A Draft Report to the Citizens of the Bay Region

For Public Review and Comments

www.chesapeakebay.net/assess

Chesapeake Bay Program
A Watershed Partnership

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CBP/TRS 279/06
EPA A-903-R-06-001A
March 2006

Chesapeake Bay 2005 Health and Restoration Assessment

Part One: Ecosystem Health

Although there are a number of smaller-scale success stories, the overall ecosystem health of the Chesapeake Bay remains degraded. For more than twenty years, on the ground restoration efforts have managed to offset the impact of the region's growing population while making modest ecological gains in some areas. Major pollution reduction, habitat restoration, fisheries management and watershed protection actions taken to date have not yet been sufficient to restore the health of the Bay.

Chesapeake Bay Program
A Watershed Partnership

The Chesapeake Bay Program brings together local, state and federal governments, non-profit organizations, watershed residents and the region's leading academic institutions in a partnership effort to protect and restore the Bay.

Through a series of Chesapeake Bay agreements, Bay Program signatories – the state of Maryland; the commonwealths of Pennsylvania and Virginia; the District of Columbia; the U.S. Environmental Protection Agency representing the federal government; and the Chesapeake Bay Commission representing Bay state legislators – have committed to reducing pollution, restoring habitat and sustainably managing fisheries. Since 2000, the headwater states of Delaware, New York and West Virginia have joined in regional efforts to improve water quality.

To learn more and find out how you can help, visit the Chesapeake Bay Program website at www.chesapeakebay.net.

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About This Report

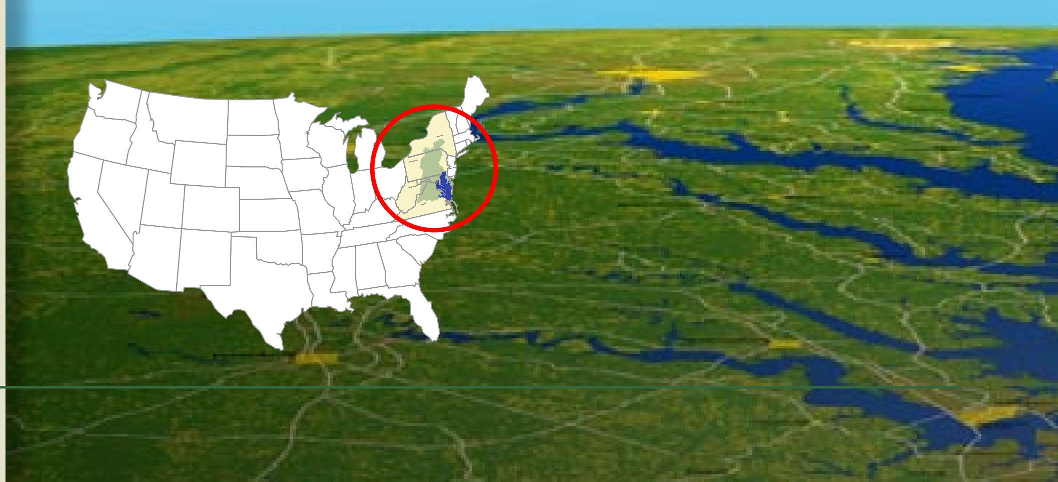
The Chesapeake Bay 2005 Health and Restoration Assessment is presented in two parts. In *Part One: Ecosystem Health*, the most current data available are used to provide a scientifically based assessment of the health of the Bay. In *Part Two: Restoration Efforts*, key restoration actions are measured against long-term restoration goals.

Part One: Ecosystem Health uses monitoring data gathered by Bay Program partners to assess the overall health of the Bay ecosystem over a one-year period. These annual assessments of water quality parameters are affected by freshwater flow to the Bay. High flow years contribute to decreasing water clarity and potentially affect dissolved oxygen and chlorophyll. A three-year assessment that helps to remove the impacts of annual weather-driven events (such as drought and high flow years) is depicted on pages 13 and 14. Where possible, data are compared to existing goals that measure progress toward restoring a healthy Bay. By presenting data in this manner, watershed residents can better understand the health of the Bay relative to what is needed for a balanced ecosystem.

In the Water Quality and Habitats sections of this report, individual parameters are averaged together to provide an overall health assessment for each section. In the Fish and Shellfish section, however, independent data about individual species cannot be combined to provide an overall assessment of the health of Bay fisheries. As ecosystem-based goals are defined in the future, we will compare annual data to population targets needed for a restored Bay system.

For more information about the data, methodology and restoration goals discussed in this report, please visit www.chesapeakebay.net/assess/methods.

This report represents a change in the way the Chesapeake Bay Program annually reports on the health and restoration of the Bay and its tidal rivers. The Bay Program encourages the public to review and comment on this report through May 31, 2006. To submit comments, please visit www.chesapeakebay.net/assess. The Bay Program has also scheduled this report for an independent scientific review later this year. The partnership will incorporate recommendations from both reviews into future efforts.



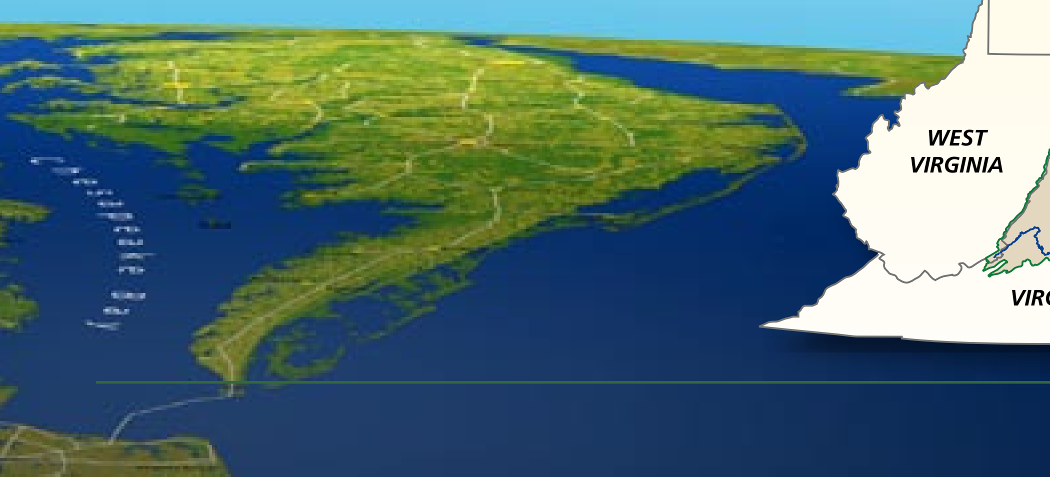
The Chesapeake Bay Watershed

The Chesapeake Bay is an estuary – a place of transition between the land and the sea, where incoming fresh water mixes with salty ocean water. The Chesapeake Bay is a productive ecosystem and is the largest estuary in North America, home to more than 3,700 species of plants and animals.

The Bay's watershed covers an enormous 64,000-square-mile area that includes parts of six states – Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia – and all of the District of Columbia. Billions of gallons of water flow each day through thousands of streams and rivers that eventually empty into the Bay.

While the size of its watershed contributes to its productivity, it also helps contribute to its woes. With a watershed land to Bay water volume ratio seven times that of any other major estuary in the world, the Bay must process runoff from a large amount of land with a relatively small body of water.

A healthy Bay requires balancing the needs of the region's people and economy with the needs of the Bay for clean waters and ample habitat for aquatic life. The goal of Bay restoration is to restore this balance by reducing pollution, protecting critical habitat and ensuring sustainable populations of fish and shellfish.



