NOAA
CHESAPEAKE
BAY OFFICE

Role of Oysters in Bay Restoration

NOAA, USACE- Baltimore District, MD Dept. of Natural Resources, and supporting partners complete the restoration of Harris Creek, on Maryland's eastern shore, by planting the final of nearly two billion oysters. September 2015.

Citizens Advisory Committee

November 19, 2015

Policy Drivers

- 2009 Chesapeake Bay Executive Order 13508
- 2014 Chesapeake Bay Watershed Agreement

"Restore native oyster habitat and populations in 10 tributaries by 2025 and ensure their protection."

Also consistent with:

- USACE Native Oyster Restoration Master Plan
- MD DNR's Oyster Restoration and Aquaculture Development Plan

Partners

- NOAA
- USACE- Baltimore District
- USACE- Norfolk District
- MD Department Natural Resources
- Virginia Marine Resources Commission
- Potomac River Fisheries Commission

Oyster Recovery Partnership | ORP

Chesapeake Bay Foundation
Saving a National Treasure

Elizabeth River Project
Making restoration a reality.

University of Maryland
Center for Environmental Science

The Nature Conservancy

NFWF

and others…..

NOAA's Role in Oyster Restoration

- Sonar mapping to determine suitable restoration sites;
- Leadership and coordination: Chair Sustainable Fisheries Goal Implementation Team of the Chesapeake Bay Program; Chair MD & VA oyster restoration workgroups;
- Funding for in-water restoration (generally to states or NGOs);
- Funding for research and monitoring.

Recent NOAA funding for Chesapeake Bay oyster restoration

• FY12	MD = $1.13 million	VA = $152k
• FY13	MD = $ 840 k	VA = $500k
• FY14	MD = $1.38 million	VA = $125k
• FY15	MD = $1.15million	VA= $150k

USACE- Baltimore District's Role in Oyster Restoration

- Planning and coordination; Participant on Maryland Interagency Oyster Workgroup (Sustainable Fisheries Goal Implementation Team)
- Oyster reef construction
- Monitoring

