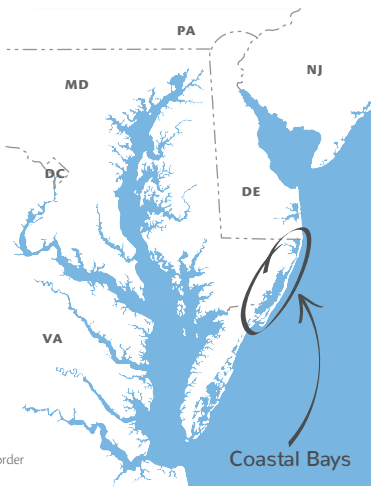
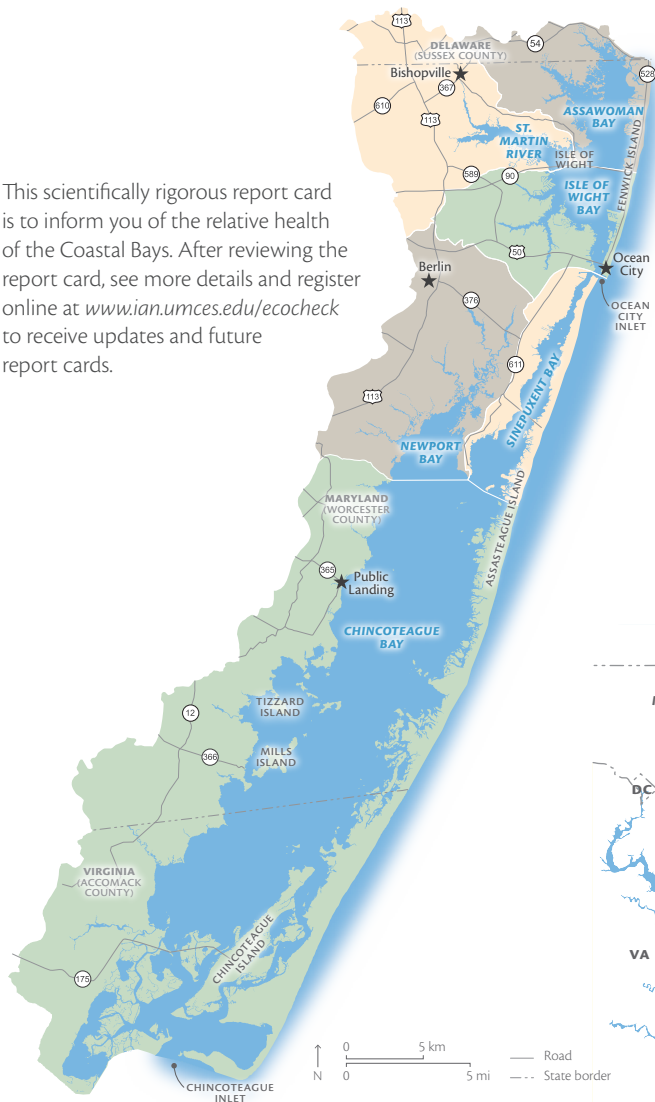
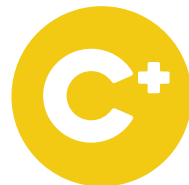


Coastal Bays REPORT CARD 2015

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.



Clam improvements offset seagrass loss

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

Seagrasses suffered major declines in 2015

Seagrass acreage decreased from 2014, with little to no bay grass documented above Ocean City Inlet. The 2015 abundance was better than 2013 (the lowest seagrass acreage in two decades) but elevated nutrients, high water temperatures, and prolific macroalgae (seaweeds) limited recovery. Water temperatures in some areas exceeded the seagrass temperature threshold of 30°C (86°F) over 600 hours (nearly 25 days) during the growing season.

Sinepuxent Bay seagrass acreage was equal to 2014, however Chincoteague Bay lost 1,000 acres. Chincoteague Bay has lost nearly 9,000 acres of seagrass since 2001 (55% of its 2001 acreage), thus a decreased report card score from a B- to a C+.

Improvements seen in hard clams

Hard clam populations have been generally on the rise since the 2008 mechanical harvesting ban. Assawoman, Newport, and Chincoteague Bays were

still substantially below historic densities while Isle of Wight and Sinepuxent Bays are approaching historic benchmarks. Even St. Martin River had an increase in density near the mouth of the river. Despite slight increases recently, the Chincoteague Bay population continued to struggle (<20% of goal) due to poor recruitment.

Phosphorus degradation continues

The greatest concern for the bays' health is eutrophication resulting from high nutrient loading, especially phosphorus. Ninety-nine percent of sites do not meet the seagrass phosphorus threshold. Stricter requirements were established in 2016 to address this problem, by limiting the amount of phosphorus that can be applied to fields. High soil phosphorus is typically found on farms that have used biosolid waste or poultry litter as a crop nutrient over many years. This practice will be limited under the new requirements, but it will take time for reductions to be seen in bay phosphorus concentrations.