Health Assessment Summary

The Chesapeake Bay is at a crossroads, with its future health still at stake. For 20 years, restoration efforts have been underway to reverse the decline of the Bay's health, but the cumulative impact of centuries of population growth (currently 16 million) and landscape changes has taken its toll.

Water Quality

Most of the Bay's waters are degraded. Each summer, a large expanse of its waters does not hold enough oxygen to support striped bass (rockfish), crabs and oysters. Algal blooms fed by nutrient pollution block sunlight from reaching the underwater bay grasses needed to support aquatic life. Sediment from urban development and agricultural lands is carried into the Bay, clouding its waters and covering critical oyster reef habitat. Currently, about one-third of Bay water quality goals are being met.

Habitats and Lower Food Web

The Bay's critical habitats and food webs are at risk. Nutrient and sediment runoff have harmed bay grasses and bottom habitat. Excessive algae growth has pushed the Bay food web out of balance. A large portion of the Bay's wetlands has been lost to development. Currently, the Bay's habitats and lower food web are at about a third of desired levels.

Fish and Shellfish

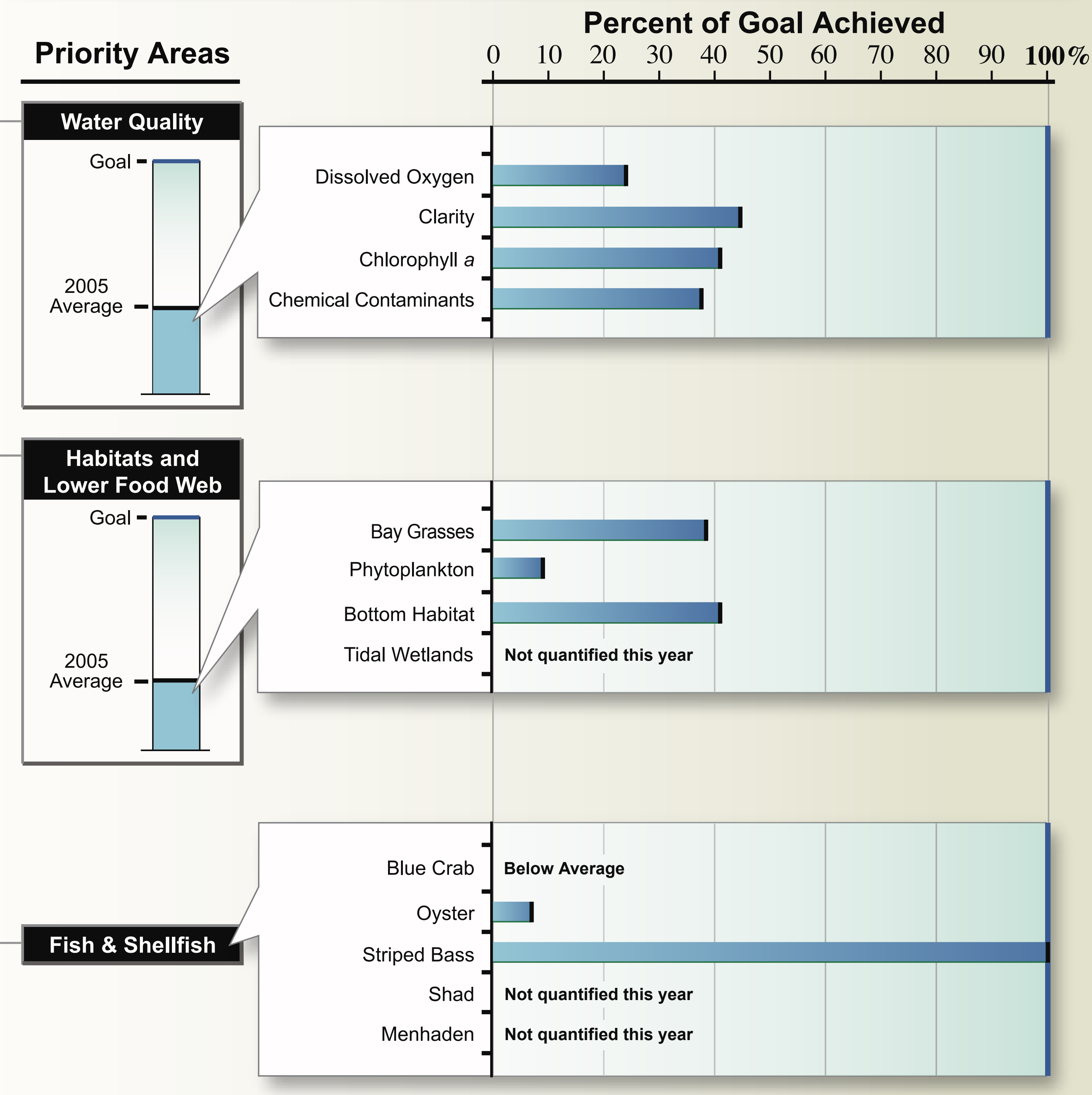
Many of the Bay's fish and shellfish populations are below historic levels. The number of adult blue crabs is below the long-term average for the seventh straight year and oyster populations are at or near historic lows. American Shad are recovering slowly, while other species like striped bass (rockfish) show mixed signals. Current rockfish populations exceed restoration goals, but approximately 60 to 70 percent are infected by a disease called mycobacteriosis. Researchers are currently working to understand the extent and severity of the disease and the extent to which environmental conditions in the Bay influence it. As ecosystem-based goals are not yet developed for fish and shellfish species, data are not averaged in this section this year.

One- and Three-Year Water Quality Assessments

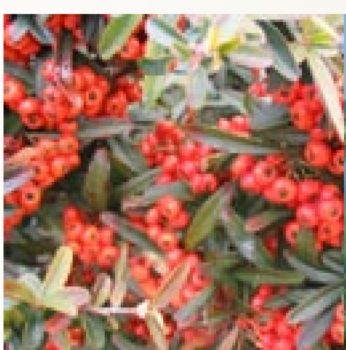
The evaluation of Bay water quality described in the above summary and on pages 5-7 provides an overview of conditions on a year-by-year basis. This analysis highlights the annual variation experienced by the Bay and its aquatic life.

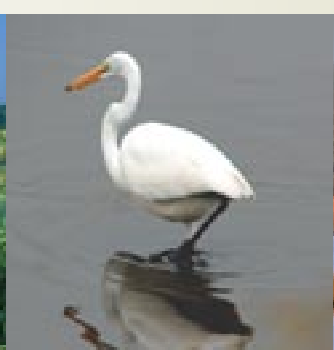
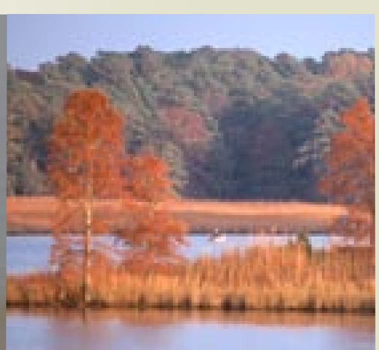
Information presented on pages 13 and 14 details how the restoration effort stands in relation to meeting its ultimate goal of "restoring Bay water quality." This determination will be made by comparing monitored conditions to state water quality standards. To help ensure conditions are not just a result of one year of "good" weather, data collected over the past three years is used to determine compliance with those standards.

