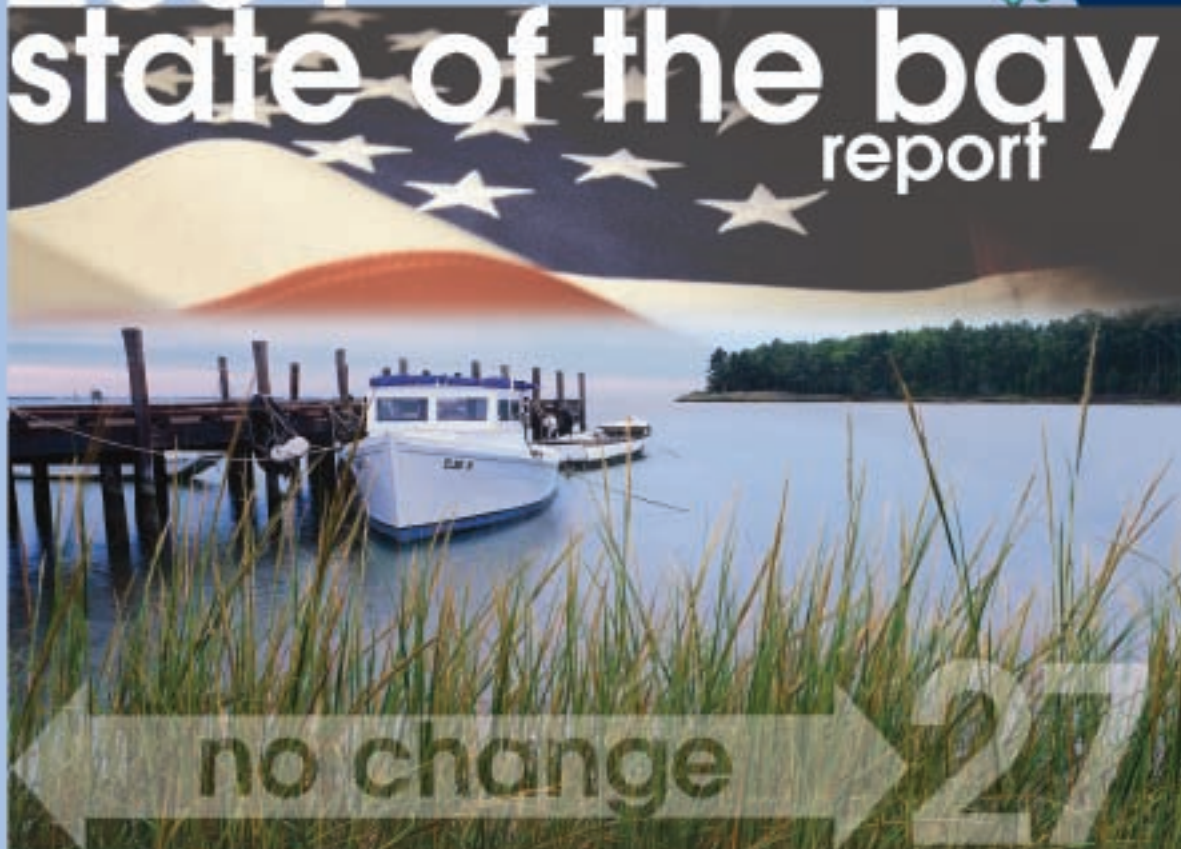




# 2004 state of the bay report



CHESAPEAKE BAY FOUNDATION

*Save the Bay*

# Introduction

In 1984, President Ronald Reagan called the Chesapeake Bay a national treasure, and he committed to the “long, necessary effort” to restore it. We at the Chesapeake Bay Foundation share his vision. We believe in a saved Chesapeake that has clear clean water; that supports biodiversity; that contains fish, crabs, and oysters which are plentiful and safe to eat; that is a place where people come to fish and swim; and that supports local economies.

We have a long way to go to achieve that vision. And, we don’t have much time. Today, the Chesapeake Bay is so severely polluted that it remains on EPA’s “impaired waters” list, under the Clean Water Act. In signing the Chesapeake 2000 Agreement, the Governors of Pennsylvania, Maryland, and Virginia; the Administrator of EPA; the Mayor of the District of Columbia; and the Chairman of the Chesapeake Bay Commission have committed to getting the Bay off EPA’s “dirty waters” list by 2010.

