Oyster Restoration Overview
April 16, 2015

1) Status of resource and fishery
2) MD's oyster restoration plan
3) Status of restoration projects

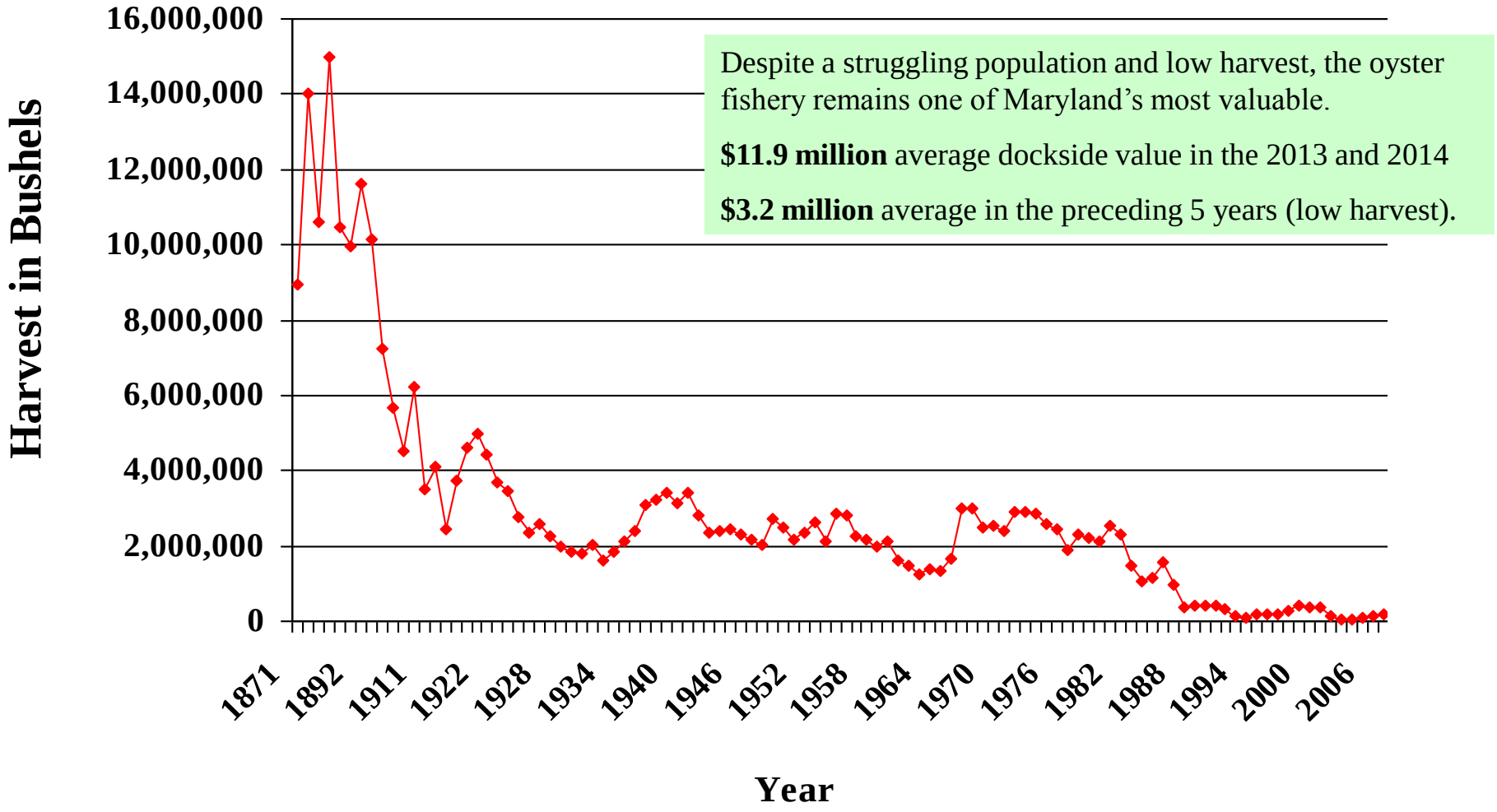
MARYLAND DEPARTMENT OF NATURAL RESOURCES

