

2/25/2020

To: Honorable Paul G. Pinsky, Chair
Honorable Cheryl C. Kagan, Vice-Chair

Honorable Members of the Education, Health & Environmental Affairs
Committee

From: South River High School STEM Capstone Students
Jocelyn Fillius (jocelyn.fillius8@gmail.com)
Caitlyn Gibson (caitlyng129@gmail.com)
Graecia Pacheco (graeciaaine@gmail.com)

Re: SB 437 Prohibition of Dredging on Man O War Shoal

Our names are Jocelyn Fillius, Caitlyn Gibson, and Graecia Pacheco and we are STEM seniors from South River High School testifying in favor of SB 437. We are in Capstone, a project-based, student-led class where we have the freedom to choose our groups and projects based on common interests. Each member of our team has worked with oysters throughout their high school career, so we felt it would be fitting to spend our senior year researching oysters and what we could do to promote a real positive change in the Bay. Once we learned about the dredging of Man O' War Shoal, we were compelled to speak up in defense of the last relic oyster reef in the bay. The dredging of Man O War would only further deteriorate an already fragile ecosystem without any long-term benefits to the environment. We need to preserve what resources we have left in the bay to be able to provide for generations to come by preventing this dredging.

This written testimony will include reasons as to why SB 437 should be passed: the current oyster resource status, an alternate substrate instead of dredging, and the cost of past efforts.

Oyster Resource Status

This section explains how there has been a real, and noted impact of dredging that is not hypothetical. According to the 2018 oyster stock assessment presented by the Maryland Department of Resources, the population declined from 600 million oysters in 1999 to less than 300 million oysters in early 2018. We have a limited supply of oysters, and dredging Man O' War Shoal will only lessen the resource in our Bay.

- One oyster can **filter more than 50 gallons of water in 24 hours**; filtration rate ranges from 1.5 to 10 gallons of water filtered.

- According to the National Oceanic and Atmospheric Administration, it has been estimated that oysters were once able to filter all the water in the Bay in about a week.
- The sharp decrease in the number of oysters means that it now takes the current oyster population about a year to filter the same amount of water.
- Now, the total oyster population in the Bay is less than 1% of what it was.

The Repletion Program

According to the Oyster Advisory Commission 2007 Interim Report, the DNR started a Repletion Program in 1960 to “improve habitat for the enhancement of Maryland’s oyster industry”.

- There was a decline of oyster harvest (below 2 million oysters), so the program aimed to plant shells on natural bars and seed areas.
- Shell was dredged from the upper bay and planted around the state to provide substrate for natural spat sets.
- The seed program consisted of planting shells in areas of high spat set, then transporting the spat to areas of lower salinity to help avoid disease mortality.

Consequences

There were various successes to this program like the oyster production exceeded harvest removed (positive shell budget). However, the consequences weighed more than the successes.

- The Repletion Program was officially shut down in 2006 due to **controversies related to environmental and socio-economic impacts.**
- The program used the currently limited shell resource and lacked the “long-term strategy towards restoring and sustaining the benefits of the Bay’s oyster population”.

According to the Oyster Advisory Commission (OAC), there was an overall decline in oyster harvests.

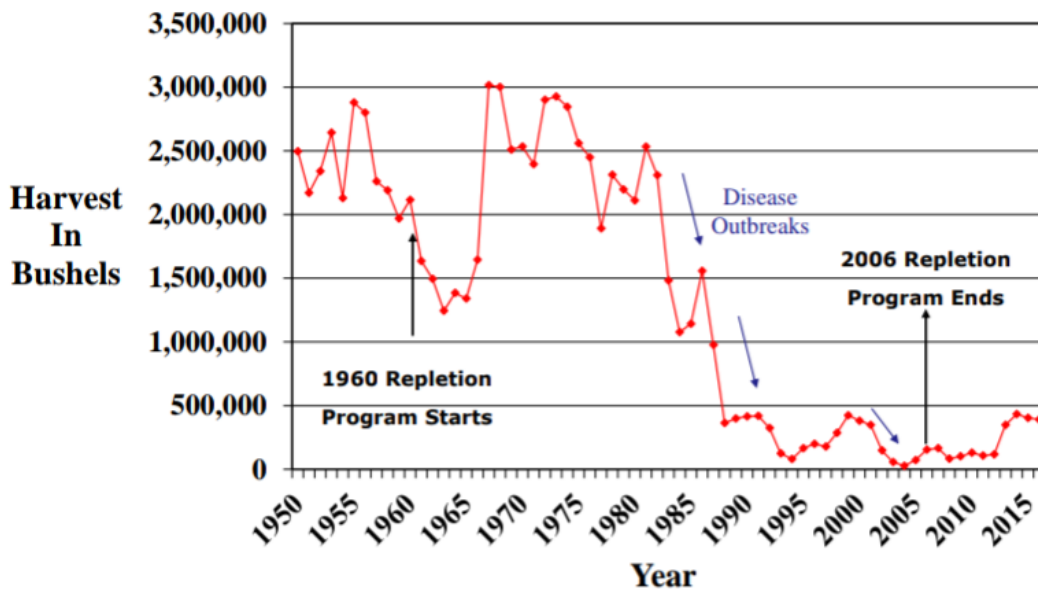
- From 1960 to 2006, the oyster harvest went from roughly 1,800,000 bushels of oysters to 100,000 bushels.
- Then from 2006 to 2018, the oyster harvest slightly increased to 400,000 bushels. That is still **only 22% of what the Chesapeake Bay started with.**
- The OAC reported that after the Repletion Program, they are in need of spat, shell, and funds (all three are in short supply)

