# COURSESSION OF THE BAY

# We Want: More Fish in the James!!!

HEALTH INDEX **28** 



CHESAPEAKE BAY FOUNDATION Saving a National Treasure

# JOIN: The Biggest Fight For Clean Water This Nation Has Ever Seen

## Sign the Petition! cbf.org/epa

When a national treasure like the Chesapeake Bay is producing at less than 30 percent of its historical potential, something is very wrong. Add to this the repeated

and failed commitments by state and federal governments to reverse the decline, and outrage begins to build. Everyone who loves and values the Bay should be willing to join The Biggest Fight For Clean Water This Nation Has Ever Seen. If we don't fight for the nation's Bay, where in this country should we take a stand against dirty water?

What is it about government that makes it unable to respect the rule of science and enforce the rule of law? We know the problem, and the tools are available. There is no magic in reducing pollution and restoring clean water, vibrant habitat, healthy fisheries, and a high quality of life for everyone. It is certainly not simple, nor is it easy. But it is not impossible.



# If we don't fight for the nation's Bay, where in this country will we take a stand against dirty water?

Ten years ago, CBF launched this Health Index. Since that time the Index has been cited regularly as the definition for the State of the Bay. A number of other areas around the country have adopted similar ways of reporting on environmental health and in, the Bay watershed, various river organizations have done the same for their tributaries.

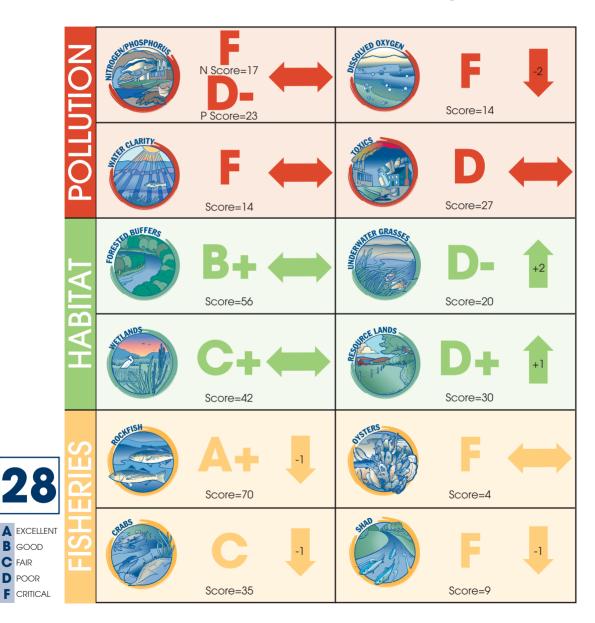
Our Chesapeake Bay Health Index may not be perfect, but it certainly tracks relative progress. And that progress is pathetically slow.

This index, with a score of 28 once again, must be a rallying cry for every one of us who loves and values clean water to join The Biggest Fight For Clean Water This Nation Has Ever Seen. We must hold our elected officials accountable to do all that they can to ensure that ten years from now, we are reporting on a system that has made major advances toward improvement, not one that is still struggling to survive.

William C. Baker President

SCORECARD ·

# State of the Bay in 2008



Algal blooms like this one on Maryland's Mattawoman Creek are fed by nitrogen and phosphorus pollution from agricultural and urban and suburban runoff and sewage treatment plant discharges.

# **CBF** Prevails

On the banks of the Potomac River on the southside of Washington, D.C., sits the Blue Plains sewage treatment plant serving Washington and parts of suburban Virginia and Maryland.

Operated by the District's Water and Sewer Authority (WASA), Blue Plains is the largest advanced sewage treatment plant in the world with a capacity of 370 million gallons per day (MGD). Blue Plains is the single largest "point source" of water pollution in the Chesapeake Bay watershed.

In 2006, EPA modified the pollution discharge permit for Blue Plains, allowing the plant to discharge 8.6 million pounds of nitrogen annually into the Potomac River. This amount was far more than their average pollution loads of roughly 6 million pounds per year as well as the 4.7 million pound pollution cap regional authorities agreed is needed to restore water quality to the Potomac River and Chesapeake Bay. CBF responded with stern comments and testimony before Congress.

In response, EPA issued a new permit requiring WASA to meet the 4.7 million pound cap, but the draft permit did not include a schedule for complying with the new pollution limit.

WASA sued EPA, challenging the pollution limit. CBF also sued, attempting to keep the limit and also force a compliance date.

