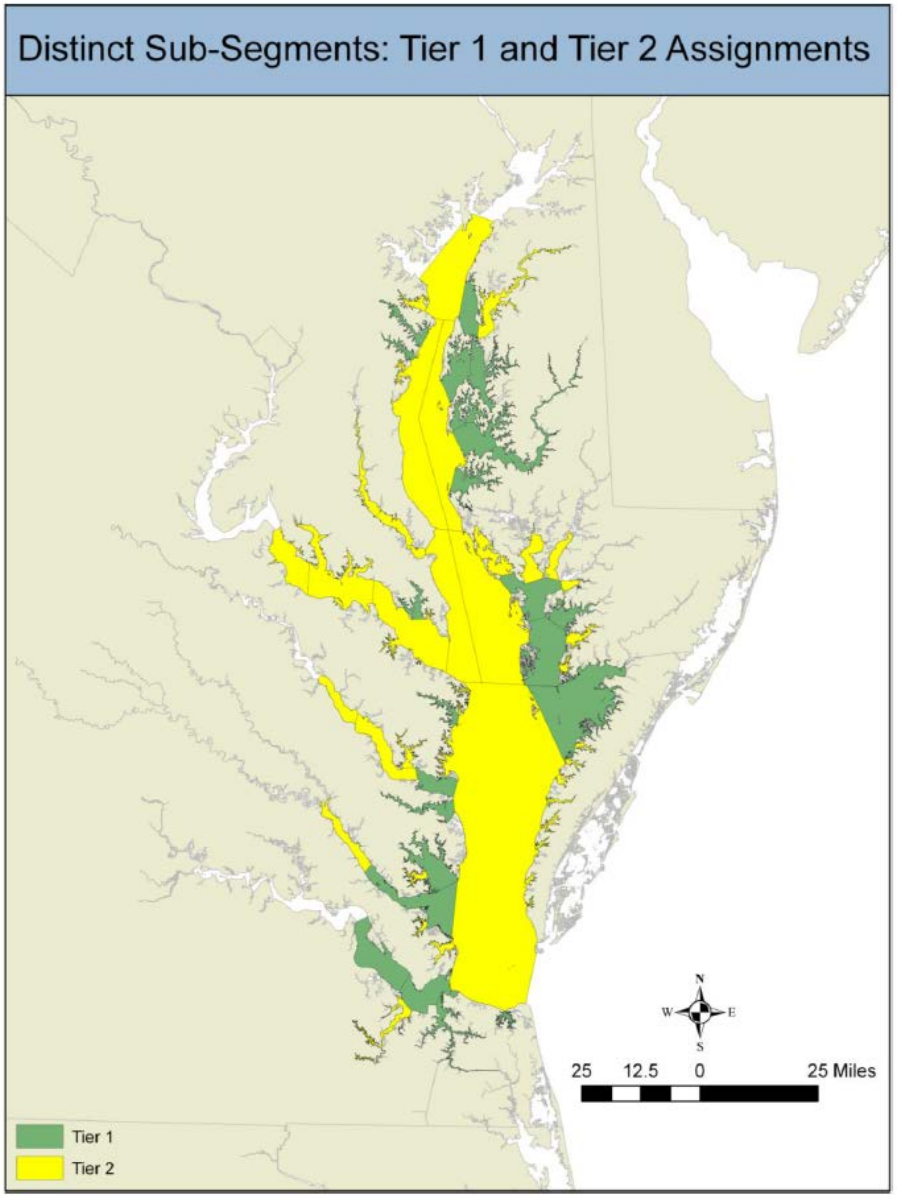
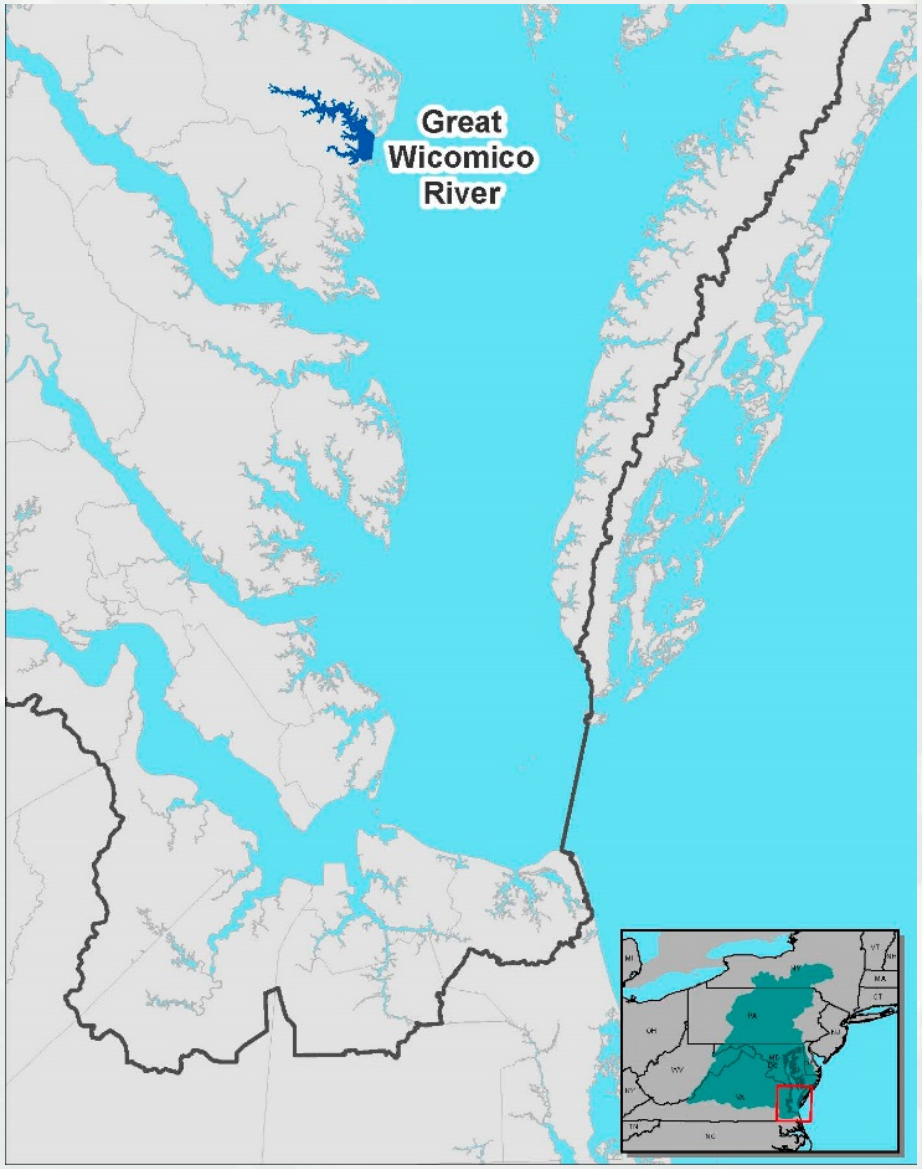
Tier 1 and Tier 2 Tributaries for Oyster Restoration