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

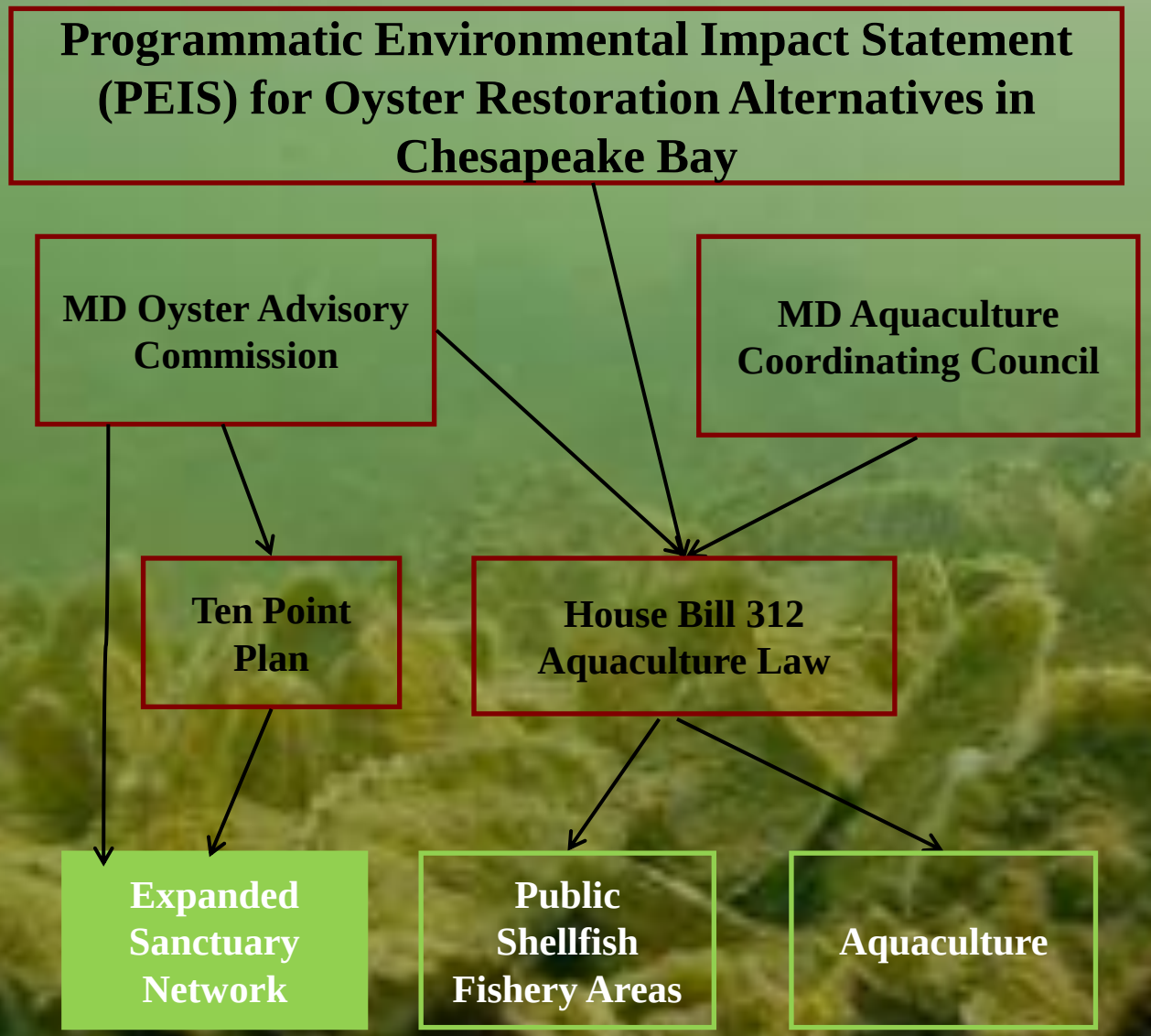
OYSTER RECOVERY PARTNERSHIP | ORP

University of Maryland Center for Environmental Science
Horn Point Oyster Hatchery

