



Oyster Management Review: 2010-2015

5 Year Oyster Review Report
Chapter 5

Effectiveness Tiers &
Future Management Alternatives



Effectiveness Tiers

Four Effectiveness Tiers

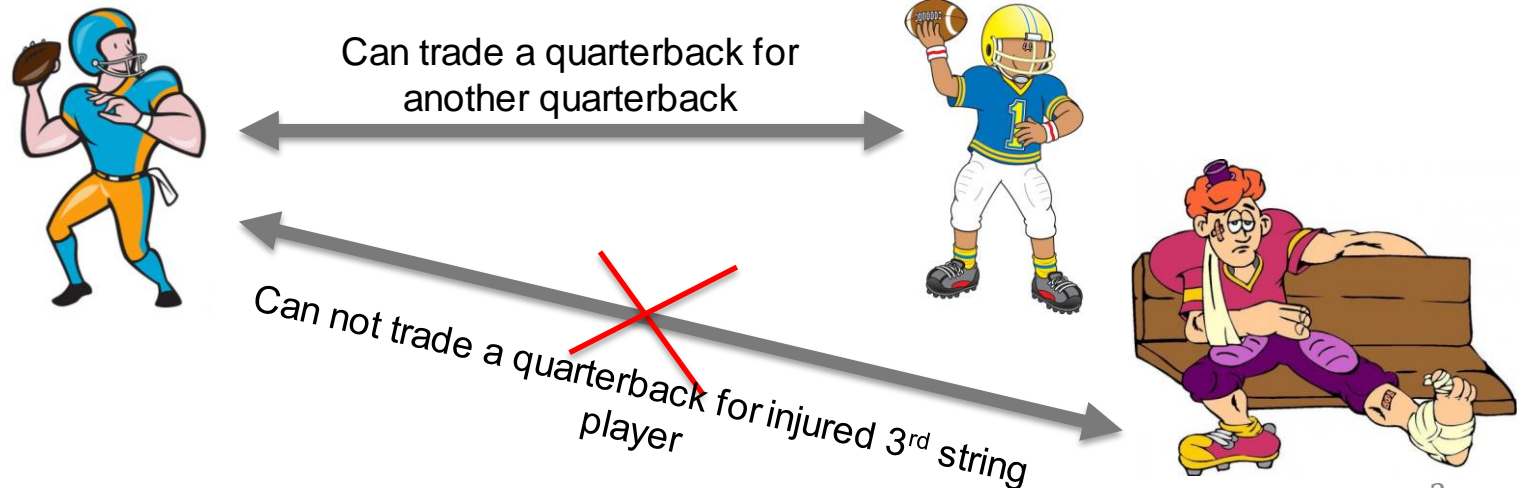
- Tiers are based on data that reflect relative oyster productivity of the areas
- Productivity based on :
 - Average number of market-size oysters per bushel of material before and after 2010
 - Total number of live oysters per bushel of material over the 26-year time series
 - For sanctuaries only, oyster density based on the Patent Tong Population Survey (data not available for NOAA Codes)
 - For PSFAs – average biomass before and after 2010 (insufficient data were available to use this for all sanctuaries)
 - For PSFAs - harvest before and after 2010
- 176 PSFAs were grouped in the 39 NOAA Code harvest areas
- Chapter 5 and Appendices A and B

Future Management Alternatives

Multiple future management alternatives for each tier

Guidelines

- Maintain 20% to 30% of productive oyster bottom within sanctuaries
- Conservation equivalency



