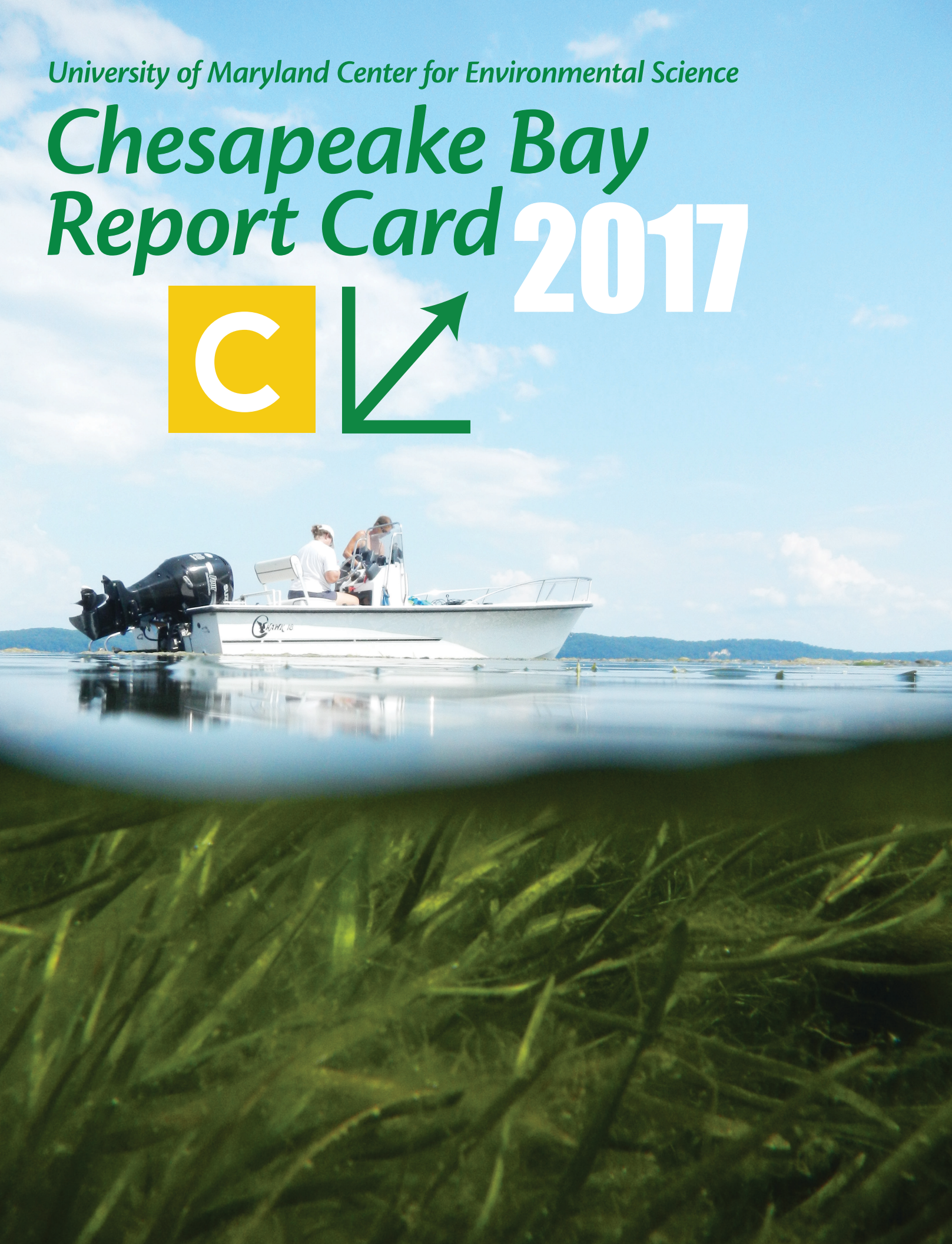


University of Maryland Center for Environmental Science

Chesapeake Bay Report Card 2017

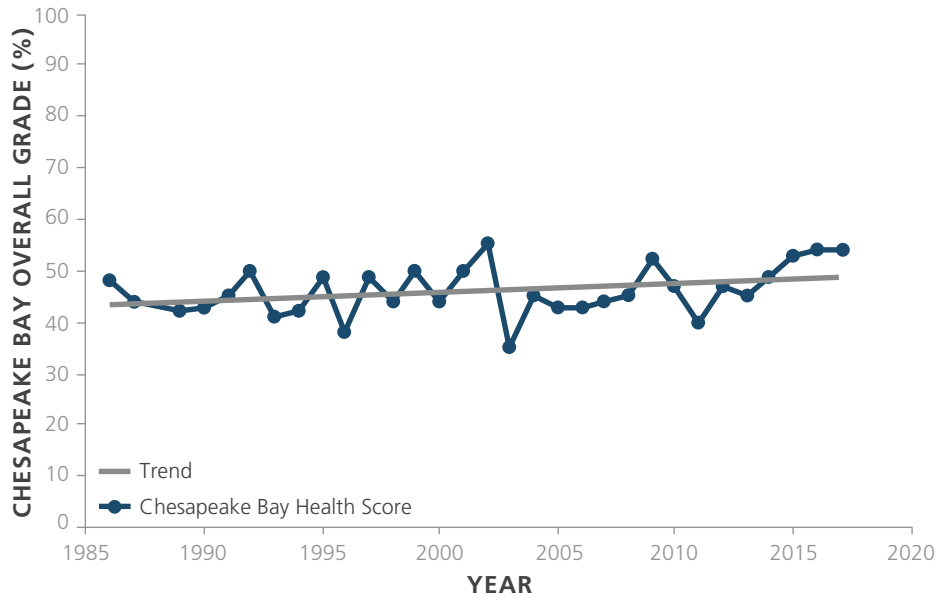


Bay health is significantly improving

In past report card years, specific regions throughout Chesapeake Bay have shown improving trends, but this is the first year that the overall Chesapeake Bay is showing significant improvement.