Recent USACE funding for Chesapeake Bay oyster restoration

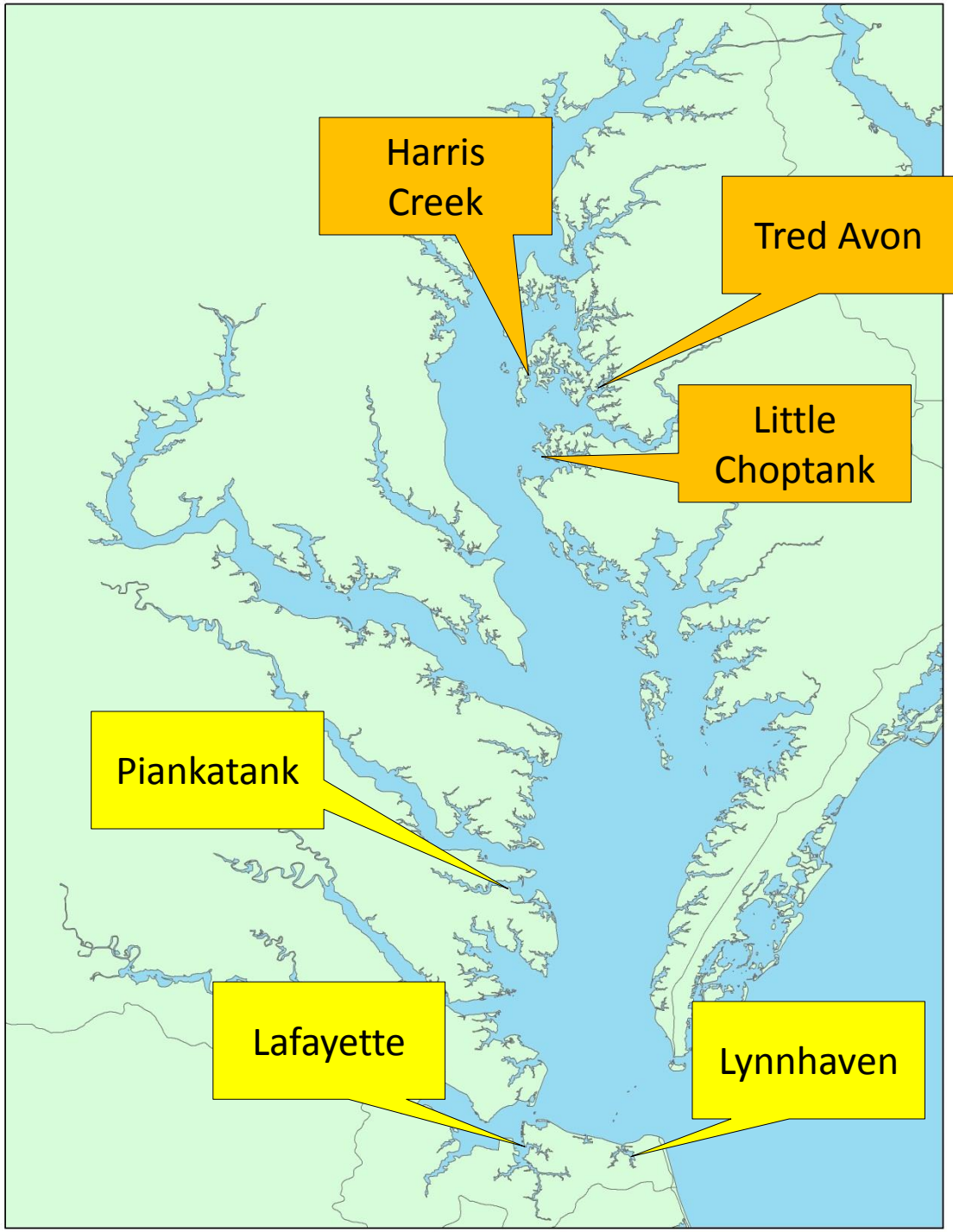
- FY12 - FY15 MD = $14.7M VA = $4.76M

Maryland

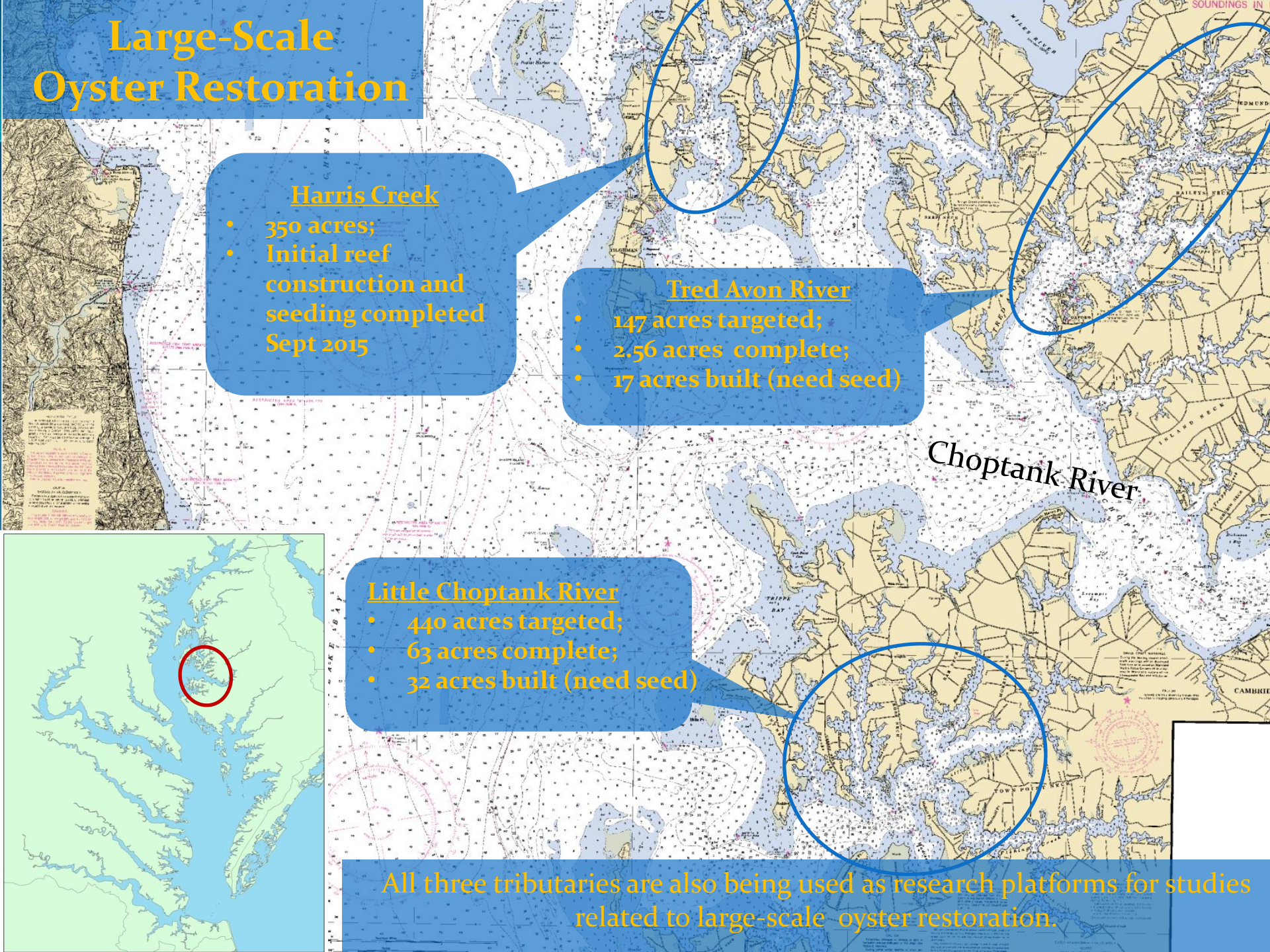
- Harris Creek
- Little Choptank
- Tred Avon