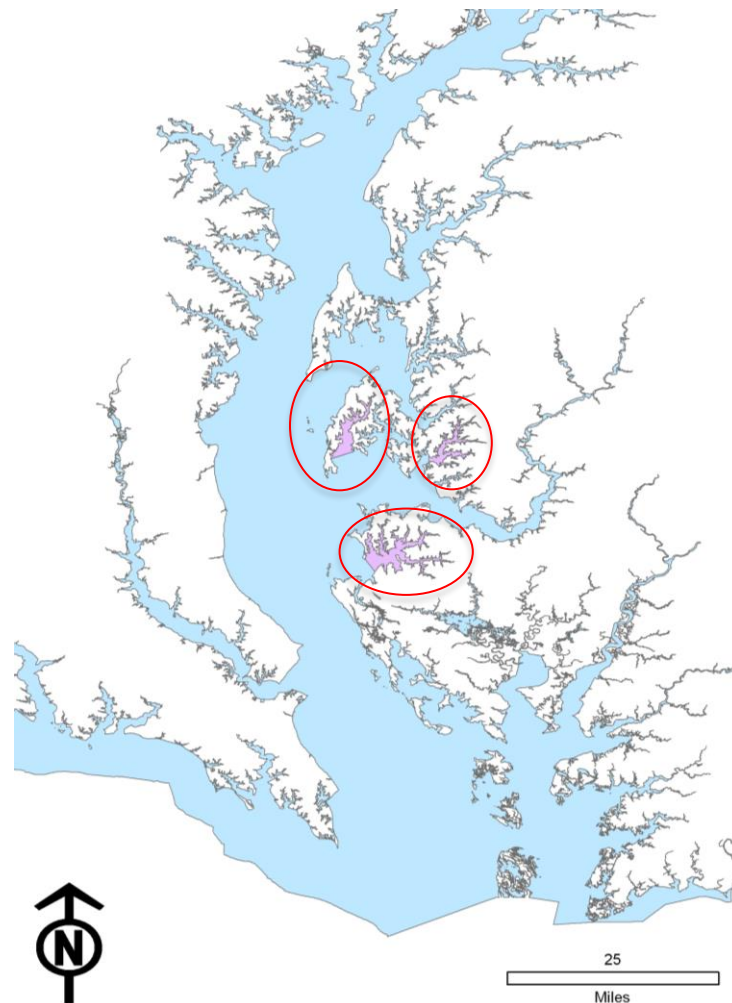
Tier 0

- Areas receiving significant financial investment through restoration projects
- Areas meeting the 2014 Chesapeake Bay Watershed Agreement
- Marylanders Grow Oysters (MGO) sites in all Tier 0 areas.
- Sanctuaries: Harris Creek, Little Choptank River, Tred Avon River
- PSFAs: None

Future Management Alternatives:

1. Maintain current strategy
2. Remain as sanctuary, but with no continued investment

Investment is defined as reef construction and/or oyster seeding



Tier 1 Sanctuaries

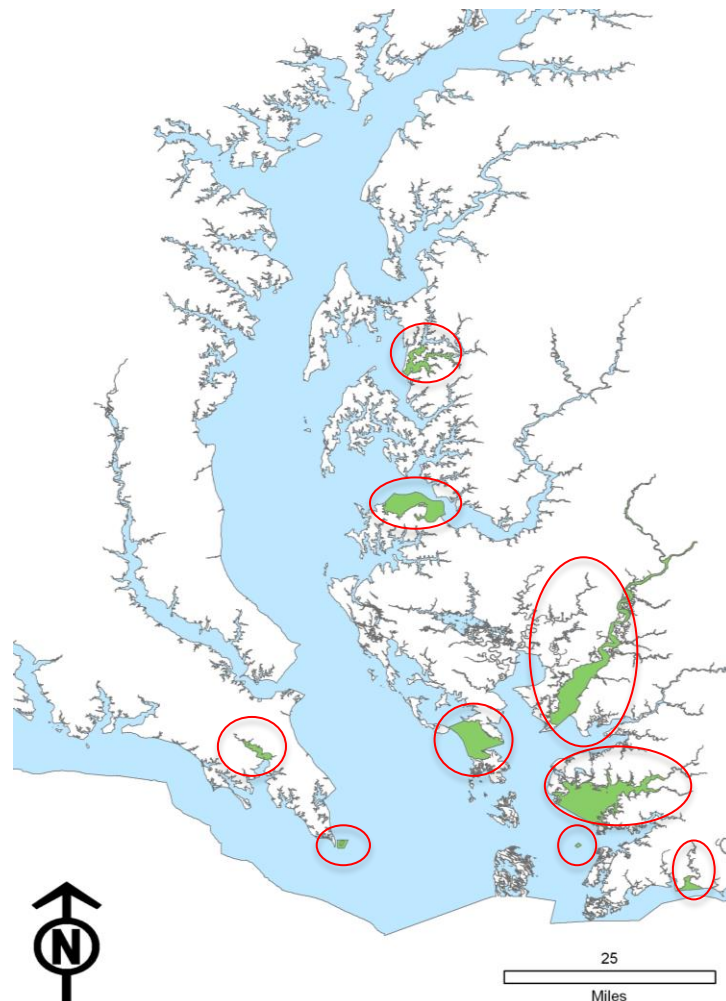
- 9 sanctuaries
- Highly productive
- Have not had significant restoration activities since 2010.
- Potential to achieve the 2014 Chesapeake Bay Watershed Agreement goals
- MGO sites in St Mary's River and Wye River

