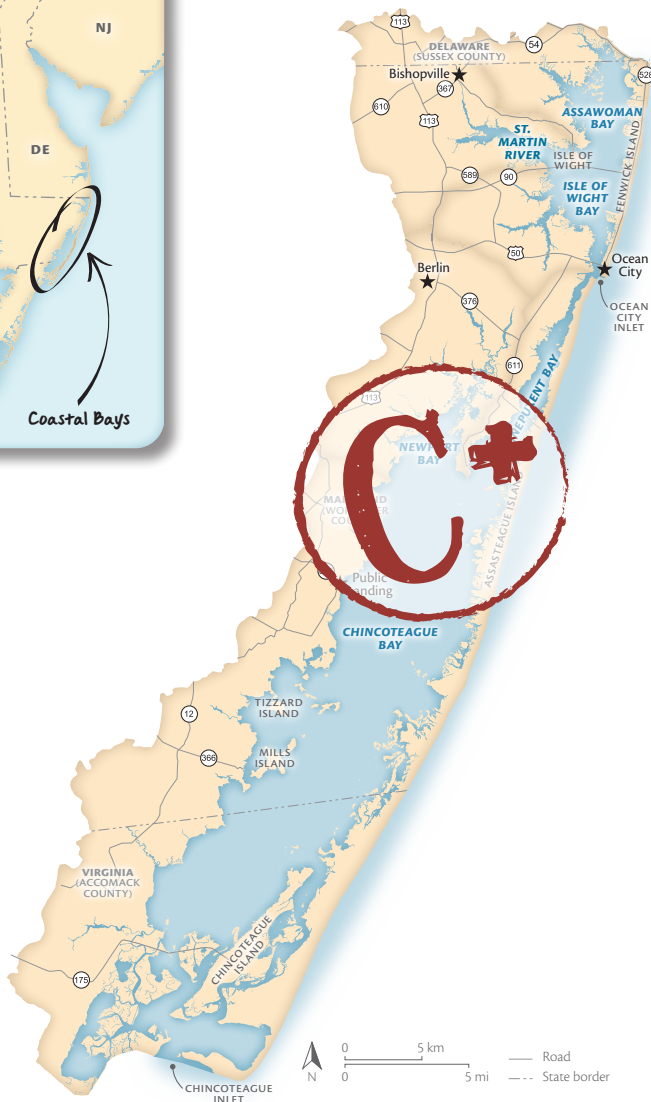


Coastal Bays REPORT CARD 2012



This scientifically rigorous report card is to inform you of the relative health of the Coastal Bays. After reviewing the report card, see more details and register online at www.ian.umces.edu/ecocheck to receive updates and future report cards.

Minor water quality improvements were offset by seagrass loss in Chincoteague Bay

These stories and data provide additional insights into the processes, conditions, threats, and resources in the Coastal Bays.

Seagrasses

Seagrass beds are important habitat for fish and crabs in the Coastal Bays. Attainment of seagrass goals were not met in any of the bays (ranging from 2.7% attainment in St. Martin River to 47% attainment in Sinepuxent Bay). The distribution of seagrass beds generally held steady in 2012 except in Chincoteague Bay where substantial acreage was lost despite water quality improvements. Seagrass data was collected in May 2012, hence losses in Chincoteague Bay are believed to be due to poor water quality combined with excessive heat in July 2011.

Improved water quality

Water quality indicators were mixed. Only Chincoteague Bay saw improvements in all four water quality indicators, and because of its large area it boosted an increase in the Health Index. Every indicator improved in at least one region but degraded in others, but overall there were more

improvements than degradations. Most individual improvements were small, but combined they helped to raise the overall Report Card grade. The overall improvement in water quality indicators is encouraging, and offers hope that pollution reduction efforts are having the desired effect. We must continue to expand these efforts to ensure sustainable improvements over time.