Since CBF’s first State of the Bay Report in 1998,

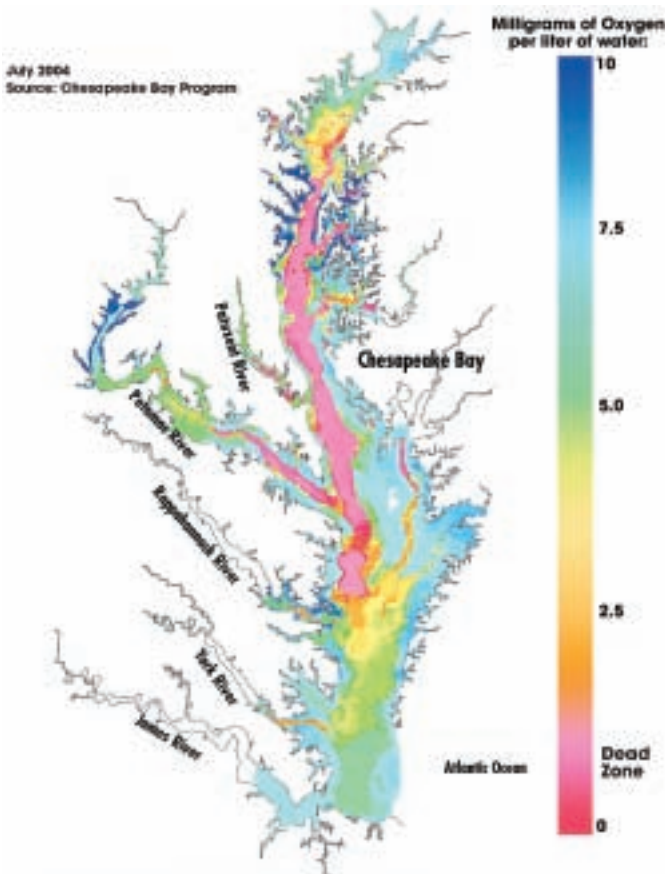
we have noted annually that 30 years of Chesapeake Bay restoration have stemmed the Bay’s steep decline and achieved modest improvements. Progress is now stalled. Science has given us a roadmap for bringing back the Bay. All that is needed is the political will and leadership to follow that course.

Settling for merely holding the line on a degraded national treasure, or continuing the glacial pace of restoration, would be tantamount to failure. CBF’s board, staff, 116,000 members, and the citizens of the region remain dedicated to *Saving the Bay* in our lifetimes.

Our work and the will of the people notwithstanding, our reports have pointed out that the Bay’s health has lingered perilously at about one-quarter of its potential for the last seven years. This year is no better.

**This year the state of the Bay languishes, unchanged from last year. It scores a dismal 27, a D.**

This past summer we saw another “Dead Zone,” this time including nearly 35 percent of the volume of the Chesapeake. At least two and a half times the amount of nitrogen pollution the Bay can absorb flowed into it.



In July 2004, 35 percent of the volume of the Chesapeake Bay was considered a Dead Zone.

In the upper Bay, mats of thick algae prevented watermen from setting their equipment, rockfish—declared recovered in 1995—are showing signs of stress, the commercial oyster catch was at an historic low, and fish advisories restrict consumption due to toxic contamination. The State of the Bay Report tells us how pollution has degraded the Bay, how deeply we have disrupted the balance of the Chesapeake ecosystem, and how great our challenge is to re-create a saved Bay.

There is no question: lack of progress stems directly from lack of leadership, the politics of postponement, inadequate enforcement of existing laws, insufficient funding, and little or no accountability.

While we will never again see the Bay as it was four centuries ago when Captain John Smith first explored it, we must remember how much healthier it was only four decades ago. We must not settle for a small fraction of its potential. CBF will not compromise our goals. We will not tolerate lack of leadership. We will build on this year's success in Maryland, which passed landmark legislation to upgrade sewage treatment facilities, and push for comparable sewage treatment upgrades throughout the watershed. We will work with farmers to develop creative solutions to agricultural pollution. We will support the funding recommendations made this fall by the Blue Ribbon Finance Panel. We will continue to take legal action to stop pollution and force compliance with environmental laws. We will present the unvarnished facts to the public, encouraging all to make their voices heard for *Saving the Bay*.