Future Management Alternatives:

1. Maintain current strategy
2. Remain as a sanctuary, but with additional investment towards restoration

Somerset Sanctuary Future Management Alternatives:

1. Declassify as a sanctuary and create a specific management plan for public oyster harvest
2. Declassify as a sanctuary

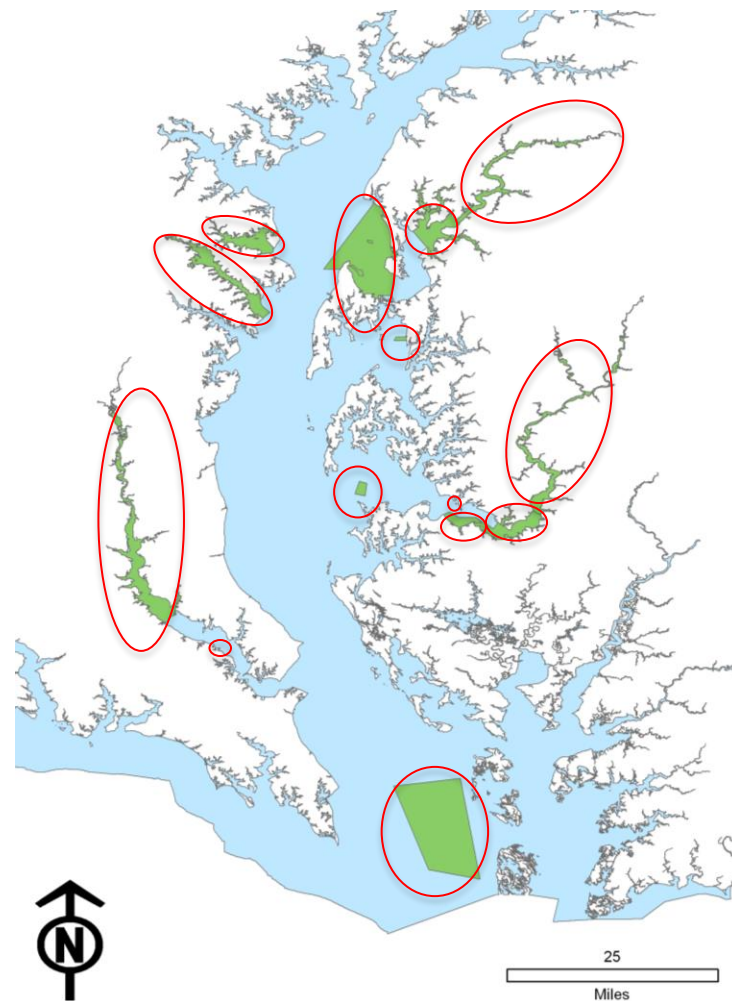


Tier 1A Sanctuaries

- 14 sanctuaries
- Contain oyster restoration or research projects conducted by the USACE
- Some of these projects are quite old and are no longer active
- MGO sites in Lower Chester River, Upper Chester River, and Severn River

Future Management Alternatives:

1. Maintain current strategy
2. Remain as a sanctuary, but with investment towards restoration
3. Work with DNR and the USACE to declassify portions of area as a sanctuary and create a specific management plan for public oyster harvest which includes investment