On March 19, 2008, EPA's Environmental Appeals Board ruled in CBF's favor. When EPA issues a new draft permit later this spring, it will have both the pollution cap and a date for achieving it.

It is a shame that it has taken three years to argue a point that should be common sense—the largest Bay polluter must significantly reduce its pollution. EPA now recognizes this fact. It is time for WASA and its board to act responsibly and come into compliance with the new pollution limits as quickly as possible. Otherwise, more harm will come to Washington D.C.'s rivers and the Chesapeake Bay.





### no change from 2007

# Phosphorus

### no change from 2007

Nitrogen and phosphorus are the Bay's two primary pollutants, fueling algal blooms that cloud the water and use up life-sustaining oxygen when they die and decompose. For clean water and a healthy Bay, we must reduce the average total loads of nitrogen and phosphorus pollution to no more than 175 million pounds and 12.8 million pounds per year, respectively. The scores reflect just how far we are from reaching these pollution-reduction goals.

Pollution loads in 2008 were similar to 2007, though we have made progress that ultimately will lead to reductions. Across the watershed, sewage treatment plants are being upgraded with state-of-theart pollution reduction technology. Agricultural conservation practices like cover crops, no-till farming, and streamside fencing are being targeted and implemented via cost-share programs offered through the federal Farm Bill and state initiatives—Maryland's 2010 Trust Fund, Pennsylvania's Resource Enhancement and Protection Act (REAP), and Virginia's Natural Resources Commitment Fund. But, we must do more if we are to achieve our pollution-reduction goals.



Poor water clarity continues to plague the Chesapeake Bay and the rivers and streams that feed into it. In 2008, blooms of harmful algae were far less frequent than during the summer of 2007, but there was no marked improvement in water clarity. Furthermore, long-term trends for this indicator suggest a steady decline since the mid-1980s. The annual average visibility in the Bay's mainstem was between three and four feet, with visibility in the tidal rivers much lower. A healthy ecosystem should have visibility several times those values.

Both algal blooms, fed by nitrogen and phosphorus pollution, and suspended sediment particles are responsible for the lack of water clarity. To improve it, we must reduce and better manage stormwater pollution from urban and agricultural areas, protect and restore natural filters like riparian forest buffers and wetlands, and control erosion from shorelines and construction sites.



# **Dissolved Oxygen**

-2 from 2007

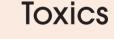
In a typical year, the amount of pollution that enters the Bay and its rivers during the spring largely drives the size of the dead zone—the area without sufficient levels of oxygen to support aquatic life. The reason: Spring pollution loads spur summertime blooms of algae that suck up dissolved oxygen when they die and decompose.

Conditions in 2007 varied from this pattern; the dead zone was much smaller than expected. This was due, in part, to unusually strong summertime winds that mixed deoxygenated bottom waters with well-oxygenated surface waters. In 2008, dissolved oxygen levels reflected the more typical effects of the flow of nitrogen and phosphorus pollution into the Bay, with large areas of the bay off-limits to aquatic life.

One alarming consequence of this continued degradation is the status of the Bay's icons—rockfish and blue crabs. Indicator scores for both these species dropped this year, due in part, to stress from poor water quality.



14



no change from 2007

Recent studies highlight the widespread toxic chemical contamination of the Chesapeake Bay's ecosystem. In 2008, Bay scientists estimated that roughly 67 percent of the Bay's tidal segments was "impaired" due to chemical contaminants, mostly due to fish consumption advisories for polychlorinated biphenyls (PCBs). Although these chemicals have been banned since the 1970s, a study by the U.S. Geological Survey shows little evidence of a decline in concentrations in the Bay. The reasons are that these chemicals are highly resistant to degradation and that there are ongoing releases from hazardous waste sites and old electrical transformers.

A recent study by the National Oceanic and Atmospheric Administration (NOAA) detected PCBs, agricultural herbicides, and components of oil and its byproducts in nearly every sediment sample collected in the Chesapeake. While the ecological effects of this widespread contamination are not well understood, we shouldn't wait for a "smoking gun" to take action to reduce the flow of toxic pollutants from stormwater, air, and industrial sites into our waterways.

Healed by successful buffer restoration and other pollution-control measures, Pennsylvania's Lititz Run now supports a healthy brown trout population.

# Clean Water = \$

Restoring healthy, naturally reproducing populations of finand shellfish requires two essential steps—improving water quality and habitat and managing the fishery.

