

## 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.

★ **Worcester County** remains committed to sound land use practices that preserve sensitive areas and prime agricultural land while steering new development towards existing infrastructure. Additionally, the Board of Education has incorporated environmental education efforts into the classroom for all grade levels.

★ The **Town of Berlin** has embraced the "Grow Berlin Green" initiative by supporting community clean-ups, rain gardens, and energy conservation projects. Recently, 18 tons of household garbage and furniture was removed from Hudson Branch.

★ The **Town of Ocean City** has institutionalized a program to assist homeowners and businesses to reduce nutrient and sediment loading into the bays through grants for pervious pavers, rain barrels, and marsh & dune plantings.

★ **Local residents and visitors** have supported environmental initiatives by volunteering more than 2,500 hours last year to count horseshoe crabs & birds, collect water samples, search for reptiles & amphibians, clean neighborhoods, wetlands, & dunes of trash, and many other activities.

★ **Maryland Departments of Agriculture & the Environment** and the **USDA Natural Resources Conservation Service** provided the expertise to restore 90 acres of forests and wetlands in Showell. This same area was also the focus of the Comcast Cares Earth Day clean-up, where more than five tons of garbage were collected for proper disposal.

★ The **Maryland Department of Natural Resources** continues to work with interested land owners to preserve land in the Coastal Bays watershed. In 2009, the department protected over 400 acres of farms and forests while restoring hundreds of additional acres with natural shoreline and marsh ditch plugging projects.

**Note:** This project is partially funded through the generous support of the Anderson-Rogers Foundation.



CAROL CAIN

Hundreds of volunteers assist MCBP throughout the year by tagging horseshoe crabs, searching for reptiles and amphibians, counting birds, and cleaning up our community.



MORGAN KALMEYER

Community enthusiasm earned MCBP the coveted first-place trophy in the Ocean City St. Patrick's Day Parade in 2009.



JIM RAPP

Harbor seals rest and sun themselves on bay islands—a critical habitat for many species.

## Your homework: What you can do

- Plant a rain garden ([www.co.worcester.md.us](http://www.co.worcester.md.us)).
- Install a rain barrel ([www.epa.gov](http://www.epa.gov)).
- Use a programmable thermostat.
- Buy energy-efficient light bulbs.
- Plant a tree ([www.trees.maryland.gov](http://www.trees.maryland.gov)).
- Hold a neighborhood clean-up.
- Reuse, renew, recycle.
- Donate unwanted items.
- Use reusable cloth shopping bags instead of plastic bags when you shop.
- Become a Maryland Coastal Bays Program member ([www.mdcoastalbays.org](http://www.mdcoastalbays.org)).
- Work with government and community groups on restoration projects and programs.
- Be a watchdog.
- Convince business owners to use best management practices.



ROMAN JESEN

A 90-acre parcel in Showell, MD has been restored to natural conditions with the restoration of wetlands and native tree plantings.

## 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

Report card produced and released in June 2010 by the Integration and Application Network at the University of Maryland Center for Environmental Science, EcoCheck (NOAA-UMCES Partnership), and the Maryland Coastal Bays Program.



[www.ian.umces.edu](http://www.ian.umces.edu)

[www.eco-check.org](http://www.eco-check.org)

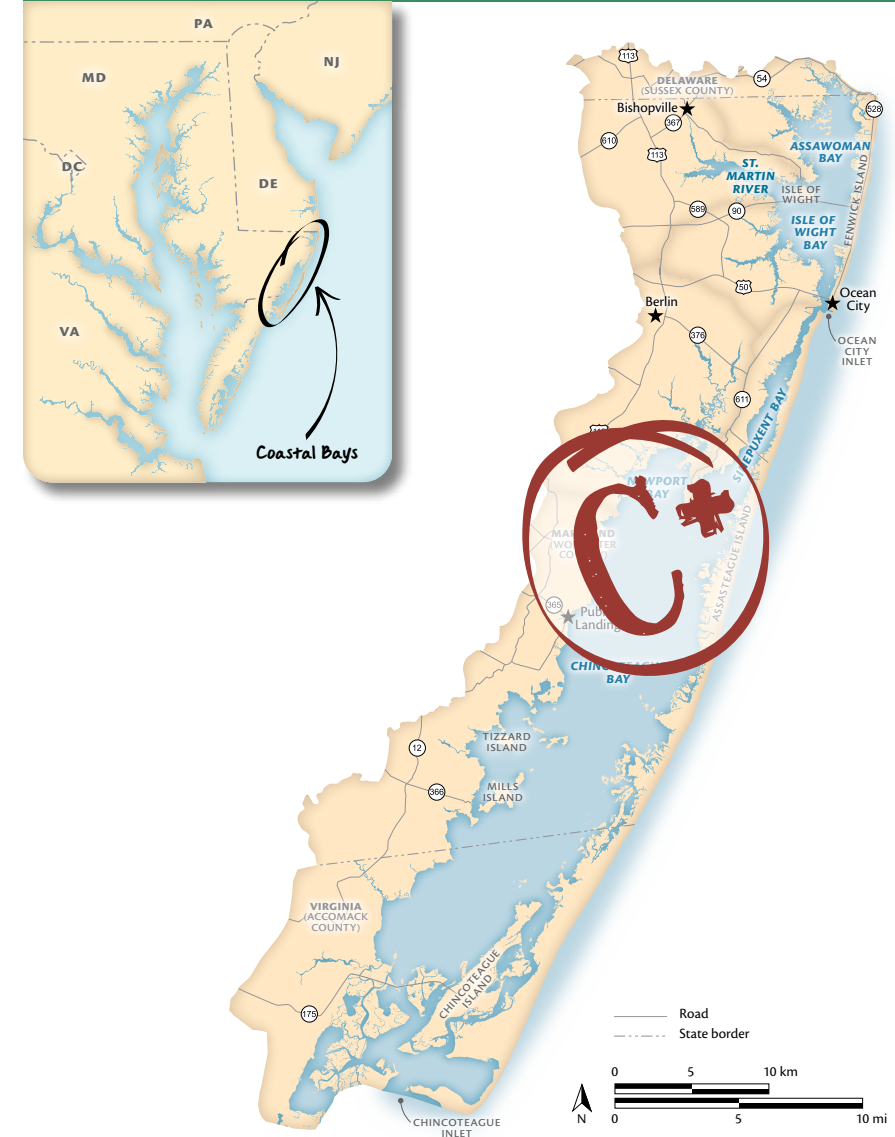
[www.cbtrust.org](http://www.cbtrust.org)