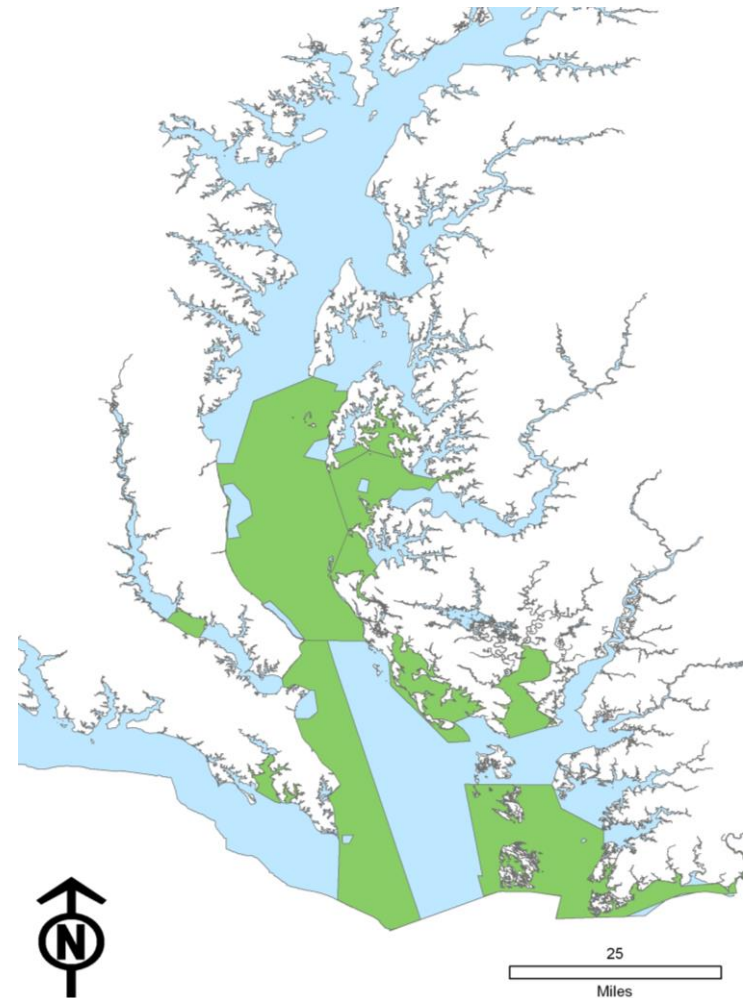


Tier 1 PSFA

- Highly productive harvest areas

Future Management Alternatives:

1. Maintain current strategy
2. Develop area-specific management plans
3. Conservational equivalent trade

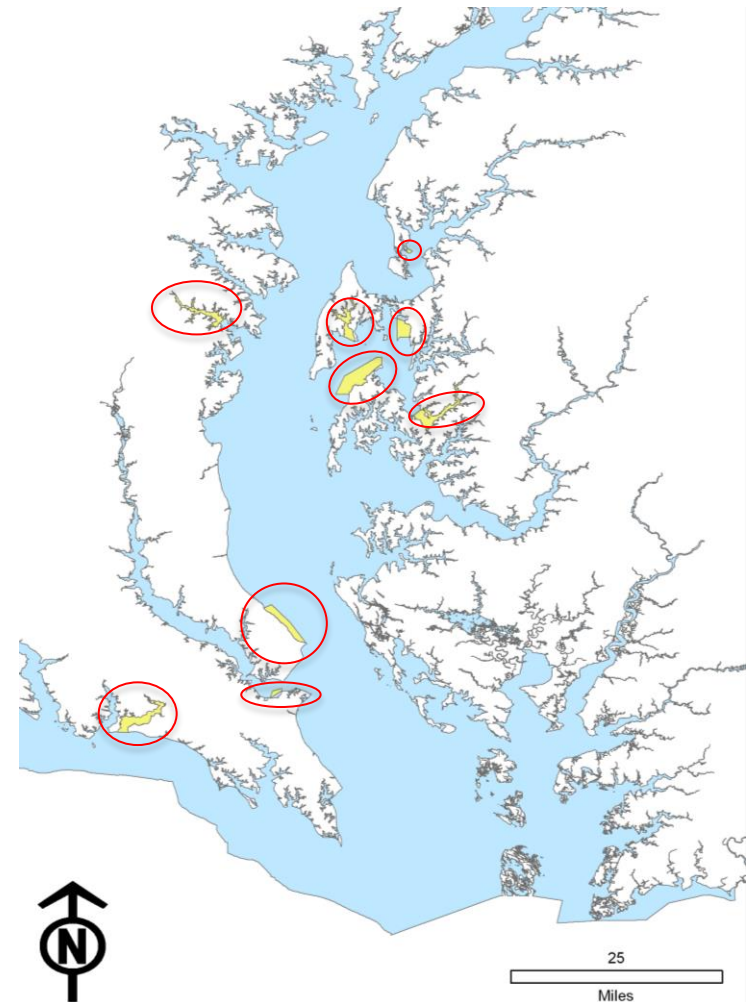


Tier 2 Sanctuaries

- 9 sanctuaries
- Incomplete data sets
- Shown mixed signals
- Would benefit from more time to understand how oyster populations respond in the absence of harvest
- MGO sites in Miles River, Cox Creek, and South River