Storms

In 2012, intense rainstorms resulted in localized flooding and runoff into the Coastal Bays. A very dry spring stretched into a long summer heatwave throughout the county. In late August/early September, historic storms flooded streets, washed cars off roadways, and deposited several feet of water in homes. In late October, Superstorm Sandy slammed into the east coast and caused extensive damage. High winds and rain caused flooding in the area and drove high tides to surpass the November 2006 and November 2009 nor'easters. Effects from intensive weather activity on water quality and habitat are complex and will need continued monitoring.

Indicators used in the report card

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2012 Coastal Bays' health. Coastal Bays health is defined as the progress of four water quality indicators (TN, TP, chl-*a*, DO) and two biotic indicators (seagrass, hard clams) toward scientifically derived ecological thresholds or goals. The six indicators are combined into one Coastal Bays Health Index, presented as the report card score. Detailed methods available at <http://ian.umces.edu/ecocheck/report-cards/maryland-coastal-bays/2012>

TN Total nitrogen

TP Total phosphorus

The Coastal Bays report card

C+

Overall, the Coastal Bays received a grade of **C+**, with a slight improvement since 2011 when the Bays received a C grade, even though the individual grades for each subembayment stayed the same as last year. Scores for total nitrogen in Assawoman, Isle of Wight, Sinepuxent, and Chincoteague Bays were good to excellent, and were poor in Newport Bay and St. Martin River. Total phosphorus was mostly moderate except in Assawoman Bay which was good and St. Martin River which was poor. Dissolved oxygen scores were moderate to poor, with the lowest score Isle of Wight Bay. Chlorophyll *a* was good to excellent in all regions of the Coastal Bays.

Hard clam scores improved in every subembayment but were still poor to very poor except in Isle of Wight Bay, which was very good. Seagrass scores were poor to very poor in all subembayments except Sinepuxent Bay, which had moderate seagrass attainment. This assessment is a snapshot in time. It represents the status of water quality, seagrasses, and clams in 2012.