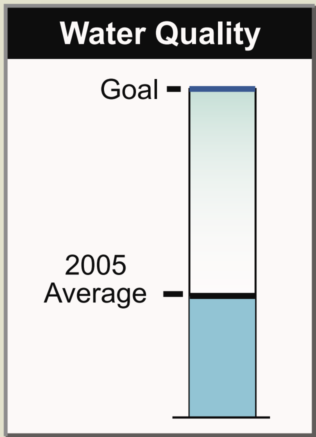
Summary: 2005 Bay Health Assessment



Data and Methods: www.chesapeakebay.net/assess/methods



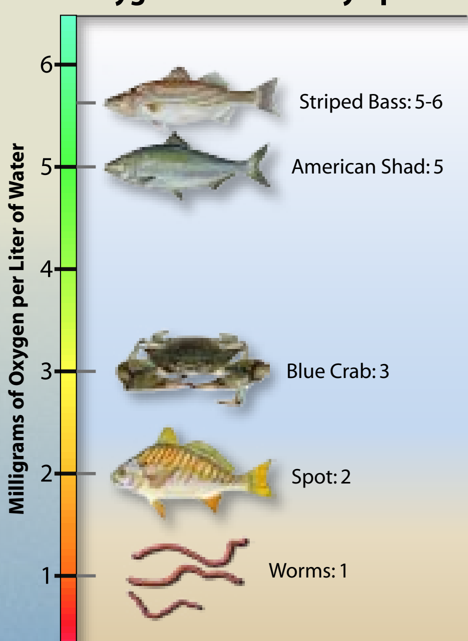





High quality waters are the foundation of a healthy Chesapeake Bay. To support a vibrant Bay ecosystem, waters must become clearer, oxygen levels higher, and the amount of algae and chemical contaminants in its waters must be reduced.

Goals in this section are based on criteria designed to protect aquatic life in the Bay.

Oxygen Needs of Key Species



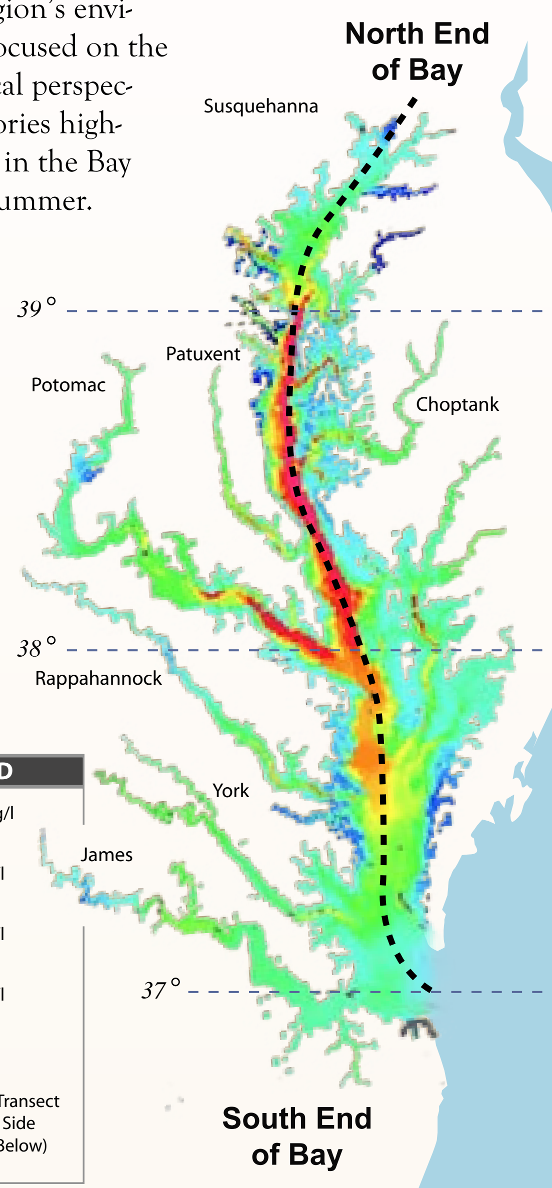
Water Quality

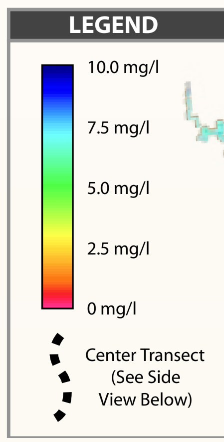
Throughout 2005, many of the region's environmental and economic stories focused on the Chesapeake Bay. From an ecological perspective, one of the most important stories highlighted low oxygen levels observed in the Bay and some of its rivers during the summer.

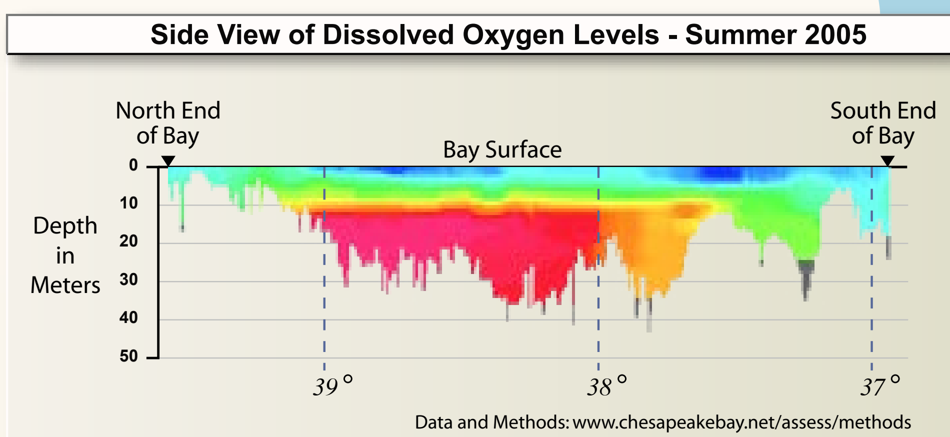
Dissolved Oxygen

Summer 2005 saw near-record low dissolved oxygen conditions in many parts of the Bay. In many areas, levels were insufficient to support resident aquatic life. As the map to the right shows, levels were lowest along the mid-channel areas of the Bay and its rivers, especially in the mid-Bay area. This low dissolved oxygen area lasted longer and covered a larger area than in most years.

Low oxygen conditions are the result of excess pollution combining with weather conditions and the bottom contour of the Bay. In 2005, heavier than normal spring rains washed large amounts of pollution into the Bay. Once there, the