Future Management Alternatives:

1. Maintain current strategy
2. Remain as a sanctuary, but with investment towards restoration
3. Declassify some portion of the area as a sanctuary and develop an area-specific management plan which includes investment

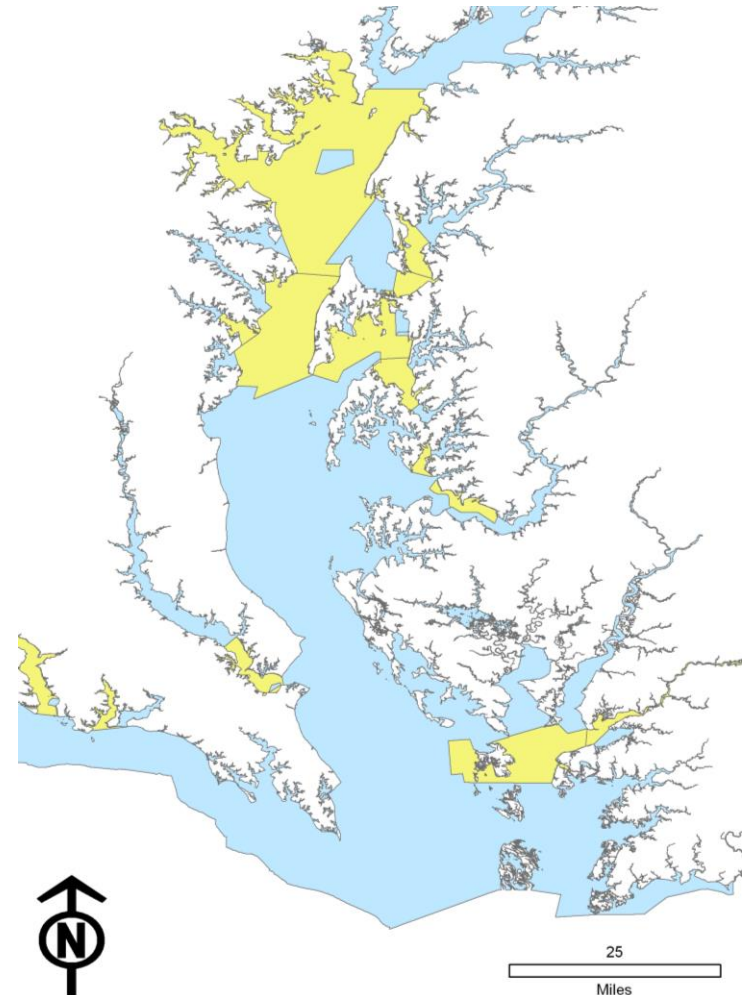


Tier 2 PSFA

- Moderately productive harvest areas

Future Management Alternatives:

