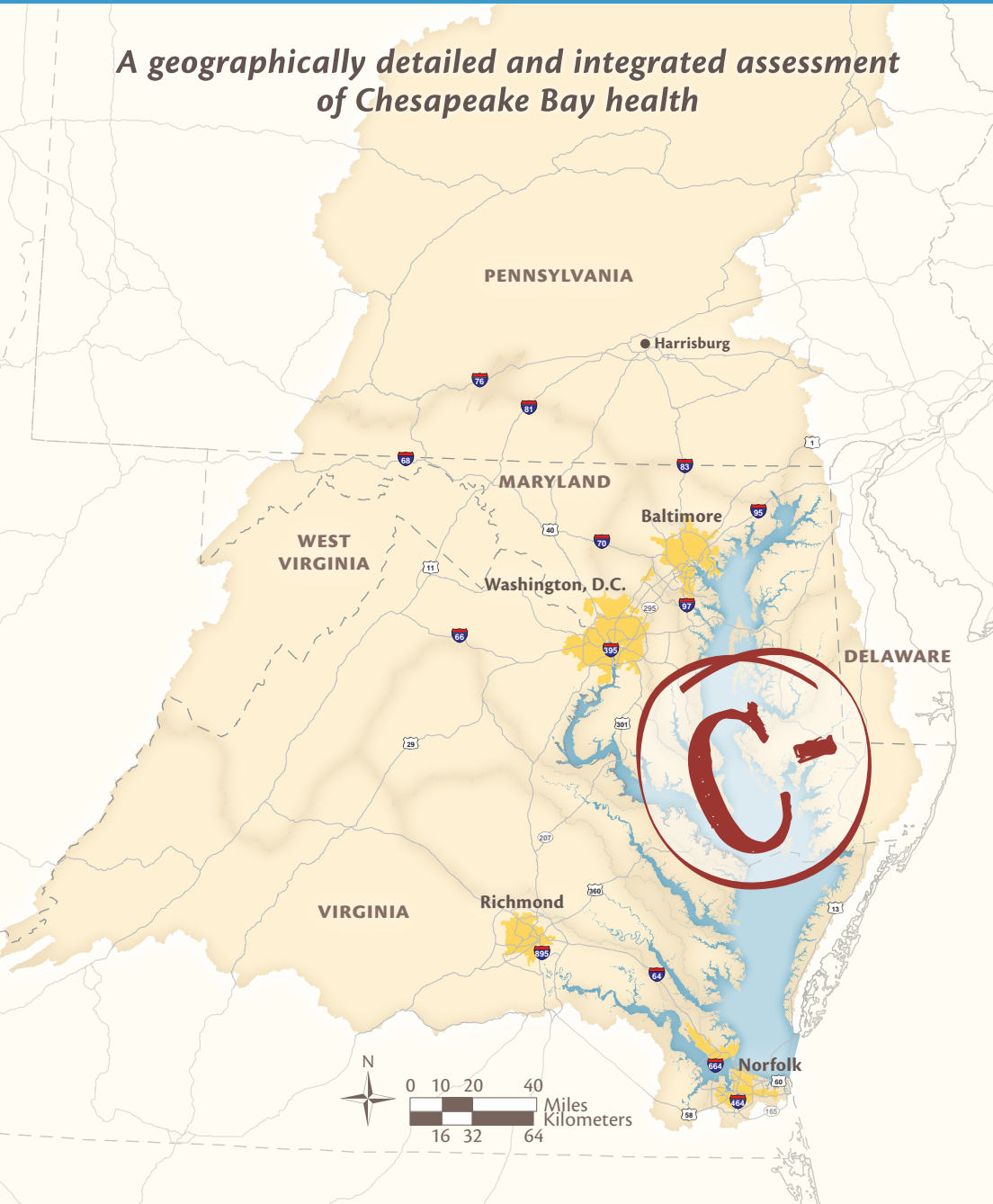


# Chesapeake Bay REPORT CARD 2008

*A geographically detailed and integrated assessment  
of Chesapeake Bay health*

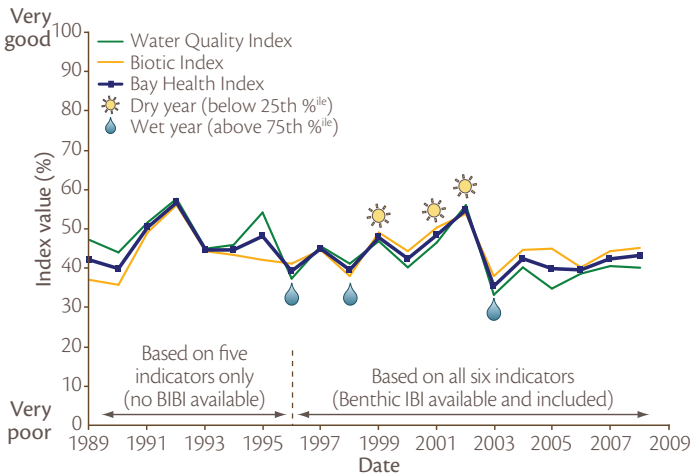


# 2008 Chesapeake Bay health remains poor

The overall health of Chesapeake Bay, assessed using water quality and biotic indicators, was poor in 2008, obtaining a grade of C-. As to be expected, health of the 15 individual reporting regions varied, ranging from B- (moderate–good) to F (very poor). The highest ranked region, for the second year in a row, was the Upper Western Shore, while the lowest ranked region this year was the Lower Western Shore (MD).