Take, for example, Virginia's Lynnhaven River. One measure of its health is its ability to support healthy native oysters. In 2005, a scant one percent of the Lynnhaven was open for shellfish consumption. In 2006, seven percent was open. In 2007, it was nearly 29 percent, and in 2008, 31 percent of the river was able to produce safe shellfish-the largest portion of the river in almost 80 vears. Today, increasing numbers of native oysters filter the Lynnhaven. Their reefs provide an ideal hiding spot for rockfish, speckled trout, and other species as well as a Sirens' call to area anglers. The Lynnhaven's dramatic turn around is the result of limiting polluted runoff draining into the river, restoring naturally filtering buffers, and a collaborative effort of citizens' groups and public agencies to rebuild habitat and plant millions of oysters. This restoration success has spawned a growing aquaculture industry that has once again brought famous Lynnhaven oysters to tables throughout the region.

In Lititz Run, a small stream in southern Pennsylvania—an area of intensive animal farming, development, and related pollution the brown trout has also seen an astonishing and encouraging comeback. Through community involvement, strict management of animal waste, and intensive stream restoration and protection efforts, water quality in this tiny tributary to the Conestoga and Susquehanna rivers has improved enough to support restocked trout year-round. In 2005, anglers found these trout were successfully reproducing in the stream.

CBF delights in victories such as the rebound of the Lynnhaven oyster and Pennsylvania brown trout. And we note that anglers who cast into the Lynnhaven beds or Pennsylvania's clear streams contribute millions of dollars annually to the region's economy. Finally, CBF holds up these success stories as proof positive that resilience exists—returning to a healthy ecosystem throughout the Chesapeake Bay system is possible with disciplined controls, the participation of many, financial investment, and hard work.



# **Forested Buffers**

### no change from 2007

Progress in implementing streamside buffers has slowed dramatically. In 2007 (the most recent year for which data are available) roughly 385 miles of buffers were planted in the watershed, down from 731 miles in 2006 and 814 miles in 2005. Landowner interest in cost-share programs for buffer implementation has decreased, possibly due to high prices for commodity crops and the resulting strong economic incentive to keep land in production. Insufficient technical assistance, which has long been an obstacle to buffer planting, is made worse in the current economic climate because government agencies are cutting funds and reducing staff.

Recent estimates from the U.S. Geological Survey suggest watershed losses of forested buffers of 0.5 percent between 1996 and 2005 as buffers are cleared to make way for development. The economic downturn likely slowed these losses in 2008.

Protection and restoration of forested riparian buffers is a major factor in reducing the flow of pollutants to local waterways and the Bay. We must accelerate our efforts.



Restoration of the Chesapeake relies on re-creation of some of the more than two million acres of wetlands—natural filters that improve water quality by trapping and treating polluted runoff—lost since 1607. Wetlands also provide important habitat for fish and wildlife and protect shorelines from the effects of flooding.

The Bay states are making progress restoring wetlands—creating roughly 1,000 acres per year over the last several years—but these efforts fall far short of the 200,000 acres in the states' tributary cleanup plans.

Furthermore, these gains are likely offset by the cumulative effects of legal and illegal filling of wetlands for development and water supply, and flooding due to sea-level rise caused by global warming. Lowlands, such as the Blackwater National Wildlife Refuge on Maryland's Eastern Shore and the Guinea marshes of Virginia, are already experiencing these losses. Preserving and restoring these vulnerable, but valuable, natural water treatment systems offers a two-for-one opportunity to restore clean water while mitigating the impact of sea-level rise.

ANDS



Baywide, underwater grass beds remain at only a fraction of their historical acreage. Like other plants, underwater grasses need sunlight to survive. All too frequently, dense blooms of algae and suspended sediments cloud water and block sunlight, threatening the survival of these ecologically critical underwater communities.

There is good news, however. The abundance and diversity of underwater grasses on the Susquehanna Flats remains the "big story" in 2008, according to Dr. Robert Orth, a Virginia Institute of Marine Science seagrass expert. Grass beds there were so dense and expansive they were visible from satellite images. Grasses were also abundant in the Elk and Bohemia rivers. Grass bed acreage in other lower Bay areas like Mobjack Bay and the lower York River appeared similar to last year, but, in many cases, the beds were thicker. In Tangier Sound, eelgrass beds still struggle to recover from the 2005 die-off. Particularly important as nursery areas for juvenile blue crabs, their losses may be a contributing factor to today's dangerously low numbers of this Bay icon.