1. Maintain current strategy
2. Develop area-specific management plans
3. Conservational equivalent trade



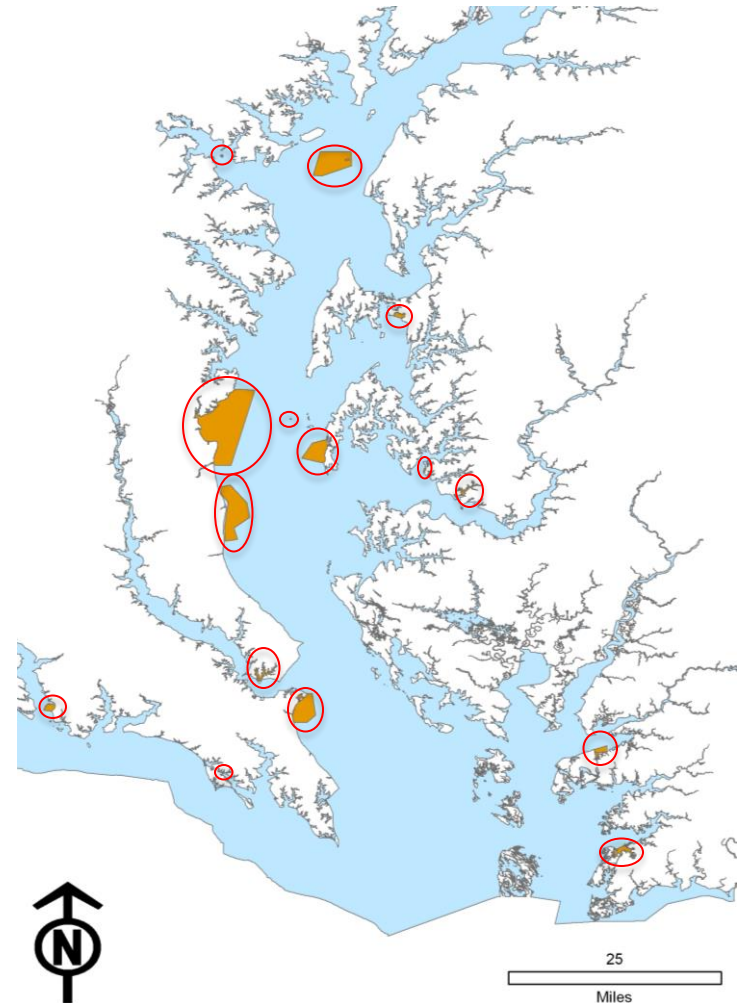
Tier 3 Sanctuaries

- 15 sanctuaries
- Incomplete data sets or no data
- Poor habitat and few or no oysters
- Many are pre-2010 sanctuaries – smaller sized, different goals
- MGO sites in Fort Carroll, La Trappe, Oxford Lab, Roaring Point, Solomon's Creeks, and Wicomico West

Future Management Alternatives:

1. Maintain current strategy
2. Remain as a sanctuary, but with investment towards restoration
3. Declassify some portion of the area as a sanctuary and develop an area-specific management plan which includes investment
4. Declassify some portion of the area as a sanctuary

Note: in areas that have no data, would need to conduct a survey to determine productivity prior to any declassification

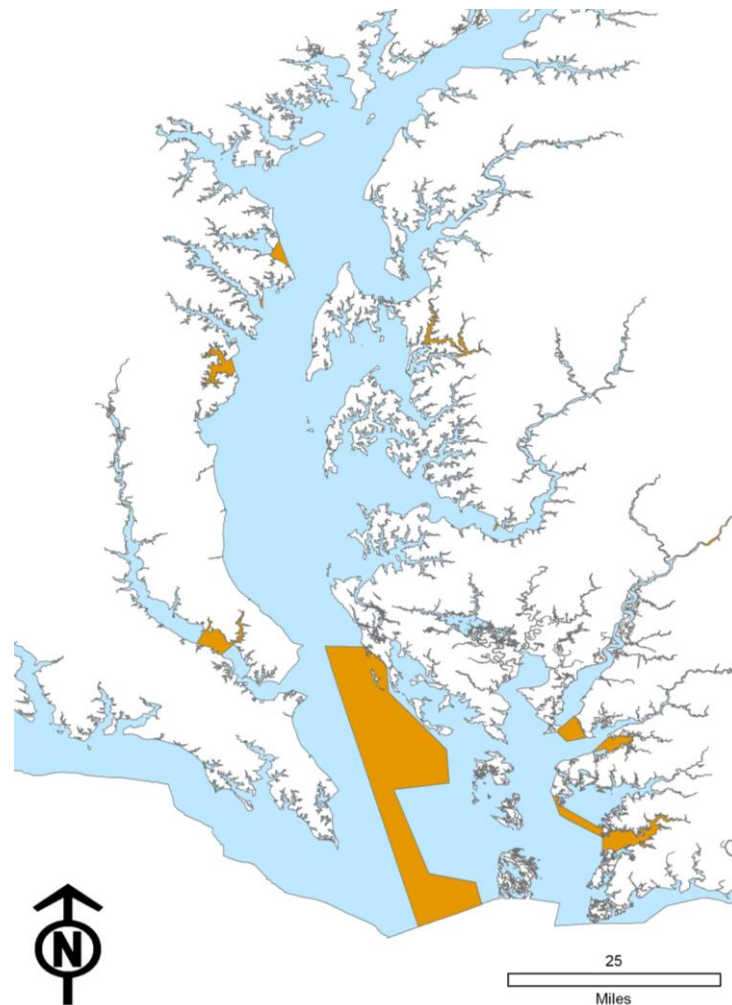


Tier 3 PSFA

- Low productive harvest areas
- Some areas could be data limited or very small acreage
- Manokin, Nanticoke, and Wye Rivers NOAA Codes - small acreage and no data due to majority of NOAA Code being in a sanctuary.

