



MARYLAND COASTAL BAYS 2021 REPORT CARD



GOLD STAR PARTNERSHIPS PROMOTE EDUCATIONAL AND OUTREACH PROGRAMS ACROSS THE REGION

Without the assistance of our friends, students, partners, and visitors, the Maryland Coastal Bays Program (MCBP) would not be able to accomplish its important goals.

The Delaware Center for the Inland Bays education team partnered with MCBP to offer Journey Up the Coast, an immersive education program exploring the bays of Delaware and Maryland. Over a two-day span, over 40 children ages 8–12 explored the estuarine ecosystems at the James Farm Ecological Preserve. The program highlighted watershed health by exploring aquatic species and examined local forest wildlife through the lens of camouflage.



Photo credit: Liz Wist

Gail Blazer has served as the environmental engineer to the Town of Ocean City for over two decades, creating and implementing many environmental projects in an urban setting. Gail was a significant driving force for low-impact development and pollution prevention programs. She has also led many progressive citizen-based programs such as rain barrels, dune patrols, and pollinator gardens.



Photo credit: Sarah Smith

Greg Tubbs, a Bishopville resident, has gone above and beyond as a private landowner living next to the Bishopville Dam Restoration site. His property access has made the construction of the project possible, and allowed staff to collect monthly water samples and conduct post-construction surveys. Mr. Tubbs has even maintained trails for easy access to the site for tours, educational events, and routine monitoring.



Photo credit: Bill Weiland

Carol Sottili has dedicated hundreds of hours conducting horseshoe crab surveys and rescuing stranded spawning horseshoe crabs since 2009. Her hands-on work and her passion for educating others have led to thousands of horseshoe crabs making it safely back into the water. Her tenacity helped inspire the Stranded Spawning Horseshoe Crab Recovery Volunteer Team.



Photo credit: Carol Sottili

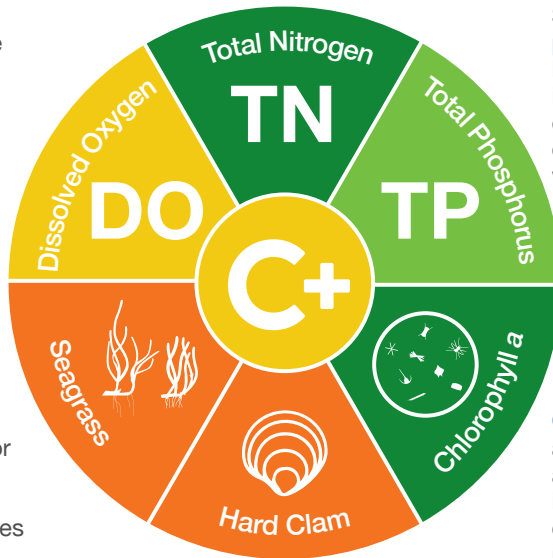
OVERALL HEALTH FOR THE COASTAL BAYS STAYED THE SAME

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 C+, a slight improvement from the previous year. Improved total phosphorus scores contributed to the slightly higher overall health of the bays. Seagrass scores ranged from poor or very poor throughout the entire Coastal Bays. This assessment represents the status of water quality and seagrasses in 2021 and hard clams in 2019.

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 molluscs.

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

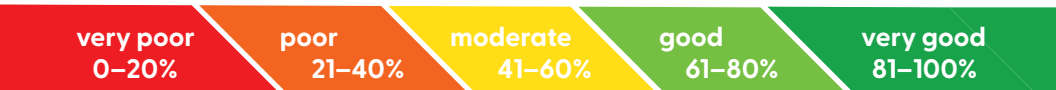


Seagrass growth is another indicator of water quality. Seagrasses are sensitive to changes in water quality.

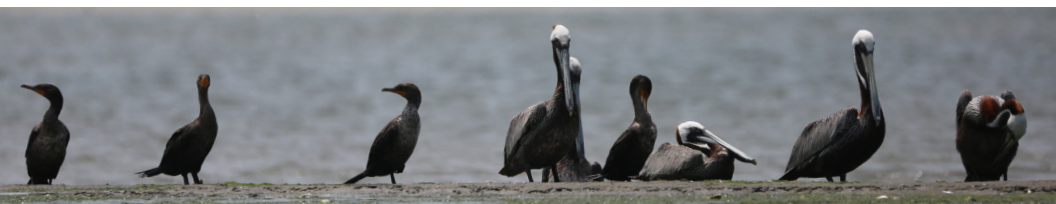
Chlorophyll a is a measure of the amount of algae in the water. High chlorophyll indicates poor water quality (seagrass shading and possible dead zones).

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

What do the scores mean?

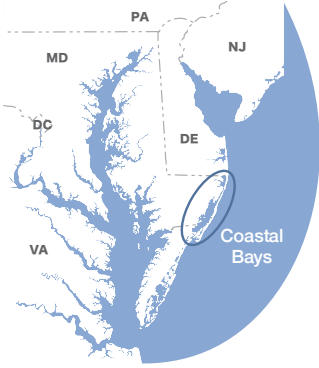


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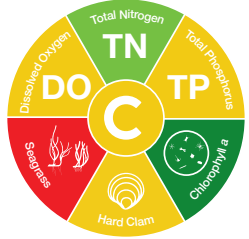


REGIONAL SCORES NOT SHOWING MUCH IMPROVEMENT

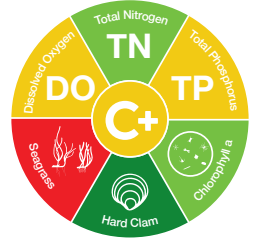
The highest scoring region was Sinepuxent Bay, with a B grade. This is due to B's and A's in four of the six indicators in this region. Chincoteague Bay followed closely behind with a B-. Isle of Wight Bay had a C+ while St. Martin River and Assawoman Bay had C grades. The lowest scoring region was Newport Bay with a D+. Newport Bay had three indicators that were D's or F's, and only one was a B.