# **Resource Lands**

+1 from 2007

The economic decline slowed population increases in the watershed and land development, from the pace experienced in 2007. For example, in Suffolk, Virginia, building permits were down 30 percent and this trend was common in many metropolitan areas. A lesser amount of sprawl-type growth has continued, however, in some rural or urban fringe locations.

Land conservation activity in Pennsylvania, Maryland, and Virginia remained robust, despite the economic downturn which caused decreased tax revenues and generally lower public spending for conservation. Virginia is close to achieving Governor Kaine's four-year goal to protect 400,000 acres by the end of 2009. Although generally less than the previous year's totals, public and private conservation activity in the three states preserved more than 100,000 acres of open space and working farmland in 2008.

The decline in the Chesapeake Bay's signature blue crab population has brought great economic losses to the industry and stripped a way of life from hundreds of watermen in Virginia and Maryland.



Last December, CBF released Bad Water and the Decline of Blue Crabs in the Chesapeake Bay, our report directly linking poor water quality to declining populations of the iconic Chesapeake

blue crab and, as well, to related job loss.

*Callinectes sapides*—beautiful swimmer, the blue crab is a symbol of our cultural roots in the Chesapeake. And, crabs have been the most economically important fishery here. While overfishing and inadequate regulation of the fishery are certainly factors contributing to the crab population's steep decline to near record lows, the crab researchers CBF interviewed in preparation of our report said with consistency that deteriorating water quality in the Chesapeake has stressed crab habitat and food sources to the point that crabs were actually cannibalizing their own. These scientists also told CBF that a healthier Bay would produce more crabs.

According to NOAA, in 1990 there were about 800 million crabs (young and adult) in the Bay. Last year there were about 260 million. Between 1998 and 2006, almost 4,500 crab-related jobs were lost in Maryland and Virginia, and the cumulative loss to those two states from this one industry's downturn was \$640 million.

Pollution is not an intellectual discussion. Like falling dominoes, it cascades onto other important aspects of life, in this case our economy. CBF believes the blue crab and all of the 17 million residents who live in the Bay watershed deserve clean water. And we hold government accountable for delivering it.



Rockfish (striped bass) continue at high levels in the Bay. Concerns about the health of the Chesapeake population are growing, however.

Fishing pressure has steadily increased in recent years, and the number of spawning age females has steadily declined since a high in 2003. Both are well within target ranges. Reproduction was poor in 2008, but it typically varies from year to year, and scientists attribute this downturn to cold weather during the spawning season.

Chesapeake rockfish continue to suffer from mycobacteriosis, a chronic disease first detected in 1997. Over 50 percent of "stripers" caught in recent surveys have been infected, and scientists have observed increasing death rates coincident with the epidemic. The causes of the disease are not known. However, circumstantial evidence points to stress from poor water quality and low numbers of Atlantic menhaden, their preferred food, as the primary culprits.





# **Blue Crabs**

### -1 from 2007

The number of adult crabs in the Chesapeake declined to a near historic low of 120 million in 2008, down from 143 million in 2007, and well below the target minimum of 200 million. A slight improvement in reproduction meant that the total number of crabs (young and old) was about the same as 2007 at approximately 260 million, but both reproductive success and the population level remained well below the long-term average. To protect the population and reverse this decline, Maryland and Virginia enacted new harvest rules that cut the catch of female crabs by one third. Crabbers for whom female crabs were a big part of their catch were hard hit, and the federal government was compelled to declare "a commercial fishing failure."

Loss of grass beds and low dissolved oxygen has reduced the number of crabs that can be produced and maintained by the Bay. As a result, the crab population cannot sustain the same amount of harvest by crabbers. Fishery management can bring the catch down to sustainable levels, but restoration of a healthy crab population and a productive fishery will also depend on improved water quality and habitat.





### no change from 2007

**Oysters** 

Positive news about oysters suggests improving prospects for restoration. Surveys are finding oysters still infected with disease, but fewer are dying from it. In the lower Bay, scientists have documented increased disease tolerance in wild oysters and there is evidence of oysters surviving for as many as five years in Tangier Sound. The Maryland fall survey found decreasing disease mortality for the sixth year in a row. These signs underscore the recent recommendations to dramatically expand native oyster restoration from the current pilot scale.