Virginia

- Lynnhaven
- Lafayette
- Piankatank



Large-Scale Oyster Restoration



Harris Creek

- 350 acres;
- Initial reef construction and seeding completed Sept 2015

Tred Avon River

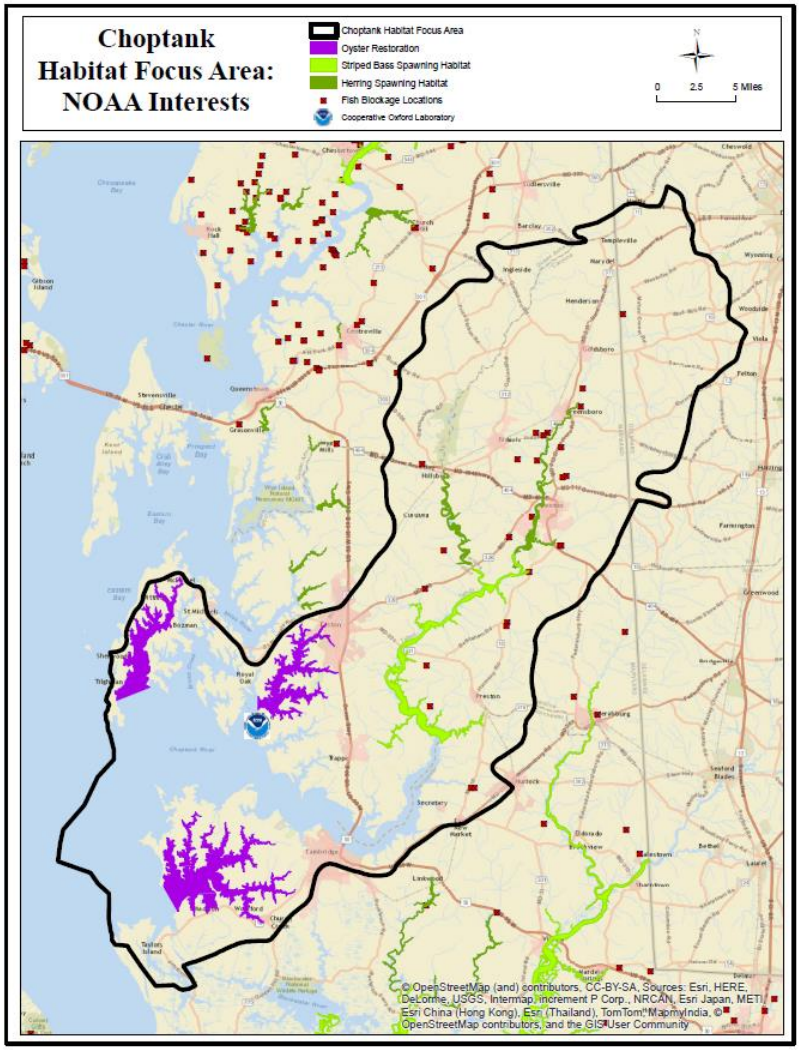
- 147 acres targeted;
- 2.56 acres complete;
- 17 acres built (need seed)

Little Choptank River

- 440 acres targeted;
- 63 acres complete;
- 32 acres built (need seed)

All three tributaries are also being used as research platforms for studies related to large-scale oyster restoration.

