

## **Chesapeake Bay Foundation's 2001 State of the Bay Report** *Poor Water Quality Inhibits Chesapeake Bay Improvements in 2001*

“How’s the Chesapeake Bay doing?” It’s a question we are frequently asked. Our answer is that the Bay remains a system dangerously out of balance. The Chesapeake operates at barely more than one-fourth of its potential because water pollution, primarily from excess nitrogen and phosphorus, inhibits overall improvements to the system.

In the past year, continued poor water quality, the accelerating rate of land development, and threats to the Bay’s crab population contributed to an overall decline in the health of the Chesapeake Bay. Shad and forested buffers showed slight improvements. But on a scale of 0 to 100, the Bay’s health rates a **27**, one point less than it scored in CBF’s 2000 State of the Bay Report.

“The State of the Bay Report illustrates how interconnected the Bay’s components are,” says CBF President William C. Baker. “Unless we dramatically reduce nutrient and sediment pollution, additional gains in underwater grasses will be impossible. Restoring underwater grasses by improving water quality is critical to bringing back the Bay’s blue crab population.”

The health of the Chesapeake relies on intricate natural systems that filter water and provide habitat for diverse and abundant life. CBF scientists measure its health by observing key components of these systems. They examine the best available historical and current information for factors in three categories: pollution, habitat, and fish and shellfish. Although they seek advice from other Bay scientists, ultimately the best professional judgment of CBF scientists determines the value assigned each factor.

The Bay we know today is measured against the healthiest Chesapeake we can describe-- the rich and balanced Bay that Captain John Smith recounted in his exploration narratives of the early 1600s. Smith explored the Chesapeake when clear water revealed meadows of underwater grasses, prodigious oyster reefs that posed a threat to navigation, and abundant fish. Modern science confirms many of Smith’s observations. Smith’s Bay rates 100 and is our benchmark.

When CBF first asked the citizens of the watershed to help save the Bay 35 years ago, our estuary was in trouble. Even as we worked to make improvements, the Bay’s health declined, bottoming out in 1983 with a rating of 23. The work of public agencies, private groups, and tens of thousands of volunteers has improved the system slightly since then. But progress is far too slow. If the Bay is to be removed from the Environmental Protection Agency’s list of impaired waters by the year 2010, dramatic action must be taken to reduce the nutrients that pollute the Chesapeake. **The Chesapeake Bay Foundation’s immediate top priority is to help the Bay achieve a score of 40 by 2010.**

Chesapeake 2000, the new Chesapeake Bay Agreement signed in June 1999, provides a strong blueprint to raise the Bay’s score significantly over the next two decades. CBF is building a diverse coalition and working with federal, state, and local officials to secure

\$8.5 billion in federal, state, and local funding to implement the agreement. As this report demonstrates, real Bay-saving progress occurs slowly. But if Bay states and the public unite to turn the agreement's promises into action, the Bay's health has the potential to improve dramatically.

The State of the Bay Report provides a reference for how far we have fallen from Smith's Bay and how far we must go to reach a "saved" Bay. A saved Bay is resilient enough to withstand the storms of nature and of humankind, and rich enough to nurture diverse cultures and contribute abundantly to our economy. We will never again see the Chesapeake restored to its pristine state of four centuries ago, but we believe a Bay with an index of 70 is achievable by 2050. We must remember how rich our Chesapeake Bay was, even 40 years ago, and not settle for a small fraction of what we know it can be.

## Indicator Scores for 2001

### HABITAT

#### **Wetlands 42 [no change from 2000]**

*Despite a new law and regulations governing wetlands in Virginia, losses continue to occur, offsetting promising gains from increasingly widespread restoration projects.*

**Observations:** Virginia's regulations implementing its state law governing nontidal wetlands went fully into effect in October 2001. Nevertheless, local court decisions have allowed continued destruction of wetlands despite the new state law, and large projects such as the King William reservoir threaten hundreds of additional acres. Restoration efforts, such as CBF's partnership with Ducks Unlimited, have begun to show success, supported by federal and state funding. Because wetlands so effectively reduce nutrient loads to the watershed, restoration efforts must be increased in the next decade.