Overall Chesapeake Bay Health Scores have been variable in the past. However, since 2015, Chesapeake Bay Health Scores have consistently been in the high C range (53, 54, 54). These consecutive high scores have contributed to an overall positive trajectory for the first time.

This positive trend is evidence that Chesapeake Bay restoration efforts are having an impact on improving conditions in the Chesapeake Bay.



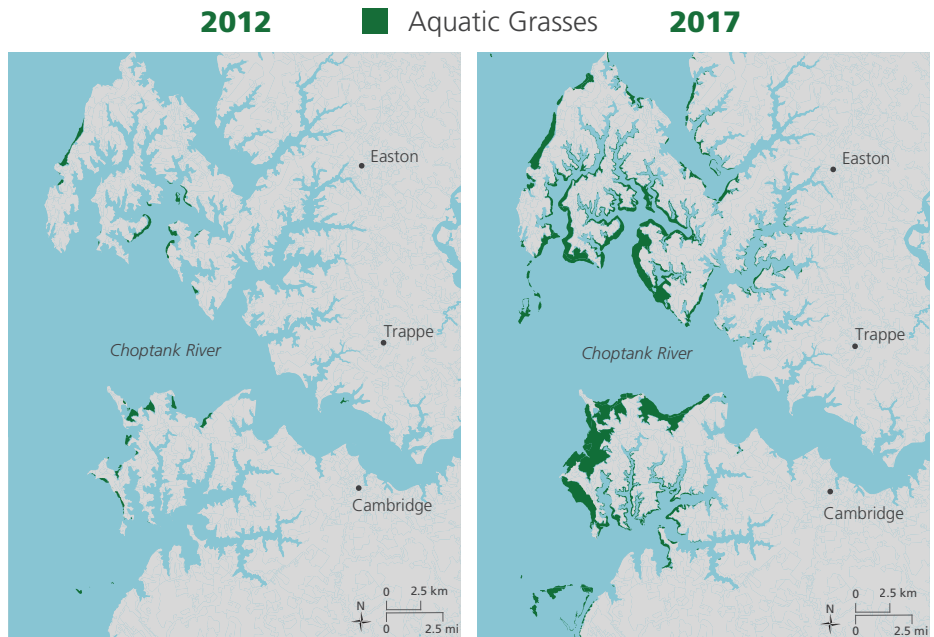
Overall Chesapeake Bay health is showing a significantly improving trend.