Choptank Habitat Focus Area



NOAA's habitat conservation interests

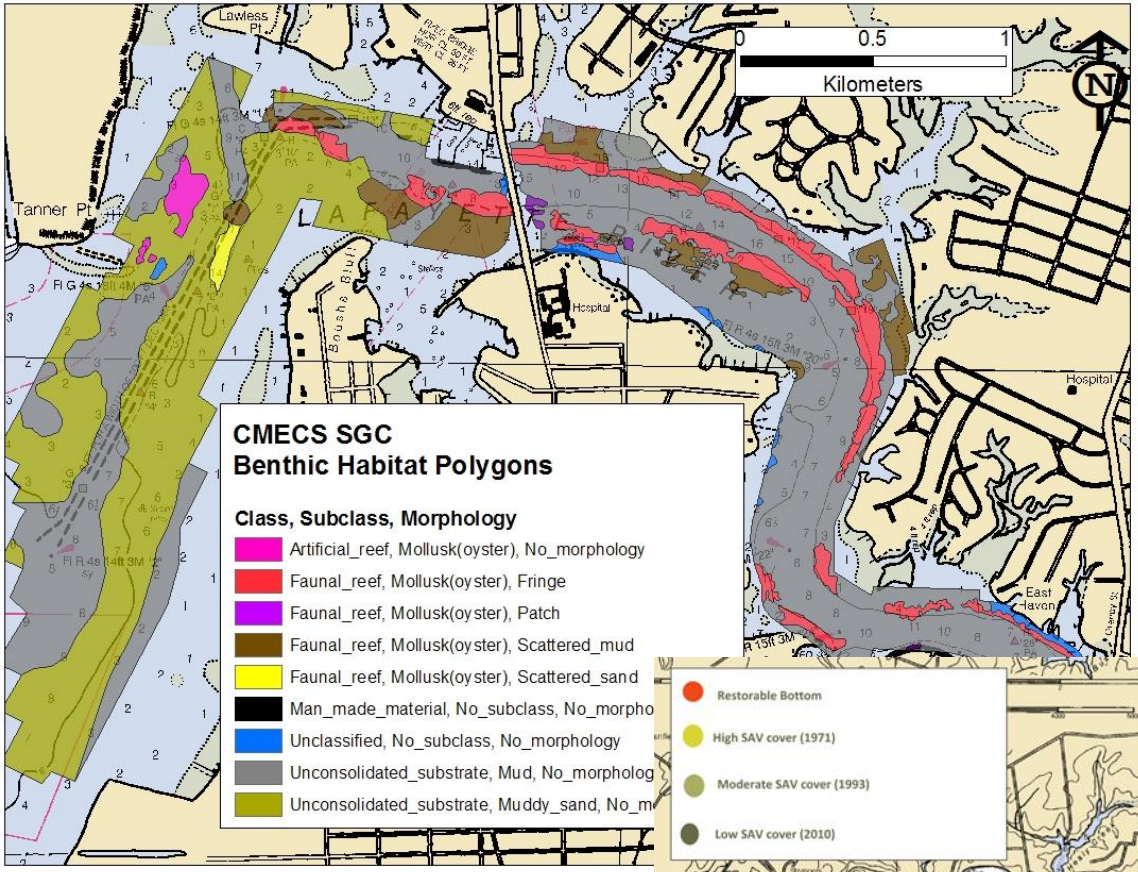
- Sustaining fish populations
- Restoring oyster reef habitat
- Recovering threatened and endangered species
- Protecting coastal and marine habitats at risk
- Building resilient communities
- Planning for increased tourism, access and recreation