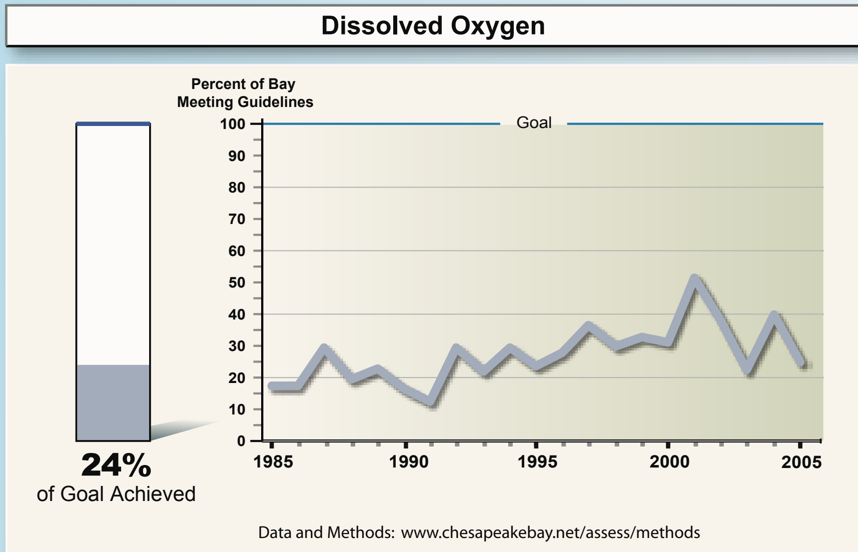


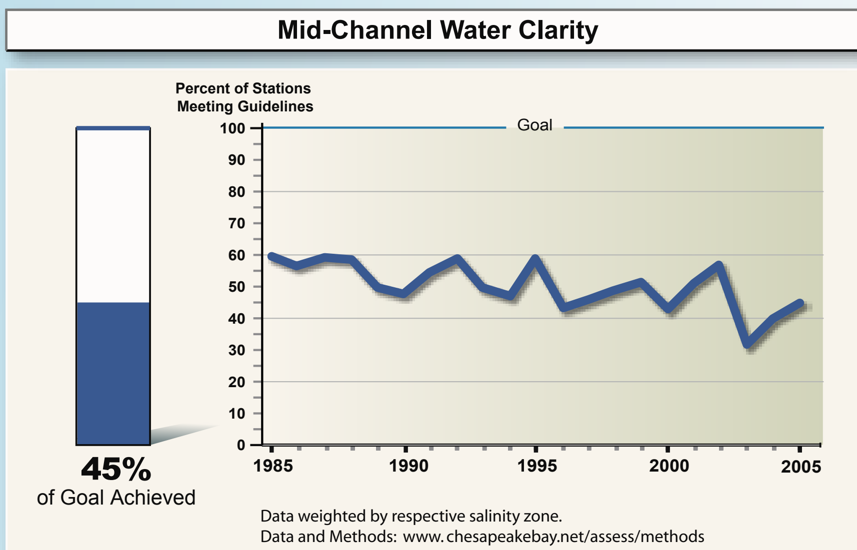
summer's light winds were unable to mix the Bay's waters, and large-scale low oxygen areas persisted in bottom waters. Higher than average water temperatures further reduced the water's ability to retain sufficient oxygen for aquatic life.

As shown in the side view of the Bay, waters near the surface tend to hold more oxygen than waters closer to the bottom. The red areas in the image highlight the anoxic – or oxygen deprived – waters that occupied the Bay's depths during much of the summer.

Like terrestrial animals, the Bay's fish and shellfish need oxygen to survive. During summer months, a large volume of the Bay's waters does not hold enough oxygen to support them. Throughout summer 2005, scientists estimate about 24 percent of the Bay met dissolved oxygen restoration goals designed to protect resident aquatic life.

Over time, large-scale reductions in the amount of nutrients flowing into the Bay will help improve low oxygen conditions.





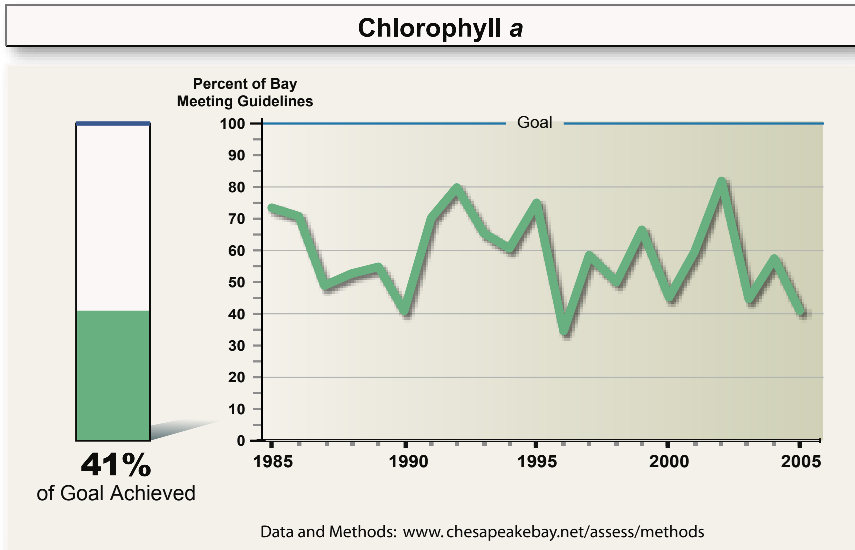
Mid-Channel Water Clarity

Clear waters are indicative of a healthier Bay, with acceptable levels of nitrogen, phosphorus, sediments and algae in the water column.

Water clarity is most important in shallow areas close to shore. Unfortunately, systematic monitoring of shallow water clarity has been underway for only the past few years and there are not yet sufficient data to provide a baywide assessment. In this report, water clarity in deeper, mid-channel, areas is used to indicate general conditions and trends. Based on the mid-channel monitoring network, water clarity in 2005 was better than in the previous two years, but the long-term trend is downward. About 45 percent of approximately 150 monitoring stations reported acceptable levels of water clarity.

Assessed by measuring how far light can penetrate into the water column, improved water clarity will come from reduced amounts of nutrients and sediment flowing into the Bay and its rivers. Water clarity will always fluctuate annually, as it is greatly impacted by weather events, however, reduced nutrient loadings, abundant bay grasses and healthy Bay life will help improve annual conditions.

Chlorophyll *a*



Scientists measure the amount of chlorophyll *a* (the green pigment in plants) in the Bay's waters to assess the amount of algae present. The Bay needs the right amount of microscopic algae to maintain a balanced food web. Too much algae can cause large-scale algal blooms that block sunlight from reaching bay grasses, reducing available habitat to Bay life. Lower algal levels promote better water quality, more available habitat and fewer harmful bloom effects.

In 2005, scientists estimate that about 41 percent of the Bay's waters had acceptable chlorophyll *a* concentrations. Bay scientists attribute the poor conditions to the pulse of nutrients washed into the Bay during the spring's heavy rains.

Chemical Contaminants

Chemical contaminants are not only found throughout the Bay's waters but also in the sediment and in tissues of fish. When they reach certain levels, they can impact aquatic life and human health. One way scientists assess levels of contamination is to examine a group of harmful chemical pollutants called PCBs in tissues of white perch – a resident species of fish found in the Bay's rivers. Since perch tend to stay in the same river for their entire life, they serve as an excellent measure of chemical contaminants for that river.

Surveys suggest that in only 38 percent of the Bay's tidal rivers, white perch PCB levels are low enough for unrestricted human consumption. Generally fish from rivers on the Bay's western shore have higher concentrations than those on the eastern shore, and rivers further north have higher concentrations than those in the south.

Scientists are also concerned about mercury levels in the Bay's waters. Mercury contamination will be addressed in future versions of this report.

2005 River Flow and Pollutant Loads Reaching the Bay

Annual Chesapeake Bay water quality conditions are largely determined by a combination of the amount of pollution deposited on the land and the amount of water flowing into the Bay. As the volume of water flowing into the Bay – or river flow – increases, its potential to carry increased pollutants increases as well.

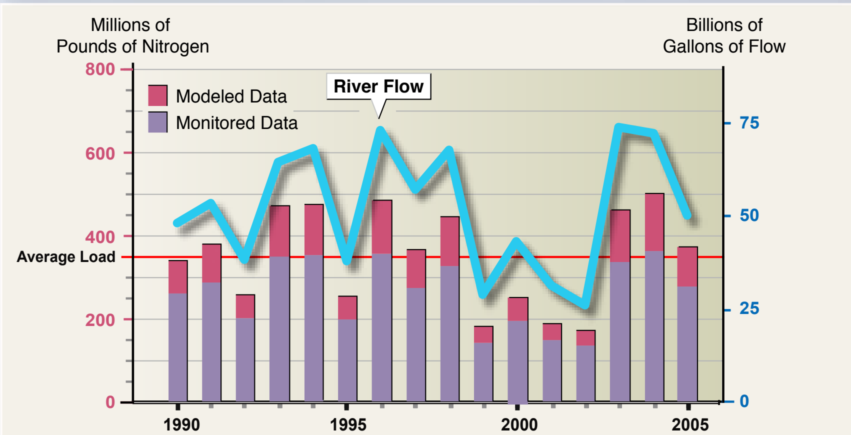
Total river flow to the Bay in 2005 was very close to the long – term average. Pollutant loads were close to average as well. However, their combined impact on the Bay may have been greater in 2005 as a higher than usual portion of the annual load occurred in the critical spring time period.