Aquatic grass recovery linked to nutrient reductions

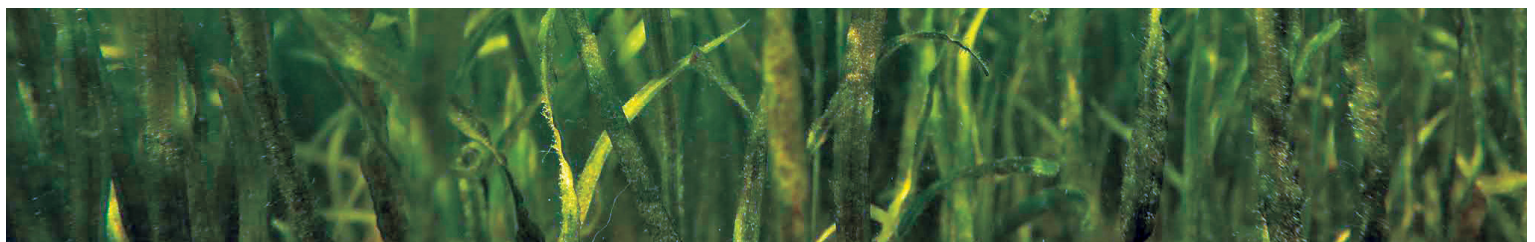
In 2017, aquatic grasses, also called submerged aquatic vegetation (SAV), had the best score ever for the overall Bay. Aquatic grasses scored 44%, a moderate score. This is a 5% increase from the 2016 score, and a 32% improvement from the 1986 score of only 12%.

Aquatic grasses are one of the most important habitats in Chesapeake Bay. They provide nursery habitat to key species such as blue crab and striped bass.

A scientific article titled: *Long-term nutrient reductions lead to the unprecedented recovery of a temperate coastal region* was published in the Proceedings of the National Academy of Science in March 2018. This paper shows that reductions in discharges of nitrogen, phosphorus, and other pollutants have led to the largest resurgence of underwater grasses ever recorded anywhere.

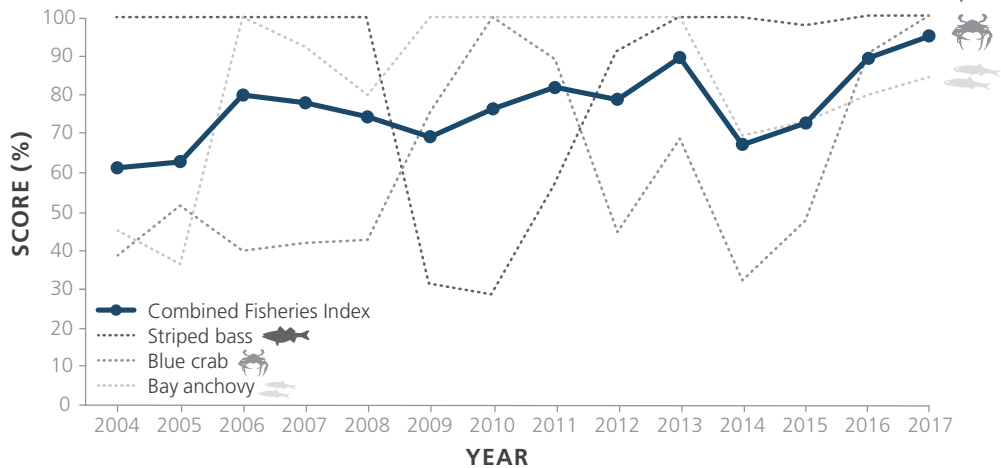


SAV around the mouth of the Choptank River has grown substantially in the last 5 years. Data courtesy of the Virginia Institute of Marine Science. Photo below of aquatic vegetation at Susquehanna Flats by Chesapeake Bay Program.



