



Potomac River Fisheries Commission

MARYLAND - VIRGINIA
"Potomac River Compact of 1958"



Appendix C

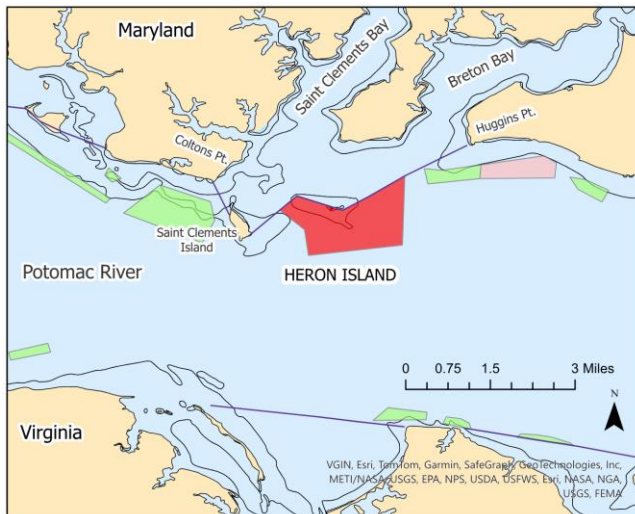
Oyster Revitalization Project

Heron Island Oyster Bar in the Middle Potomac River ("Oyster SEP")

Project Summary

The Potomac River Fisheries Commission (the PRFC or the Commission) will implement oyster revitalization projects to improve the ecology of the Middle Potomac River, which also will provide additional biological, cultural, and economic benefits. With a recent uptick in natural reproduction in this area of the Potomac, the time seems appropriate for an infusion of funds to build upon this initial rebound and improve the chances of developing a self-sustaining population with supplemental plantings. Scaled to the funding amount of \$125,250, the PRFC could increase oyster bar revitalization by planting roughly 7,900 bushels of wild oyster seed and up to 20 acres of oyster ground.

Proposed Bar for Project



A map of the Heron Island oyster bar (red) that is the proposed candidate for an oyster revitalization project.

Supplemental Environmental Project Criteria

The PRFC understands that funding received from MetCom would be in settlement of matter of *State of Maryland Department of Environment (Plaintiff) and Shore Thing Shellfish/Potomac Riverkeeper Inc. (Plaintiff-Intervenors) v. St. Mary's Metropolitan Commission ("MetCom") (Case No. C-18-CV-22-000364) (Circuit Court for St. Mary's County, MD)*, consistent with Maryland Department of Environment (MDE) Supplemental Environmental Project (SEP) Policy (October 2021).

MDE has previously approved a SEP funded by Nuclear Electric Power Generation Company (NRG), which was completed in 2022 in partnership with the PRFC. The project has been viewed as a success by the Commission since it has enhanced the bottom substrate on Knotts Hollow Oyster Bar and increased oyster biomass in the Potomac River.

SEP Location: The location identified for the project has a geographic nexus to an area which has experienced sanitary sewer overflows. Because the location is currently designated by the PRFC as a sanctuary, oyster restoration there provides the best opportunity for ecological enhancement and restoration in the middle Potomac River, which benefits the Lower Potomac River. The Potomac River is the second largest tributary to Chesapeake Bay.

SEP Funding Restrictions: The PRFC will use MetCom's SEP Payment solely for the project described in this proposal. The SEP Payment will be deposited in a special, designated fund to track payments and expenses, and administrative expenses will not exceed 1% of the total SEP payment. If all funds designated for the SEP are not expended by December 31, 2026, the PRFC will submit the balance to MDE via check payable to the "Maryland Clean Water Fund," and mailed to the following address: Maryland Department of the Environment, P.O. Box 2057, Baltimore, Maryland 21203-2057. The following must be noted on the check or on enclosed correspondence with each check: Case No.: CJ-24-2979, PCA: 13710, OBJ: 7545, SFX: 408, GL: 0544, MDE v. St. Mary's County Metropolitan Commission. A copy of the check shall also be mailed to: Principal Counsel, Office of the Attorney General, Maryland Department of the Environment, 1800 Washington Boulevard, Suite 6048, Baltimore, Maryland 21230.

SEP Reporting: The PRFC will provide semi-annual reporting to the parties until all funds have been expended. Reports shall be sent via email or, upon written request, by first class mail. The Department, MetCom, or the Citizen Groups may change the method, person, or address applicable to them by providing notice of the change to all parties. Notice shall be sent to the following:

Department:

Program Manager, Compliance Program
Water and Science Administration
Maryland Department of Environment
1800 Washington Blvd.
Suite 420
Baltimore, MD 21230

Principal Counsel
Maryland Department of the Environment
Office of the Attorney General
1800 Washington Blvd.
Suite 6048
Baltimore, MD 21230

MetCom:

St. Mary's County Metropolitan Commission
Attn: George A. Erichsen
Director
23121 Camden Way
California, MD 20619

R. Christopher Beaver, Esq.
gunnercooke LLP
475 Park Avenue South, 23rd Floor
New York, New York 10016
christopher.beaver@gunnercooke.com

As to the Citizen Groups:

Van Ness Feldman
Attn: Michael Goodstein, Esq.