Precipitation doesn't just increase river flows by washing directly off the land. Some water seeps into the land, carrying nutrients into groundwater. It can take years for these waters and their associated pollutants to slowly travel through underground systems until they reach the streams that drain into the Bay. Some of this year's load actually came from pollution sources that are decades old.

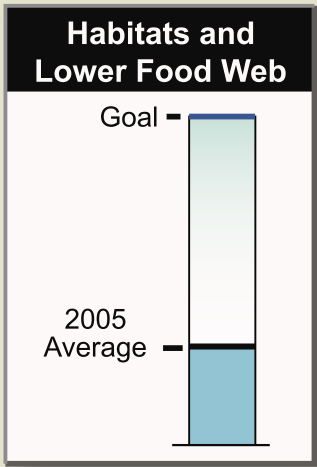
Scientists calculate annual pollutant loads to the Bay through a combination of monitored water samples and modeled information. Whenever possible, scientists measure pollution levels in water samples from the rivers and pipes that flow into the Bay. Model generated estimates are used where monitoring is not practical. By capturing water samples at the point where large rivers meet the Bay, scientists can calculate pollution loads from 78 percent of the watershed. For the remaining area, model generated estimates are used. This unique combination of monitoring and modeling data allows scientists to provide the most complete accounting of the amount of pollution reaching the Bay.

Provisional estimates indicate that approximately 370 million pounds of nitrogen and 26.1 million pounds of phosphorus reached the Bay during the 2005 water year (October 2004 to September 2005). These amounts are well above the restoration target of 175 million pounds of nitrogen and 12.8 million pounds of phosphorus. Additional pollution-fighting measures are being put in place throughout the watershed to reduce annual pollution loads in the future.

River Flow and Nitrogen Loads Reaching Chesapeake Bay



2005 data provisional.
Data and Methods: www.chesapeakebay.net/assess/methods



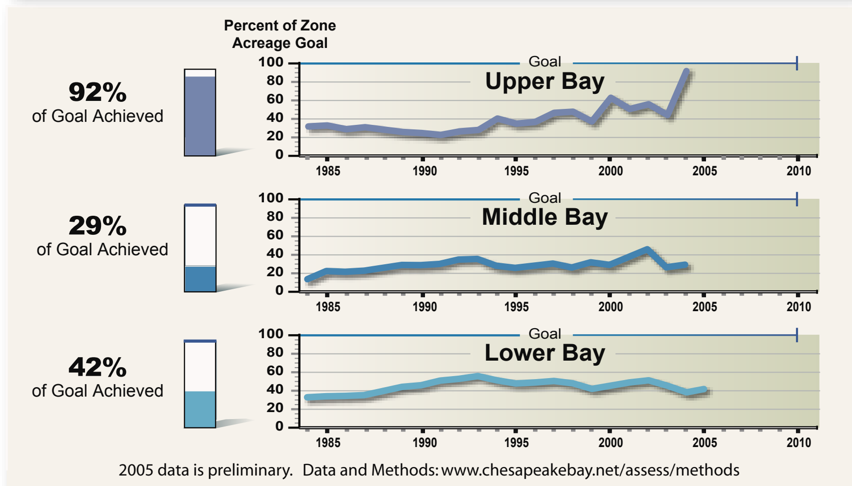
Life in the Bay needs high-quality food and habitat to thrive. From the clams and worms that live within the Bay's bottom, to the rockfish that prowl its open waters, to the juvenile fish and crabs darting among underwater grasses and wetlands, habitat supports the Bay's aquatic life. When healthy habitat is supported by a balanced food web, healthy aquatic communities can flourish. As both of these areas improve, the ecosystem's potential to support larger and more diverse populations of aquatic life expands as well.

Habitats and Lower Food Web

Bay Grasses

Aside from the water itself, underwater bay grasses are one of the most important habitats in the Chesapeake Bay. As their health is closely related to the quality of local waters, grasses serve as an excellent barometer for the overall health of the estuary. Bay grass abundance has a profound effect on the Bay and its aquatic life, as it provides critical habitat to key species such as striped bass and blue crabs while improving the clarity of local waters.

Bay Grass Abundance



2005 data is preliminary. Data and Methods: www.chesapeakebay.net/assess/methods

The most recent baywide data from 2004 show bay grasses covering 72,935 acres – or about 39 percent of the 185,000 - acre baywide restoration goal. Increases in the upper Bay from improved water clarity have led the baywide resurgence of underwater grasses, while acreage has decreased in the middle and lower Bay over the past decade.

Scientists' preliminary acreage estimate for the lower Bay in 2005 is 19,219 acres, a 10 percent increase from the same areas mapped in 2004. Soon after the 2005 survey was conducted, many lower Bay grass beds unexpectedly lost their leaves and died. Scientists will assess how this will impact future bay grass abundance in the 2006 survey.

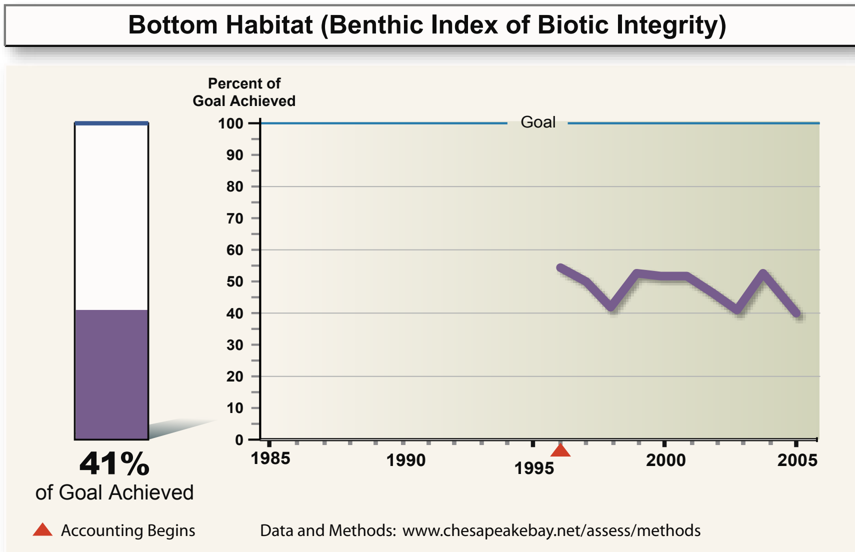
As water clarity improves from nutrient and sediment pollution reductions, bay grass acreage should continue to expand.

Bottom Habitat

The bottom of the Bay is home to bacteria, clams, worms and other creatures that serve as a key food source for higher levels of aquatic life, such as white perch, spot, croaker and crabs.