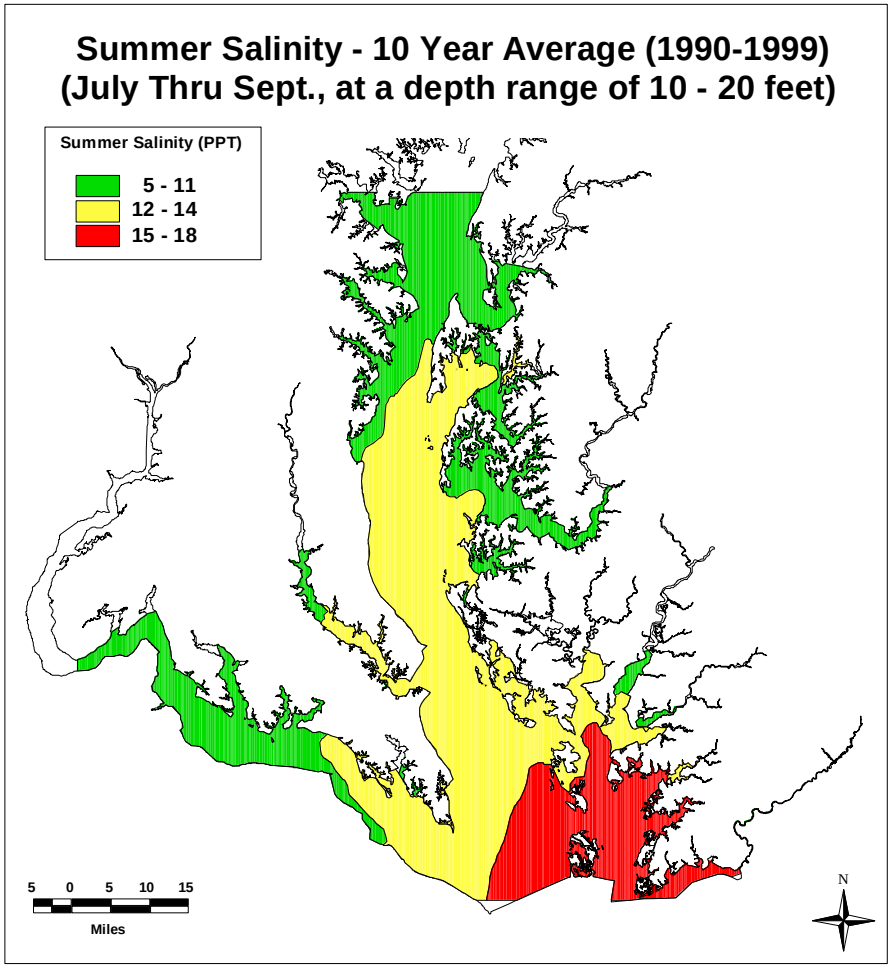
Maryland oyster harvest has declined from over 12 million bushels in the late 1800's to less than 200,000 bushels in recent years. Harvest in the 2013 and 2014 seasons increased to over 400 thousand bushels but is still a fraction of historical harvests.