[www.nps.gov](http://www.nps.gov)

[www.dnr.state.md.us](http://www.dnr.state.md.us)

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. Detailed methods are available at [www.eco-check.org/reportcard/mcb/2009](http://www.eco-check.org/reportcard/mcb/2009). 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.

# Coastal Bays REPORT CARD 2009



This scientifically rigorous report card is to inform you of the relative health of the Coastal Bays. After reviewing the report card, register online ([www.eco-check.org](http://www.eco-check.org)) to receive updates and future report cards.

## 2009 at a glance

### Coastal Bays health was similar to 2008

The overall score for the Coastal Bays was a C+ in 2009. While the northern bays and western tributaries continue to struggle, there are signs of improvement in some areas. However, the southern bays—historically the more pristine of the Coastal Bays—are showing signs of degradation.

### Seagrass area increased significantly in 2009

Underwater seagrass abundance increased by 25% last year, driven mainly by increases in Chincoteague Bay. Acreages in Assawoman and Isle of Wight Bays were high for their regions. Although seagrasses continued to recover from a dramatic loss in 2005, only 50% of the seagrass goal was reached, indicating there is still work to be done to restore this vital habitat. Boaters should be careful to avoid damaging seagrass beds while boating around Ocean City.

### Shifting water quality

Although water quality did not change considerably from the 2008 report card, long-term data show significant trends are occurring. Improving nitrogen and phosphorus trends have been observed in Kitts Branch and Trappe Creek as a result of removing direct discharge from the Berlin area (Berlin wastewater treatment plant and the Tyson chicken processing plant). However, Chincoteague Bay water quality continues to decline. Nutrients in Chincoteague are from widespread sources such as septic tanks, runoff from land (e.g., fertilizers), ditches, groundwater, atmosphere (e.g., rainfall), and bay sources (sediments and inputs from Newport Bay) which means it will take longer to see results of management actions.

### Shellfish were a mixed bag

Clam densities were up in Assawoman, Isle of Wight, and Sinepuxent Bays in 2009. In contrast, clam numbers were only half the 13-year DNR average in Newport and Chincoteague Bays. Relative to historic bay levels, clam levels were lowest in the Maryland portion of Chincoteague Bay. In addition, scallops have not been found in Chincoteague Bay since 2005—likely the result of annual brown tide blooms.

### Indicators used in the report card

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2009 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 overarching Coastal Bays Health Index, which is presented as the report card score. Detailed methods available at [www.eco-check.org/reportcard/mcb/2009](http://www.eco-check.org/reportcard/mcb/2009).

