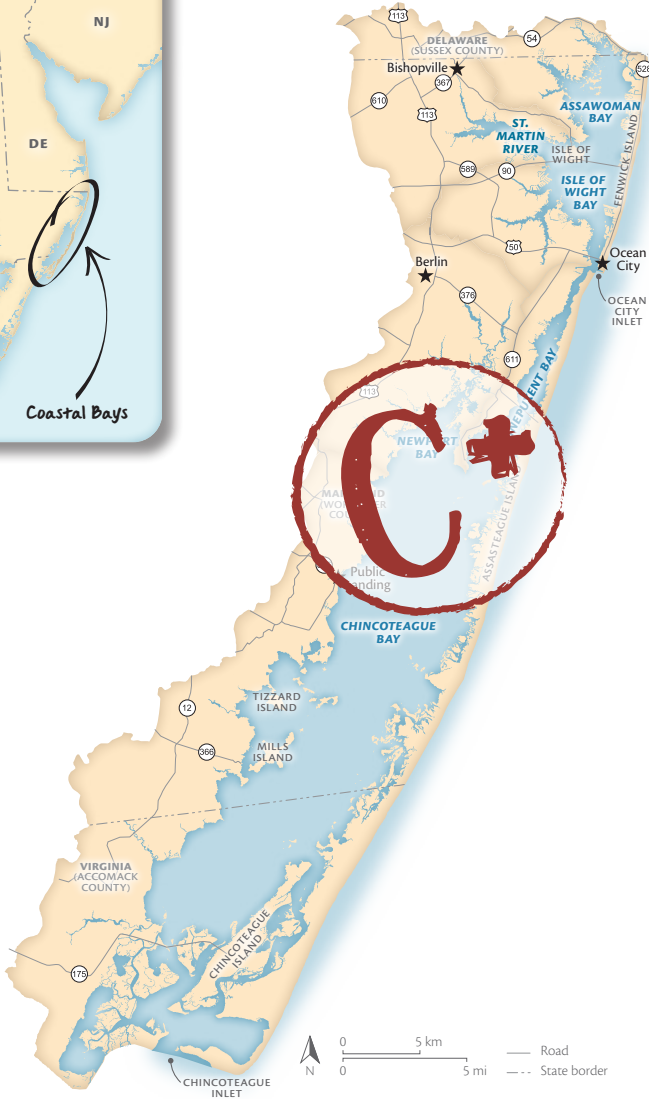


Coastal Bays REPORT CARD 2014



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.

Overall, results are very similar to 2013

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

Seagrass improved in the south

Seagrass increased in Chincoteague and Sinepuxent Bays following a four-year decline. Current acreage is 36% of the established goal. The overall increase was due to Chincoteague Bay which increased by over 3,000 acres and is now 42% of its goal. However northern bays did not fare so well. Assawoman lost 74 acres of seagrass and no seagrass beds were found. Isle of Wight lost 81% of its seagrass coverage. Small gains were seen in Sinepuxent and Newport Bays. Seagrasses are critical fish habitat and support numerous species of juveniles.

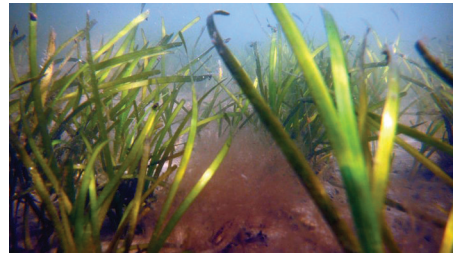
Phosphorus continues to increase

In most areas, phosphorus levels continued to be above healthy levels, likely influenced by continuing inputs from legacy groundwater. Assawoman experienced the greatest increase with only 51% attainment of the goal, followed by Newport (35%) and Isle of Wight (40%) Bays. Assawoman (51%) and Sinepuxent (63%) Bays met the phosphorus attainment goal. Too much phosphorus can lead to enhanced algal growth, which results in shading of

plants or formation of dense mats of macroalgae that can smother rooted plants and shellfish.

Hard clam densities are better in the northern bays

Surveys indicated that hard clam densities have continued trends seen in previous years. Isle of Wight continued to enjoy densities close to historical levels, although there was a slight decrease this year from last year. Assawoman was relatively stable and low. Sinepuxent was the only bay where densities increased, up to 62% (46% last year) of historical levels. Chincoteague and Newport Bays remained at the lowest densities and were less than 20% of historic levels.



TRAVIS TURNBAUGH

Both macroalgae and seagrass can be found in relatively clear water when nutrient inputs are at low levels.