Overall, there is proof that dredging oysters may positively impact the Bay, but in the long-term, dredging harms the environment and those that live in it. The Repletion Program is just one of the many attempts to increase the oyster population that ended up

degrading the oyster quality because of dredging. We hope to not repeat history by passing SB 437 to ensure that we will not have another Repletion Program crisis.

From the beginning of the Repletion Program to the end, there has been an over DECREASE of oyster harvest.

MD Oyster Harvest



Oyster Advisory Commission: 6/12/2017

10

Alternative Substrate

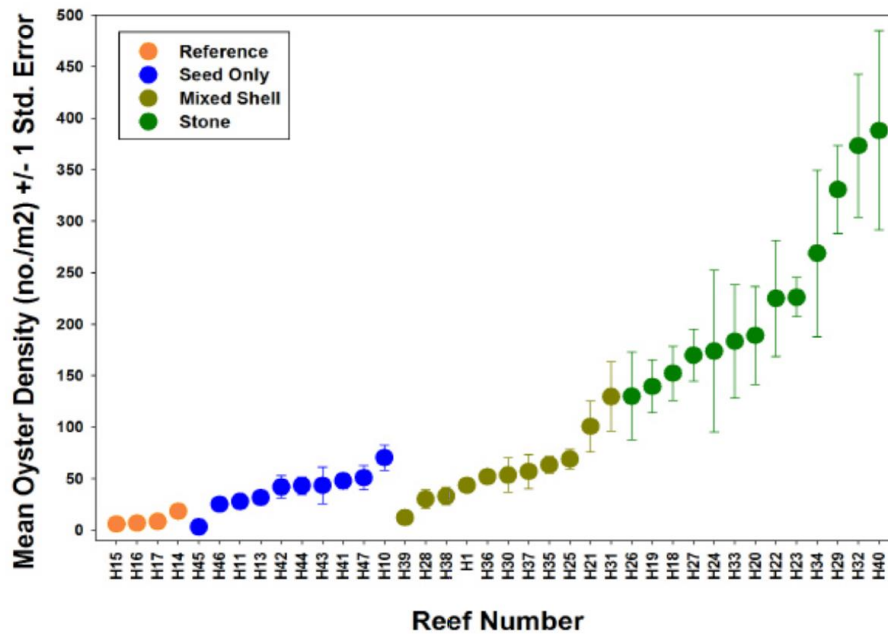
The purpose for dredging Man O War is to use the buried shells in various restoration projects in the bay, but there are viable alternative substrates that are better for the ecosystem. This negates the need to destroy the last relic oyster reef in the Chesapeake Bay, forever altering the landscape of one part of the bay with no real improvement in areas that would be attempted to be restored. In their project description, the DNR is not specific on what they plan to do with the dredged shell from Man O War. There are a few proposed project ideas, all of which would be more ecologically successful if an alternative substrate, such as stone-based reefs, were to be used instead. I would like to quote some of the proposed plans from the DNR's project proposal, and then follow that up with data on the success of stone-based reefs from a restoration project in Harris Creek.

- Shell may be used to “provide a foundation for hatchery-spawned seed oysters”. In Harris Creek, each reef is monitored three years post-restoration and evaluated to determine if it requires a scheduled second seeding. As of 2018, in Harris Creek, **all seed-only and shell-base reefs of the 2013 cohort required a second**

seeding yet none of the reefs constructed from stone required that second seeding.

- Shell may be used to “encourage the re-establishment of an abundant and self-sustaining oyster population”. In 2016, data analyzed from the 2013 cohort showed that the average **oyster density on stone-base reefs was about four times higher than on shell-base reefs, and 22 times higher than reference reefs.**
- Shell may be used to “improve existing oyster bars to enhance natural recruitment”. Interestingly, in the same cohort where stone-based reefs had the highest average oyster densities, all of the hatchery-produced oysters planted were set on shell, and **any oysters found on stone base material are the result of natural recruitment.** This suggests that **stone is a suitable settlement substrate for juvenile oysters** and that oysters are setting on these reefs in sizable quantities.