Tier 1	Tier 2
Maryland	
· Severn R (S) · South (S) · Chester R (lower) (S) · Eastern Bay (lower, upper) (S) · Choptank R (lower, upper) (S) · Harris Creek (S) · Broad Creek · Little Choptank (S) · St. Mary's R (S) · Tangier Sound (lower, upper) · Manokin R (S)	· Magothy R (S) · Rhode R · West R · Chester R (upper) (S) · Corsica R (S) · Honga R · Potomac R · Fishing Bay · Nanticoke R (S) · Monie Bay · Big Annemessex R · Little Annemessex R · Patuxent R (S) · All MD Mainstem Segments (S)
Virginia	
· Great Wicomico R (S) · Rappahannock R (lower) · Piankatank R · Mobjack Bay · York R (lower) · Pocomoke/Tangier Sound · James R (lower, upper) · Elizabeth R · Lynnhaven R	· VA Mainstem · Little Wicomico R · Cockrell Creek · Rappahannock R (middle, upper) · Corrotoman R · Severn R · York R (upper) · Poquoson R · Back R · Onancock Creek · Nassawaddox Creek · Hungars Creek · Cherrystone Inlet · Old Plantation Creek · Nansemond R

Great Wicomico River Selection Rationale



Great Wicomico River Selection Rationale

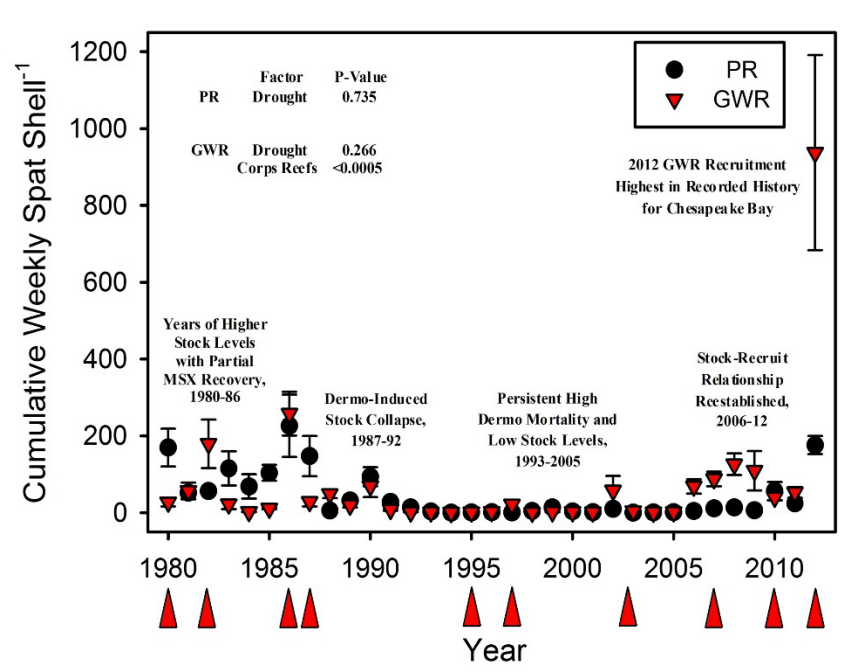
- Tier 1 Tributary per the Master Plan
- USACE and the Virginia Marine Resources Commission (VMRC) are supportive of cost sharing oyster restoration efforts in this tributary
- Considerable federal and nonfederal investment in oyster restoration in this tributary
- Restoration is achievable – restoration goal is on the range of approximately (Master Plan ~100-400 acres).

Great Wicomico River Selection Rationale

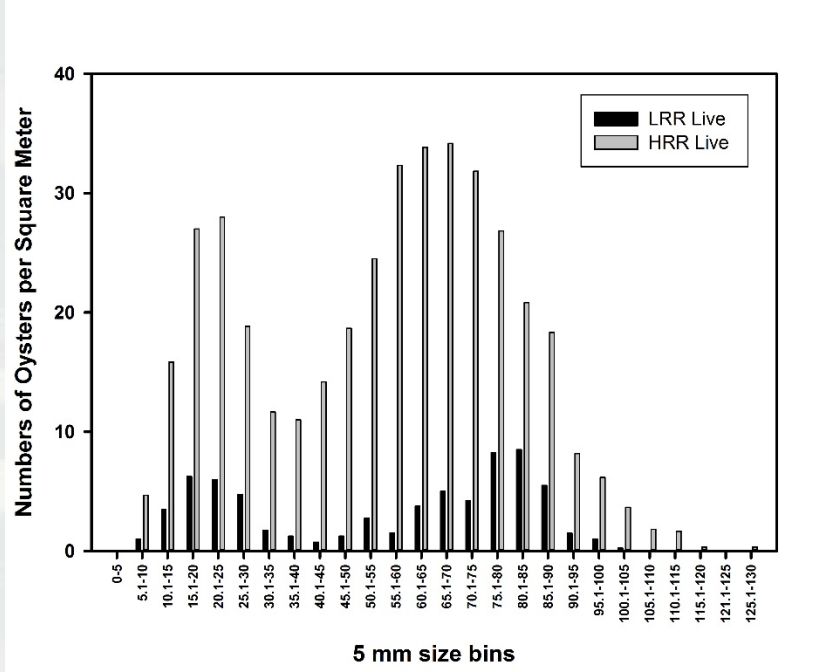
- The Great Wicomico River was selected for a large-scale project in 2003, which was built in 2004
- It was selected due to it's salinity and hydrodynamics, both of which are favorable for oyster reproduction and larval retention
- Considerable restorable bottom exists
- The size of the river is favorable for a successful restoration project to increase recruitment and overall stock size – we could restore a stock-recruit relationship at this site