Failure is not an option; not for us, not for our children.

## How We Create Our Report










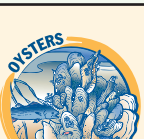


To create the State of the Bay Report, CBF scientists examine the best available information about the Chesapeake for indicators representing three major categories: pollution, habitat, and fisheries. Monitoring data serve as the primary foundation for the report, supplemented by in-the-field observations. We also seek advice from other Bay scientists, but ultimately, our own scientists' best professional judgments determine the value assigned to each indicator.

We measure the current state of the Bay against the healthiest Chesapeake we can describe – the rich and balanced Bay Captain John Smith depicted in his exploration narratives from the early 1600s. He experienced our theoretical perfect 100: a Bay and rivers with clear water revealing meadows of crab-filled underwater grasses, oyster reefs so prodigious in size that they posed hazards to navigation, and shoals of menhaden, rockfish, and shad.

This year for the first time, we have correlated number scores with letter scores. If we say that CBF's goal is to get the Bay to a 40 by 2010 and, thereby, off the U.S. EPA's "impaired waters" list, then surely a score of 40 must be better than an F. Our correlation is that:

70 or better	A+
60–69	A
50–59	B+
45–49	B
40–44	C+
35–39	C
30–34	D+
25–29	D
20–25	D-
Below 20	F

# State of the Bay in 2004

<b>POLLUTION</b>	 <p><b>F</b> ↓↓↑</p> <p>N Score=12 P Score=16</p>	 <p><b>F</b> ↑</p> <p>Score=15</p>
	 <p><b>F</b> ↑</p> <p>Score=13</p>	 <p><b>D</b> ↓</p> <p>Score=27</p>
<b>HABITAT</b>	 <p><b>B+</b> ↔</p> <p>Score=55</p>	 <p><b>F</b> ↓</p> <p>Score=18</p>
	 <p><b>C+</b> ↔</p> <p>Score=42</p>	 <p><b>D</b> ↔</p> <p>Score=29</p>
<b>FISHERIES</b>	 <p><b>A+</b> ↓</p> <p>Score=73</p>	 <p><b>F</b> ↔</p> <p>Score=2</p>
	 <p><b>C</b> ↔</p> <p>Score=38</p>	 <p><b>F</b> ↑</p> <p>Score=10</p>

**27**

- A** EXCELLENT
- B** GOOD
- C** FAIR
- D** POOR
- F** CRITICAL



F 12 ↓

## Nitrogen

-1 from 2003

F 16 ↑

## Phosphorus

+3 from 2003

Nitrogen and phosphorus are the Bay’s two primary pollutants. From October 2003 to September 2004, the Bay once again was choked with large flows of both pollutants, which are still causing widespread dead zones and excessive algal blooms in the Bay’s main stem and rivers. Because the Susquehanna River delivered a greater proportion of the pollution this year than last year, and it delivers relatively more nitrogen than phosphorus, nitrogen pollution increased while phosphorus pollution decreased.

Early in 2003, the Chesapeake Bay states and the federal government set an annual average target of 175 million pounds of nitrogen and 12.8 million pounds of phosphorus from all sources to achieve their Chesapeake 2000 Agreement commitments. Available data for the past year, however, suggest that pollution levels exceeded these healthy amounts by over two and a half times for nitrogen and almost two times for phosphorus. Once data are available for the amount of pollution discharged from the Conowingo Dam after Hurricane Ivan, these numbers will likely be even higher. **Further, it is important to note that the magnitude of the change in the phosphorus score is due in part to the use of a new methodology that reflects the most current monitoring information.**



F 13 ↑

## Dissolved Oxygen

+1 from 2003

During the summer of 2004, approximately 35 percent of the water in the mainstem of Chesapeake Bay had unhealthy oxygen levels for many forms of aquatic life. This area reached from Baltimore to the York River in Virginia. Most of the Bay’s rivers experienced similar problems in their lower reaches, as well as in some short tributary creeks. As in years past, the primary cause was nitrogen pollution that fueled large algal blooms, which in turn were decayed by oxygen-consuming bacteria. In particular, algal blooms early in the year caused oxygen levels well below average at many locations in the Bay during February and March. While the overall size of this year’s dead zone was slightly smaller than the historic one of 2003, the volume of water with no oxygen (anoxic water) was greater than last year. We are still very far from the oxygen levels needed to support a healthy Bay community.