www.noaa.gov/habitatblueprint.html

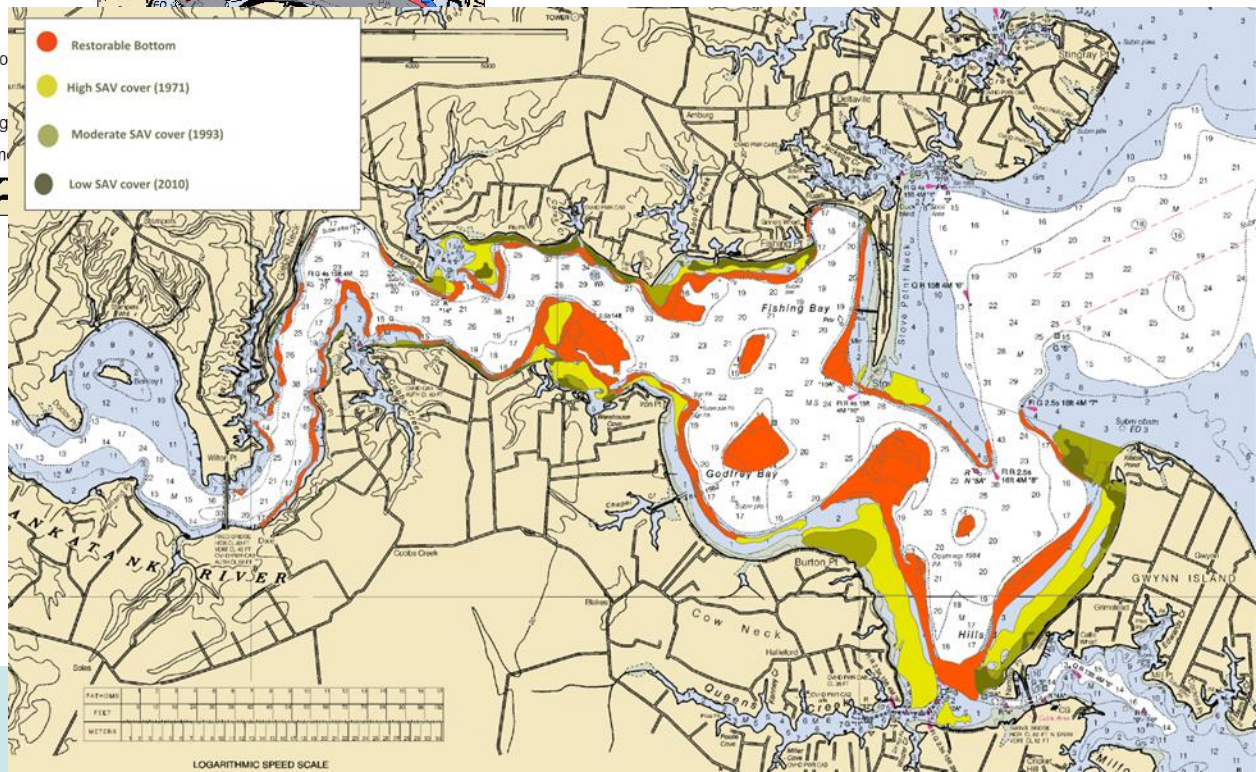
Virginia Oyster Restoration Projects

- Several projects in tributaries throughout the Chesapeake Bay
- Partners in Virginia Oyster Restoration: VMRC, City of Virginia Beach, CBF, TNC, City of Norfolk, ERP, Lynnhaven NOW, USACE, NOAA…
- Multiple stages:
  - Planning
  - Pre-construction / Permitting
  - Post Construction / Monitoring

Lafayette Survey



Piankatank Survey



NOAA FISHERIES

US Army Corps of Engineers
Norfolk District

Virginia Beach, Virginia

Native Oyster Restoration Project
Lynnhaven River
FY07 and FY08 Construction Areas

0 3,000 Feet

1" = 3,000'

Reef Constructed Areas

Construction Year

2007

2008

Projection:
Virginia State Plane
South Zone - NAD 83
U.S. Survey Feet

Aerial Photography Date:
VGIN south 2007

Project Manager: Brian Rheinhart
E-mail: brian.k.rheinhart@usace.army.mil
Phone: (757) 201-7768
Fax: (757) 201-7036

Prepared by: Geospatial Services Section

Map File: Construction_fy09.mxd
Map Date: 9 Feb 2009

Lynnhaven River Oysters

- To date 63 acres of sanctuary reef have been constructed by the USACE, City of Virginia Beach, CBF and Lynnhaven NOW
- Based on these numbers alone another 30 acres of sanctuary reefs would be required to reach the bottom of target range for declaring the Lynnhaven System a “restored” tributary.
- 31 acres to be constructed by USACE under Lynnhaven Ecosystem Restoration Project in 2018

Draft Oyster Restoration Work Plan

Outcome: Oyster Restoration
Goal: Sustainable Fisheries-Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.
Outcome: Continually increase finfish and shellfish habitat and water quality benefits from restored oyster populations. Restore native oyster habitat and populations in 10 tributaties by 2025 and ensure their protection.
Long term Target: Restore oyster populations (complete construction/seeding) in 10 tributaries of the Chesapeake Bay by 2025.

2 year Target: Complete Harris Creek restoration construction, continue contruction/seeding in the Little Choptank and Tred Avon. Assess past restoration projects in Lynnhaven and Lafayette against the Oyster Metrics. Develop plans and acreage target for the Piankatank River.

