



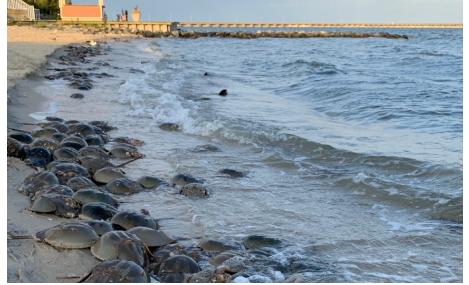
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**MARYLAND  
COASTAL BAYS  
2023 REPORT CARD**

# GOLD STAR PARTNERSHIPS PROMOTE EDUCATIONAL AND OUTREACH PROGRAMS ACROSS THE REGION

**Oceanic Motel** and **Sunset Island Community** are two hotspot spawning grounds in the Coastal Bays for horseshoe crabs. Both groups have provided access that allows MCBP and MDNR to conduct annual surveys that collect important population data on horseshoe crabs in the Coastal Bays. Both Sunset Island and the Oceanic Motel have gone above and beyond informing their beach goers about the importance of protecting horseshoe crabs and have promoted volunteer efforts that rescue stranded horseshoe crabs to reduce mortality during spawning events.



*Horseshoe crabs spawning at Sunset Island Community.*

Since 2006, the **Maryland Conservation Corps (MCC)** has been assisting MCBP in our monthly water quality monitoring. From October to February the MCC crew manages anywhere between 4-6 water quality sampling locations, which is a huge help to MCBP's science team. Their efforts are critical in helping understand the health of our Bays and provide insight on important water quality parameters such as nutrients and chlorophyll.



*The 2023 Maryland Conservation Corps team.*

**Baywater Seafood** is an aquaculture farm that has developed a strong relationship with MCBP and the Coastal Bays community. Baywater became the first bay scallop aquaculture farm in the state of Maryland and has been working closely with researchers to track wild populations and reintroduce bay scallops to the Coastal Bays. With sustainable aquaculture as a priority, Baywater partnered with MCBP on many outreach and education events to raise awareness of the importance of preserving the bay ecosystem and its biodiversity. Baywater has also increased fishers' access to the southern Coastal Bays.



*Baywater Seafood grows bay scallops. Photo courtesy of Baywater Seafood.*

The **Green Team** was established in 2001 as a forum to help keep the Ocean City Mayor and City Council informed of issues that would impact the environmental and natural resources of the Town. Members of the Green Team consist of municipal staff, elected officials, volunteer members of community boards and commissions, and include citizen leaders and representatives from community organizations. The committee continues to work with the Mayor and City Council on environmental concerns as well as work with the community to assist with projects to enhance the local environment.

# THE MARYLAND COASTAL BAYS CONTINUE TO IMPROVE

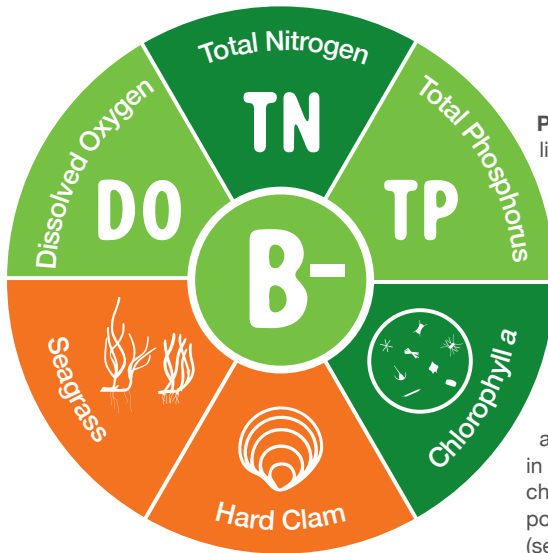
Coastal Bays health is defined as the progress of four water quality indicators (nitrogen, phosphorus, chlorophyll *a*, dissolved oxygen) and two biotic indicators (seagrass, hard clam) toward scientifically derived ecological thresholds or goals.

**The Coastal Bays had an overall score of B- (64%), which is the highest score the Coastal Bays have ever achieved.** The letter grade is the same as last year, but improved by two points. Improvements were seen in hard clams and seagrass scores. While seagrass scores are still low, strong improvements were seen in Chincoteague Bay and Sinepuxent Bay, which is promising. Four regions had overall scores in the B range for the first time.

**Nitrogen** is often a limiting factor in plant growth, but excess nitrogen can cause algal blooms.

**Dissolved oxygen** (DO) is vital for the survival of animal species such as crabs, fishes, and mollusks.

**Seagrass** growth is another indicator of water quality. Seagrasses are sensitive to changes in water quality.



**Phosphorus** can limit plant growth if it is not abundant enough, or it can cause algal blooms when in excess.

**Chlorophyll *a*** is a measure of the amount of algae in the water. High chlorophyll indicates poor water quality (seagrass shading and possible dead zones).

