



## Virginia Department of Environmental Quality Geospatial Data Fact Sheet

# Monitoring Plan Stations

### Dataset Summary

This Virginia DEQ (VADEQ) data layer displays the locations of water quality monitoring stations that will be sampled in a calendar year. The data include a description of the station location, the survey program code indicating the type of monitoring occurring, parameters and frequency, and the Station Identification code. Every year the Department of Environmental Quality (DEQ) Water Division makes available to the public its annual monitoring plan (MonPlan). The MonPlan summarizes the water quality monitoring activities conducted during each calendar year, from 1 January to 31 December. The MonPlan is developed for the purpose of implementing the goals and objectives of DEQ's 2013 Water Quality Monitoring Strategy. This water quality information is presented in compliance with the Virginia Water Quality Monitoring, Information, and Restoration Act (§ 62.1-44.19:5.) to help ensure public awareness of water quality issues and conditions.



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## Dataset Description and Purpose

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This Virginia DEQ map indicates the waterbody where stations are located, for example the York River or the Chesapeake Bay. Station markers are color coded by major monitoring programs which indicate the types of samples collected

The Annual Monitoring Plan for the DEQ's ambient water quality monitoring program is the focus of these data.

- The map displays each monitoring station based on the primary program for which sample collection will occur over the course of the year.
- Specific details contained in the monitoring plan can be obtained at this link [Annual Water Quality Monitoring Plan](#).

The map, Monitoring Plan Stations, can be used to determine which locations across the Commonwealth the Department will be conducting sampling. Viewers who are interested in the Department's activities near their property can see where samples will be collected and the types of sample collected as well as how often.

These data are also used to determine consistency with the Department's Water Quality Monitoring Strategy and with individual Quality Assurance Project Plans . The data are also used to determine if projections are within the current spending goals. The Monitoring Plan data are also used by the Department of General Services, Division of Consolidated Laboratory Services managers to anticipate staffing needs and other laboratory resources.

## Resource Constraints / Use Limitations

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These Monitoring Plan Stations are derived from the Annual Water Quality Monitoring Plan developed at the end of each calendar year and generally are accurate as to activities expected to occur for the next year. Some of the new stations that are sited each year for the Freshwater Probabilistic program and the National Coastal Condition Assessment program may not be accessible when sampling. Some of the reasons are that the site is too shallow, it is a intermittent stream, or it would be unsafe to expose field personnel to site conditions. Backup sites are available in these cases and don't appear in the Monitoring Plan Stations layer at the time the map layer was produced. Generally out of thousands of stations sampled each year there are fewer than 10 stations that meet these criteria.

## Data Disclaimer

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This geographic information system (GIS) data is made available as a public service.

**This dataset is to be used for reference purposes only and Virginia Department of Environmental Quality is not responsible for any inaccuracies herein contained.** No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use, or misuse of the information herein provided. GIS information is in the public domain and may be copied without permission; citation of the source is suggested.

The information contained within this geospatial dataset is for reference purposes only and is **not** to be construed or used as a "legal description" or for legal purposes. This information is believed to be accurate, but accuracy is not guaranteed. Information drawn from this dataset must be used in consultation with appropriate federal, state, or local resource management officials. Any errors or omissions should be reported to Virginia Department of Environmental Quality via [email](#), or via the contact listed within

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this Fact Sheet.

These data and more from across the Nation can be obtained from the [Water Quality Portal](#). The Water Quality Portal is the data storage location for the Nations ambient water quality monitoring efforts. Also sediment and biological data are available from the Portal.

For data specific to VADEQ the Organization Identification, ORG ID, is 21VASWCB. Virginia is one of the few states to have opted to include all historic water quality data in the Portal. These include all data from Legacy STORET (1941 to 1998) and all new data beginning in 1999 to present.

The data that are available from the Water Quality Portal includes field and laboratory test results from stations identified in the Monitoring Plan. Typically field data are available within two weeks of sample collection and laboratory data within several months due to laboratory turnaround and Quality Assurance review.

**Update Cycle:**

**The dataset is updated on a Annual basis**

**Dataset Credits:**

**The dataset is owned by the VA Department of Environmental Quality, Water Quality Monitoring Division**

## Data Quality

The accuracy of this dataset is based on a point chosen by staff to represent the location where sampling will occur. Most of these stations have been selected from sites with long histories of monitoring, records that can span four decades. Other newer sites have been selected to target specific watersheds, estuaries, and stream reaches to study water quality for a specific issue related to previous conditions that indicate the need to gather more information. And the final subset are new stations that are randomly assigned a location based on a geospatial algorithm to represent a larger population, similar to conducting a poll of public opinion where 1,000 people out of 331 million Americans are sampled. These preassigned stations are divided by waterbody type with one subset being targeted at free flowing freshwater streams and the other being targeted at open tidal waters. In some cases these preassigned sites may not be reachable or safe to sample only when visiting the sites for the first time and as a consequence a backup list of random sites allows for substitution. In these cases the Monitoring Stations map will not display these substitutes.