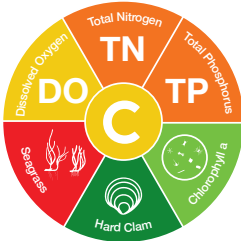
ASSAWOMAN BAY



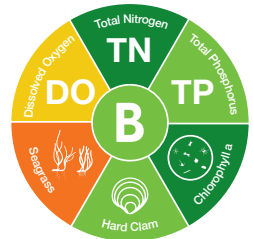
ISLE OF WIGHT BAY



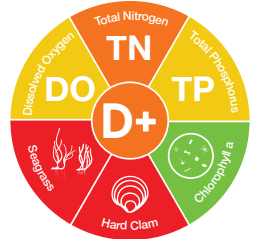
ST. MARTIN RIVER



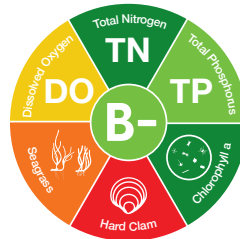
SINEPUXENT BAY



NEWPORT BAY



CHINCOTEAGUE BAY



SALT MARSHES GAIN A NEW DEFENDER

Salt marshes are another indicator of ecological health. In 2020, the Maryland Coastal Bays Program partnered with the US Fish & Wildlife Service to establish a Salt Marsh Assessment and Restoration Team (SMARTeam). The purpose of this partnership is to evaluate the health of salt marshes in the Coastal Bays watershed. Once marshes that need restoration are identified, the Team works with their public or private landowners to determine the best restoration techniques to make the marsh more resilient to climate change and sea level rise. Additionally, the Team emphasized marshes that are considered critical habitat for threatened species like the saltmarsh sparrow. This collaborative effort has grown to include partnerships with the MD Department of Natural Resources, the University of Maryland Eastern Shore, the Lower Shore Land Trust, and the University of Maryland Center for Environmental Science.



SMARTeam members gather at a Delaware site to view restoration techniques. Photo credit: Andrew McGowan.

SEAGRASSES CONTINUE TO STRUGGLE

After two years of not acquiring monitoring flights, aerial imagery for seagrass was obtained in October 2021. Overall seagrass acreage in 2021 decreased slightly. Seagrass goal attainment ranged from 0% (Assawoman, Isle of Wight and St Martin River) to 36% of the goal (Chincoteague Bay). Seagrasses fail in three watersheds but get an overall D due to the size of Chincoteague Bay. Seagrasses are struggling due to a number of factors, including high water temperatures and poor water clarity.

Water quality indicator scores range from moderate to very good. Overall, nutrients and chlorophyll a scores are promising, but conditions vary greatly by region.

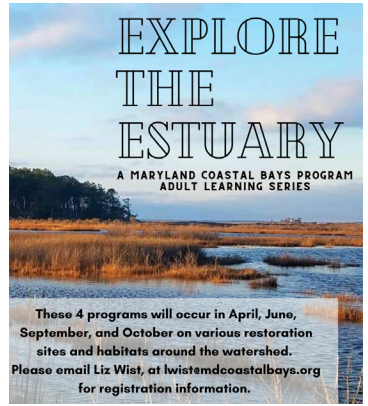
Total phosphorus scores improved in all regions. Chlorophyll a in Assawoman Bay decreased, causing an improvement of that indicator grade to an A. Daytime measurements of oxygen in the water received a grade of C in all watersheds. Management efforts to reduce nitrogen and phosphorus will facilitate recovery of seagrass, by improving water clarity despite climate stressors (e.g. temperature, CO₂ concentrations, and sea level rise).



Dense ■, moderate ■, and sparse ■ density seagrass beds in Sinepuxent Bay. Map: VIMS.

INSPIRING CONSERVATION

The Explore the Estuary four-part education series began in 2021 to inspire adult watershed residents to continue to broaden their knowledge of the Coastal Bays. Each hybrid program consisted of a virtual and a field component that provided an in-depth look at our natural world and conservation issues within the watershed. Over 100 community members participated in programs about coastal birds, restoration, monitoring techniques, and watershed gardening. The programs also featured an expert who contributed professional knowledge on the program focus and provided the opportunity for participants to immerse themselves in watershed restoration work.



PROVIDING NESTING HABITAT

The Colonial Nesting Bird Platform is a collaborative effort between the Maryland Coastal Bays Program, Audubon Mid-Atlantic, and the Maryland Department of Natural Resources to provide much-needed nesting habitat in the Maryland Coastal Bays for colonial waterbirds. It was installed in May 2021 and consisted of wooden rafts joined together by dock hinges to function as one unit that flexes with wave action. The platform successfully hosted 23 common tern nests that produced 36 chicks. It was removed from the bay for the winter and will be enlarged in 2022.



ACKNOWLEDGMENTS

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