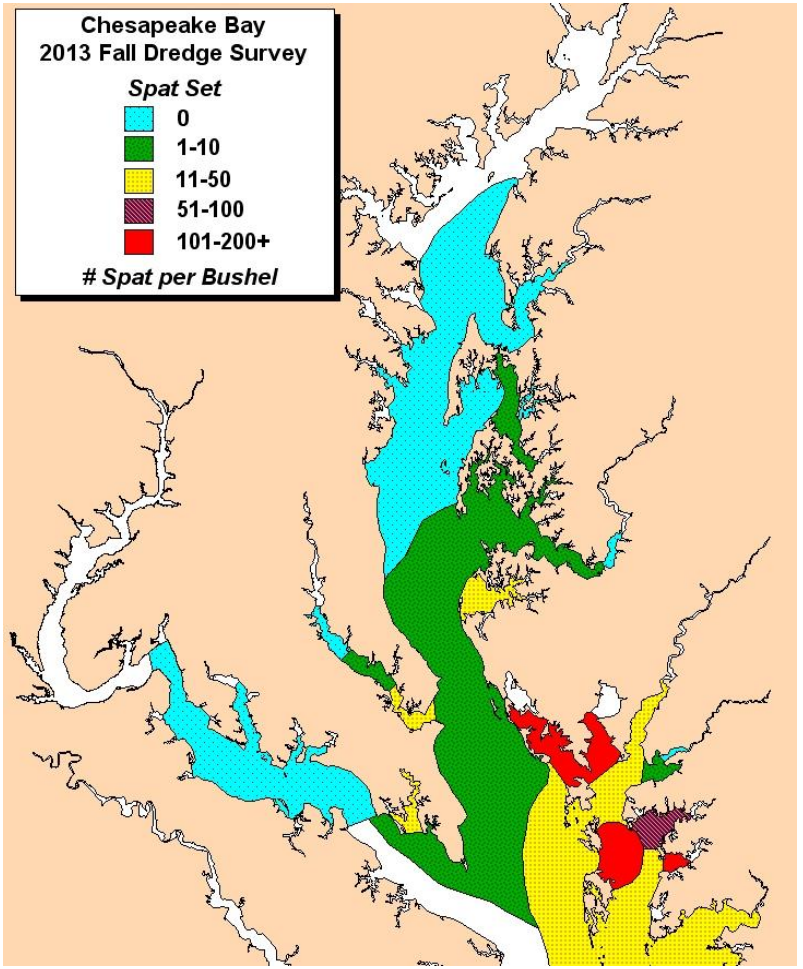


Science Based Oyster Restoration Plan