**TN** Total nitrogen

**TP** Total phosphorus

**Chl-*a*** Chlorophyll *a*

**O<sub>2</sub>** Dissolved oxygen

**Seagrasses**

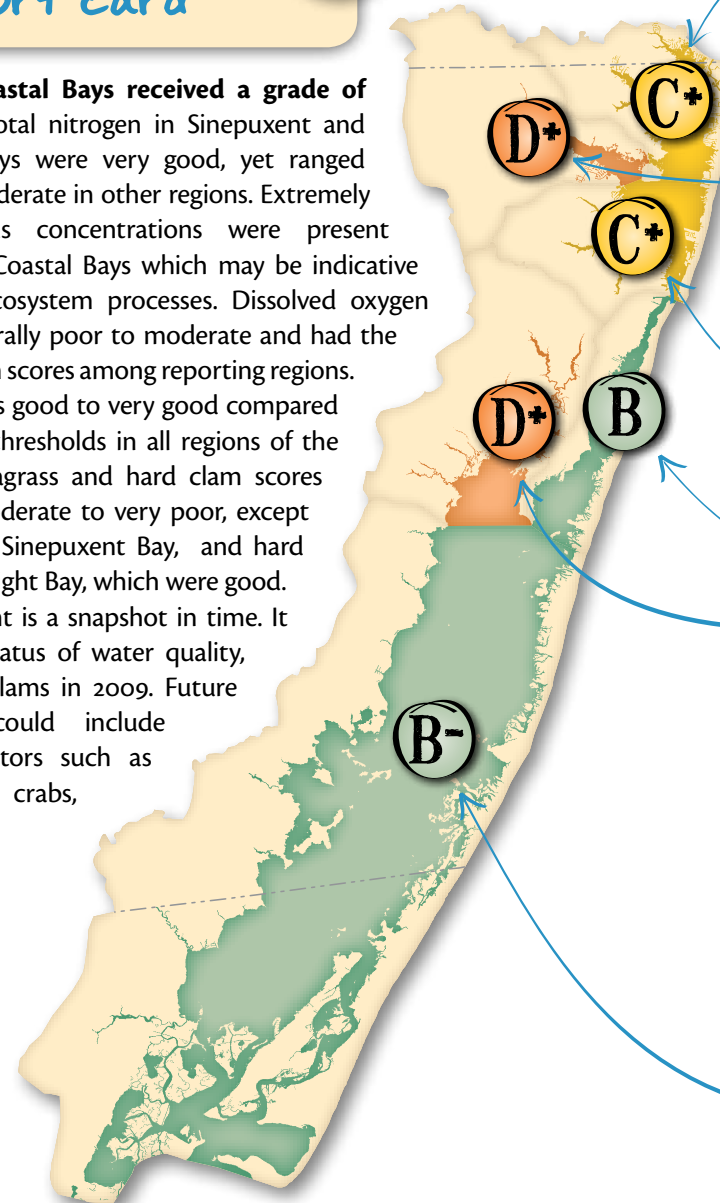
**Hard clams**

## The Coastal Bays report card

**C+**

Overall, the Coastal Bays received a grade of C+. Scores for total nitrogen in Sinepuxent and Chincoteague Bays were very good, yet ranged from poor to moderate in other regions. Extremely high phosphorus concentrations were present throughout the Coastal Bays which may be indicative of changes in ecosystem processes. Dissolved oxygen scores were generally poor to moderate and had the least separation in scores among reporting regions. Chlorophyll *a* was good to very good compared to health-based thresholds in all regions of the Coastal Bays. Seagrass and hard clam scores tended to be moderate to very poor, except for seagrasses in Sinepuxent Bay, and hard clams in Isle of Wight Bay, which were good.

This assessment is a snapshot in time. It represents the status of water quality, seagrasses, and clams in 2009. Future report cards could include additional indicators such as brown tide, blue crabs, and fisheries.



**Assawoman Bay** received a grade of C+. This region saw improvements in seagrasses, and moderate water quality related to dissolved oxygen and total nitrogen. Chlorophyll *a* was very good and hard clams were poor in this region. The grade of this region improved slightly from a C in 2008.

**St. Martin River** received a D+ grade. This region had lower scores than any other region for seagrasses and nutrients, ranging from poor to very poor. The dissolved oxygen score was moderate, and chlorophyll *a* was good. Despite a lack of data on hard clams this year, the overall score increased slightly from 2008.

**Isle of Wight Bay** received a grade of C+. Isle of Wight Bay received the third-highest grade of all the reporting regions. Hard clams improved from poor in 2008 to a good score in 2009. Seagrasses were poor, but the water quality indicators ranged from moderate to very good. The overall score increased slightly from 2008.

**Newport Bay** received a grade of D+. This region received the worst grade of any reporting region in 2009. Hard clams and seagrasses were very poor, while dissolved oxygen and nutrients were moderate. Scores in this region were very similar to those in the St. Martin River, likely because both regions are heavily influenced by upland runoff.

**Sinepuxent Bay** received a B grade. This reporting region had the highest grade of all the regions, yet it comprises only about 5% of the area of the entire Coastal Bays system and therefore had a small impact on the overall grade. Seagrasses and total nitrogen scored higher in this region than in any other, and chlorophyll *a* was also very good. In contrast, dissolved oxygen dropped from good in 2008 to poor in 2009. Hard clams were also poor, but were the second highest score of any region for this indicator.

**Chincoteague Bay** received a B- grade. This region received the second highest score of all the regions. It is the largest of the six reporting regions, comprising about 64% of the total Coastal Bays area. Because the overall grade for the Coastal Bays is area-weighted, this region had the largest influence. Most indicators were generally very good to moderate in 2009, except hard clams, which were very poor. Similar to Sinepuxent Bay, a marked decrease in dissolved oxygen from 2008 to 2009 was seen.

### Coastal Bays Health Index

**A**  
80-100%  
very good

**B**  
60-80%  
good

**C**  
40-60%  
moderate

**D**  
20-40%  
poor

**F**  
0-20%  
very poor