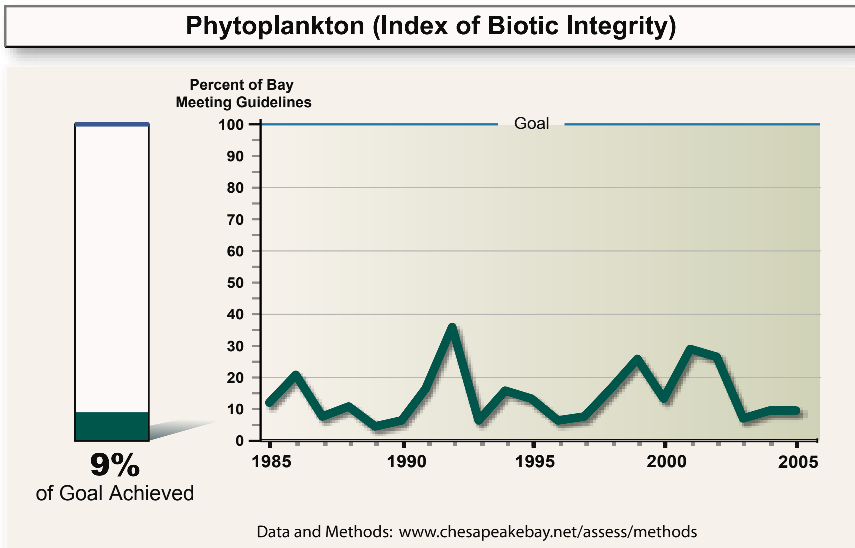
The health of the Bay's bottom dwelling – or benthic – communities is greatly reduced when pollution levels increase and oxygen levels drop. Benthic habitats serve as a good indicator of long-term environmental conditions, as their inhabitants are long-lived, have limited mobility and their responses to stress are well documented.

In 2005, about 41 percent of the Bay's benthic habitat was considered healthy as measured by the composite Benthic Index of Biotic Integrity. This decline is likely due to persistent low dissolved oxygen levels during the summer. Reduced amounts of nutrients, sediment and chemical contaminants flowing into the Bay will help these bottom dwelling communities improve.



Phytoplankton

Phytoplankton – microscopic plants commonly called algae – are an excellent indicator of the health of the Bay's surface waters, as they are especially sensitive to changes in nutrient pollution and water clarity.



Phytoplankton form the base of the food web. While increased populations provide more food to organisms further up the food web, too much or the wrong type of algae can harm the overall health of the Bay. In some cases, harmful algal blooms can impact human health.

Scientists assess microscopic algal community health with a Phytoplankton Index of Biotic Integrity. Data from Spring 2005 show that about 9 percent of the Bay's phytoplankton communities were considered healthy.

Tidal Wetlands

Wetlands link land to the water. In both tidal and non-tidal parts of the Bay, they serve as critical habitat to terrestrial and aquatic life, and act as natural filters by removing pollutants from water before it can reach local streams and the Bay.

Measuring the health and acreage of wetlands throughout the watershed is a difficult and expensive task. Regional scientists are currently developing methods to assess wetland function and track changes in acreage on a watershed level. For more information about wetland improvement efforts, see page 6 of *Part Two: Restoration Efforts*.

The long-term health and sustainability of the Bay's fish and shellfish is critical to restoring ecosystem health. Ample aquatic habitat, clean water and well-managed fisheries are key components to restoring abundant fish and shellfish populations to the Bay.

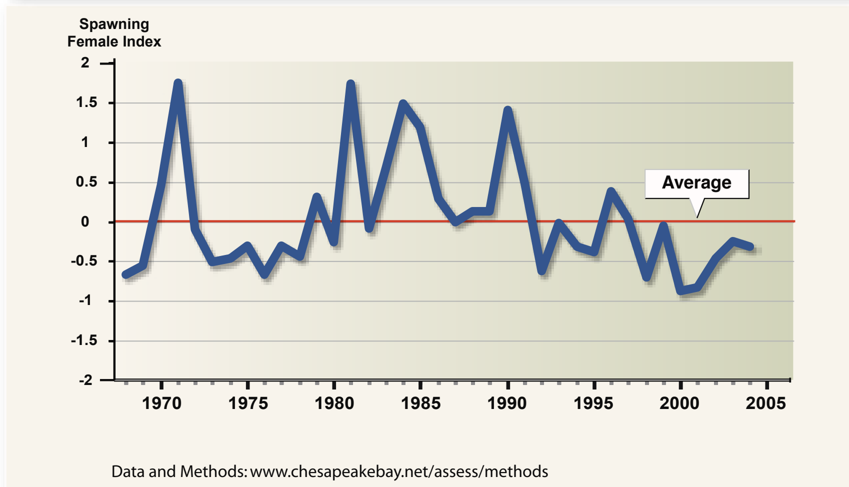
Scientists and natural resource managers are working to develop ecosystem based fisheries management strategies which take into account numerous factors when setting harvest targets, including the species' role in the food web and other water quality, habitat and climatic considerations. As these strategies are further developed and ecosystem goals are defined, the Program will compare annual data to population targets for a balanced Bay system.

Fish and Shellfish

Blue Crab

The number of mature female Chesapeake Bay blue crabs, or spawning stock, remains below the long-term average (a restoration goal has not yet been established). Although some indices have

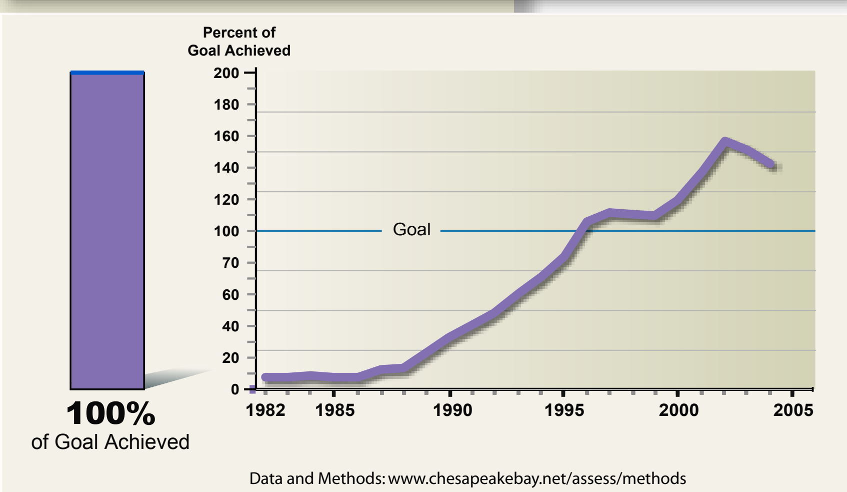
Blue Crab Abundance



Data and Methods: www.chesapeakebay.net/assess/methods

shown improvements in recent years, the Chesapeake Bay Stock Assessment Committee warned that the overall health of the blue crab population warrants continued concern. Fisheries managers in Maryland, Virginia and on the Potomac River are being advised to retain protective blue crab harvest restrictions in order to ensure the long-term sustainability of the blue crab population.

Striped Bass Abundance (Spawning Female Biomass)



Data and Methods: www.chesapeakebay.net/assess/methods

Striped Bass

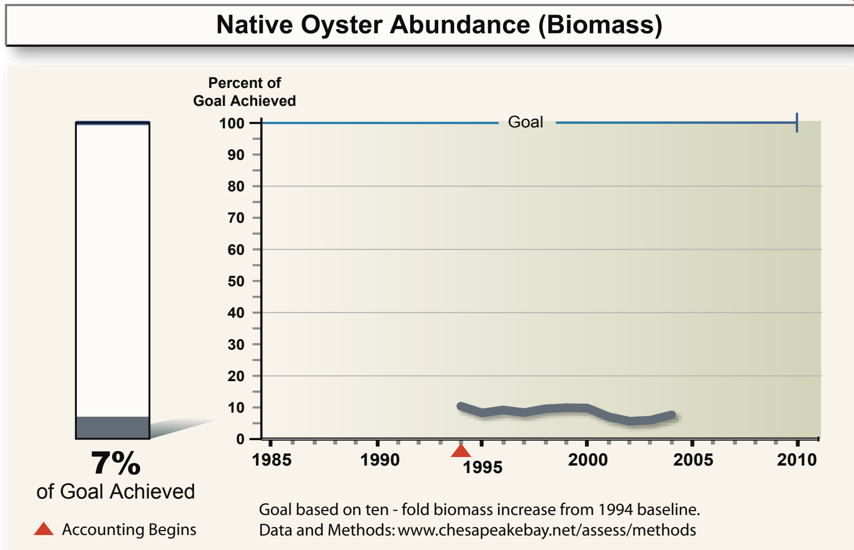
The striped bass – or rockfish – population has dramatically increased over the past decade in the Chesapeake Bay. Scientists attribute this increase to a late 1980s fishing moratorium and responsible fisheries management since the lifting of the fishing ban. In 1995, populations had increased to the point where the species was considered restored. While biomass remains high, data gathered over the past three years show a slight decline.