F

15



## Water Clarity

+1 from 2003

Water clarity in the Bay is critical to allow underwater grasses to get the sunlight that they need to grow and reproduce. Sediment and algae, fueled by polluted runoff, can block sunlight from reaching shallow areas, killing underwater grasses and smothering habitat for juvenile blue crabs, oysters, clams, mussels, worms, and other important bottom dwellers. In the first half of this year, overall water clarity throughout the Bay improved over the same period last year, when extremely heavy amounts of pollution clouded the Bay. Some areas, particularly in Virginia, had diminished water clarity due in part to sediment churned up by Hurricane Isabel. However, some areas in the upper Bay, such as the Magothy River and the Susquehanna Flats, saw their clearest water in many years this summer.



D

27



## Toxics

-1 from 2003

Toxic chemicals continue to threaten the Bay's living resources. The index dropped one point this year because of an increased number of fish advisories in the Bay watershed, including a Maryland mercury advisory that recommends limiting rockfish consumption from that state's portion of the Chesapeake Bay. In addition, there is evidence that "new and emerging chemicals" may be impacting the Bay's living resources. Researchers at the University of Maryland and the Virginia Institute of Marine Science found high concentrations of flame retardants—similar in composition to PCBs—in finfish from Baltimore Harbor and the Roanoke and Dan rivers in Virginia. The most recent data in the EPA Toxics Release Inventory (from 2002) shows a substantial increase of the release of toxic chemicals to surface waters in Virginia.



**B+**

**55**



## Riparian Forest Buffers

no change from 2003

Although the number of streams with adequate forest buffers did not change significantly from last year, development continues to remove protective buffers, allowing polluted runoff to damage streams directly. Many citizens of the Bay region participate in restoration projects as volunteers through schools or local watershed associations, but in the past year, restoration efforts have slowed because of declining enrollment by private landowners in the Conservation Reserve Enhancement Program (CREP) in a number of key Bay states. CREP, a joint U.S. Department of Agriculture/state program, provides financial incentives for farmers and landowners to establish conservation projects to reduce polluted runoff. Last year, the Bay Program set a new riparian forest buffer goal of 10,000 miles by 2010, but this remains far less than the total needed to meet the Bay's 2010 water quality goals.



**C+**

**42**



## Wetlands

no change from 2003

Even though wetlands act as the Bay watershed's kidneys to absorb and cleanse polluting runoff, protecting them and increasing their acreage continues to be a struggle. Laws and regulations protecting wetlands continue to be challenged at the local, state, and federal level. Virginia's new wetlands program set a dangerous precedent this year by permitting large-scale wetland destruction without adequately considering less destructive alternatives. However, CBF and our partners achieved key successes in upholding protection laws for headwater wetlands at the federal level. Meanwhile, wetland losses due to sea level rise and illegal and unregulated activities degrade the health and functioning of existing wetlands. These impacts are somewhat offset by voluntary wetland restoration programs, but we must accelerate all efforts to increase the overall health of these natural water treatment systems in the watershed.



F

18



## Underwater Grasses

-4 from 2003

Poor water quality due to pollution continues to degrade underwater grasses, which dropped 30 percent in total acreage in 2003 because of pollution running into the Bay as a result of the heavy rains. More than 500 million pounds of nitrogen pollution choked the Bay last year, a drastic increase from 2002 when the Bay saw relatively low levels of nitrogen pollution. Some parts of the upper Bay enjoyed notably clear water and associated underwater grass growth in 2004. In the lower Bay, however, many underwater grass beds have not recovered from last year's large loads of nitrogen, phosphorus, and sediment pollution, particularly in Virginia. The die-offs in this area pose serious nursery habitat problems for the Chesapeake's blue crabs.