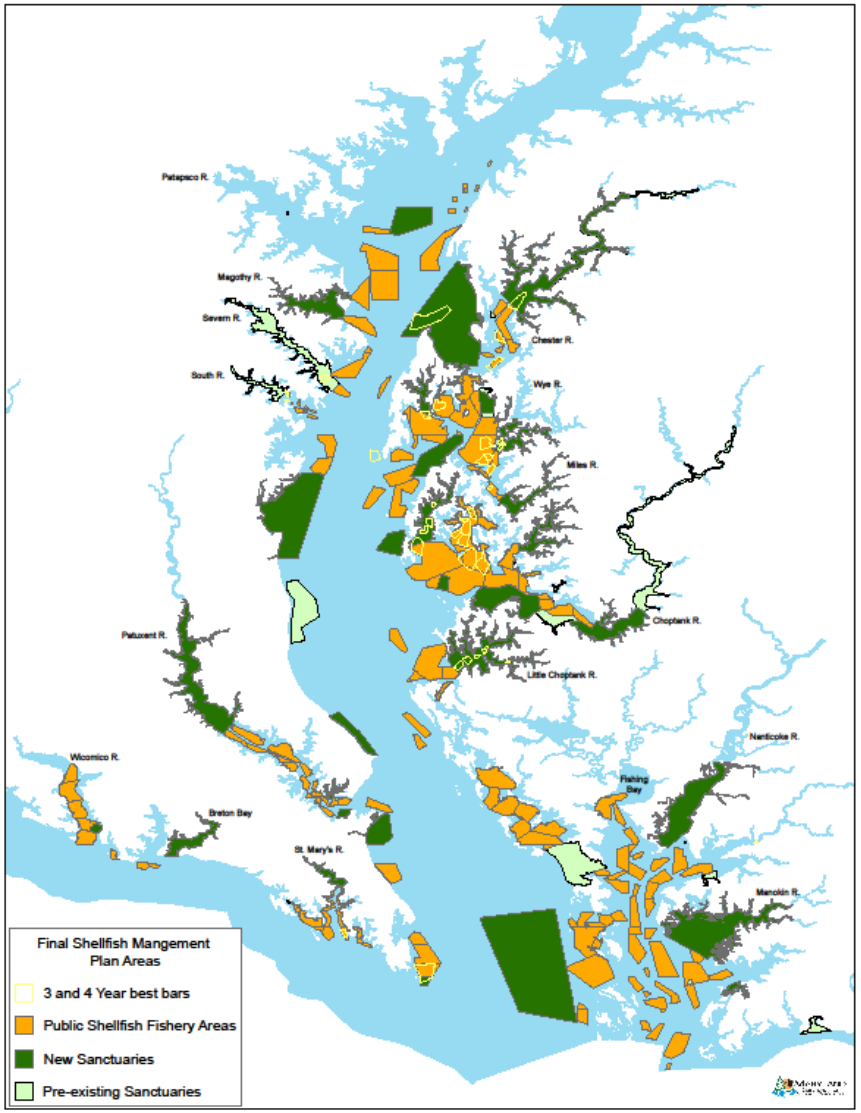
Planning around salinity which affects recruitment and survival