Regarding Matter Number: 20932.00001
1050 Thomas Jefferson St. NW
Washington, DC 20007
Mgoodstein@vnf.com

Shore Thing Shellfish, LLC
P.O. Box 74
Tall Timbers, MD 20690
Shorethingshellfish@gmail.com

Potomac Riverkeeper Network
Attn: Senior Legal Counsel
3070 M. St. NW
Washington, DC 20007
David@prknetwork.org

Within 30 days of the date that all funds have been expended, the PRFC will provide a final closeout report to the parties identified above evaluating the overall success of the project.

SEP Proposed Schedule: The PRFC's proposed schedule is detailed in the final section of this proposal.

Background

The PRFC Resources

The PRFC, in its mission to conserve and improve the fisheries resources in the Tidal Potomac River, seeks to revitalize the oyster population in its jurisdiction from its recent historically low population levels to an increased self-sustaining population. Oyster revitalization will provide broad ecological benefits and support local cultural heritage; however, it requires considerable funding and resources. From 2012 to 2016, the PRFC appropriated more than \$100,000 annually to oyster revitalization in the river. Since 2012, funds collected from the commercial oyster industry, have contributed more than \$230,000 to plantings. Additional funds from outside partners, such as Maryland Department of Transportation Authority (MDTA) and NRG have totaled \$1,000,000 through oyster projects such as the one outlined within this proposal. The PRFC is committed to continuing its oyster revitalization work annually. Because progress will be expedited and realized at a more significant scale with additional funding, the PRFC seeks

supplemental funding from prospective partners as illustrated in the funding objectives outlined in this document.

Oyster Revitalization Work

The environmental benefits of oyster reefs are well-established. Oyster reefs support the ecological foundation of the lower and middle tidal Potomac River, a direct tributary to the Chesapeake Bay. They also improve water quality by providing nutrient sequestration and denitrification, provide food and habitat for a variety of species, and improve the river bottom sediment. Maryland Governor Wes Moore acknowledged the importance of oysters in our waters when he recently established the Maryland's Oyster Shell and Substrate Taskforce by Executive Order 01.01.2023.12 (July 20, 2023):

“ . . . Increasing the abundance of the Eastern Oyster, a critical species for Maryland's economy and water quality, is a priority of the Moore-Miller Administration; . . . Oysters play a valuable role in creating reefs that clean water and provide habitat for critical species, including crabs and striped bass.”

Oyster bars, and the biological communities they support, are the ecological foundation of the lower and middle tidal Potomac River. The tidal Potomac River has over 50 natural oyster bars documented in a 1928 NOAA survey, which extend over 50 nautical miles from Mathias Point, Virginia to the mouth of the Potomac River. Prior to the 1960s, the Potomac's oyster bars once produced annual harvests in excess of 1,000,000 bushels river wide. In 1972, tropical storm Agnes created an extreme low salinity event that extended for weeks and increased velocity which buried many bars in silt that resulted in a mortality event of more than 80% loss of oyster biomass in the river. Additional freshet events in the early 1990s coupled with a spike in oyster disease resulted in further declines of oyster biomass. In the past two decades, oyster disease has abated and provided a window of opportunity to reinvigorate the oyster population in the Potomac.

Since 2012, the PRFC has planted thousands of bushels of wild oyster seed, spat-on-shell (SOS) and oyster shells annually on varying bars to increase biomass and suitable substrate for reproduction events. In 2023, the Potomac River experienced its first river wide reproduction

event, also referred to as a spawning event, since 1991. MD DNR Fall Oyster Survey reported the highest natural spat counts in 2023 for oyster bars in the Potomac River since the 1980s.

Oysters engineer changes in estuarine ecosystems. They create habitat for many invertebrates which attract fishes that support economically important recreational fisheries. The habitat also increases the likelihood of future successful oyster reproduction. These benefits that arise from the physical structure of an oyster reef have long been recognized and appreciated. Similarly, it is known that oysters can sequester nutrients such as nitrogen in their tissues, which average about 8.5% nitrogen by weight.¹ Recently, however, there has been growing recognition of the important role oyster reefs play in nutrient cycling in the Chesapeake Bay and its principal tributaries, including the Potomac River. It is now recognized that oyster reefs can promote denitrification up to 200-fold through a complex bacteria pathway. The contribution of this denitrification pathway likely dwarfs the direct storage of nitrogen in tissues to the overall nitrogen budget of the river. Restored reefs typically support 50 oysters m⁻². Using an average tissue weight of 50g, this suggests a reef likely sequesters 200 g N/m⁻², and may denitrify an additional 50-200 g Nm⁻² yr⁻¹. Thus, a single square meter of 4-yr old oysters could have accounted for up to 1 kg nitrogen removal (200 g N from sequestration + 4x200 g N from denitrification).

The PRFC Oyster Planting Programs

Currently, the PRFC is maintaining a rotational planting and harvest program that uses funds from planting surcharges and oyster taxes paid by the oyster industry. Each year, the PRFC's Oyster and Clam Advisory Committee meet to recommend a planting on one of the oyster bars, the recommendation then gets presented to the Commission where the final decision is made regarding the planting. The bar or planting site, is then designated as closed for harvest until declared open by the Commission in typically 3-4 years, depending on the material planted.