Because they are filter feeders, **hard clams** are good indicator species: species whose health reflects the health of the ecosystem.

very poor  
0–20%

poor  
21–40%

moderate  
41–60%

good  
61–80%

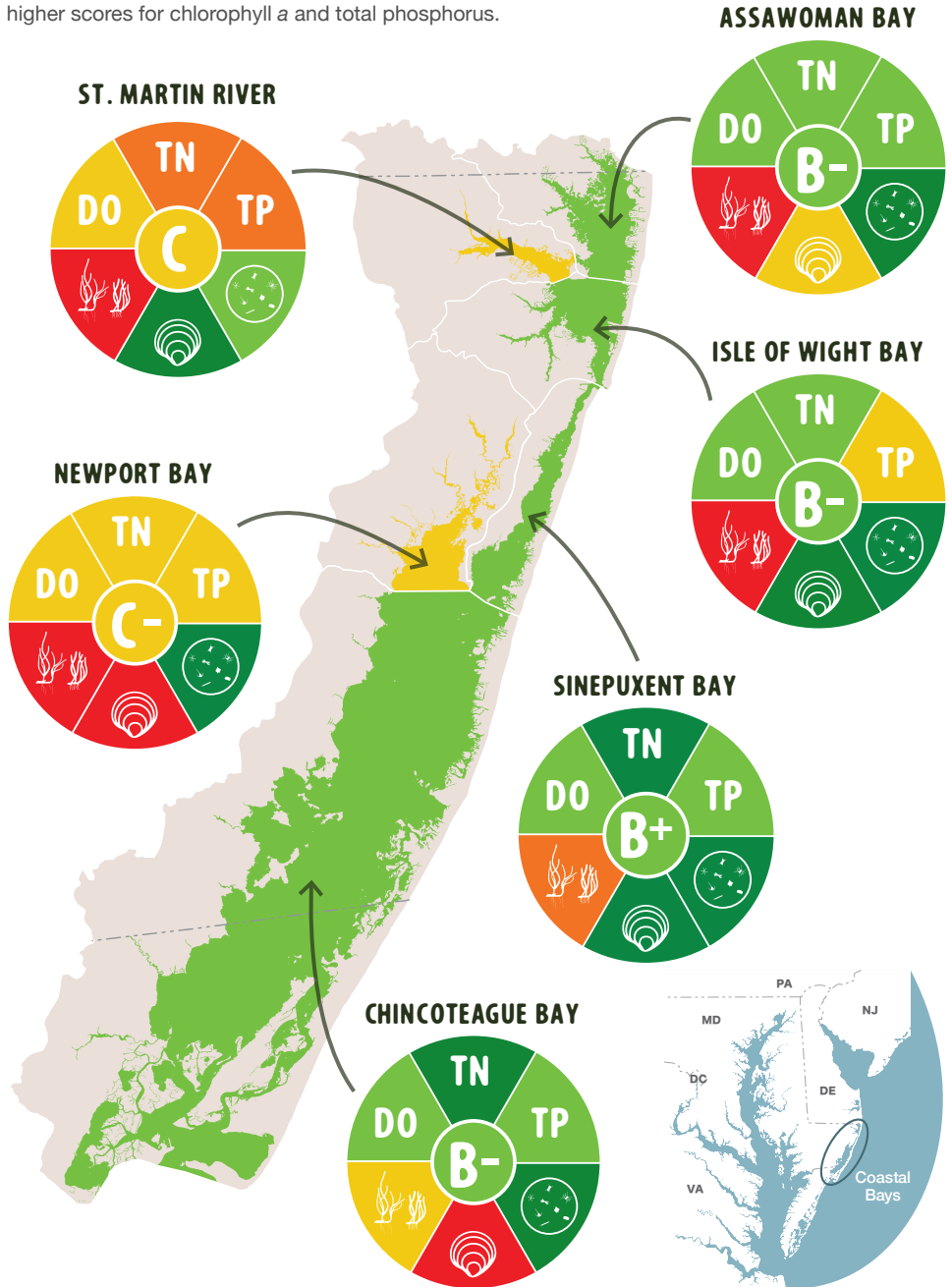
very good  
81–100%



*photo by the National Park Service*

# ALL REGION SCORES IMPROVED IN 2023

The highest-scoring region was Sinepuxent Bay, with a B+ grade. Despite a declining dissolved oxygen score, Sinepuxent Bay improved due to increases in hard clams and seagrass scores. Assawoman Bay continued to improve, with a B- grade for 2023, the highest score it has ever achieved. This was due to strong improvements in dissolved oxygen scores. Chincoteague Bay and Isle of Wight Bay slightly improved, each scoring a B-. St. Martin River received a C grade, with strong improvements in hard clams. The lowest-scoring region was Newport Bay, with a C-. This was a slight improvement from the previous year due to higher scores for chlorophyll *a* and total phosphorus.