Healthy fish populations in the Bay

Health of Fisheries, 2004–2017



In 2017 the Fisheries Index scored 95%, an increase from last year's 90%. Fisheries are highly variable over time, but even so, this is the best score ever recorded. The Fisheries Index is an average of three important species scores. Striped bass, bay anchovy, and blue crab are ecologically, economically, and socially important fish species in Chesapeake Bay. Striped bass held steady with a 100% score, while both blue crab and bay anchovy improved. Blue crab scored a 100% and bay anchovy scored an 84%.

Three indicators of fisheries health showed further score improvements in 2017.



A healthy striped bass is held by a recreational fisherman (left). A bushel of Chesapeake Bay blue crabs is harvested at the Honga River in Somerset County, MD (right). Left photo by Dylan Taillie, right photo by Chesapeake Bay Program.

What's next for the Chesapeake Bay Report Card?

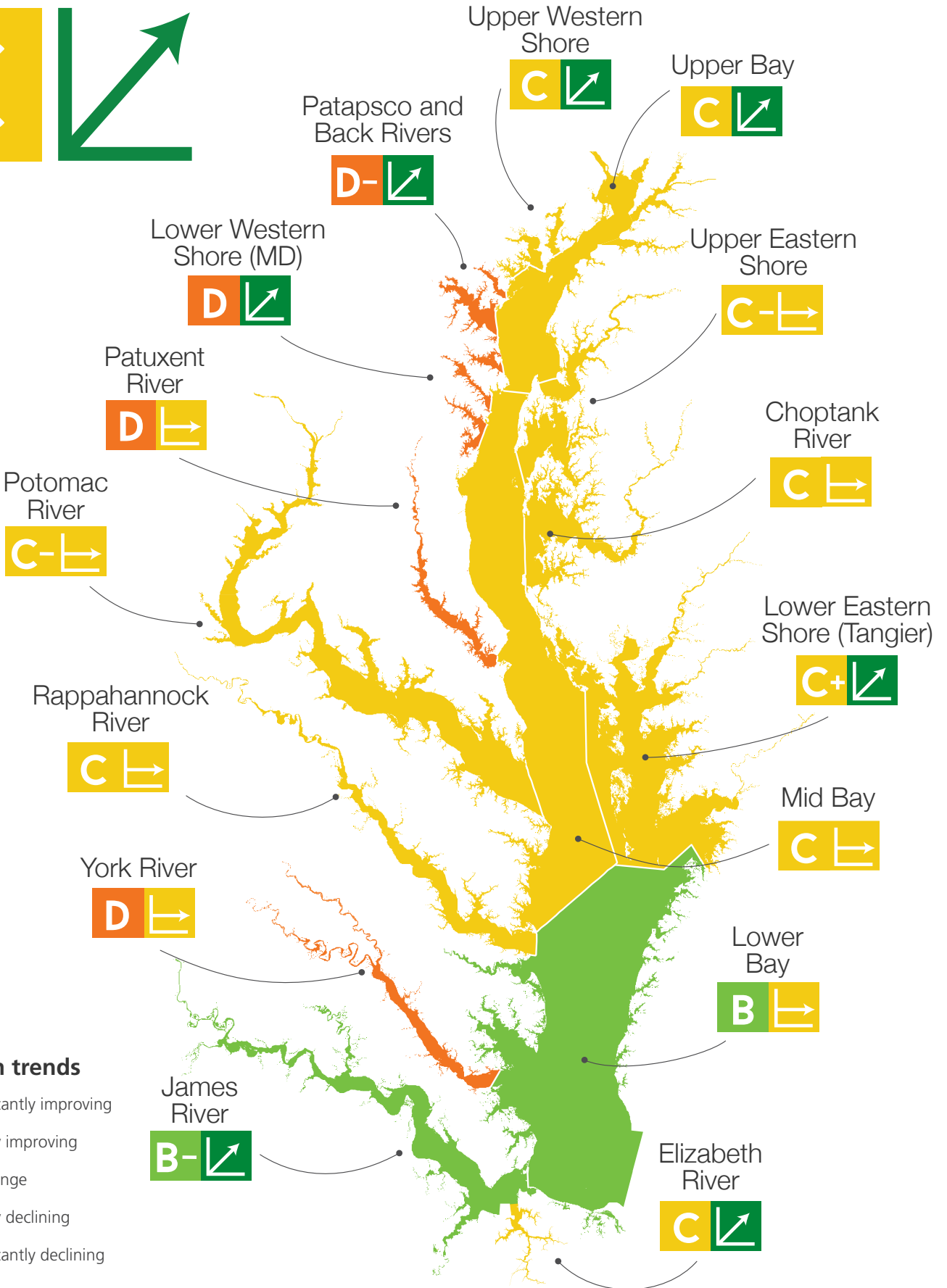
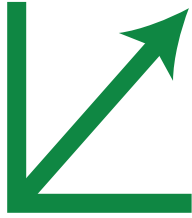
With support from National Fish and Wildlife Foundation, UMCES will be improving the Chesapeake Bay Report Card through stakeholder engagement and report card revisions over the next several years. This process will incorporate new indicators for Chesapeake Bay health. An exciting part of this project will be the inclusion of watershed indicators.