Coastal Bays Health Index



Chlorophyll *a*



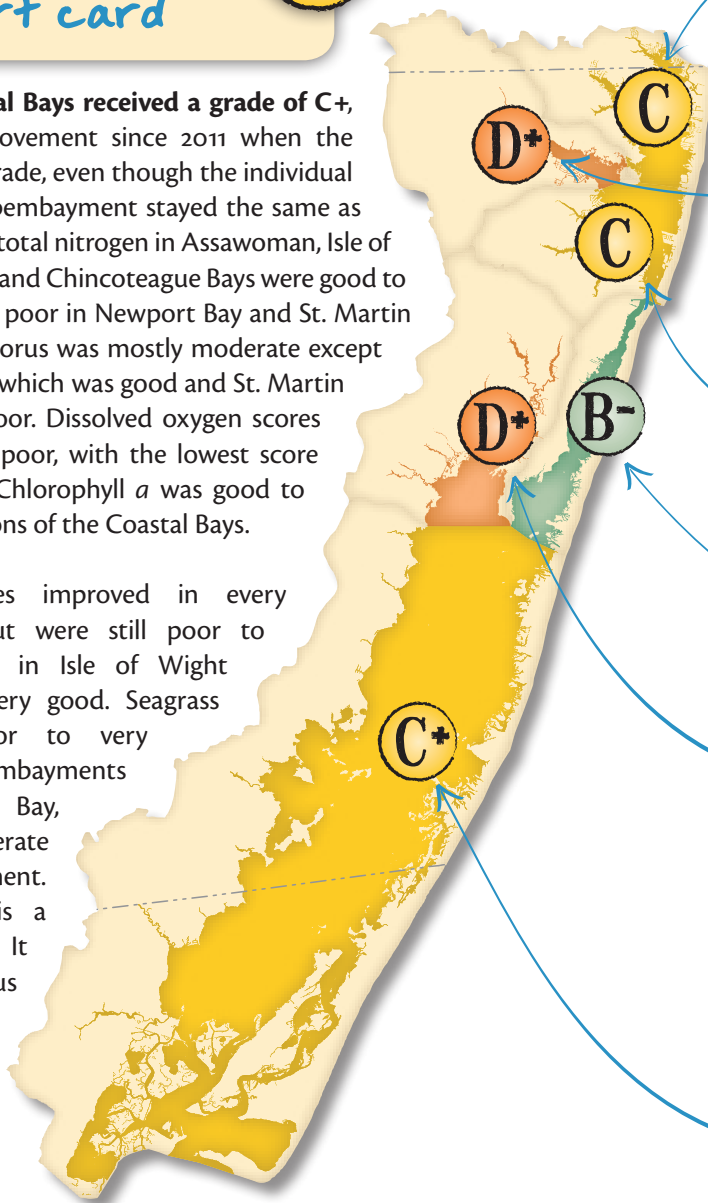
Dissolved oxygen



Seagrasses



Hard clams



Assawoman Bay received a grade of **C**, which was the same grade it received in 2011. Placing fourth, Assawoman showed a slight improvement since 2011. While there were improvements in phosphorus, hard clams, and seagrass, declines in dissolved oxygen, nitrogen, and chlorophyll *a* impacted the scores in 2012.

St. Martin River received a **D+** grade. Similar to 2011, this region had lower scores for phosphorus, chlorophyll *a*, and seagrasses than any other region. St. Martin River received the second-lowest grade of any reporting region in 2012, with most indicators scoring poor or very poor except chlorophyll *a* which was good and dissolved oxygen which was moderate. This region showed a slight improvement from 2011.

Isle of Wight Bay received a grade of **C**. Improvements in chlorophyll *a*, hard clams, and seagrasses were offset by declines in dissolved oxygen and nitrogen. Nitrogen, chlorophyll *a*, and hard clams were good to very good while seagrasses were very poor. Dissolved oxygen was poor and phosphorus was in moderate condition.

Newport Bay received a grade of **D+**. Newport Bay received the lowest score of all the subembayments and was the only region to show an overall decline in ecosystem health. Chlorophyll *a* was in good condition and phosphorus was moderate. However, all other indicators were poor to very poor.

Sinepuxent Bay received a **B-** grade. Sinepuxent Bay again received the highest grade of all the regions. Nitrogen and chlorophyll *a* remained very good to excellent, while phosphorus declined to moderate. Dissolved oxygen and seagrasses were also in moderate condition, while hard clams remained poor.

Chincoteague Bay received a **C+** grade. For the second year in a row, Chincoteague Bay saw improvements in all indicators except for seagrasses, which is a concerning trend. This region continues to receive the lowest score for hard clams which may be a result of recurring brown tides. Nitrogen and chlorophyll *a* were in very good condition. Dissolved oxygen and phosphorus were moderate. Seagrasses were in poor condition and hard clams were very poor.

Gold stars for partnerships

Without the assistance of our friends, students, partners, and visitors, the Maryland Coastal Bays Program would not be able to accomplish so much.

★ **The Trust for Public Land, NOAA, the Maryland Department of Natural Resources, and Worcester County** partnered to protect 440 acres of headwater forest along Assateague Road. Worcester County owns the Adkins parcel and the Maryland Coastal Bays Program has agreed to create nature trails, signs, and restore 60 acres of pine monoculture to deciduous forested wetlands.

★ **The Town of Ocean City, Maryland Department of Natural Resources, and the Maryland Coastal Bays Program** partnered to install a living shoreline and create a soft boat launch on Ayers Creek in Worcester County. The project now provides public access for non-motorized boating in Ayers Creek from a site that was formerly the Ocean City Landfill.

★ The community of **Ocean Pines** kept 37 tons of recyclables out of landfills during the first month of their recycling program. This recycling program was selected to represent Maryland in the Green Choices program. The program encourages 50 communities—one in each state—to compete for the highest recycling participation rate during a six-month challenge. Ocean Pines came in ninth.