Maryland Oyster Sanctuaries Established in 2010

- Protects 24% of oyster habitat.
- Leave 76% for harvest.
- A best bars analysis was conducted to determine most productive oyster bars.
- 50% of best bars were left for harvest and 50% protected.
- Best bars are a small fraction of sanctuary areas – most are remnant bars that have restoration potential but have supported minimal harvest.



Creating the "Engines" that drive Bay-Wide Oyster Restoration

Within the expanded sanctuary network, and as recommended by the PEIS, Maryland and Virginia are focused on large-scale restoration of selected tributaries to drive bay-wide restoration of the oyster population.

- **As per the 2014 Bay Agreement, Maryland and Virginia are committed to restoring oyster populations in 10 tributaries – 5 in each state – by 2025.**

- **Within Maryland:**
  - **2 tributaries are well toward completion – Harris Creek (DNR and USACE co-leads) and Little Choptank (DNR lead).**
  - **1 is about to begin – Tred Avon (USACE lead).**

- **DNR and partners are committed to conducting a scientific evaluation of the success of these efforts and submitting a report by June, 2016.**

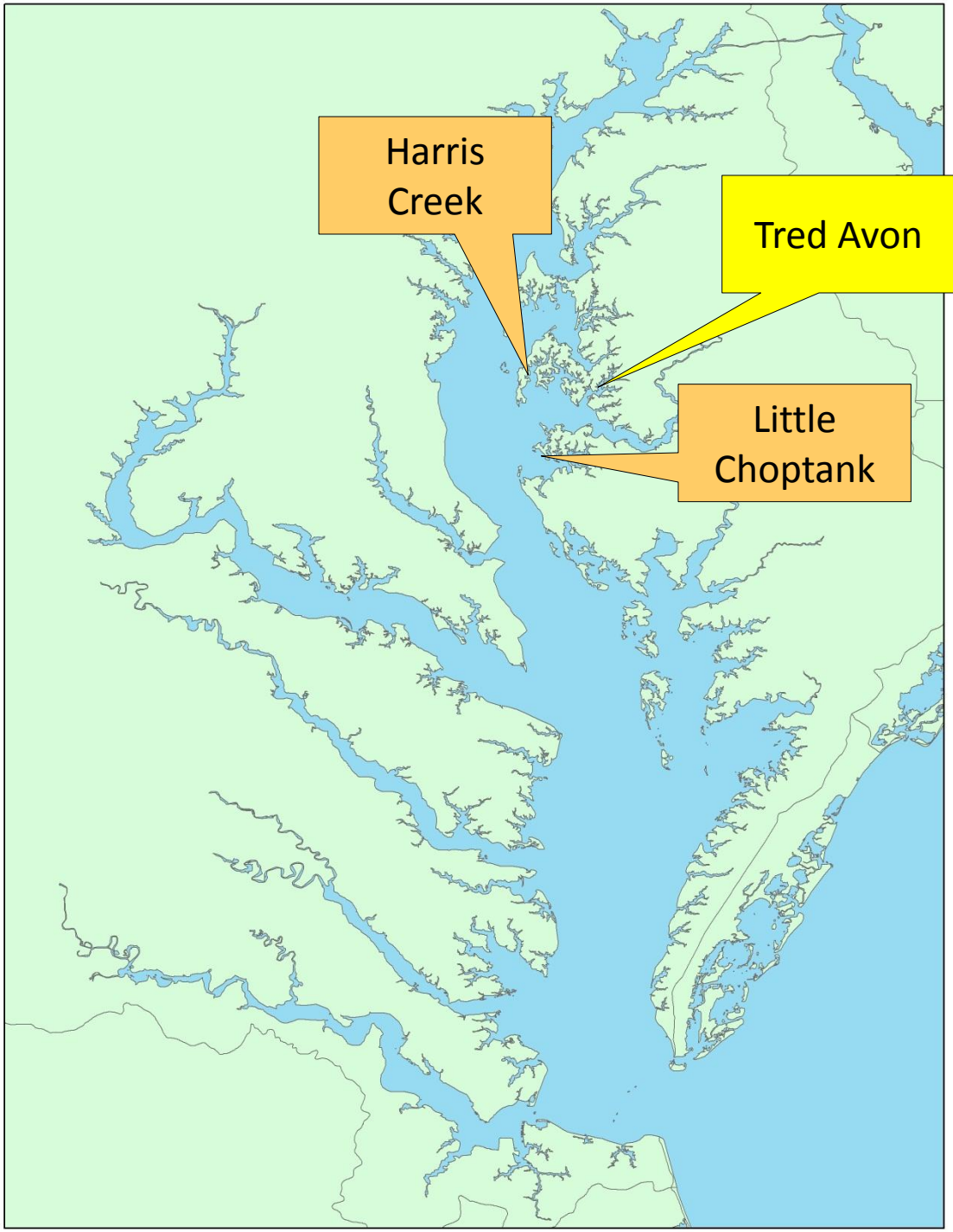
- **Based on the findings of that evaluation, DNR is committed to working with the waterman community, scientists, and other stakeholders to designing and implementing an appropriate approach to the remaining two tributaries by 2025**

Why Sanctuaries?