2016-2017 Workplan

Management Approach 1: Restoration planning and implementation.

Key Action** *Description of work/project. Define each major action step on its own row. Identify specific program that will be used to achieve action.*	**Performance Target(s)** *Identify incremental steps to achieve Key Action.*	**Participating Entity** *Identify responsible partner for each step.*	**Geographic Location**	**Timeline** *Identify completion date (month & year) for each step)*	**Estimated Project Cost** *Best estimate of total project cost (needed)*	**Available funding by Partner**	**Factors Influencing and/or Gap** *Identify related factor or gap in Management Strategy*

Management Approach 2: Securing support and resources.

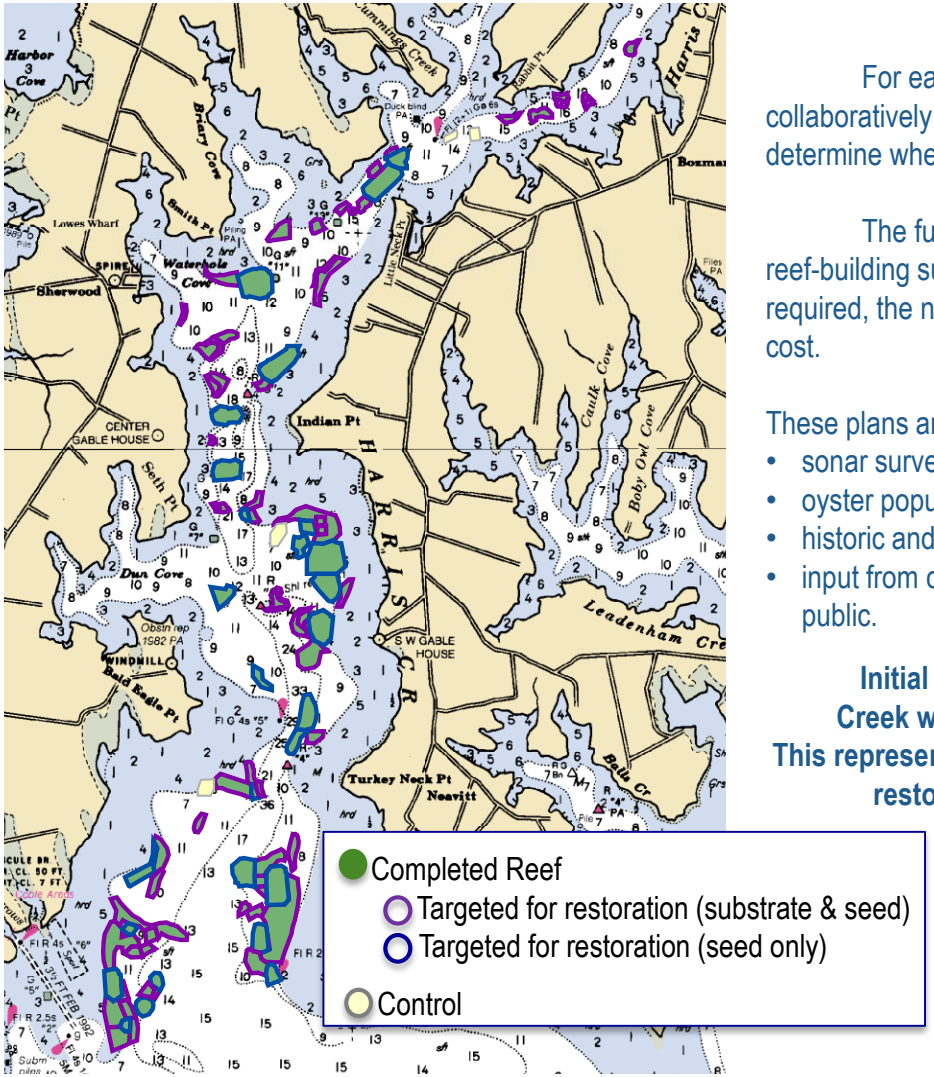
Management Approach 3: Future Protection.

Management Approach 4: Approaches Targeted for Local Participation.