With its promising success rates so far, alternative substrate has the potential to be the future of restoration projects within the bay.



2016 monitoring data comparing oyster densities on restored reefs in Harris Creek; stone treatment has the highest average densities.

Cost of Past Efforts

Past restoration projects are the only

Figure 7: Average live oyster density on each reef, by restoration treatment type

real-world models that can be used to infer what will happen if the proposal of Man O War is approved. It is important to look at the past projects because they give insight on the long-term maintenance costs as well, and since this would be funded the industry and capital funds, the future taxpayers of Maryland should be able to anticipate other costs they will be responsible for.

- In 2018, after 6 years of monitoring the Harris Creek restoration project, it was determined that the **shell reefs did not meet the requirements for successful restoration and were in need of a second-year-class seeding.**
- **\$150,000** of the \$160,000 budget for upkeep of Harris Creek was spent on **the second-year-class seeding alone.**
- Since reefs made from Man O War would be made completely of buried shell, **we have to assume these reefs will need another seeding as well.**

Current Costs

Dredging the Man O War will be at the expense of waterman and Maryland residents, so it is important to have public approval from the state and, more specifically, Baltimore county residents and watermen. It is also important to consider the viewpoints of the many partners DNR works with. This includes the National Oceanic and Atmospheric Administration (NOAA), U.S. Army Corps of Engineers (USACE), and academic scientists from the University of Maryland Center for Environmental Sciences and Virginia Institute of Marine Sciences.

- As stated in MDNR's project description, "...the bushels would be dredged at a cost of about **\$8 million**, which is roughly MDNR's annual budget for shell dredging..." **each year.** Meaning that there is **no consideration in cost** if the reefs shall need a **second-year-class seeding.**
- "The total cost for removing 30% of the shell from Man-O-War shoal would be on the order of **\$120 million.**" This is not including other costs they may come with maintenance.
- The project explains that "...is anticipated to be paid for **by special funds** (from the industry) and **capital funds.**" This means **watermen and Maryland taxpayers** who openly **do not condone this plan.**
 - Back in December of 2015, MDNR held a public hearing to gather the public and other organizations' opinions on dredging Man O War Shoal. **Of the 40 comments** posted publicly on the MDNR website, **only one person approved of the plan.**

Economical Gain in Aquaculture

Currently, there are three possible outcomes for what the shell could be used for. It is all based on whether or not MDNR wants to prioritize the importance of aquaculture and the **benefits it has on the environment and the economy.** But instead of investing time and money into dredging, they can use that money to fund other projects that deal

with **more successful forms of alternative substrate to help aquaculture grow** in that regard. Aquaculture is a growing and reliable business that, if given enough attention and aid, can be a **long term solution to overharvesting and the need to create new reefs** for commercial fishing **would greatly decrease. Future Maryland taxpayers' dollars should be used in a successful business they know will eventually give back to the economy.**

- MDNR is well aware of the benefits of aquaculture, in the project plan they agree that “**...aquaculture will remove pressure from the wild oyster fishery**, allowing this resource to recover.” They also have policies in place to help aid watermen and oyster farmers in the transition to aquaculture.
- However, they also believe that “Shell will be essential for a major expansion of oyster aquaculture in Maryland, and the economic benefits of an expansion of this industry will be realized only if the amount of shell needed to establish a significant number of grow-out bars is available.” When in fact **the most successful growers are finding alternative solutions and expanding their businesses greatly without the use of buried shell**, such as Hooper Island Oyster Company. (<https://hoopersisland.com/oysters/oyster-farming/#hatchery>)

Summary of Harris Creek Restoration Progress

Year	Oyster Seed Planted	Initial Restoration Completed*	Funds Spent on Implementation†
2018	28.66 million	0 acres**	\$159,979
Cumulative (2011-2018)	2.49 billion	350.92 acres	\$28.56 million

**Reef-building substrate has been added, if needed, and reef has been seeded with juvenile oysters. The initial seeding does not represent the full, planned seeding complement; some reefs may require the planned second-year-class seeding, as laid out in the tributary plans.*

***This represents new acreage restored in 2018. Additionally, 7.07 acres in Harris Creek received their planned second-year-class seeding; see definition above.*

†This represents funds expended on reef construction and seeding. Associated costs, such as benthic surveys, oyster population and disease surveys, and water-quality monitoring, are not reflected; nor are staff salaries. Similarly, the cost estimate described in the Harris Creek Oyster Restoration Tributary Plan is for reef construction and seeding only, plus a small amount for monitoring required in excess of ongoing monitoring programs.

Of the \$159,979 spent on implementation in Harris Creek in 2018, NOAA spent \$62,982 for seed (funds awarded to DNR/ORP/UMCES), and DNR spent \$93,997 for seed.