Scientists are concerned over the species' health, as a large percentage of striped bass suffer from poor nutrition and 60 to 70 percent of the population is infected with the disease *mycobacteriosis*. Research is underway to better understand the disease's impact on

stocks. The current status of Bay striped bass – high abundance but uncertain health – illustrates the need for an ecosystem-based fisheries management approach in Chesapeake Bay. For more information, see page 7 of *Part Two: Restoration Efforts*.

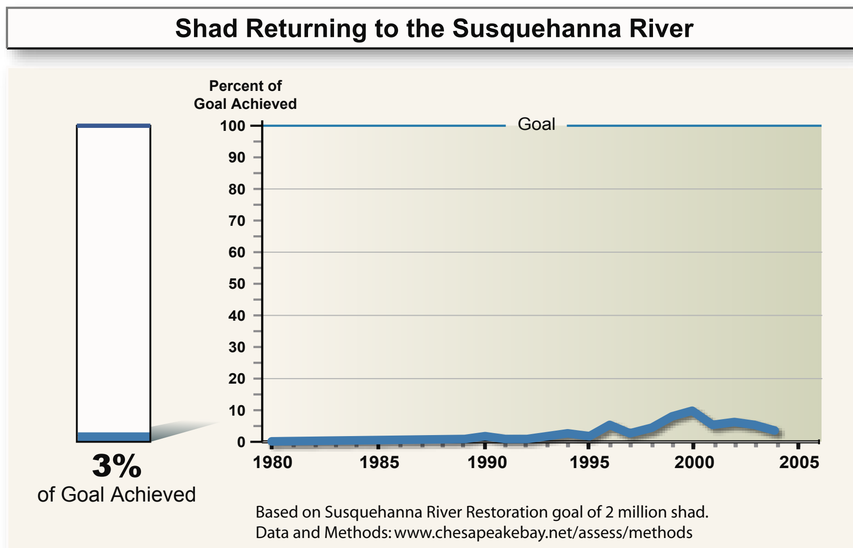
Oysters

For more than a century, oysters constituted one of the Bay's most valuable commercial fisheries. Over-harvesting, pollution and diseases such as Dermo and MSX have caused a severe decline in their numbers throughout the Chesapeake. Scientists estimate that the population of native oysters in the Chesapeake Bay in 2004 is about 7 percent of current restoration goals.



American Shad

The introduction of hatchery raised fish, a moratorium on shad fishing, the removal of dams, and installation of fish passages on key Bay tributaries have helped to increase the number of shad returning to the Bay.



One of the ways scientists currently estimate spawning shad populations is by counting the number of fish annually lifted over Conowingo Dam near the mouth of the Susquehanna River. Annual estimates have increased from several hundred per year in the early 1980s to an average 101,140 per year in 2003-2005. In 2005, 68,926 American shad were counted as they passed over the dam. In spite of their increased abundance, the Susquehanna River population is far below the long-term restoration goal of two million fish.

Assessing annual baywide spawning populations is difficult as each river stock is unique. To provide better baywide estimates, scientists are developing new monitoring methods to estimate populations in other key Bay tributaries including the James and Potomac rivers.

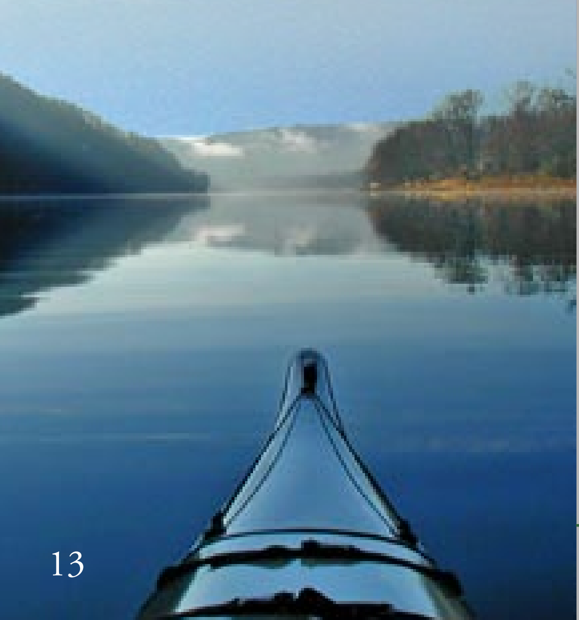
Atlantic Menhaden

Scientists currently do not produce Chesapeake Bay specific population estimates of menhaden. Estimates are made on an Atlantic Coast wide basis. Populations along the Atlantic Coast appear to be healthy, but scientists are concerned with a possible "localized depletion" in the Chesapeake Bay, one of the species' key nursery areas. The number of juvenile menhaden has been declining in recent years, with current recruitment levels being five to ten times lower than the mid-1980s. Since menhaden are an important forage species in the Bay food web, a number of studies are underway to assess their status in the Bay.

With about three-quarters of the nutrient pollution entering the Chesapeake Bay through surface runoff and groundwater, the annual health of the Bay is largely driven by the amount of pollution deposited on the landscape coupled with weather conditions across its vast watershed. Rains, especially heavy downpours, wash pollution off the land and into local streams and eventually the Bay.

In years where there is less rainfall and lower river flow, the Bay's tidal waters will likely be clearer, hold more oxygen and generally be much healthier. Conversely, high rainfall years will generally lead to poorer water quality conditions.

The challenge to Bay restoration leaders is to reduce the amount of pollution flowing into the Bay in *all* years. By restoring the land's ability to naturally filter water and putting in place pollution-fighting practices across the entire watershed, restoration leaders hope to improve Bay health and reduce annual variability.



Assessing the Health of the Bay Over Multiple Years

Three Year Bay Water Quality Assessment

When assessing the Bay's tidal water quality, federal and state regulators examine conditions over the most recent three years to help remove annual weather-driven fluctuations. To meet water quality restoration goals, monitoring data from the Bay and its tidal tributaries must attain a set of criteria measured over those three years.

Dissolved Oxygen

State water quality standards have been developed to meet the dissolved oxygen needs of the Bay's aquatic life. The standards vary with depth, season and duration of exposure. Generally speaking, oxygen rich shallow waters are most essential in the spring during spawning season. Slightly lower dissolved oxygen levels are acceptable at other times of the year and in deeper waters. Water quality data gathered between 2003 and 2005 indicate that about 29 percent of the Bay's waters met dissolved oxygen standards during the summer months.

