Striped bass, bay anchovy, and blue crab make up the Fisheries Index, which is not included in the Bay Health score. Bay anchovy are a schooling fish, providing an important food source for predators. Striped bass is a key top predator and uses the bay as a spawning and nursery area. Blue crabs are omnivores that will burrow in aquatic grasses as habitat. There is no score in the report card for 2020 as striped bass data were not available.

Aquatic grasses, or submerged aquatic vegetation, are one of the most important habitats in the bay. They provide habitat to key species like blue crab and striped bass and can improve water clarity.

Water clarity is a measure of how much light penetrates through the water column. Water clarity plays an important role in determining aquatic grasses and phytoplankton distribution and abundance.

Chlorophyll a is used as a measure of phytoplankton (microalgae) biomass. High phytoplankton levels lead to reduced water clarity, and decomposing phytoplankton result in reduced dissolved oxygen levels.

The Social Index uses data about social vulnerability from the U.S. Census. Social vulnerability measures how a community can respond to hazardous events. Some of the metrics include socioeconomic status, diversity, minority status, and language. Data are from 2018.

The Heat Vulnerability Index is an indicator of climate-safe neighborhoods that includes metrics for tree canopy, impervious surface, land surface temperature, and households in poverty. Data are from 2018.

The Stewardship Index examines citizen stewardship in the watershed in categories of behavior, volunteerism, and civic engagement. Data are from 2017.

Walkability measures how many people can walk to a park in 10 minutes. It includes two metrics, one for the total population and one for diverse groups, including people who are Black, Asian, Native American, Hispanic, Pacific Islander, two or more races, and other races. Data are from 2019.
Moderate bay health and good watershed health in 2020

Overall, Chesapeake Bay scored 45% in 2020, a slight increase from the previous year. Bay-wide, dissolved oxygen scored 87% in 2020, an increase from 2019. The benthic community score remained low for a second year at 37%, a drop from 59% in 2018. Water clarity scored 8%, a slight decrease from last year’s 10%. Aquatic grasses scored 33%, a slight decline from last year’s 35%.

New indicators added to a clearer picture of Chesapeake Watershed health

This is the second year the watershed has been scored, but this year includes four new indicators (see below stories and back page for details). Three categories represent watershed health—aquatic, terrestrial, and societal. Within each category, indicators were assessed against thresholds or goals for each of the 23 regions.

Overall, the Chesapeake Watershed scored 64%, a slight increase from last year. Total nitrogen scored 59%, a decrease from 66% in 2019. Stream benthic community score 51%, a strong improvement from 46%. The Social Index scored 59% and the Stewardship Index scored 34%. The Vulnerability Index scored 56% and walkability scored 62%.

Health trends

The highest-scoring region was the Lower Bay (57%). The lowest-scoring region was the Patapsco and Back Rivers (23%). Long-term trends are still showing improvement. Seven regions are showing significantly improving trends over time, and the overall bay is showing a slightly improving trend.

Protecting land in the watershed is a priority

Protected lands is a new indicator in 2020, and scored 74% (B). Conerving land is critical for the health of the watershed and is part of the Chesapeake Bay Program’s Watershed Agreement. This Agreement, signed in 2014, strives to preserve 2 million acres by 2025. The goal is to conserve landscapes to maintain water quality and habitat; sustain forests, farms, and maritime communities; and conserve lands of cultural, indigenous, and community value. The protected lands indicator examines all valuable lands (which includes land to conserve for forests, wildlife habitat, and cultural and natural heritage) and compares them to the land protected with the Chesapeake Conservation Partnership goal to protect 30% of the land by 2030. The data used was from 2018.

A healthy local economy supports a healthy bay

Stewardship by individuals and communities is vitally important to enhance and maintain the health of our local watersheds and the bay as a whole. Small actions and behaviors of millions of individual people across the watershed add up to big results for healthy waters. The Chesapeake Bay Program developed the Stewardship Index, which examines individual stewardship within the categories of behavior, voluntarism, and civic engagement. These data can tell local success stories and identify areas for increased efforts. The Stewardship Index is a new report card indicator in 2020, and scored 36%. The data used was from the initial survey (in 2017) of 5,212 watershed residents, and is used as a baseline for measuring future improvement.

Bay health fluctuates between C and C+ over the past 5 years

Since late 2020, new local economy indicators for the watershed have been developed. These indicators strive to go beyond Gross Domestic Product and basic employment data by focusing on a holistic picture of healthy local economies. Five indicators covering income to equality to entrepreneurship will add up to big results for healthy waters. The Chesapeake Bay Program incorporated elements that contribute to local economic strength. County-level data are provided by the American Community Survey and U.S. Census and compare local economic factors within the Chesapeake Bay watershed. These indicators are being developed by Coordi-Fin, a global management consultancy organization, in partnership with UMCES.

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Environmental equity is vital for our communities

Diversity is what makes the communities of Chesapeake Bay special

The Chesapeake Bay watershed includes a huge area of land and water, covering six states and the District of Columbia. The people living in our region are diverse and varied across their communities. Incorporating socio-economic indicators that take into account issues of social justice, equity, inclusion, and diversity are vitally important. In the Chesapeake Bay Watershed Report Card, there are currently three indicators that address some diversity issues: the Social Index, walkability, and the Heat Vulnerability Index. Additional indicators will be added next year, especially those that address economic disparities. In early 2021, UMCES held a course on developing an environmental justice index for the Chesapeake Bay watershed. For further details visit: https://ian.umces.edu/publications/developing-a-framework-for-an-environmental-justice-index-in-the-chesapeake-bay-watershed/.

An easy walk to a park benefits people and communities

A new indicator this year is walkability which had a good score, 62%. It measures how many people can walk to a park within ten minutes. This idea was developed by the Trust for Public Land. Access to parks within a ten-minute walk provides space for people to gather with friends, exercise, and maintain mental health in a safe outdoor environment. Often, communities of color and underrepresented communities do not have the same access as other groups. Walkability includes two metrics. One is the total amount of people that can walk to a park. The second examines how many people in diverse groups can walk to a park. Diverse groups include people who are Black, Asian, Native American, Hispanic, Pacific Islander, two or more races, and other races.

Climate safe neighborhoods are key in the face of climate change

A Heat Vulnerability Index, developed by NASA and Groundwork USA, is a new indicator in the report card. The Heat Vulnerability Index had a moderate score, 58%. This index includes four metrics: tree canopy, impervious surface, land surface temperature, and households in poverty. The index identifies places where there is greater vulnerability of people to heat-related and flooding-related risks, which are often in neighborhoods with race-based housing discrimination. Other groups at risk are communities of color, low-income communities, children, and the elderly. This index can help managers prioritize locations for restoration projects such as tree plantings and conversion of abandoned impervious surfaces to green space.

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