Indicators used in the report card

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2015 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>



The Coastal Bays report card



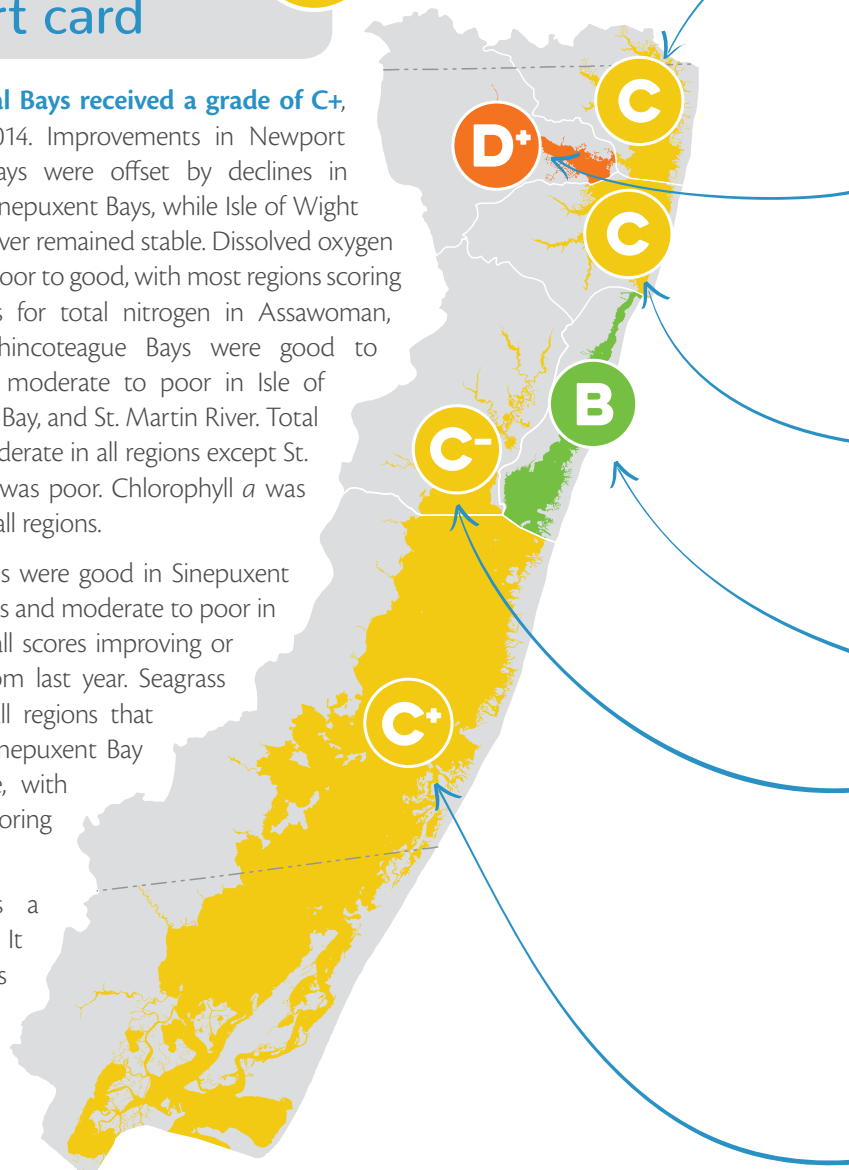
Overall, the Coastal Bays received a grade of C+, no change from 2014. Improvements in Newport and Assawoman Bays were offset by declines in Chincoteague and Sinepuxent Bays, while Isle of Wight Bay and St. Martin River remained stable. Dissolved oxygen scores ranged from poor to good, with most regions scoring as moderate. Scores for total nitrogen in Assawoman, Sinepuxent, and Chincoteague Bays were good to excellent, and were moderate to poor in Isle of Wight Bay, Newport Bay, and St. Martin River. Total phosphorus was moderate in all regions except St. Martin River, which was poor. Chlorophyll *a* was good to excellent in all regions.

Scores for hard clams were good in Sinepuxent and Isle of Wight Bays and moderate to poor in other regions, with all scores improving or remaining steady from last year. Seagrass scores declined in all regions that still have seagrass. Sinepuxent Bay scored as moderate, with the other regions scoring poor or very poor.

This assessment is a snapshot in time. It represents the status of water quality, seagrasses, and clams in 2015.

What do the scores mean?

- A
 80–100%
 very good
- B
 60–80%
 good
- C
 40–60%
 moderate
- D
 20–40%
 poor
- F
 0–20%
 very poor



Assawoman Bay received a grade of C, which was the same grade it received last year. Still placing fourth, Assawoman did show improvement from 2014 in dissolved oxygen, nitrogen, and hard clams. However, phosphorus and chlorophyll *a* became more degraded. Seagrasses remain absent. Dissolved oxygen, phosphorus, and hard clams scored as moderate while nitrogen and chlorophyll *a* were good to very good.