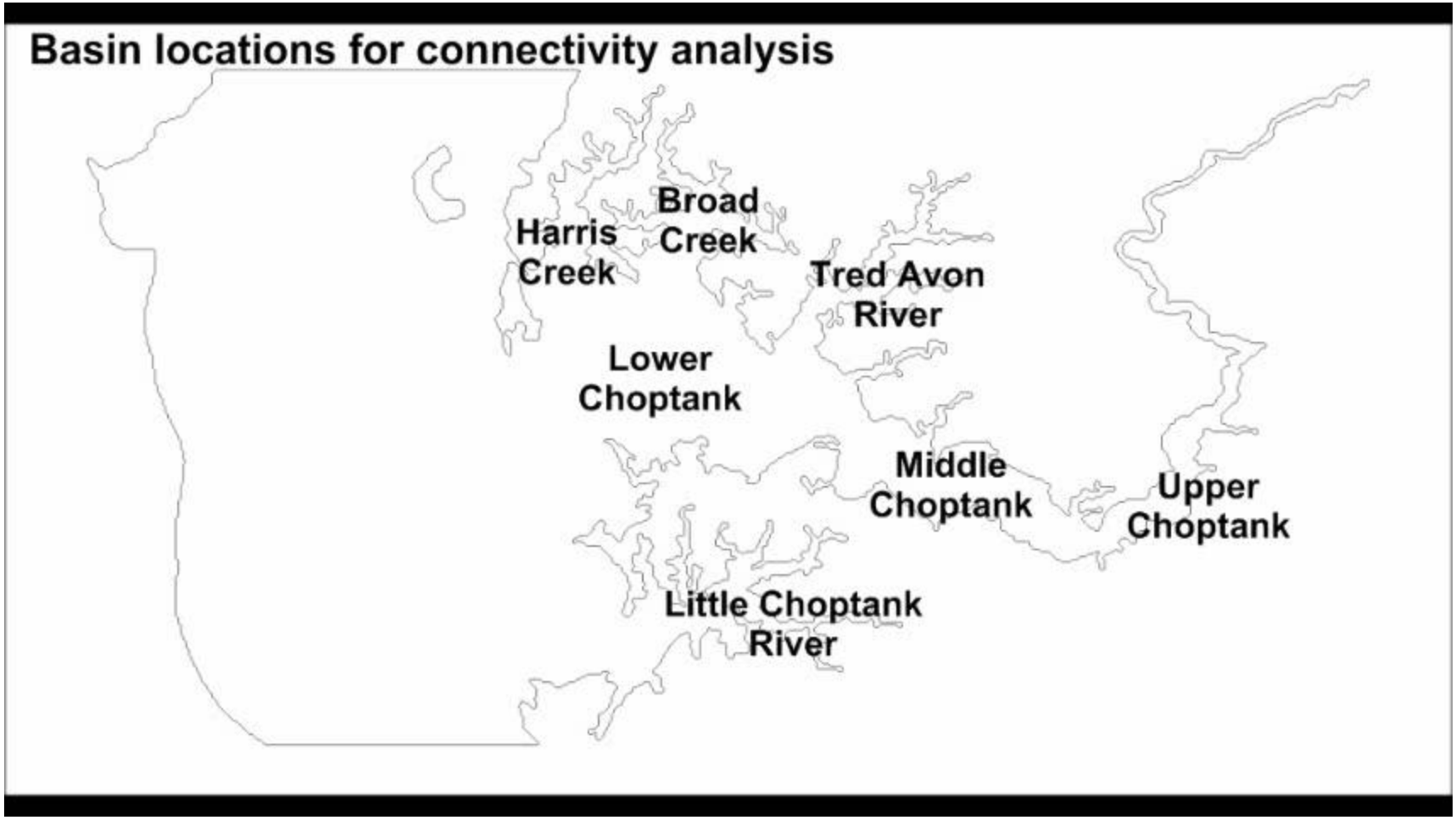
- Recommendation of PEIS
- Create reproductive engines
- Foster disease resistance
- Build 3D reefs for ecological benefits

Sanctuaries Selected for Active Restoration Work:

- Harris Creek: DNR & Corps Lead
- Little Choptank River: DNR Lead
- **Tred Avon: USACE Lead**



Sanctuaries Serve as Reproductive Engines



Status of Oyster Restoration Projects (As of April 2015)

Project	Lead Agency	Partners	Acres for Restoration Target	Acres Restored (reefs constructed and seeded)	Acres Constructed (constructed and waiting seeding)	Oyster Seed Planted	Funds Spent
Harris Creek	DNR / USACE	NOAA, UMD, ORP, NFWF, TNC, CBF	372	258	27	1.6 billion	$19 million 55% DNR, 27% USACE)
Little Choptank	DNR	NOAA, UMD, ORP, NFWF, TNC	440	17	95	81 million	$15 million (85% DNR, 0% USACE)
Tred Avon	USACE	NOAA, DNR, UMD, ORP	185	0 USACE	0	0 DNR	(>90% USACE, <10% DNR,)

How are We Doing?