★ **All local municipal staff, emergency personnel, park employees, and residents** are commended for safely evacuating low-lying areas and managing the clean-up after Hurricane Sandy.

★ In 2012, **the Town of Berlin** became Maryland's first Sustainable Maryland Certified community. The Town also converted the Bottle Branch wastewater plant discharge to two spray irrigation sites.

★ **Assateague State Park and the Coastal Bays Program** educated **Worcester County 6th-grade students** about climate impacts during a three-day "Meaningful Watershed Education Experience" at Assateague Island. Tackling tough environmental issues and considering multiple stakeholder perspectives will help prepare students for future decision-making and stewardship.



R. JESSEN

The Adkins parcel protects a significant portion of headwater forest critical to preserving water quality in Newport Bay.



NPS/ASIS

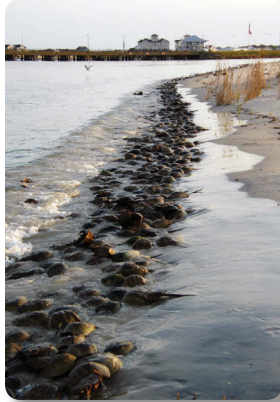
Hurricane Sandy inundated low-lying areas in the Coastal Bays watershed with several feet of water.



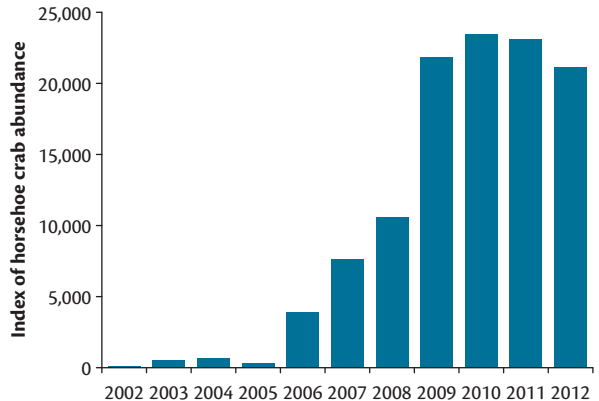
Citizen-led Green Teams, energy audits, community gardens, walking trails, and the Farmers' Market are just some of Berlin's efforts to focus on local sustainability.

Horseshoe crabs

Crabs are a critical food source for migrating shorebirds, provide an essential sterility test for human medicine, and are a source of bait for commercial watermen. A unique collaboration between citizens, business, the Coastal Bays Program, the Maryland Department of Natural Resources, and the U.S. Fish & Wildlife Service has documented more than 113,000 spawning horseshoe crabs over the last 11 years.



D. ARNOLD



The Maryland Coastal Bays Program

Part of the National Estuary Program, the Maryland Coastal Bays Program is a non-profit partnership between the towns of Ocean City and Berlin, the National Park Service, Worcester County, the U.S. Environmental Protection Agency, and the Maryland Departments of Natural Resources, Agriculture, Environment, & Planning.

One of only 28 such programs nationwide, the goal of the Maryland Coastal Bays Program is to protect and enhance the watershed, which includes Ocean City, Ocean Pines and Berlin, and Assateague Island National Seashore. The 175-square mile watershed is home to the treasured resources of St. Martin River, Newport Bay, Assawoman Bay, Isle of Wight Bay, Sinepuxent Bay, and Chincoteague Bay.

Acknowledgements

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mdcoastalbays.org



www.dnr.state.md.us



www.nps.gov



www.vims.edu

The data and methods underpinning this report card represent the collective effort of many individuals and organizations working within the Coastal Bays scientific and management community. The following organizations contributed significantly to the development of the report card: Maryland Coastal Bays Program, University of Maryland Center for Environmental Science, National Oceanic and Atmospheric Administration, Maryland Department of Natural Resources, the National Park Service, and Virginia Institute of Marine Science.