#### **Forested Buffers 54 [+1 from 2000]**

*CBF estimates that riparian forests buffer 54 percent of the watershed's 110,000 miles of streams and shorelines.*

**Observations:** More than 1,000 miles of streamside buffers have been restored throughout the watershed through programs such as the Conservation Reserve Enhancement Program. Maryland announced that it has already reached its initial 2010 buffer goal and Pennsylvania has devoted significant funding for restoration efforts. The extent of buffers lost to development, however, remains unknown and of concern. The Bay Program leadership needs to set aggressive new goals for 2010, and sound restoration programs must be coupled with strong Smart Growth programs to achieve a significant increase in the forested buffers index.

#### **Underwater Grasses 12 [no change from 2000]**

*Again this year, underwater grasses showed no substantial improvement Bay-wide, with increases in some areas and declines in others. Underwater grasses remain at 12 percent of their historic levels and below their recent peak in 1994.*

**Observations:** After increases in grasses in the late 1980s and early 1990s, overall underwater grass acreage appears to have leveled off recently. Grasses in Tangier Sound and the upper Bay continue to do well, while areas in the mid-Bay region are recovering from last year's large declines. Unless we dramatically reduce nutrient and sediment pollution, additional gains in underwater grasses will be impossible. Restoring underwater grasses by improving water quality is critical to bringing back the Bay's blue crab population.

#### **Resource Lands 30 [-3 from 2000]**

*Recent government estimates, although not universally accepted as accurate, indicate that the annual rate of open land loss in the watershed has increased substantially beyond the 90,000 acres estimated by CBF in past reports. Although the USDA pegs the number at 128,000 acres, CBF believes it is probably less. Due to the lack of consensus, we have reduced the index only slightly.*

**Observations:** Recent estimates suggest that the loss of resource lands in the watershed is accelerating at the fastest rate in history. Consequently, land that used to filter pollution is now funneling it into waterways and the Bay. In the Chesapeake 2000 agreement signed last year, Pennsylvania, Maryland, and Virginia agreed to reduce the annual loss of forest and farmland to harmful sprawl by 30 percent by 2012. Programs to accomplish this goal, and to permanently preserve 20 percent of the watershed from development by 2010, need to be given the prominence that this threat to the Bay's health warrants.

## **POLLUTION**

### **Toxics 30 [no change from 2000]**

*Despite encouraging actions, including a strong new permit reducing toxic pollution from the Bethlehem Steel plant in Baltimore, a large amount of toxic materials continue to enter the Bay watershed. Therefore, CBF's index remains at 30, which indicates a degraded Bay.*

**Observations:** Harmful toxic chemicals continue to flow into our waterways through stormwater drains and industrial discharge pipes. The groundwork for improvement has been laid by the CCChesapeake 2000 agreement, but implementation is proceeding slowly. The commitments in the agreement must be taken seriously by government and industry if the ultimate goal of a toxics-free Bay is ever to be met.

### **Water Clarity 15 [no change from 2000]**

*Water clarity remains seriously degraded. New U.S. EPA analyses of status and trends in the Bay and its tributaries show widespread poor water clarity—with many of the major tributaries still getting worse.*

**Observations:** Without clear water, sunlight cannot penetrate strongly enough to the Bay's bottom and give underwater grasses the energy they need to grow. Without progress in the area of water clarity, it is no surprise that underwater grasses have not increased. Reductions in nitrogen and phosphorus pollution, as well as sediment pollution, are vital to improve water clarity.

### **Phosphorus 15 Nitrogen 15 [no change from 2000]**

*In a year of average rainfall, nitrogen and phosphorus pollution remained at the high levels of the recent past, with the resulting algae blooms and fish kills occurring at what has become "typical" levels. Monitoring data continue to show no significant improvements in the Bay's nutrient levels.* m Mo

**Observations:** A cornerstone of the landmark Chesapeake Bay agreement of 1987 was a commitment to reduce nutrients by 40 percent--a goal that was not met. New estimates from the EPA indicate that nutrients must be reduced by roughly 50 percent from today's levels if we are to reach our 2010 goals for water clarity, dissolved oxygen, and underwater grasses. Finding the political will and resources to achieve these reductions is the single biggest challenge facing the region at this time.

**Dissolved Oxygen 15 [no change from 2000]**

*The Bay's "dead zone," although not as large and notorious as that in the Gulf of Mexico, was evident again this year and does not appear to have shrunk. Fish kills apparently resulting from anoxia occurred in "typical" numbers.*

**Observations:** There has been no improvement in the watershed's average dissolved oxygen levels. Fish kills, an obvious result of low oxygen levels, occurred in a number of areas this year, indicating the widespread nature of the problem. Reductions in nitrogen and phosphorus pollution from all sources are absolutely essential to restoring adequate oxygen levels.