# HARD CLAM POPULATIONS ARE IMPROVING IN SOME REGIONS OF THE MARYLAND COASTAL BAYS

Mechanical harvesting was banned in the Coastal Bays in 2008. Since then, hard clam populations have recovered across the bays, but the results are variable. Clam densities adjacent to the Ocean City Inlet—Isle of Wight and Sinepuxent bays—experienced strong increases to the point where they have exceeded or are close to baseline values from surveys conducted in 1952/53. The most recent MDNR shellfish survey found that Isle of Wight clam densities were the highest of the 70-year record for any of the Coastal Bays.

In contrast, densities in Chincoteague (historically the primary focus of the hard clam fishery) and Newport bays have been flatlined at levels well below their historic benchmarks for at least 30 years. The Assawoman Bay clam population is intermediate between the two groups, having increased since the ban but only to about half of historic densities. The lack of improvements in Chincoteague Bay, could be due to a number of factors such as brown tides and the rate of flushing.



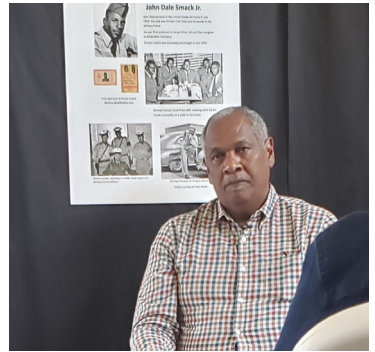
*Hard clams are surveyed using an escalator dredge.*

# INFRASTRUCTURE INVESTMENT BENEFITS COMMUNITIES

The Bipartisan Infrastructure Law (P.L. 117-58), also known as the “Infrastructure Investment and Jobs Act of 2021” or “BIL” is a huge investment in water resources. It includes \$50 billion to the U.S. Environmental Protection Agency (EPA) for water infrastructure, the single largest investment in water that the federal government has ever made. The BIL provides \$132 million in funding for the 28 longstanding National Estuary Programs (NEPs), including MCBP, for fiscal years 2022–2026. This funding is evenly distributed to the NEPs, annually providing each with approximately \$900,000 in BIL funds.

The funds were allocated to help stormwater retrofits in Berlin, design restoration of Hudson Branch and the Berlin Abbey Lane wetland, supplement DNR monitoring of brown tide, and restore the Assateague State Park shoreline south of the Verrazano Bridge. Other projects focused on education to foster environmental literacy and stewardship within our county schools, outreach to underserved communities, wetland assessment and monitoring, MCBP capacity building, developing the sand management strategy, and marsh degradation research. Community grants were given to Go Green OC, Freetown Education, Research and Cultural Center, ACT Coast Kids, and Germantown School.

The restoration of facilities such as the Germantown School provides community space and resources for arts and outreach. The National Park Service also received BIL funding to implement salt marsh restoration efforts and seagrass research that will occur in the Maryland Coastal Bays.



*Local artist Patrick Henry describes an exhibit at the restored Germantown School in Berlin.*

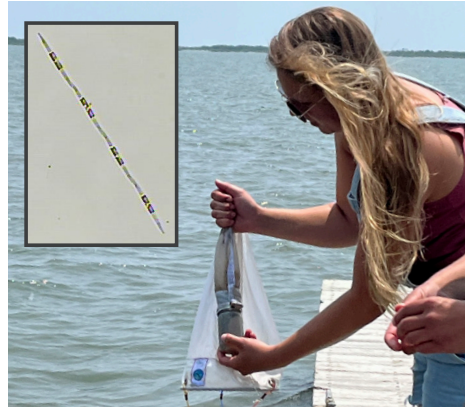


*BIL funding will be used to restore eroding shorelines like this one at Assateague State Park.*

# VOLUNTEERS ARE CRUCIAL TO NOAA'S PHYTOPLANKTON MONITORING NETWORK

In summer 2023, MCBP's science team partnered with the National Park Service as well as state, county, and local organizations, to recruit and train volunteers to participate in NOAA's Phytoplankton Monitoring Network (PMN). The purpose of the PMN is to monitor phytoplankton species that could become harmful algal blooms (HABs).

This program provides hands-on learning opportunities for volunteers to engage in science and increases awareness of this environmental concern. HABs are predicted to become more prevalent with climate change, which is why monitoring the presence or absence of target species is critical to ensuring that our Bays remain healthy and safe.



*Program participants sample for phytoplankton like the diatom Pseudo nitzschia (inset).*

## WETLANDS RETREAT EXPANDS STUDENT HORIZONS

The Worcester Environmental Training, Leadership, and Stewardship (WETLANDS) 3-day student retreat is an immersive environmental science, leadership, and career exploration program. Local 9th grade students engage in hands-on scientific fieldwork, begin to think like leaders, and explore local conservation career opportunities. Students took a Coastal Bays boat ride, kayaked down the Pocomoke, and spoke to state park rangers, nature museum curators, boat captains, and conservation corps members. Student attendees were chosen by their high schools' science teachers and guidance counselors based on environmental interest and personal need. The retreat is fully funded by MCBP with teacher and administrative support from Worcester County Public Schools.



*Worcester County Public School students enjoy the WETLANDS retreat.*

## ACKNOWLEDGMENTS

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