## Little recovery after the impact of wet conditions in 2003

Chesapeake Bay health declined significantly in 2003 due to wet conditions washing excess sediment and nutrients into the Bay. Since this rapid decline, the Bay-wide health score has only modestly improved, increasing from 36% in 2003 to 43% in 2008—still much lower than the 55% the Bay scored in 2002, before the wet conditions.



## Some regions improving, some worsening

While overall Bay health has remained poor, and relatively unchanged in recent years, some individual regions have either improved or worsened. The Upper Bay is a good example of a region showing improvements over the last 20 years, largely due to a resurgence of aquatic grasses. In comparison, the health of the Upper Eastern Shore has deteriorated greatly in the last four years, with a decline in aquatic grasses and benthic community condition. Loss of aquatic grasses in this region is perplexing considering the rapid resurgence in aquatic grasses observed in nearby regions.

## Aquatic grasses continue to recover

Underwater aquatic grasses, which are a vital habitat for crabs and many fish, continued to recover in many regions of the Bay in 2008. While still well below the restoration goal, this improvement is encouraging after recent significant losses in 2006. In the Upper Bay, this increase is primarily the result of continued expansion of freshwater grasses. In the Mid Bay, Lower Bay, and Lower Eastern Shore (Tangier) regions this is due to an expansion of eelgrass and/or widgeon grass. Unfortunately, the situation is the opposite in some areas, such as the Choptank River and the lower Potomac River, where aquatic grasses have been declining.

# Western shore tributaries

## Upper Western Shore

(B-)

### **Moderate-good ecosystem health—highest ranked region.**

Large improvement in benthic (bottom-dwelling) community condition and aquatic grasses in the past two years.

## Patapsco and Back Rivers

(D-)

**Poor ecosystem health.** Water quality scores over the past 20 years have been consistently poor, showing no signs of improving.

## Lower Western Shore (MD)

(F)

### **Poor ecosystem health—lowest ranked region in the Bay.**

Benthic community condition has worsened over the past 15 years. Water clarity and chlorophyll *a* scores have remained poor.

## Patuxent River

(D-)

**Very poor ecosystem health.** Most health indicators remained consistently poor over the past 20 years. Benthic community condition has declined in the 2000s compared to the late 1990s.

## Potomac River

(C-)

**Moderate-poor ecosystem health.** Highest score in the past five years due to improved water clarity and phytoplankton and benthic community condition.

## Rappahannock River

(C-)

**Moderate-poor ecosystem health.** Best water clarity score in ten years. Aquatic grasses rapidly recovering after major loss in 2003.

## York River

(D)

**Poor ecosystem health.** Health getting worse over the past five years, largely due to an overall decline of aquatic grasses and phytoplankton community condition.

## James River

(C)

**Moderate ecosystem health.** Aquatic grasses continue to improve, with the highest score recorded in 15 years. In contrast, benthic community condition has declined over the past four years.