The new indicators are planned to reflect goals for sustainable fisheries, healthy watersheds, and engaged communities outlined in the Chesapeake Bay Agreement. By using a stakeholder-centered approach, collaborations with federal, state and local government agencies, non-profit organizations, private industries and other academic institutions will allow for a stronger report card. This process will improve our understanding of how ecosystem health interacts with social and economic health throughout the Chesapeake watershed.



The total area of the Chesapeake Bay watershed will be included with the addition of watershed indicators in the new report card.

2017 Chesapeake Bay Report Card

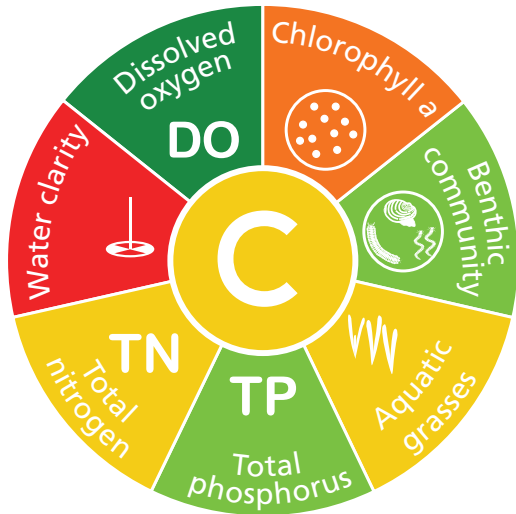


Bay Health trends

-  Significantly improving
-  Slightly improving
-  No change
-  Slightly declining
-  Significantly declining

For more information about your region, visit chesapeakebay.ecoreportcard.org

Bay health is moderate overall



Bay Health scale



The overall score for the Chesapeake Bay Health Index for 2017 was 54%, the same score as 2016. Bay-wide, dissolved oxygen continued to be the best scoring indicator with an 89% in 2017, an A. Aquatic grasses scored a C- (44%), improved from last year's D+ (39%). Water clarity scored an F (17%), a decrease from last year's D- (24%). Benthic community in the bay improved from a C (54%) to a B- (60%). Total nitrogen scored C+ (59%), an improvement from last year's C+ (55%). Total phosphorus scored B+ (76%), declining from an A- (82%) in 2016. Chlorophyll a scored D+ (35%), the same as last year.