In addition to the rotational program, the following two projects have received separate funding:

- Lower Cedar Point

¹ This and other estimates of the oyster nitrogen budget are taken from Kellog, M.L. et al. 2004. Use of oysters to mitigate eutrophication in coastal waters. *Estuarine, Coastal and Shelf Science* 151:156-158.

In cooperation with MDTA, the PRFC is planting oysters near the construction site of the new Nice/Middleton Bridge as a mitigation project. The nearest oyster bar, Lower Cedar Point, has received three plantings thus far, one per year since the project began in 2020. The agreement included \$100,000 funded annually for five years to be spent on oyster plantings on the Lower Cedar Point bar. This project has planted 31,534 bushels of wild oyster seed sourced from the James River, VA on approximately 84 acres of oyster ground. Based on 2022 Maryland Department of Natural Resources (Maryland DNR) Fall Oyster Survey data, the 2020 planting site has shown success with majority of a bushel sample consisting of 3-inch market sized oysters. The Commission, at its September and December 2023 quarterly meetings announced the 2020 planting site as open for limited harvest by hand tong gear only for a portion of the 2023-2024 commercial oyster season.

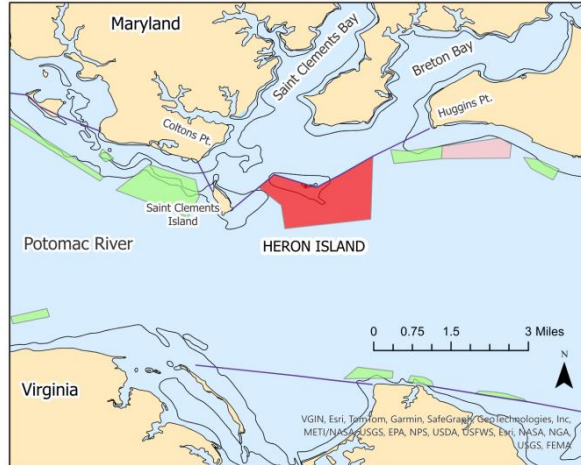
- Knotts Hollow

An oyster revitalization project funded by NRG as a SEP was completed in 2022 in partnership with the PRFC and MDE. This project officially began planting in 2018, when shell and/or SOS were deployed annually for the five years. Overall, the \$500,000 project award deployed 68 million larvae, 50,000 bushels of oyster shell, and 1.05 million pounds of Surf clam and Quahog shells. The 25-acre planting site has been designated a Special Management Area and will continue to be closed to all harvest until at least 2025 when the Commission will survey the density of oyster on the bar. The latest survey by Maryland DNR has shown success with majority of a bushel sample consisting of 3-inch market sized oysters.

The PRFC considers both projects to be successful.

Specific Heron Island Project Proposal

Heron Island was last surveyed by the Maryland DNR Fall Oyster Survey in 2021 and showed little to no oyster biomass; making this oyster bar a priority candidate in need of enhancement. Heron Island bar will be added to the 2024 fall survey location list to observe oyster biomass pre- and post-planting. This area of the river has sufficient salinity (10-16 ppt) for reproductive success to be achieved on an annual basis if conditions remain suitable. The Heron Island bar is currently designated as a sanctuary with high restrictions limiting harvest to 18-foot hand shaft tong gear only (PRFC Reg. II, Sec. 2(a)(4) and Sec. 4(a)).



Upon receipt of SEP funds from MetCom, the PRFC will determine the planting site within the Heron Island boundary that is best suitable for enhancement. Upon determining the planting site, the Commission will be responsible for issuing a Request For Proposal (RFP) and contracting with companies to obtain wild diploid oyster seed, originating from the Chesapeake Bay System. Bids will be accepted for the purchase, moving and planting of this seed. If PRFC is unable to locate natural seed in a given year, the alternative is to plant spat on shell; however, this is a more costly option. There are several private hatcheries that can provide diploid eyed larvae for sale. Bids can be obtained from remote setting stations, where the eyed larvae are set on oyster shells, in order to obtain high quality SOS for the best price. The amount of seed planted will be based on available funds that year. In recent years, oyster seed has ranged from costing \$11-14 per bushel, whereas SOS most recently cost \$3,850 per million eyed larvae that set on shell costing upward of \$4.00 per shell bag.

Anticipated Schedule*

DATE	PROJECT ACTION
July 2024	PRFC receives funds
September 2024	PRFC advertises for Request for Proposals
October 2024	Pre-planting Annual Monitoring via MD DNR Fall Oyster Survey
November 2024	PRFC issues contract
February - May 2025	Contractor completes planting
October 2025	Annual Monitoring via MD DNR Fall Oyster Survey
December 2025	Deadline for expenditure of all SEP funds.

*The anticipated schedule is subject to change if planting conditions at Heron Island change in a way that risks the success of the project, in which case the project will be delayed until such time as the conditions are optimal for success, or another oyster bar could be proposed for MDE approval.