Key Action** *Description of work/project. Define each major action step on its own row. Identify specific program that will be used to achieve action.*	**Performance Target(s)** *Identify incremental steps to achieve Key Action.*	**Participating Entity** *Identify responsible partner for each step.*	**Geographic Location**	**Timeline** *Identify completion date (month & year) for each step)*	**Estimated Project Cost** *Best estimate of total project cost (needed)*	**Available funding by Partner**	**Factors Influencing and/or Gap** *Identify related factor or gap in Management Strategy*
Conduct outreach to the general public and to stakeholders near selected tributaries or candidate tribuatries to inform them about restoration efforts.	Conduct stakeholder outreach meetings for local communities near selected tributaries during the restoration planning process.	MD and VA Interagency Teams, VMRC, MD DNR		Ongoing			
	Utilize resetoration partner websites and the Chesapeake Bay Program website to feature information and progress updates on restoration efforts.	Fisheries GIT		2016			
					Total		

Back-up Slides

Oyster Restoration in the Harris Creek Sanctuary



For each sanctuary tributary, partner agencies collaboratively develop restoration plans, or 'blueprints', to determine where reefs will thrive.

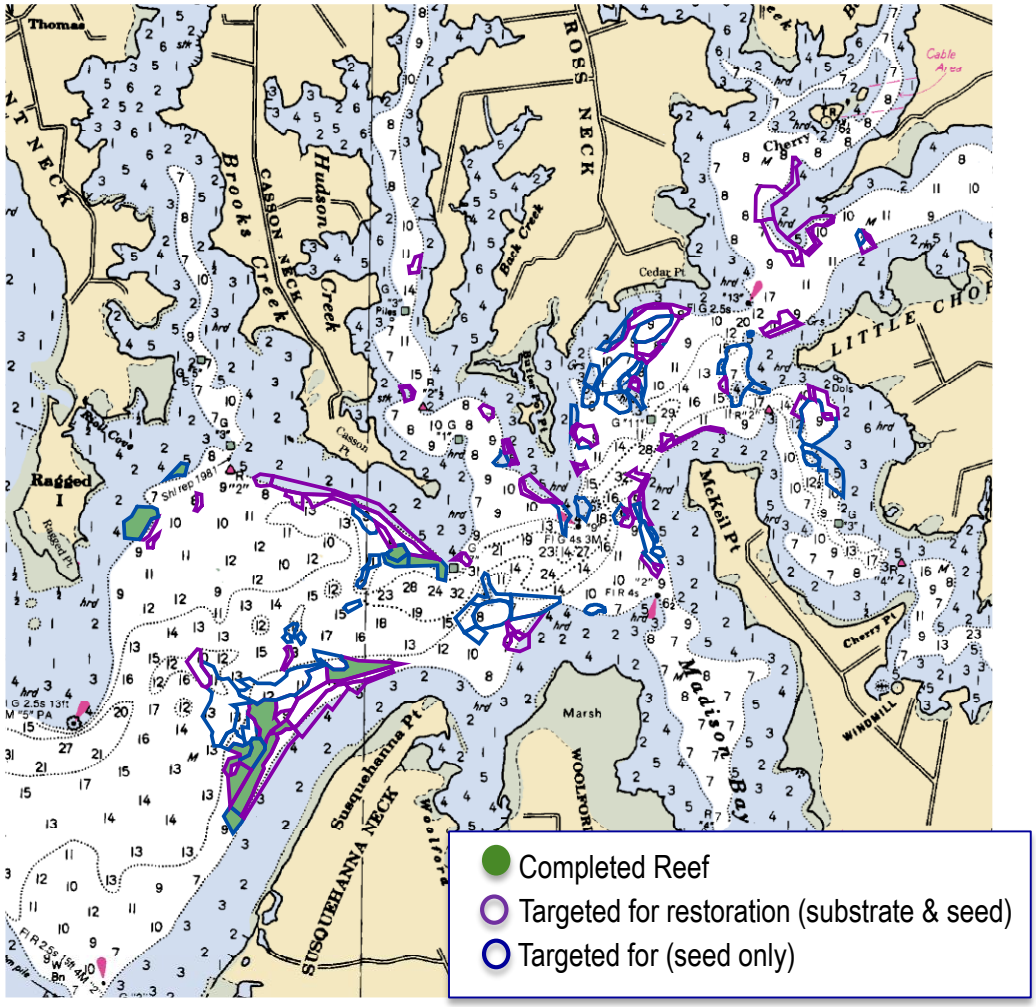
The full plans include information on how much reef-building substrate and how many seed oysters will be required, the number of acres targeted for restoration, and cost.