Total phosphorus, total nitrogen, dissolved oxygen, and aquatic grasses are showing positive and significant improvements. These improvements are encouraging for water quality, and have positive impacts on the ecosystem. Water clarity and chlorophyll a have significantly declining trends. Benthic community shows no significant change in health over time.

There are seven indicators that make up the Bay Health Index for the Chesapeake Bay Report Card. Each indicator is compared to scientifically derived thresholds or goals and scored to determine the overall grade.

Where we are seeing improvements

Elizabeth River

2017 Score: C ↗

The Elizabeth River improved from a D to a C in 2017, making this the highest score it has ever received. There were improvements in total nitrogen, chlorophyll a, and dissolved oxygen. Over time, this region has a significantly improving trend.



Marshland at Paradise Creek Nature Park along the Elizabeth River in Portsmouth, VA. Photo by Chesapeake Bay Program.

James River

2017 Score: B- ↗

The James River improved from a C+ to a B- in 2017. There were improvements in aquatic grasses, water clarity, and total phosphorus. Over time, this region has a significantly improving trend.

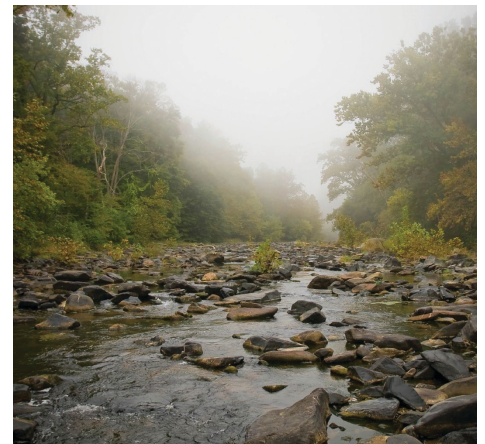


A shoreline along the banks of the James River at Presquile National Wildlife Refuge. Photo by USFWS.

Upper Western Shore

2017 Score: C ↗

The Upper Western Shore improved from a C- to a C in 2017. There were improvements in total nitrogen, total phosphorus, and benthic community. Over time, this region has a significantly improving trend.



The Gunpowder River, part of the Upper Western Shore region. 'Gunpowder River' by Phil Romans used under CC BY.

What you can do

...as a citizen



Donate your time or money to help with restoration efforts. Plant a tree or help organize a tree planting.



...as a community member



Talk to others about the Bay! Work with non-profits, students and organizers to communicate with others about the Bay.



...as a policy maker



Support science-based decisions and restoration efforts. Make decisions based on the best available science and fund programs that support science-based efforts.

Engaging with your community about Bay issues helps the Chesapeake Bay. Photos by Chesapeake Bay Program.

Tracking dolphins in Chesapeake Bay waters



Bottlenose dolphins off Ragged Point.

Chesapeake DolphinWatch, an online tool created by University of Maryland Center for Environmental Science researcher Dr. Helen Bailey and her team, uses crowd-sourced, citizen science data to monitor bottlenose dolphins in the Bay. After one month, about 700 dolphin sightings were reported using the app. This data helps researchers understand when, where, and why dolphins visit Chesapeake Bay waters. To report dolphin sightings or learn more, visit: chesapeakebayedolphinwatch.org. Photo by Tania Richardson Remaly.

About the Chesapeake Bay Report Card

Report card produced and released in June 2018 by the Integration & Application Network, University of Maryland Center for Environmental Science. The data and methods underpinning this report card represent the collective effort of many individuals and organizations working within the Chesapeake Bay scientific and management community. The following organizations contributed significantly to the development of the report card: Chesapeake Bay Program, University of Maryland Center for Environmental Science, National Oceanic and Atmospheric Administration, Maryland Department of Natural Resources, Virginia Department of Environmental Quality, Virginia Institute of Marine Science, Versar Incorporated, U.S. Environmental Protection Agency, Maryland Department of the Environment, Interstate Commission on the Potomac River Basin, Old Dominion University, Morgan State University, and U.S. Geological Survey. Cover photo by Cassie Gurbisz.



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INTEGRATION AND APPLICATION NETWORK

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