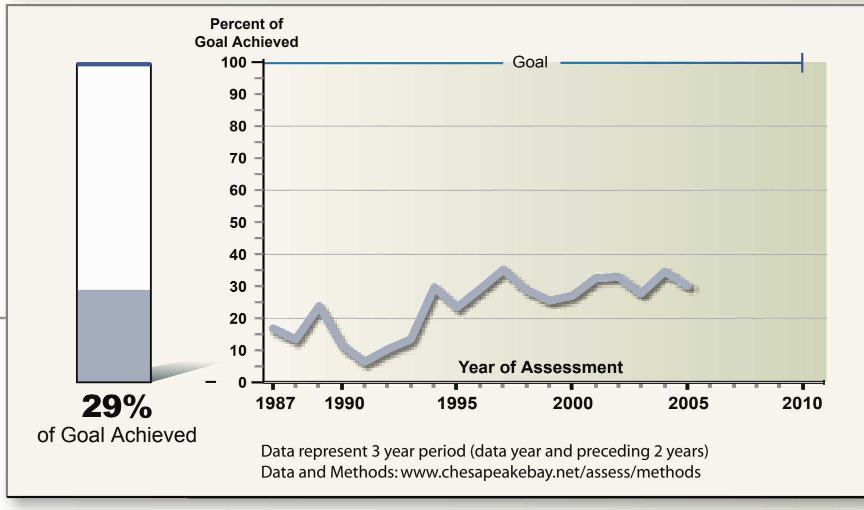
Shallow Water Clarity

Based on bay grass acreage data from 2002 to 2004, 27 percent of the Bay's segments met water clarity standards. Scientists have observed diverging water clarity trends when analyzing data collected from shallow water areas and from mid-channel monitoring stations. Improving trends in bay grass acreage in shallow waters has been observed, while mid-channel clarity data show reduced clarity over time. (See annual mid-channel water clarity information on page 4.)

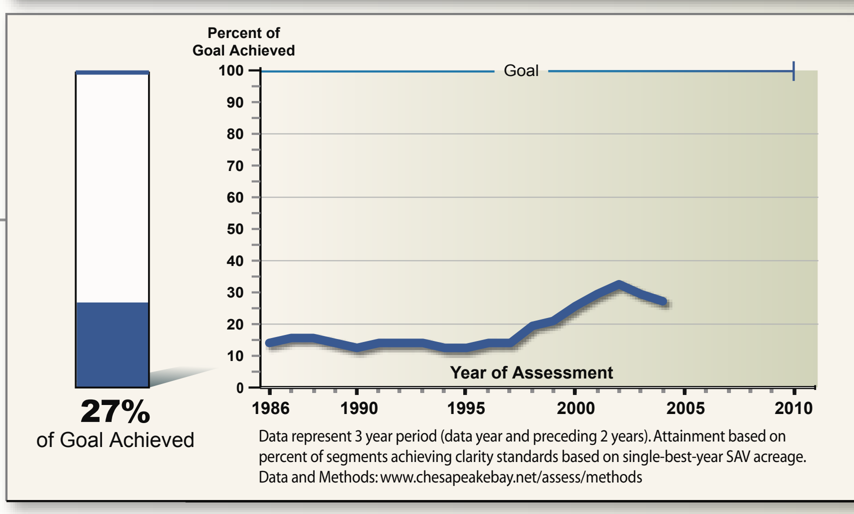
Chlorophyll *a*

For this year's report, chlorophyll *a* guidance from the James River is used to assess this key water quality measure. Scientists are currently working with state and federal regulators to develop science-based chlorophyll standards for adoption into the Bay states' water quality standards. Using the James River guidance, data from 2003 to 2005 indicate that conditions at 48 percent of the Bay's waters met acceptable algae levels as measured by chlorophyll *a*.

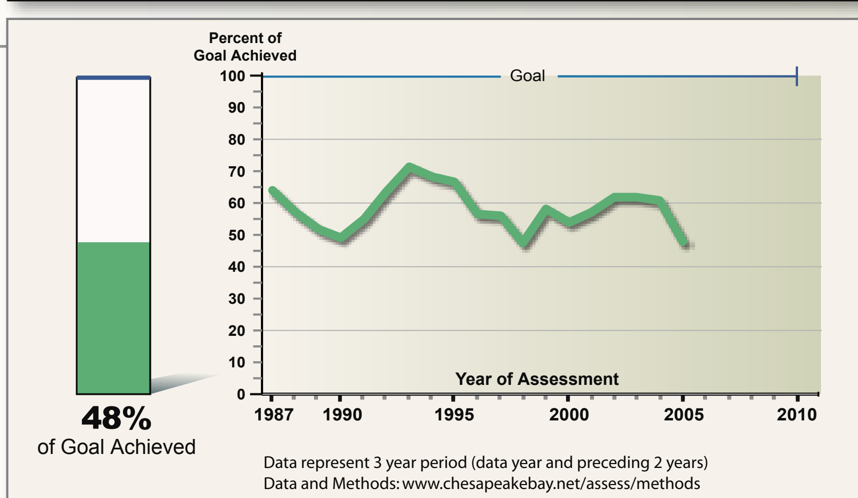
Three Year Dissolved Oxygen Standards Attainment



Three Year SAV-Based Clarity Standards Attainment



Three Year Chlorophyll *a* Guidance Achievement



Chesapeake Bay Program
A Watershed Partnership

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Improving the Health of the Bay

The Chesapeake Bay's ecosystem health remains substantially degraded. Water quality dips dangerously low during some critical periods annually, and essential habitats face constant pressure. The restoration's goal of "abundant, diverse populations of living resources" will require improved fisheries management as well as improvements in water quality and other habitat.

For more than twenty years, watershed residents have worked with government leaders to put in place programs to restore and protect the Bay and its watershed. While those efforts have been numerous and widespread, they have not been enough to yield large-scale improvements in water quality and habitat.

For more detailed information about the work being done to restore Bay ecosystem health, please see *Part Two: Restoration Efforts.*

Image: In April 2005, near record rains washed large amounts of sediment into the Bay, resulting in large sediment plumes in the Bay and many of its rivers. The mainstem plume began at the head of the Bay and carried some 80 miles south to Chesapeake Beach, Md., reducing water clarity for weeks in the upper Bay. Image courtesy of MODIS Rapid Response Project at NASA/GSFC.

**This report was developed by the Chesapeake Bay Program partnership to help inform watershed residents about the health of the Bay and efforts to restore it. Staff from a large number of state and federal agencies, academic institutions and non-governmental organizations contributed data and interpretation to the report, including The Alliance for the Chesapeake Bay, Chesapeake Bay Commission, Del. Dept. of Natural Resources and Environmental Control, DC Dept. of Health, Interstate Commission on the Potomac River Basin, N.Y. Dept. of Environmental Conservation, National Oceanic and Atmospheric Administration, Md. Dept. of Agriculture, Md. Dept. of the Environment, Md. Dept. of Natural Resources, National Park Service, Old Dominion University, Pa. Dept. of Conservation and Natural Resources, Pa. Dept. of Environmental Protection, Pa. Fish and Boat Commission, Susquehanna River Basin Commission, University of Md. Center for Environmental Science, University of Md. College Park, U.S. Army Corps of Engineers, USDA Natural Resource Conservation Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Geological Survey, Va. Dept. of Environmental Quality, Va. Dept. of Conservation and Recreation, Va. Dept. of Game and Inland Fisheries, Va. Institute of Marine Science, Va. Tech University, Versar, W.Va. Dept. of Agriculture and the W.Va. Dept. of Environmental Protection. For a full list of contributing partners, visit http://www.chesapeakebay.net/baypartners.htm.
Images: Chesapeake Bay Program, Chesapeake Bay Gateways Network, National Oceanic and Atmospheric Administration, Duane Raver/USFWS.**