Future Management Alternatives:

1. Maintain current strategy
2. Develop area-specific management plans
3. Conservational equivalent trade (in areas that have no data, would need to conduct a survey to determine productivity prior to any trading occurring)





Sanctuaries

Table 5-1. Data summary for the 51 sanctuaries located in Maryland's portion of Chesapeake Bay. Sanctuaries are classified into tiers based on characteristics described in section 5.1 and data as shown in Table 4-1. Within each tier, sanctuaries are sorted by salinity zone (low: 5-11, medium: 12-14, and high >14 parts per thousand). Detailed data for each sanctuary are presented in Appendix A. USACE = U.S. Army Corps of Engineers. EPA = U.S. Environmental Protection Agency.

Tier	Sanctuary Name	Year Established	Comment	Salinity Zone	Acres: Total / Historic Oyster Bottom	Tier	Sanctuary Name	Year Established	Salinity Zone	Acres: Total / Historic Oyster Bottom
0	Harris Creek	2010	USACE	low	4,647 / 1,998	2	Breton Bay	2010	low	3,212 / 888
0	Little Choptank	2010		low	9,415 / 1,713	2	Cox Creek	2010	low	2,112 / 939
0	Tred Avon	2010	USACE	low	4,149 / 1,152	2	Miles River	2010	low	3,449 / 373
1	Lower Choptank	2010		low	7,172 / 4,217	2	Prospect Bay	2010	low	1,478 / 1,061
1	Nanticoke River	2010		low	16,699 / 576	2	Ringgold	2001	low	120 / 63
1	Wye River	2010		low	3,510 / 1,100	2	South River	2000	low	2,327 / 141
1	Kitts Creek	2001		med	1,181 / 95	2	Eastern Bay	2010	low	4,521 / 939
1	Point Lookout	2010		med	399 / 396	2	Calvert Shore	2010	med	2,214 / 673
1	St Mary's River	2010		med	1,304 / 89	2	Lower Patuxent	2010	med	335 / 315
1	Hooper Straight	2009		high	7,307 / 5,317	3	Fort Carroll	1995	low	30 / 0
1	Manokin	2010		high	16,320 / 11,040	3	Herring Bay	2010	low	16,792 / 7,981
1	Somerset	1999		high	101 / 6	3	La Trappe Creek	2010	low	377 / 13
1A	Chester ORA	1996	USACE	low	6,189 / 184	3	Man O' War / Gales Lump	2010	low	4,704 / 2,310
1A	Choptank ORA	1996	USACE	low	8,962 / 236	3	Oxford Lab	1961	low	36 / 3
1A	Howell Point	2001	USACE	low	6 / 6	3	Piney Point	1986	low	13 / 0
1A	Lower Chester	2010	USACE	low	24,147 / 6,930	3	Poplar Island	2003	low	7 / 7
1A	Magothy River	2010	USACE	low	5,607 / 230	3	Prospect Bay - Cabin Creek	2010	low	298 / 128
1A	Mill Hill	2000	USACE / EPA	low	295 / 188	3	Tilghman Island	2010	low	2,534 / 1,345
1A	Neal Addition	2001	USACE	low	7-Jul	3	Wicomico West	2010	low	450 / 272
1A	Sandy Hill	2009	USACE	low	1,947 / 1,308	3	Cedar Point	2010	med	3,473 / 2,839
1A	Severn River	1998/2010	USACE	low	7,804 / 1,376	3	Plum Point	1999	med	6,209 / 4,405
1A	Upper Chester	2010	USACE	low	9,033 / 2,365	3	Roaring Point	2004	med	10 / 0
1A	Upper Choptank	2010	USACE	low	5,898 / 1,675	3	Big Annemessex	2010	high	749 / 361
1A	Upper Patuxent	2003/2010	USACE	low	14,461 / 2,228	3	Solomons Creeks	2010	high	617 / 5
1A	Cook Point	2001/2010	USACE	med	814 / 781	3	Webster	1997	high	554 / 0
1A	Lower Mainstem	2010	USACE	med	38,290 / 8,234					

Note: Historic oyster bottom as charted in the Yates Oyster Survey from 1906 to 1912 plus its amendments.