Great Wicomico Results

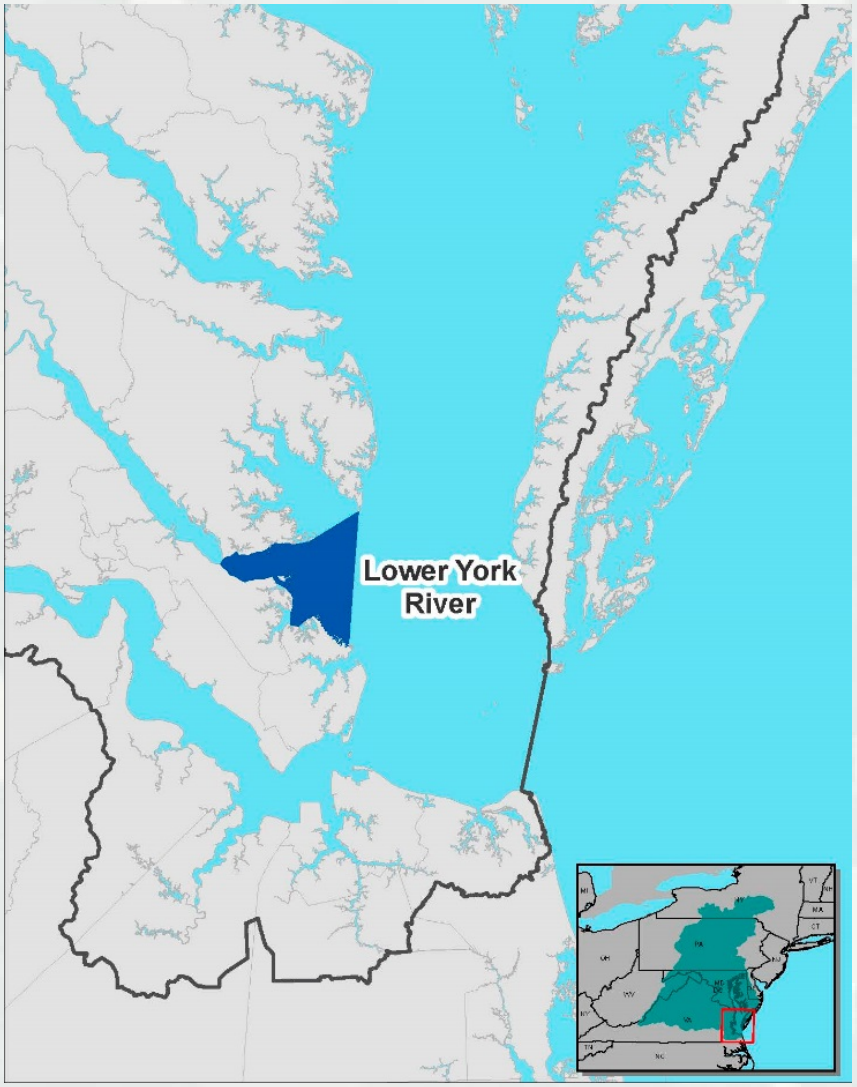
Recruitment was significantly enhanced following restoration efforts



The population on the restored reefs remained high throughout the monitoring period. Unfortunately, The reefs were poached soon after this year (2010).



