



Chesapeake Bay Program
A Watershed Partnership

Background

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Bay scientists believe that underwater bay grasses, also called submerged aquatic vegetation (SAV), once blanketed nearly 200,000 acres in the shallow waters along the shoreline of the Chesapeake Bay.

These grasses provide essential food and habitat for many important Bay species of waterfowl, fish, shellfish and invertebrates; remove suspended sediments from the water; protect shorelines from waves and erosion; and reoxygenate the waters of the Bay.

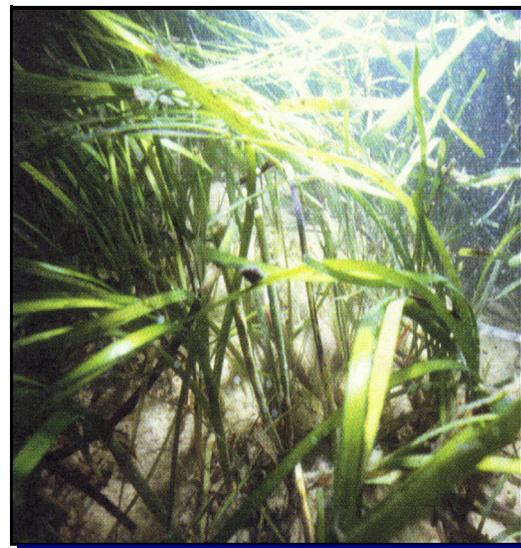
Nutrients, such as nitrogen and phosphorus, as well as sediment in the water have choked the growth of SAV in many areas, and contributed to declines in grass acreage throughout the Bay.

Chesapeake Bay Underwater Grasses

Bay grasses are a unique yardstick for measuring the progress of Chesapeake Bay restoration efforts because they are not under harvest pressure and their health is closely linked to water quality. In recent years both the health and diversity of bay grass communities have been severely threatened, and in 1984 SAV surveys could find only 38,000 acres of grasses throughout the Bay. To help the ailing estuary, the Chesapeake Bay Program partners recently adopted a bold, new goal to restore bay grasses to 185,000 acres in the Chesapeake and its tidal tributaries by 2010.

Bay Grasses Provide Critical Habitat

Sixteen species of underwater grasses are common to the Chesapeake Bay and its tributaries. The distribution of these species depends on their individual habitat requirements. Salinity is the chief factor that influences where particular species will grow and thrive. Eelgrass and widgeon grass prefer the high salinity waters of the lower Bay, close to its confluence with the Atlantic Ocean. Redhead grass and sago pondweed grow in the lower salinity or brackish waters of the upper Bay.



Chesapeake Bay is home to sixteen different species of underwater grasses which serve as vital nursery habitat to many different species of Bay fish and shellfish.

Underwater bay grasses provide important habitat for many aquatic organisms. These plant communities supply food and shelter for many species of fish, shellfish, invertebrates and waterfowl. Minnows dart among the plants and graze on the tiny organisms that grow on the stems and leaves. Microscopic zooplankton feed on decaying grasses and, in turn, are food for larger Bay organisms. Small fish, mollusks and crustaceans, such as blue crabs and clams, find refuge here from larger predators. SAV beds also serve as protective nurseries for many juvenile fish including menhaden, herring, shad, spot, croaker, weakfish and white perch.

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Many SAV species are a valuable food source for waterfowl. In fall and winter, migrating waterfowl such as the American wigeon, green-winged teal and canvasback ducks search the sediment for nutritious seeds, roots and tubers. Resident waterfowl feed on the grasses year-round.

Water Quality and SAV

Underwater grasses not only provide sustenance and habitat to other Bay aquatic species, they also improve water quality by adding oxygen to the water and by anchoring loose soil that otherwise would impair water clarity. Submerged grasses filter excess nutrients, whose overabundance could fuel the growth of algae in surrounding waters.

The single most important factor determining growth and survival rates of SAV is the amount of light that reaches the plants. When light is inhibited from filtering through the water to the plants' leaves and stems, the plants are not able to produce enough food and energy to grow. High sediment levels impair their growth by preventing light from reaching SAV leaves. High nutrient levels also impair SAV by encouraging excess algae growth, which clouds the water and attaches to SAV leaves.

Over the years, SAV growth in the Chesapeake Bay has been hindered by runoff containing nutrients, such as nitrogen and phosphorous, and sediment. The Bay's SAV beds are sensitive to man-made influences, such as storm water runoff, as well as weather events, including either extreme drought or unusually wet summers with intense storm activity, such as Tropical Storm Agnes in 1972. The sensitivity that renders bay grasses so vulnerable to fluctuations in water quality also enables SAV to respond fairly rapidly to improvements in their environmental conditions, which makes them excellent barometers of overall Bay health.

The New Baywide SAV Restoration Goal

In the *Chesapeake 2000* agreement, the Chesapeake Bay Program partners committed to reassess bay grass restoration goals. On April 15, 2003, the Chesapeake Bay Program adopted a new goal to restore SAV to 185,000 acres in the Chesapeake and its tidal tributaries by 2010.

The Bay Program based this new goal on the historic abundance of SAV. Using aerial surveys of bay grasses conducted between 1938 and 1964, Bay scientists measured the acreage and density of SAV beds from the 1930s to the present. Given the limited nature of the early Bay surveys and that attainment of the goal is likely to be determined on a single year or short series of years basis, the scientists set a segment-by-segment goal that reflected the most SAV observed in any segment in one year during the 1938-2000 time frame.

The new SAV goal represents a more meaningful, science-based goal for SAV restoration and protection. By taking into account the real potential for SAV growth in areas showing historic grass beds, the goal is based on the condition of the locations to which it is being restored. Today, better science allows us to estimate where SAV grew previously. Scientists now understand that even with pristine water quality conditions, SAV will only occupy about one-third of the available baywide habitat.

In 2004, data gathered for the Chesapeake Bay Program by the Virginia Institute of Marine Science estimate that underwater grasses covered approximately 72,935 acres of the Bay and its tidal rivers - about 39 percent of the long-term restoration goal of 185,000 acres. Recent trends document a resurgence of grasses in the upper Bay, while middle Bay levels have been relatively stable. Trends indicate recent losses in the lower portion of the Bay.

For more information about underwater grasses in the Chesapeake Bay, please visit our website at <http://www.chesapeakebay.net/baygras.htm>.