## Spatial Reference Information

EPSG 3857: WGS 84 / Web Mercator – Spherical Mercator: <https://epsg.io/3857>

## Data Dictionary / Field Information.

Field Name	Field Alias	Field Summary
<b>STREAM_NA</b>	Stream name	Name of the stream as taken from USGS topographic maps.
<b>STATION_ID</b>	1 through 9, First letter designates major basin.	1= POTOMAC & SHENANDOAH, 2= JAMES, 3= RAPPAHANNOCK, 4= ROANOKE & YADKIN, 5= CHOWAN, DISMAL SWAMP & ALBEMARLE SOUND, 6= TENNESSEE & BIG SANDY, 7= CHESAPEAKE BAY, OCEAN, & SMALL COASTAL, 8= YORK, 9= NEW.
<b>(VADEQ station identification.)</b>	A, B, C, D, or -	A through D, The second character is the sub basin.
	A through Z	The next three characters are the stream designation.
	###.##	The last numbers are the rivers miles from the mouth of the stream to the monitoring station point.



<b>STATION_DE</b>	Station Location Description	Brief description of where the station is located.
<b>LATITUDE</b>	Decimal degrees Latitude	Horizontal Collection Method via Interpolation Map.
<b>LONGITUDE</b>	Decimal degrees Longitude	Source Scale = 24,000. National Coordinate Reference System NAD83.
<b>PROGRAM</b>	Survey program code	Two digit survey identification.
<b>PROGRAM_DE</b>	Description of the survey program code	The following survey program codes are included in the 2023 monitoring plan.
	AL	Filamentous algae collection to assist in the development of monitoring protocols.
	AW	The ambient watershed network of stations represents the largest single section of the monitoring program. AW stations are those that are sampled within a major river basin every other month for two years and then rotated to a new set of stations in another basin the following two years, thus completing a statewide cycle in six years.
	BN	The Chesapeake Bay non tidal network expands water monitoring in the Chesapeake Bay tributaries beyond just the tidal sections. These stations are important for characterizing headwater areas and tracking progress toward nutrient and sediment load reductions under the Chesapeake Bay Watershed Implementation Plan.
	C2	The Estuarine Probabilistic Monitoring Program follows national guidelines and encompasses approximately 55 sites each year. Estuarine prob mon data supports weight-of-evidence assessments in the tributaries of the Bay.
	CB	The Chesapeake Bay monitoring program encompasses a multi-state water quality characterization effort, covering the extensive tidal portions of Virginia's Bay's tributaries, mainstem, small creeks and embayments.
	CM	CM stations are identified via a public nomination process that runs from January through April each year. DEQ accommodates as many citizen nominations as possible, and these stations are added to the agency's annual monitoring plan.
	FP	The freshwater probabilistic monitoring program covers the nontidal free flowing waters of the state. The program is designed to answer the question of what is the overall water quality of the Commonwealth's free-flowing streams.
	FT	The fish tissue and sediment monitoring program is focused on collecting chemical contaminants data in fish tissue and sediment needed to assess the levels of residual heavy metals and PCBs statewide. Sampling stations are selected from three to four basins annually on a rotational basis with the goal of covering each basin once every four or five years. The data is used for the development of PCB and mercury TMDLs, to monitor progress once an Implementation Plan is in place, and for conducting water quality assessments
	HB	HB monitoring stations and analytical services are associated with evaluations of sediment nutrients at harmful algal bloom monitoring sites in Lake Anna. Estimates for standard harmful algal bloom investigations are not reflected here. These analytical costs are incurred by Virginia Department of Health rather than DEQ and permanent stations are not established at these sites.
	HF	High frequency bacteria sampling in support of water quality assessment. Sites are sampled at least 10 times in a 90-day period for full assessment of the recreational designated use.
	IM	Post TMDL implementation monitoring to track the progress of TMDL efforts following installation of best management practices and other controls on pollution sources.
	PE	The Potomac Embayment study is targeted at the shallow waters of Pohick Creek (Pohick Bay & Gunston Cove) tidal embayments, Occoquan River (Belmont Bay), Dogue Creek, Neabsco Creek, Chopawamsic Creek, Quantico Creek, Aquia Creek, and Potomac Creek using continuous monitoring.
	PX	PFAS special study monitoring and freshwater trend stations USEPA Method 1633, funded by the General Assembly.
	RB	The biological monitoring program establishes stations to determine the health of the benthic macroinvertebrate community as a tool to detect water quality conditions. The methodology follows the U.S. EPA Rapid Bioassessment Protocol II.
	RL	The reservoir monitoring program targets Virginia's largest lakes and others by prioritizing the significance based on several criteria. Generally the largest lakes are sampled every year, and the others are sampled based on a rotating schedule. For this monitoring cycle 114 reservoirs will be sampled.
	SS	Special studies are identified by individual project plans and are generally specialized, intensively targeted monitoring efforts designed to answer specific hypothesis related to water quality conditions.
	TM	Total maximum daily load monitoring stations are associated with the development of a TMDL implementation plan for segments listed on the 303(d) list of impaired waters (not meeting water quality standards for designated uses), which indicate the segments that need a cleanup plan.
	TR	Trend stations are those long-term stations sited for permanent monitoring for the purpose of detecting short-, medium- and long-term water quality trends for a wide variety of environmentally important water quality parameters.

<sup>1</sup> Virginia Department of Environmental Quality Millennium 2000 Water Quality Monitoring Strategy (2013 Revision), Virginia Department of Environmental Quality, 1111 East Main Street P.O. Box 1105 Richmond, VA 23219, USA.

<sup>1</sup> QUALITY MANAGEMENT PLAN FOR THE DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER PERMITTING DIVISION OF WATER PLANNING, Revision Version: 8, 10/30/2015, Commonwealth of Virginia Department of Environmental Quality, 1111 East Main Street, P.O. Box 1105, Richmond, VA 23219, USA.

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