Lower York River Selection Rationale



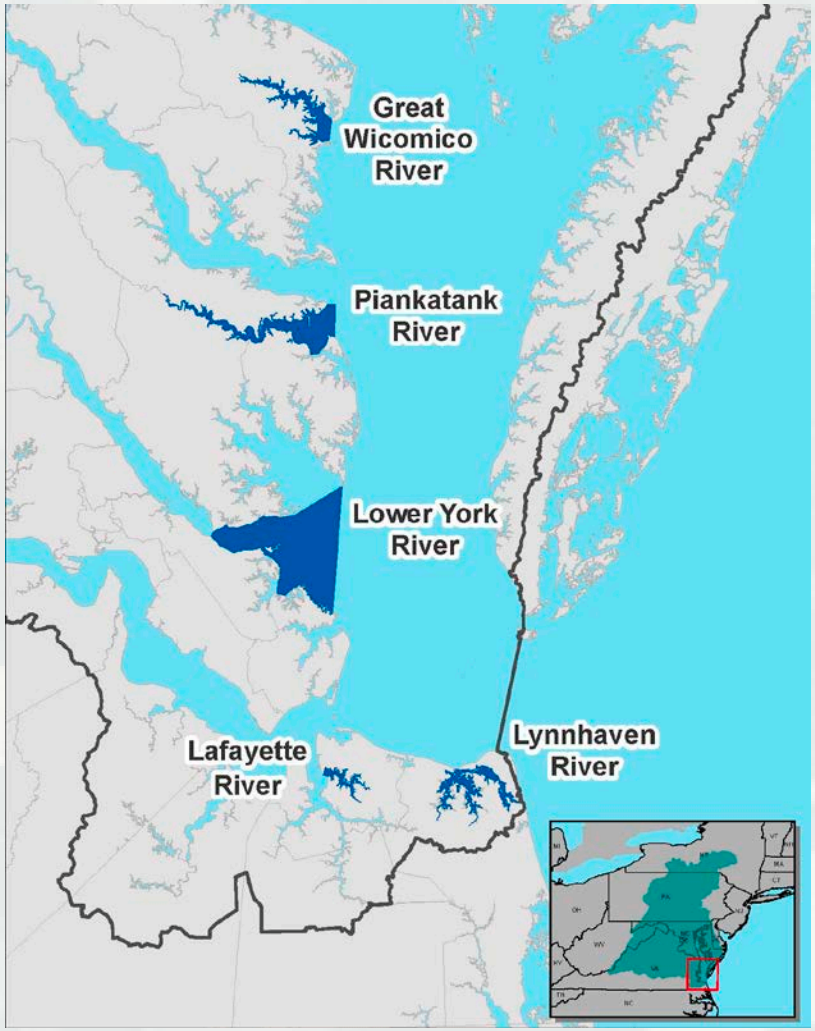
Lower York River Selection Rationale

- Tier 1 Tributary per the Master Plan
- USACE and the VMRC are supportive of cost sharing oyster restoration efforts in this tributary
- Large areas of hard bottom available for restoration
- Virginia Institute of Marine Science is on the lower York River and surveys adjacent to the Yorktown Naval Weapons Station indicated substantive intertidal and subtidal oyster reefs
- Navy expressed interest for oyster restoration in this tributary
- Chesapeake Bay Foundation's spat-on-shell facility is located in close proximity to the York River.
- Chesapeake Bay National Estuarine Research Reserve has site on the Lower York.

Eastern Branch of the Elizabeth River – Another Tributary Considered

- Tier 1 Tributary per the Master Plan
- Non-Governmental Organizations (NGOs) and the USACE have expressed interest in restoring this tributary
- Federal and state governments plan to focus restoration efforts in the Great Wicomico and York River while two NGOs focus restoration efforts in the south in the Eastern Branch of the Elizabeth River – ***this dual restoration strategy will help to achieve maximum benefits spatially throughout the Chesapeake Bay Watershed in Virginia***
- May be difficult to achieve wide-scale restoration without state funding or in-kind match support.
- This tributary was not selected as one of the five tributaries for restoration but the Virginia Interagency Oyster Team supports restoration in this tributary.

Virginia Tributaries for Oyster Restoration



Conclusion

The Virginia Interagency Oyster Team has selected the Great Wicomico River and the Lower York River as the next two rivers for oyster restoration based on 1) scientific oyster suitability criteria as described in the Master Plan and 2) extensive stakeholder input and discussions.