**FISHERIES**

**Crabs 42 [-4 from 2000]**

*An increasing amount of scientific information, as well as another year of extremely low harvests, indicates that the crab population is in even more trouble than previously thought, leading to a four-point decrease in the score for 2001. Intense fishing pressure and extremely low levels of underwater grasses, especially in areas critical to the crab's life cycle, continue to depress the abundance of crabs.*

**Observations:** Poor habitat and excessive effort by recreational and commercial crabbers continue to depress the blue crab population, resulting in yet another year with extremely few crabs. In the long run, a healthy Bay crab population depends on the restoration of underwater grasses and a reduction in crabbing pressure. Efforts led by the Bi-State Blue Crab Advisory Committee are underway to reduce fishing pressure significantly over a three-year period, but it is too soon to evaluate their effectiveness.

**Rockfish 75 [no change from 2000]**

*A vibrant Chesapeake Bay fishery is offset by continuing concerns that there are too few large, old fish. In addition, it is increasingly apparent that the population is kept down by limited abundance of its food supply, particularly menhaden.*

**Observations:** Rockfish numbers in the Bay continue to be high, but the population still lacks sufficient numbers of large, old fish. In addition, concerns persist that the Bay's food web is out of balance, with too few menhaden and other small fish available for the rockfish to eat. While the coastal management plan for rockfish needs to build the numbers of older fish and maintain overall abundance, fisheries managers need to focus even greater attention on managing the species on which rockfish depend.

**Oysters 2 [no change from 2000]**

*Restoration efforts continued to move forward this past year, but population levels are still exceedingly low by historic perspectives, keeping the index at two.*

**Observations:** Although the rating for oysters did not change, last year held many positive developments for this keystone species. Spurred by the Chesapeake 2000 commitment to increase oyster populations tenfold by 2010, significant additional funding was secured from federal, state, and private sources. Major new sanctuary reef

projects are underway and more citizens than ever are committed to growing oysters and returning them to reefs. In addition, CBF started its own oyster aquaculture operation in Virginia, which is raising more than one million oysters each year to help jump-start the state's reef construction program.

**Shad            6            [+1 from 2000]**

*Record shad numbers returning to the Susquehanna River, as well as strong runs in other systems, are responsible for the increase this year. Still, the Bay's shad population remains at only a fraction of its pre-colonial level.*

**Observations:** In the spring of 2001, shad and other anadromous fish migrated up the Susquehanna River to spawning grounds in record numbers. The opening of the new fish ladder at the York Haven Dam in 2000 means that hundreds of miles of Susquehanna spawning habitat are available for the first time in over 100 years. We must ensure that the five-year plan to phase out the ocean fishery is implemented effectively so that the population continues to have the opportunity to grow.

## **40 by 2010: The Pursuit of an “Unimpaired” Bay**

The U.S. Environmental Protection Agency currently lists the Chesapeake Bay among the nation’s “impaired waters” because of nutrient pollution problems that compromise the entire Bay ecosystem. In 2000, the Chesapeake Bay Program partners signed a new guiding agreement called Chesapeake 2000, which set as a primary goal reducing nitrogen and phosphorus pollution so that in 2010 the Bay would be healthy enough to once again support a broad range of species. Reaching those goals would remove the Bay from the “impaired waters” list. It would also raise the State of the Bay score to 40 by 2010 and provide tremendous benefits to the plants, animals, and humans that depend on the Bay.

According to Chesapeake 2000, the critical path to these improvements requires us to reach several land protection and water quality objectives. Specific water quality actions may include sewage treatment plant upgrades to drastically reduce nitrogen and phosphorus pollution and a variety of initiatives to reduce pollution from agricultural and urban runoff.

The Chesapeake Bay Foundation is working with other Bay leaders to develop strategies to achieve the ambitious goals outlined by Chesapeake 2000. The price is substantial: CBF estimates that we will have to convince members of Congress, governors, and Bay-state legislators, local governments, and private organizations to appropriate at least \$8.5 billion for specific land preservation and pollution abatement programs over the next decade. To build support for these programs, all watershed citizens, and, indeed, all Americans who value the Chesapeake as an estuary of global significance, will need to rally around this effort. The campaign is a massive undertaking, but no less than the Bay’s future is at stake.

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