St. Martin River received a D+ grade. With the same grade as 2014, this region had lower scores for nitrogen, phosphorus, and chlorophyll *a* than any other region. St. Martin River again received the lowest grade of any reporting region in 2015. Most indicators scored poor or very poor, except chlorophyll *a* which was good and dissolved oxygen which was moderate. Seagrasses remain absent.

Isle of Wight Bay received a grade of C, unchanged from last year. Large improvements in dissolved oxygen and phosphorus were offset by declines in nitrogen and chlorophyll *a* scores. The small amount of remaining seagrass disappeared in 2015. Hard clams and chlorophyll *a* were good to very good, while dissolved oxygen, nitrogen, and phosphorus were moderate.

Sinepuxent Bay received a B grade and is still the highest-scoring region, but also showed the largest decline of ecosystem health of all regions. Nitrogen and chlorophyll *a* were both excellent, hard clams scored as good, while dissolved oxygen, phosphorus, and seagrasses were moderate.

Chincoteague Bay received a C+ grade, a decline from a B- last year. It was the only region to go down a grade. Dissolved oxygen and hard clams improved while the other indicators all declined. Dissolved oxygen, nitrogen, and chlorophyll *a* were good to very good, phosphorus was moderate, while seagrasses and hard clams were poor to 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. Some examples are below.

★ The [Town of Berlin](#) is constructing an offline wetland to improve water quality and help reduce flooding along Hudson Branch. In partnership with the community and several government agencies, this unique project, located on property donated by [Worcester County](#), is funded through a combination of [Maryland Department of Natural Resources](#) and [Community Development Block Grant](#) funds as well as in-kind services from Berlin.

★ Grant funding from the [Chesapeake Bay Trust](#) through the [Chesapeake Conservation Corps](#) (CCC) provided MCBP with Emma Rice who proved to be a fantastic temporary addition to our staff. She was a great contributor to our education and restoration efforts.

★ [Maryland farmers](#) planted a record-setting 492,244 acres of cover crops on their fields last fall as part of the Maryland Department of Agriculture's Cover Crop Program. Cover crops are widely recognized as one of the most economically and environmentally viable ways for farmers to meet nutrient and sediment reduction targets.

★ [Over 400 volunteers](#) spent more than 1500 hours completing work crucial to the health and monitoring of the Coastal Bays including plantings, trash cleanups, oyster gardening, terrapin and horseshoe crab surveys, and water quality monitoring. Thank you, we couldn't do it without you!

★ Environmental Protection Agency and Maryland Department of the Environment grant funding has allowed [Worcester County](#) to begin developing a watershed plan that will reduce nutrients to sustainable levels. The [Center for Watershed Protection](#) has been hired to identify existing Best Management Practices to meet Total Maximum Daily Load limits and create a tracking tool. The target completion date for the plan is December 2016.

★ MCBP has partnered with [Worcester County Parks & Recreation](#) to plan for a future that manages Greys Creek Nature Park and Illia Fehrer Nature Preserve in ways that are beneficial to both our bays and local residents.



AMANDA POSKAITIS

CCC volunteer Emma Rice led the planting of native trees, removal of invasive plants, and many other activities.



ROMAN JESSEN

Maryland farmers planted a record number of cover crops, protecting the health of our bays.



AMANDA POSKAITIS

Locals from the Greys Creek Nature Park area met with MCBP and Worcester County to help plan for the park's future.

Bishopville Dam project a success

Monitoring revealed that alewife, white perch, and gizzard shad successfully navigated the newly constructed Bishopville Stream Restoration Project. It consists of a series of shallow cobble ramps and pools that give fish access to upstream spawning areas in the upper St. Martin River. These are anadromous fish species that live in salt water but require freshwater to reproduce. They were able to pass into the freshwater portion of the river for the first time since 1959 through the innovative structure that is a first of its kind in Maryland. The passageway was designed and built by Underwood and Associates. It replaced the aged dam at Bishopville yet maintained the treasured mill pond. The project, funded by Maryland Department of Natural Resources, US Fish and Wildlife Service, and Maryland Coastal Bays Program was largely completed in winter 2014 so spring 2015 was the first season that the upper river was open to spawning fish.

1 alewife



36 gizzard shad



39 white perch



This figure shows numbers of anadromous fish that were observed to successfully navigate their way past the Bishopville Stream Restoration site in spring 2015. Prior to restoration, the dam blocked these fish from their historical upstream spawning areas.

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 August 2016 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.

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.

This publication was developed under Cooperative Agreement CE-9863209-12 awarded by the U.S. EPA to Maryland Coastal Bays Program. It has not been formally reviewed by EPA. The views expressed in this document are solely those of the authors and do not necessarily reflect those of the Agency.

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