These plans are informed by:

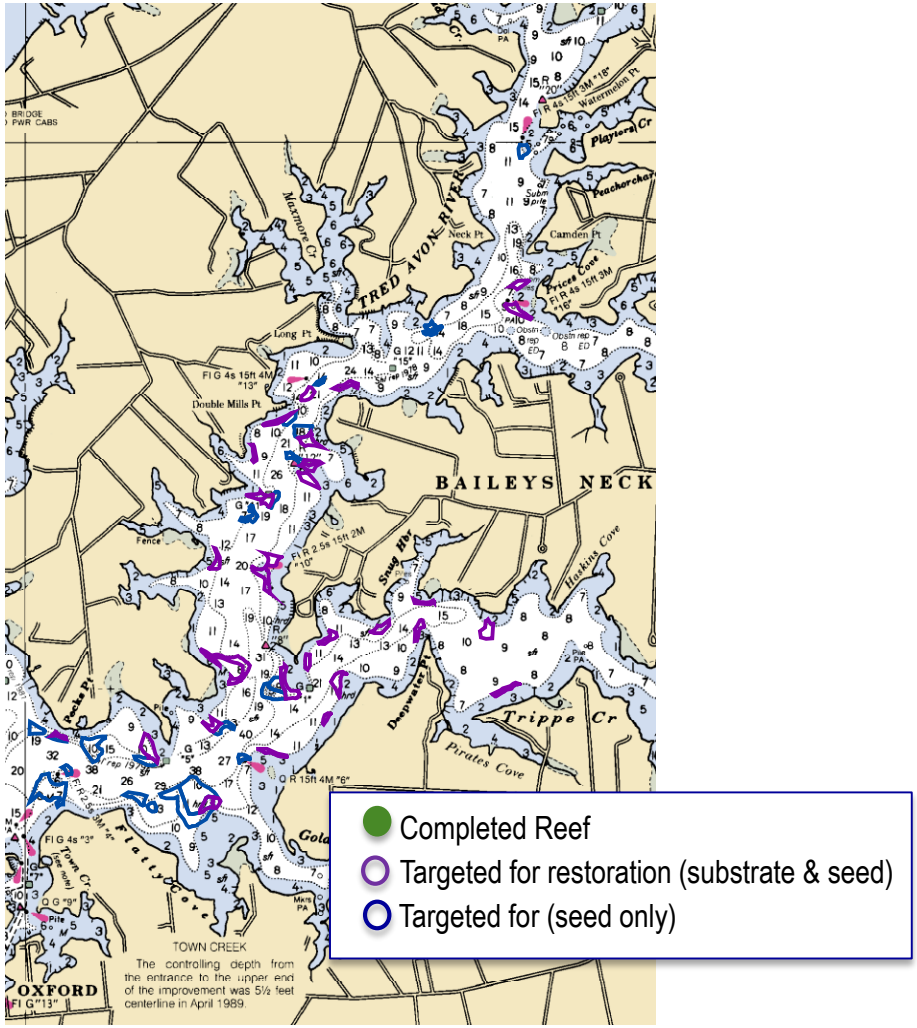
- sonar surveys describing bay bottom characteristics;
- oyster population surveys;
- historic and present day extent of oyster reefs;
- input from consulting scientists, partner groups, and the public.

Initial reef construction and seeding in Harris Creek was completed in September 2015. This represents the largest known sanctuary oyster restoration project ever undertaken

Oyster Restoration in the Little Choptank River Sanctuary



Oyster Restoration in the Tred Avon River Sanctuary



Oyster Success Metrics: Reef Level

Operational

Substrate: A minimum of 30% of the whole reef area needs to have shell, alternative substrate, or spat-on-shell.
NOTE: the expectation is that the whole reef area will be treated, but the reef may become patchy over time.

Functional

Oyster Density: minimum of **15 oysters/m^2 (target 50)** ***and*** **15 grams dry biomass/m^2 (target 50), over at least 30% of the reef area.**

Multiple year classes: at least two year classes present on the reef

Sustainable: Reef footprint and height that are stable or increasing, with neutral or positive shell budget

NOTE: All goals must be met by 6 years post restoration

Oyster Success Metrics: Trib Level

Operational

50-100% of currently restorable bottom meets the reef-level goals of successfully restored oyster reef (on previous slide)
*NOTE: This should **also** restore 8-16% of historic bottom (part of trib selection), to avoid trivial goal attainment*

Functional *(all in future)*

Oyster populations are **expanding** beyond the restored reefs

Oyster populations within a trib achieve an "enhanced stable state"

Enhanced **ecosystem services** in the tributary

NOTE: All goals must be met by 6 years post restoration