D

29



## Resource Lands

no change from 2003

The most recent analysis of resource lands in the Chesapeake watershed confirms that development rates remain high. There is no indication that development trends have slowed, and no new public policy changes have been instituted that would lead to a reduction in the conversion rate of farms, forests, stream valleys, and wetlands being consumed by development. At the same time, state funding for open space conservation remains at its lowest level in many years in Maryland and Virginia; Pennsylvania's new funding for conservation is still uncertain. The consequences of these trends are continuing declines in water-filtering forests and other open lands.





A+ 73



## Rockfish

-2 from 2003

Chesapeake rockfish (striped bass) were officially declared recovered in 1995. Since that time, reproduction has been very good and conservative fishery management has kept the population high. There is growing concern about the long-term trends for the population. Several studies suggest that the health of Chesapeake rockfish is limited by available food, principally menhaden, which we suspect are overfished in the Bay. Rockfish are also subject to environmental stresses from low dissolved oxygen and other water quality problems. Increasingly, they have skinny bodies, internal tumors, and/or external sores. Researchers estimate that up to 70 percent of the Bay's rockfish may be infected with mycobacteriosis, a wasting disease that can be fatal. In 2003, two separate analyses suggested striped bass survival in the Bay is down by about 20 percent. The mechanisms causing this decline have not been positively documented, but limitations on available food and poor water quality are most likely involved.



C 38



## Blue Crabs

no change from 2003

The best news about Chesapeake blue crabs is that the population looks stable, albeit at a low level. It appears that Hurricane Isabel's east winds boosted the recruitment of blue crab larvae into the Bay, but concerns remain about the true status of the spawning stock. The Chesapeake Bay Program's 2004 Blue Crab Advisory report, which analyzes the Bay's four primary blue crab surveys, indicated that management actions taken in Maryland and Virginia may be working, as well as a slight improvement in both the spawning stock and spawning success. However, both of these key measures are still below the long-term average. While the average of four surveys showed a slight increase, the survey that samples crabs directly on the spawning grounds found female numbers still at an all time low. The most important unknown, however, may be how low dissolved oxygen influences crabs throughout the Bay and in the prime spawning areas.



F

2



# Oysters

no change from 2003

The commercial oyster harvest in Maryland sank to an historic low last year, but new approaches to commercial aquaculture showed promise in Virginia. The official estimate of Baywide oyster biomass has not indicated any recovery, but restoration programs in both states at local sites not covered by that survey have had encouraging success. The poor harvest in the upper Bay resulted from the severe drought that caused high disease mortality two years ago. However, the work of the Oyster Recovery Partnership to remove diseased oysters before planting disease-free, hatchery-produced seed oysters has shown remarkable success. In the lower Bay, CBF with our local, state, and federal partners have achieved a dramatic recovery in the Lynnhaven River, with natural reproduction and increasing biomass stimulated by rebuilt reefs stocked with citizen- and farm-grown oysters. These successes strongly suggest that larger scale restoration of native oysters in more areas of the Chesapeake has great potential.