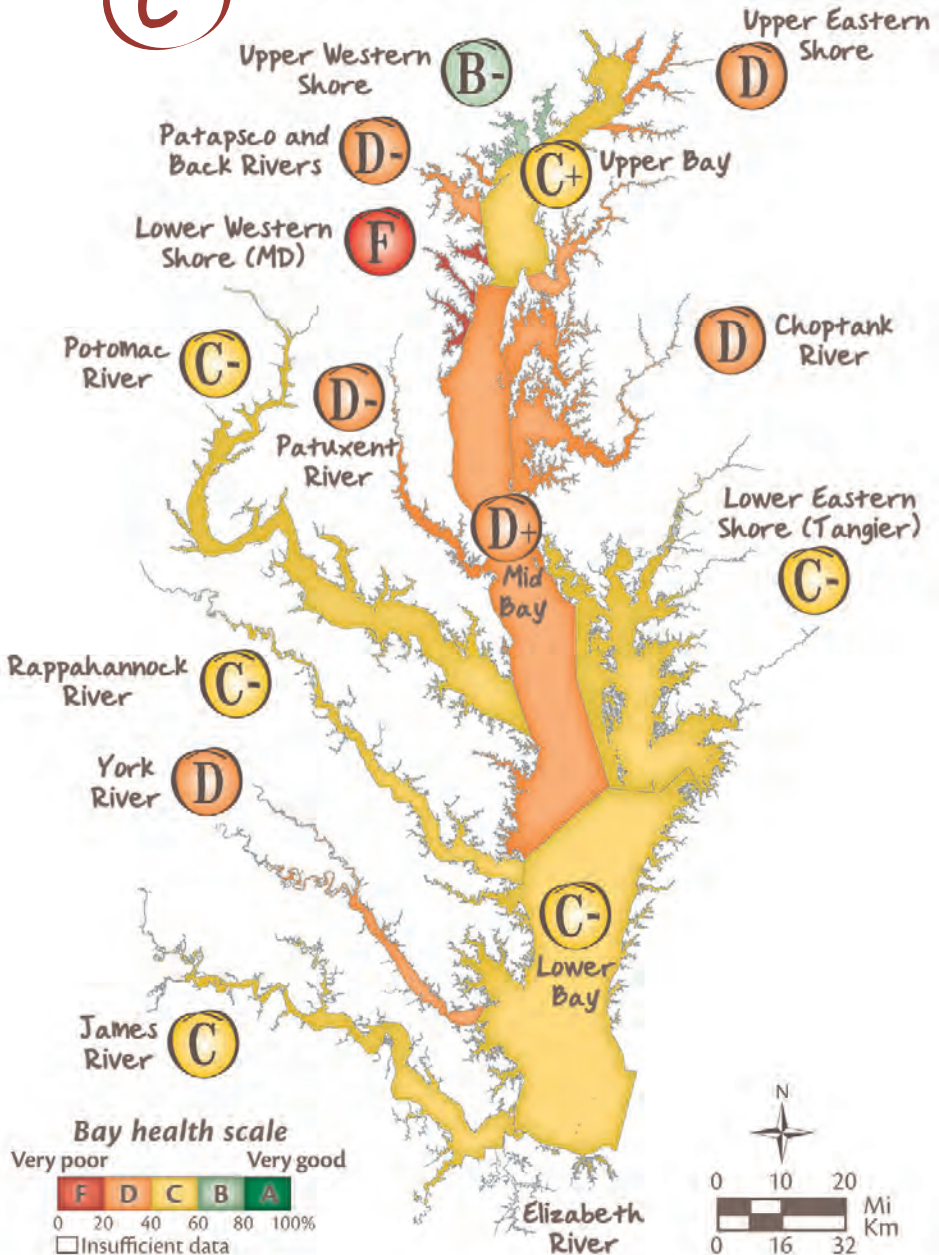
## Elizabeth River

**Incomplete assessment.** Water quality score over the past 20 years has been consistently poor, showing no signs of improving.

# CHESAPEAKE BAY 2008 REPORT CARD

Overall score:

**C-**



# Eastern shore tributaries and mainstem Bay

## Upper Eastern Shore

D

**Poor ecosystem health—lowest score in 17 years.** Recent decline in health due to loss of aquatic grasses and declining benthic community condition.

## Upper Bay

C+

**Moderate ecosystem health.** Health improved significantly in the past five years, with rapid increase in aquatic grasses, phytoplankton community condition, and water clarity scores.

## Choptank River

D

**Poor ecosystem health.** Aquatic grasses have rapidly declined in recent years, from 3,900 hectares in 2002 to 218 hectares in 2008.

## Mid Bay

D-

**Poor ecosystem health.** Gradually recovering from impact of wet conditions in 2003. Recovery mostly due to a healthier phytoplankton community, but overall health is still degraded.

## Lower Eastern Shore (Tangier)

C-

**Moderate-poor ecosystem health.** Best water clarity score in over 20 years of monitoring, but still degraded. Small recovery of aquatic grasses after losses in 2003 and 2006.

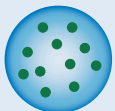
## Lower Bay

C-

**Moderate-poor ecosystem health.** Few signs of improving health after significant decline due to wet conditions in 2003.

## Indicators used in the report card

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2008 Chesapeake Bay health. Chesapeake Bay health is defined as the progress of **three water quality indicators** (chlorophyll *a*, dissolved oxygen, and water clarity) and **three biotic indicators** (aquatic grasses, phytoplankton community, and benthic community) toward scientifically derived ecological thresholds or goals. The six indicators are combined into one overarching Bay Health Index, which is presented as the report card score. Detailed methods available at [www.eco-check.org/reportcard/chesapeake/](http://www.eco-check.org/reportcard/chesapeake/).



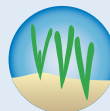
Chlorophyll *a*



Dissolved oxygen



Water clarity



Aquatic grasses



Phytoplankton community



Benthic community

## What do the grades mean?



All water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be very good, most often leading to very good habitat conditions for fish and shellfish.



Most water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be good, often leading to good habitat conditions for fish and shellfish.



There is a mix of good and poor levels of water quality and biological health indicators. Quality of water in these locations tends to be fair, leading to fair habitat conditions for fish and shellfish.



Some or few water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be poor, often leading to poor habitat conditions for fish and shellfish.



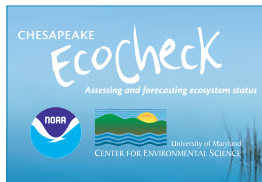
Very few or no water quality and biological health indicators meet desired levels. Quality of water in these locations tends to be very poor, most often leading to very poor habitat conditions for fish and shellfish.

## ACKNOWLEDGEMENTS

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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, us Environmental Protection Agency, Maryland Department of the Environment, Interstate Commission on the Potomac River Basin, Old Dominion University, and Morgan State University.