Intense restoration efforts are encouraging. Restored reefs in the Great Wicomico River, Virginia, may have as many as 200 million live oysters on them, some as old as three years. In Maryland, a new record was set in 2008 with the planting of over one half billion hatchery-produced seed oysters. These efforts will show even more success if more attention is paid to other problems facing oysters such as predation by overabundant cownose rays and poaching on closed bars. Water quality also plays a role—sediment runoff covers reef substrate oyster larvae need, and low dissolved oxygen levels can reduce oysters' disease tolerance.

# Shad

### -1 from 2007

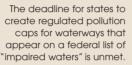
Shad populations in most Bay tributaries have declined in recent years. 2008 continued that pattern. The number of shad returning to the Susquehanna River was the lowest since the new fish passageway began operating there in 1997. The Potomac River has had relatively healthy returns of shad, but last year's run was not as high as anticipated. The York and James river runs have been declining for several years, and the 2008 run in the James was the lowest since 1998 when the survey began.

American shad face problems all along their annual migrations between up-river spawning grounds and ocean waters. Dams and other obstructions block access to hundreds of river miles of historic spawning grounds, and the quality of river and Bay habitat is often degraded. Predation on young shad as they leave their birth rivers seems to be increasing due not only to native predators like striped bass but also to exotic species like blue catfish and snakeheads. And while the intentional catch of Chesapeake shad has been banned for years, there appears to be a growing problem with the unintentional catch that occurs during the harvest of other fish.

# 1972-2009: How EPA Has Failed the Bay

### 1979

1987



### SEWAGE OVERFLOW AREA Avoid AREA Avoid Water Evite Agua Contacto

Signatories strengthen the 1983 agreement with a commitment to reduce nitrogen pollution by 40 percent by 2000. The goal is not met.

### 2006



A report from the EPA Office of the Inspector General concludes that "at the current rate of progress, the (Bay) watershed will remain impaired for decades."

### 2008

On October 29, CBF and partners notify EPA of its intent to sue the U.S. for its failure to enforce the Clean Water Act.



### 2009

On January 5, 2009, CBF and partners file suit against EPA at the U.S. District Court in Washington, D.C.

### 1972

The Clean Water Act sets a goal of making the nation's waterways, including the Chesapeake Bay,"fishable and swimmable" by 1983.



### 1983

EPA signs the first Chesapeake Bay agreement with Maryland, Virginia, Pennsylvania, and the District of Columbia.



### 2000

EPA and the Bay states sign the Chesapeake 2000 agreement. It re-affirms the 40 percent reduction goal of 1987 and promises that the Bay will be restored and off EPA's "impaired waters" list by 2010.



### 2007

A report from the EPA Office of the Inspector General says that not only will the EPA's Bay restoration efforts miss goals set for 2010, but that pollution trends from new construction are increasing.



### 2008

Hundreds rally at a Washington, D.C., meeting of the Chesapeake Bay Program Executive Committee on November 20, demanding action on Bay restoration.



# CBF to EPA: Time's Up

The health of the Chesapeake Bay is dangerously out of balance. Its degraded condition is especially staggering in the context of the public resources and attention focused on Bay

health since the 1980s.

When our partnership filed our lawsuit against the Environmental Protection Agency (EPA) in January, we launched The Biggest Fight For Clean Water This Nation Has Ever Seen. Our goal is to require the United States to assume its lawful leadership role and comply with the Clean Water Act and the *Chesapeake 2000* agreement. Among other things, the law and the agreement require EPA to improve water quality in the Bay by 2010 so that crabs, fish, oysters, and underwater grasses can be restored and a way of life preserved.

Achieving this vision is not an impossibility, but it will require systemic change and strong federal leadership. To assist in delineating the steps EPA needs to take, CBF has provided the agency a list of 33 specific, measurable actions that if implemented will effect change; comply with the Clean Water Act; and restore safe, healthy water to the region. They include.

"Americans deserve a pat on the back for gradually understanding that water knows no political boundaries and that cleanup efforts must include an entire watershed....But all the players must do their part...there's no question that an effort this big and diffuse needs better leadership and enforcement."

> The Christian Science Monitor, January 12, 2009

- 1. Develop a Baywide regulatory limit on pollution by 2010 and implement programs to reach 80 percent of that limit by 2012.
- Toughen construction and municipal storm sewer system regulations and permits to ensure compliance with pollution-reduction goals so that there will be no net increase in pollution to the region's waterways.

- 3. Require all power plants within the Bay region to reduce nitrogen and mercury pollution.
- 4. Target new and existing funding, including federal highway dollars, to achieve the most pollution reduction.