PSFA

Table 5-2. Data summary for the 39 NOAA Codes located in Maryland's portion of Chesapeake Bay. NOAA Codes are classified into tiers based on characteristics described in section 5.1. Within each tier, NOAA Codes are sorted by salinity zone (low: 5-11, medium: 12-14, and high >14 parts per thousand). Detailed data for each NOAA Code are presented in Appendix B.

Tier	NOAA Code		Salinity Zone	Acres: Total / Historic Oyster Bottom	Tier	NOAA Code		Salinity Zone	Acres: Total / Historic Oyster Bottom
1	039	Mouth of Eastern Bay	Low	*	2	174	St. Clements And Breton Bay	Low	3,833 / 2,384
1	043	Fishing Bay	Low	31,138 / 11,820	2	231	Chester River Middle	Low	7,226 / 5,304
1	368	Patuxent River Upper	Low	4,444 / 3,999	2	237	Choptank River Middle	Low	5,713 / 7,351
1	437	Harris Creek	Low	2,663 / 3,504	2	274	Wicomico River West	Low	11,504 / 4,400
1	027	Chesapeake Bay Lower Middle	Med	163,994 / 33,993	2	637	Tred Avon River	Low	2,685 / 2,458
1	047	Honga River	Med	26,358 / 20,176	2	096	Wicomico River (East)	Med	6,621 / 715
1	053	Little Choptank River	Med	10,008 / 4,185	2	168	Patuxent River Lower	Med	7,929 / 2,551
1	078	St. Mary's River	Med	4,820 / 1,185	2	292	Tangier Sound North	Med	33,326 / 18,860
1	086	Smith Creek	Med	890 / 246	3	055	Magothy River	Low	1,492 / 947
1	137	Choptank River Lower	Med	30,044 / 20,277	3	062	Nanticoke River	Low	2,962 / 1,256
1	229	Chesapeake Bay Lower West	Med	101,401 / 23,603	3	082	Severn River	Low	161 / 83
1	537	Broad Creek	Med	7,959 / 5,488	3	094	West River And Rhode River	Low	3,789 / 367
1	072	Pocomoke Sound	High	16,253 / 4,114	3	099	Wye River	Low	2,984 / 16
1	192	Tangier Sound South West	High	84,511 / 39,611	3	331	Chester River Upper	Low	0 / 0
1	192	Tangier Sound South East	High		3	337	Choptank River Upper	Low	105 / 33
2	025	Chesapeake Bay Upper	Low	147,584 / 25,934	3	098	Monie Bay	Med	2,805 / 59
2	039	Eastern Bay	Low	25,081 / 15,946	3	129	Chesapeake Bay Lower East	Med	99,020 / 7,813
2	060	Miles River	Low	9,329 / 3,463	3	268	Patuxent River Middle	Med	4,566 / 1,230
2	088	South River	Low	3,773 / 1,451	3	005	Big Annemessex River	High	6,595 / 4,296
2	127	Chesapeake Bay Upper Middle	Low	51,279 / 17,410	3	057	Manokin River	High	3,589 / 1,826
2	131	Chester River Lower	Low	5,592 / 3,895					

* The acreage of "039 Mouth of Eastern Bay" is included in "039 Eastern Bay".
 Note: Historic oyster bottom as charted in the Yates Oyster Survey from 1906 to 1912 plus its amendments.



Glossary

Definitions of Different Management Area Types

- Sanctuary – area where no commercial harvest of oysters by the public fishery occurs (Note: a limited amount of aquaculture leases may occur in this area)
- PSFA (Public Shellfish Fishery Area) – an area open to the public fishery for harvest of oysters but no aquaculture is allowed
- Harvest Reserve Area – area designated for restoration and harvesting of oysters on a rotational basis
- Rotational Harvest Area – area designated for harvesting of oysters on a rotational basis
- Seed Area – area where shell is planted to provide substrate for natural recruitment of oyster seed, and seed recruited to the area may be transplanted to other areas if it is less than 1 inch in size



Questions?



Questions?