Indicators used in the report card

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2014 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/2014>

TN Total nitrogen

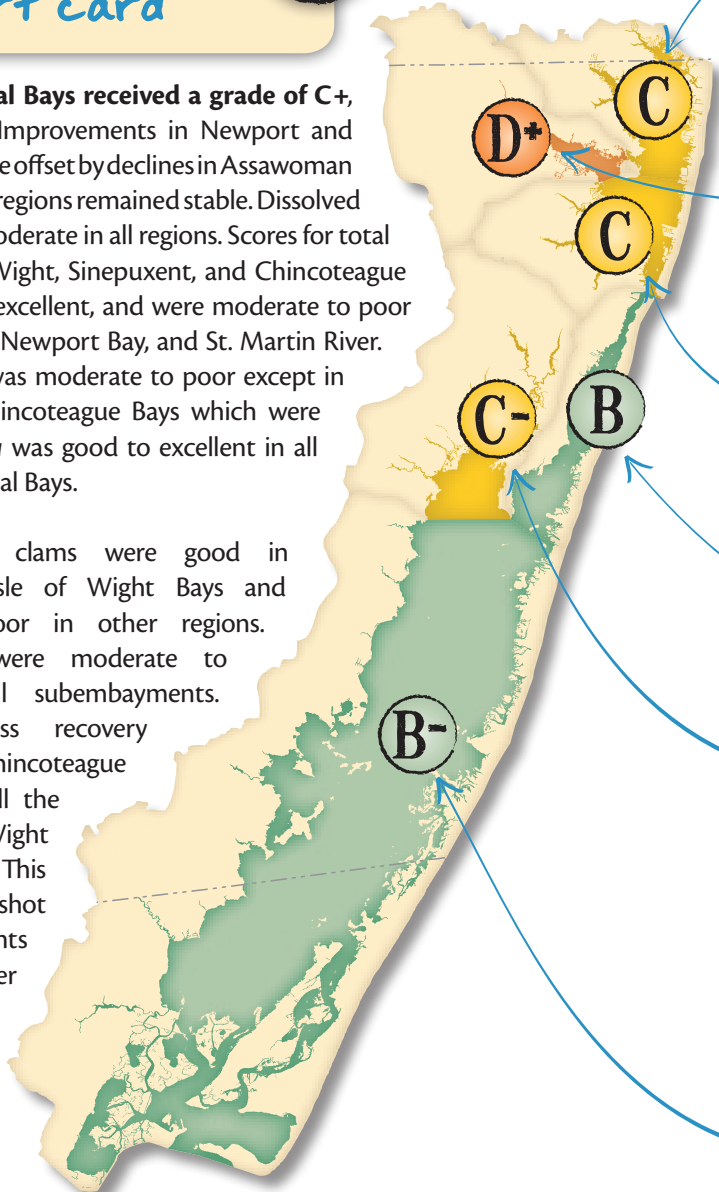
TP Total phosphorus

The Coastal Bays report card

C+

Overall, the Coastal Bays received a grade of C+, the same as 2013. Improvements in Newport and Sinepuxent Bays were offset by declines in Assawoman Bay, while the other regions remained stable. Dissolved oxygen scored as moderate in all regions. Scores for total nitrogen in Isle of Wight, Sinepuxent, and Chincoteague Bays were good to excellent, and were moderate to poor in Assawoman Bay, Newport Bay, and St. Martin River. Total phosphorus was moderate to poor except in Sinepuxent and Chincoteague Bays which were good. Chlorophyll *a* was good to excellent in all regions of the Coastal Bays.

Scores for hard clams were good in Sinepuxent and Isle of Wight Bays and poor to very poor in other regions. Seagrass scores were moderate to very poor in all subembayments. Significant seagrass recovery occurred in Chincoteague Bay while nearly all the seagrass in Isle of Wight Bay disappeared. This assessment is a snapshot in time. It represents the status of water quality, seagrasses, and clams in 2014.



Assawoman Bay received a grade of **C**, which was the same grade it received in 2013. Still placing fourth, Assawoman showed a decline since 2013. While chlorophyll *a* improved, nitrogen, phosphorus, and seagrasses all became more degraded. Dissolved oxygen, nitrogen, and phosphorus scored as moderate and chlorophyll *a* was very good, while hard clams and seagrasses were poor to very poor.

St. Martin River received a **D+** grade. With the same score as 2013, this region had lower scores for nitrogen, phosphorus, chlorophyll *a*, and seagrasses than any other region. St. Martin River received the lowest grade of any reporting region in 2013, with most indicators scoring poor or very poor except chlorophyll *a* which was good and dissolved oxygen which was moderate.

Isle of Wight Bay received a grade of **C**, the same grade that it received in 2013. A large improvement in dissolved oxygen was offset by declines in nitrogen, phosphorus, hard clams, and seagrass scores. Nitrogen, chlorophyll *a*, and hard clams were good to very good, dissolved oxygen was moderate and phosphorus and seagrasses 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* were both excellent, phosphorus and hard clams scored as good (both improved from moderate last year), dissolved oxygen and seagrasses were moderate.