F

10

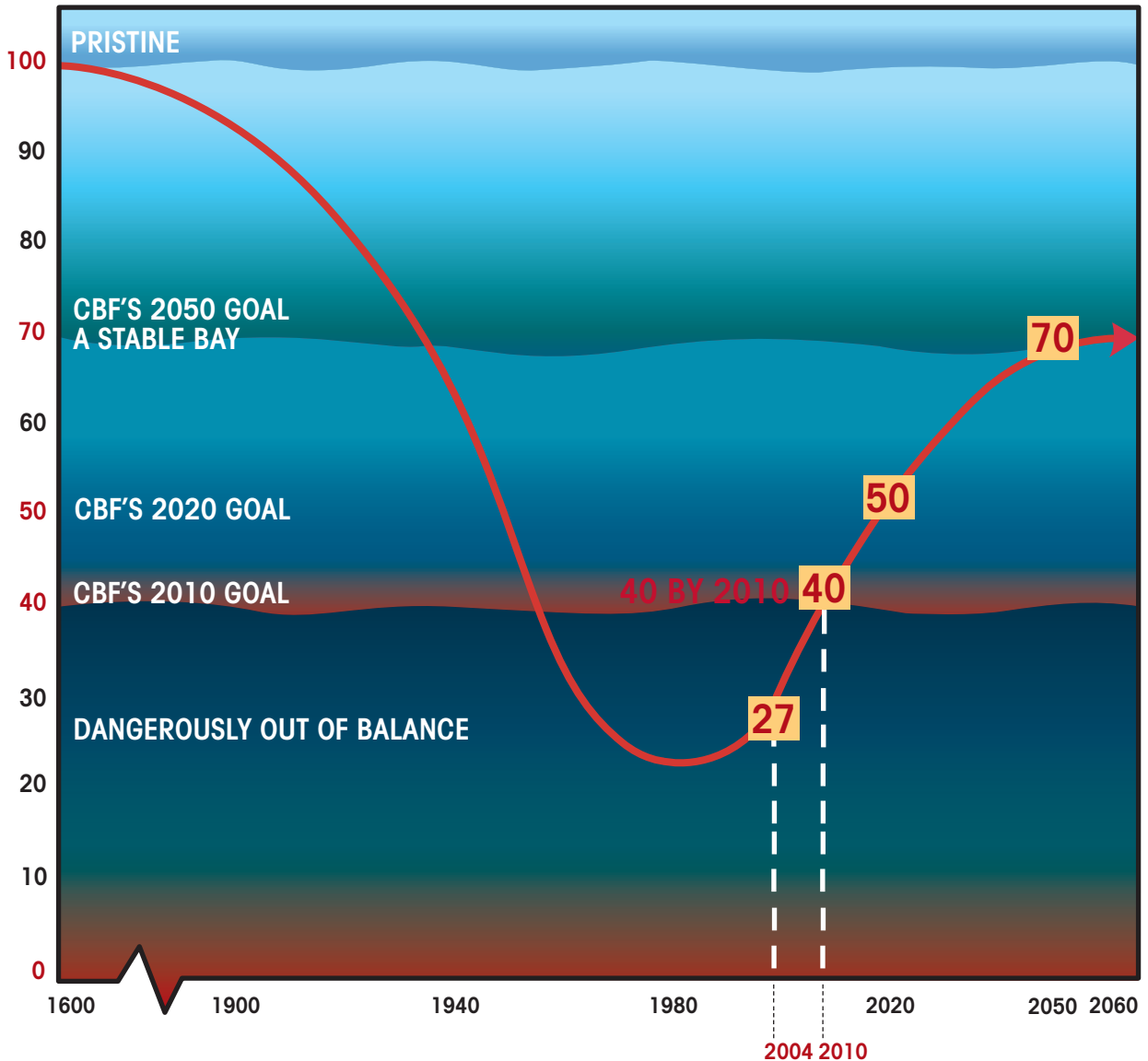


# Shad

+1 from 2003

Shad restoration has been slow but steady, with no dramatic increase in numbers this year and a population still precariously low compared to historic levels. A successful and ongoing restoration program, the opening of more traditional spawning grounds in Bay rivers, and ongoing hatchery stockings of juvenile fish are encouraging. Recent efforts on the Potomac River have succeeded in jump-starting a self-sustaining population above Little Falls Dam. Months after breaching the Embrey Dam, which had blocked shad migrations for more than 100 years on the Rappahannock River, migrating shad were found upstream of the dam. Another milestone this year was completion of the five-year phase-out of the ocean fishery for shad. Unfortunately, progress is threatened by Virginia's recent decision to authorize the King William Reservoir Project against the concern of state fishery experts that a water intake on the Mattaponi River would harm the state's prime shad spawning ground.

# The Chesapeake Bay Remains Dangerously Out of Balance



The health of the Chesapeake Bay is dangerously out of balance and has been for over three decades. This lack of progress in more than 30 years is especially staggering in the context of the public resources and attention focused on Bay health during this time. Clearly, what public officials have done to date is far from enough. Now is the time to hold government accountable for its failure to significantly reduce pollution, remove the Bay from the nation's list of dirty waters, and restore our national treasure.



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**Visit [www.cbf.org/action](http://www.cbf.org/action) and join the thousands of other online activists helping to protect and restore the Chesapeake Bay—sign up for the Chesapeake Bay Action Network today.**