Harris Creek Results so far…

- 30% spat survival – twice anticipated rate

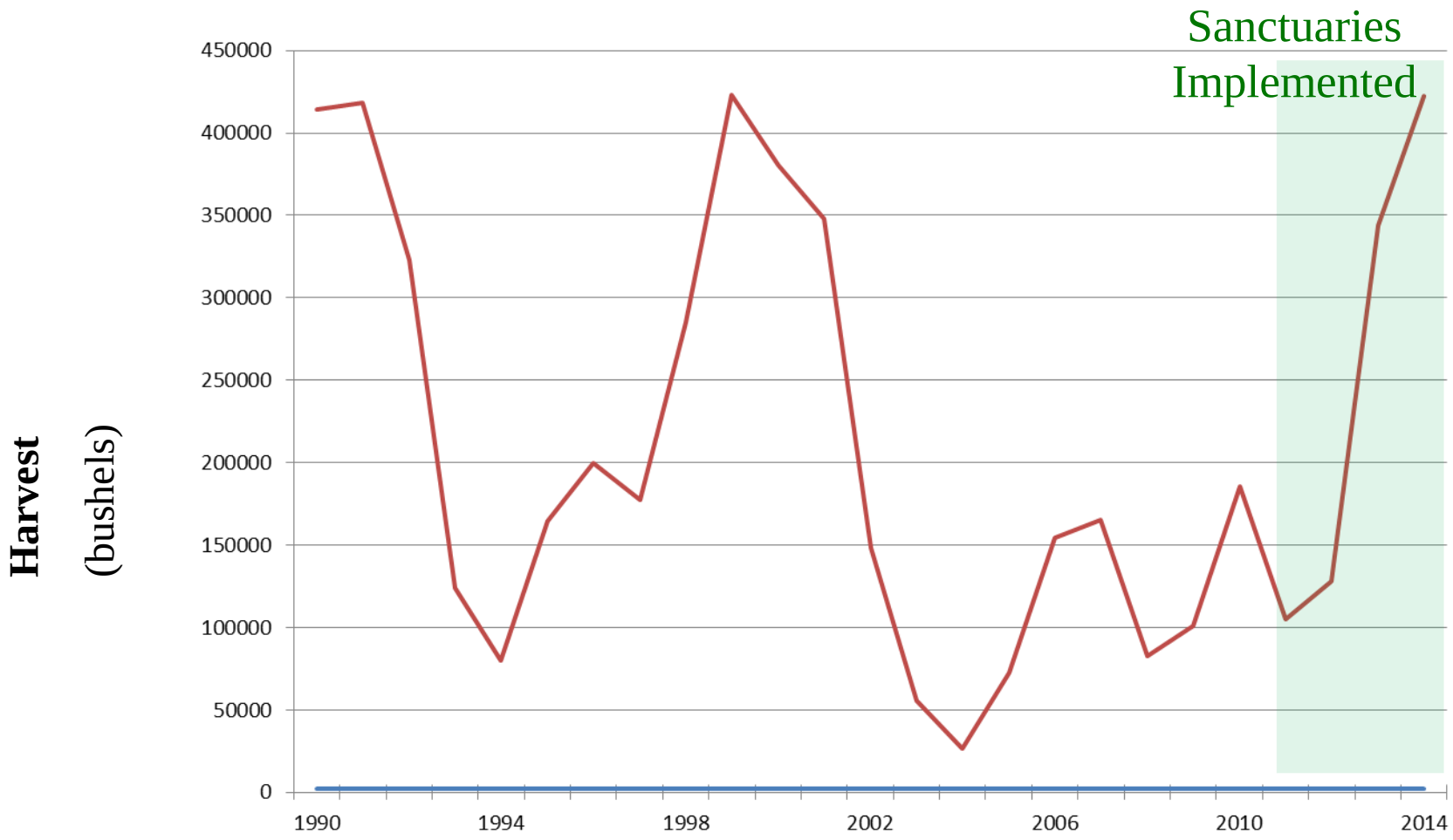
- Excellent growth (2 year old oysters nearly 3 inches at one sentinel site).

- Dermo is present, but at sub-lethal levels; could see outbreak in a dry year but this would foster natural disease resistance.

- Continuous water quality monitoring shows no red flags.

Maryland Oyster Harvest Before and After Sanctuaries

10% of 2009-2010 harvest within sanctuary network
32% harvest decline in first year
Harvest increased nearly four-fold since 2011 (124K bu vs. 422K bu)

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