Newport Bay received a grade of **C-**, an improvement from the D+ it scored last year. Dissolved oxygen, nitrogen, and chlorophyll *a* all improved, while hard clams declined. Chlorophyll *a* was very good, and dissolved oxygen, nitrogen, and phosphorus were all moderate. Seagrasses and hard clams scored as very poor.

Chincoteague Bay received a **B-** grade, the same grade it received last year. Seagrasses improved significantly in Chincoteague Bay after previous declines. However, dissolved oxygen and nitrogen both declined this year. Nitrogen, phosphorus, and chlorophyll *a* were good to very good, dissolved oxygen and seagrasses scored as moderate, while hard clams continued to be very poor.

Coastal Bays Health Index



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 Army Corps of Engineers, Baltimore District** dredged the commercial harbor in Ocean City to keep it open for large fishing vessels while making beneficial use of this material by creating new islands in the coastal bays. The new islands will be important habitat for many species of wildlife in the bays, including the colonial nesting birds.

★ **The Town of Ocean City** has created a Green Team and is well on its way to a Sustainable Maryland Certification. Creating a Buy Local campaign, energy audits, the Farmer's Market and purchasing recycled products are just a few of the many steps the town has documented towards Certification.

★ **The National Park Service at Assateague Island National Seashore** continued to enhance salt marsh habitat along Assateague Island by restoring at least 25 additional acres of mosquito ditches that were created during the 1940s. Project monitoring has indicated a positive response to restoration actions.

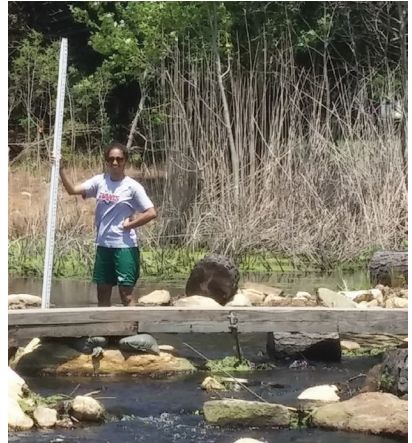
★ For many summers, **Worcester County** has provided interns through the STEP UP STEM Internship Program. This program is designed to provide high school and college students with the opportunity to gain hands-on work experience in a career field related to Science, Technology, Engineering, or Mathematics (STEM).

★ **The Maryland Department of Environment** has proposed limits on nutrients entering our bays by establishing the Nitrogen and Phosphorus Total Maximum Daily Loads (TMDL). The goal is to reduce excessive algal blooms and increase dissolved oxygen levels to improve conditions for aquatic life and shellfish harvesting.

★ **Maryland Department of Natural Resources, US Fish and Wildlife Service, Worcester County,** and MCBP worked together with Underwood and Associates to remove the Bishopville Dam on the Bunting Branch of St. Martin River and replace it with a series of weirs, pools, and runs. This will allow fish like blueback herring, alewife, and white perch to access seven miles of upstream waters. The restoration improves water quality and reduces excess nutrients entering the Coastal Bays.



Mr Bob Blama, Army Corps of Engineers, sets sail aboard the dredge Murden as it embarks on its many voyages to clear the commercial harbor.



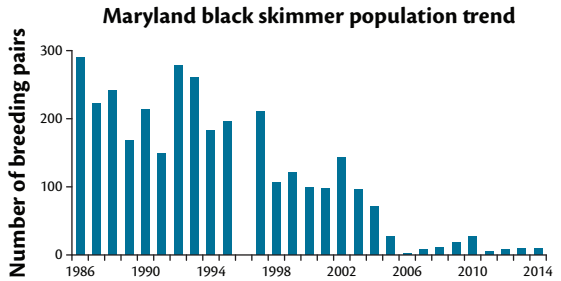
Worcester County STEP UP STEM intern, Zainab Mirza, provided much needed help to the Program and received some great opportunities in the process.



A notch cut in the dam (seen far right) allowed the water to slowly decant while retaining sediments in the pond. This project is now close to completion.

Black skimmers are dependent on island habit in the Coastal Bays

In recent years, dramatic population decreases have been observed in colonial nesting birds. Black skimmers similar to other colonial nesting birds in Maryland and have suffered precipitous declines since the late 1990s. A recent survey indicates that almost 300 acres of islands have been lost since 1989. Island loss corresponds to the sharp declines in water birds that require bare sand for nesting and rearing young. The islands that dot our coastal bays are the last remaining refuges for these birds as they are ideal habitats mostly devoid of predators such as foxes and raccoons and they provide the sandy beaches that are essential to these birds. Colonial nesting birds are especially vulnerable to disturbances by people and pets, who often disturb nests that are difficult to see in the sand.



The Maryland Coastal Bays Program

Part of the National Estuary Program, the Maryland Coastal Bays Program is a non-profit partnership among 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

Report card produced in October 2015 by the Integration and Application Network at the University of Maryland Center for Environmental Science, Maryland Department of Natural Resources, and the Maryland Coastal Bays Program.

ian.umces.edu



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.