



# Executive Summary: 2020 Integrated Report

The Final 2020 Integrated Report (IR) provides the results of Virginia’s water quality assessments using data collected from Jan. 1, 2013, through Dec. 31, 2018, and describes the extensive efforts to monitor, assess and improve water quality in the commonwealth.

A primary objective of the IR is to determine whether Virginia’s waters support the six designated uses mandated by Virginia’s Water Quality Standards – namely, aquatic life, fish consumption, shellfishing, recreation, public water supply and wildlife. If a waterbody exceeds the pollutant level allowed by water quality criteria, or is below a specified threshold for supporting aquatic life, it will not support one or more of its designated uses. Such waters are considered “impaired” and placed on the List of Impaired Waters. According to the 2020 IR, bacteria, toxics in fish tissue and low dissolved oxygen (DO) remain the leading causes of impairment in Virginia waters.

When a waterbody is classified as impaired, DEQ initiates a watershed study called a Total Maximum Daily Load (TMDL) for the affected area. Waters are removed from the impaired list by providing new data to the U.S. Environmental Protection Agency (EPA) that shows attainment of water quality criteria, or updating assessment methodologies. In the 2020 IR, DEQ proposes removing 395 waterbodies from the list. To date, the agency has completed 943 TMDL plans.

2020 IR Assessment Results			
	Rivers (mi)	Lakes (acres)	Estuaries (sq mi)
<b>Totals</b>	100,953	117,752	2,842
<b>% Non-Impaired</b>	6%	16%	11%
<b>% Impaired</b>	16%	80%	75%

Leading Causes of Impairment in Virginia Waters			
	Rivers (mi)	Lakes (acres)	Estuaries (sq mi)
<b>Total Impaired</b>	15,857	94,789	2,136
<b>Bacteria</b>	11,919	1,943	127
<b>Toxics in Fish Tissue</b>	3,668	87,599	2,056
<b>Dissolved Oxygen</b>	705	12,379	1,655

## Differences observed between the 2018 and 2020 IR cycles

While overall state numbers of assessed river miles, lake acres and estuarine waters stayed relatively the same, some notable changes include:

- An increase in overall total assessed lake acres resulting from new monitoring on Lake Mooney in Stafford County.
- TMDLs completed in the New River watershed to address Polychlorinated biphenyls (PCBs) in fish tissue and moving over 4,000 lake acres from Category 5 to Category 4.

## Chesapeake Bay Monitoring Results in Virginia



During the 2020 cycle, the Elizabeth River and its tributaries – among the most degraded in the Chesapeake Bay – continued to show improvement in DO levels during non-summer months.

*(Photo courtesy of the Chesapeake Bay Foundation.)*



All of the James River segments met the open water DO criteria for the 2020 cycle; however, algae growth problems still persist in the tidal fresh portion, as indicated by chlorophyll levels.

*(Photo courtesy of the Chesapeake Bay Foundation.)*



The most recent estuarine benthic assessment results show full attainment in the mainstem Bay. It is anticipated that overall improvement in Bay health will continue as Virginia's Watershed Implementation Plan continues to be put into action.



The total statewide Submerged Aquatic Vegetation (SAV) acres goal of 63% was attained during the 2020 cycle, which is up from 55% in 2018 and 47% in 2016.

*(Photo courtesy of the Chesapeake Bay Foundation.)*

## Monitoring Water Quality in Virginia

Virginia's comprehensive water quality monitoring strategy integrates both fixed-site (i.e., ambient or trend) and probabilistic monitoring (ProbMon) techniques to improve our understanding of water quality conditions.



These programs aim to answer two questions:

**1. “What is the health of my favorite waterbody?”**

Fixed monitoring programs are designed to sample waterbodies on a rotating basis. These data are not collected to determine the health of a waterbody on a given day, but rather they characterize the overall ambient conditions over the course of a longer-term assessment window.

**2. “What is the general health of waters in Virginia?”**

The freshwater ProbMon program represents a smaller network, averaging about 50-60 sites per year, of randomly selected monitoring stations in rivers and streams that provide an unbiased statewide characterization of water resources with a known degree of statistical confidence. The estuarine ProbMon program uses data from about 50 randomly selected sites per year in estuaries to conduct weight of evidence assessments.

## Looking Ahead: 2022 IR Cycle

The expectations for the upcoming 2022 IR cycle include:

- Implementing new assessment methodologies for updated water quality criteria focused on bacteria and chlorophyll in the James River, among others.
- Disaster funding dedicated to making monitoring and assessment information more accessible to the public, including contributing to the development of EPA's How's My Waterway portal.