We are encouraged that the region's leadership is responding.

Late last year, EPA issued revised federal regulations requiring permits with runoff pollution control rules for large poultry operations that discharge into rivers and streams. After eight years of environmental deregulation, these represent a good sign for the region's waterways.

Just after her confirmation in January, EPA Administrator Lisa Jackson identified her top five priorities for the Agency and directed her staff to "make robust use of [the Agency's] authority to restore threatened treasures such as...the Chesapeake Bay..."

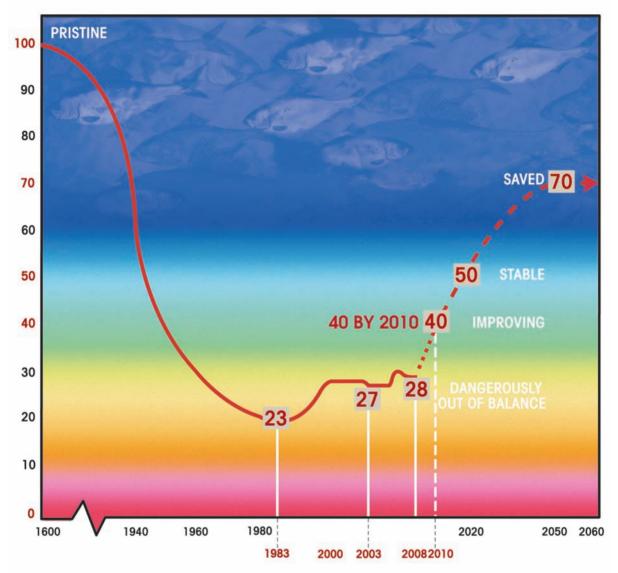
On February 10th, Virginia Governor Timothy Kaine, the current Chair of the Executive Council, wrote President Obama asking him to recognize the Chesapeake Bay as a national treasure and elevate "regional restoration efforts as a top environmental priority for the nation." In his letter, Governor Kaine also enumerated specific Congressional actions that would further this objective.

And, EPA's newly appointed Senior Advisor to the Chesapeake Bay Program Chuck Fox commented recently about the lawsuit, saying on Public Radio that CBF's legal action is a "good step" that is helping EPA and its partners find "the best way forward to save the Bay." He also said he "is not sure [he] would have recommended [CBF and its partners] do anything less."

For many years, CBF has been calling for action and accountability. The 2008 *State of the Bay* report reiterates the urgency of our call, and we are encouraged that it is finally being heard.

Learn more at cbf.org/epa.

### STATE OF THE BAY 2008



The health of the Chesapeake Bay is dangerously out of balance. Its degraded condition is especially staggering in the context of the public resources and attention focused on Bay health since the 1980s. Clearly, what public officials have done to date is insufficient, and has fallen short of their commitments to restore water quality in the Bay. If we are to significantly reduce pollution, remove the Bay from the nation's "dirty waters" list, and restore our national treasure, it is time for urgent action; time to hold our government leaders accountable to get the job done.



### CHESAPEAKE BAY FOUNDATION

### Saving a National Treasure

### Maryland

Philip Merrill Environmental Center 6 Herndon Avenue Annapolis, MD 21403 410/268-8816 410/269-0481 (from Baltimore metro) 301/261-2350 (from D.C. metro)

### Pennsylvania

The Old Water Works Building 614 North Front Street, Suite G Harrisburg, PA 17101 717/234-5550

### Virginia

Capitol Place 1108 East Main Street, Suite 1600 Richmond, VA 23219 804/780-1392

### **District of Columbia**

725 8th Street SE Washington, DC 20003 202/544-2232

Web site: cbf.org E-mail: chesapeake@cbf.org Membership information: 888/SAVEBAY

### CHESAPEAKE BAY WATERSHED



The Chesapeake Bay's 64,000-square-mile watershed covers parts of six states and is home to more than 17 million people.

### How We Create Our Report

The *State of the Bay* report is based on 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 measure the current state of the Bay against the healthiest Chesapeake we can describe—the Bay Captain John Smith depicted in his exploration narratives from the early 1600s, a theoretical 100.

Our number scores correlate with letter grades as follows:

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

### ABOUT THE COVER:

Hundreds rally at a Washington, D.C., meeting of the Chesapeake Bay Program Executive Committee on November 20, demanding action on Bay restoration.

© Nikki Davis

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