*Overview*
DEQ is dedicated to ensuring cleaner water, enhancing air quality, advancing renewable energy, and protecting our land. As a state agency, DEQ gathers data on Virginia's environment and provides public access to this information through various digital tools and resources. Explore the sections below to discover more.

What public-facing environmental data tools and resources does DEQ have available online?
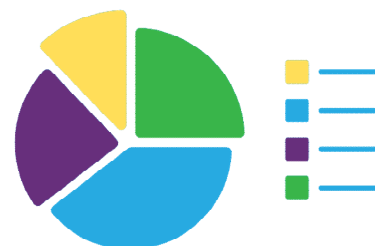

GIS Tools
Interactive GIS & web mapping tools help people visualize, interact, analyze, and extract DEQ data
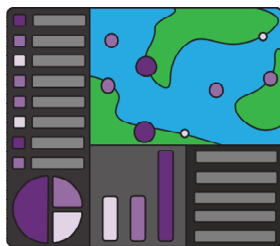
Story Maps
View GIS maps & embedded data that tell a story, provide context, and share content that matters in a meaningful way

Data & Tracking
Public access to online datasets on air, land, water, renewable energy, pollution response, and more

What is the [Virginia Environmental Data Hub](#)?
This site is aimed at increasing public outreach, involvement and transparency while at the same time facilitating direct access to spatial and non-spatial environmental data of the Commonwealth of Virginia for citizens and stakeholders. Here is where users can find a comprehensive listing of our tools and resources.
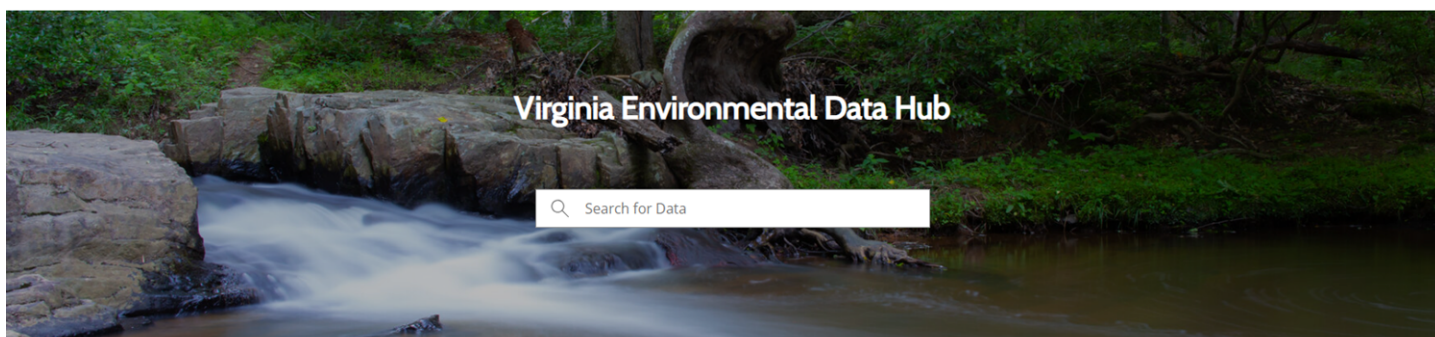
Check out DEQ's electronic resources and tools below:

- **Conserve Virginia by DCR** – Provides a map of Virginia's highest conservation value lands, based on 19 mapped data inputs. The map includes more than 6 million acres of land representing top priority conservation values.
  This application is not owned or managed by DEQ; however, it provides a wealth of relevant environmental data.
  [Map | Virginia Natural Heritage Data Explorer (vanhde.org)](#)
- **Environmental Data Mapper** – An interactive web mapping utility designed for the public and stakeholders, allowing users direct access to DEQ's geospatial data.
  [Environmental Data Mapper (virginia.gov)](#)
- **EPA EnviroAtlas Interactive Map** – Developed as part of an ongoing commitment to sustainable and healthy communities, as well as safe and sustainable water resources, this map is an analysis and discovery tool for hundreds of data layers relating to ecosystem services, biodiversity, people and the built environment.
  This application is not owned or managed by DEQ; however, it provides a wealth of relevant environmental data.
  [EnviroAtlas (epa.gov)](#)
- **myDEQ Portal** – DEQ's comprehensive, online reporting tool allowing users to report and search for pollution incidents, apply for grants and loans, view and access records, submit certifications and reports, and more.

[myDEQ Portal (virginia.gov)](#)

- **NPS Nutrient Trading Data Viewer** – This streamlined and easy-to-use tool allows users to look up Nutrient Trading Credit / Bank availability, as well as supplemental reference hydrologic data layers.
  [NPS Nutrient Trading Data Viewer (arcgis.com)](#)
- **Open Data Portal** – This portal provides a central point of access to preview, filter, and download DEQ geospatial data. Users can view the entire DEQ Data Catalog or select a specific category of data.
  [Open Data Portal | Virginia Environmental Data Hub (arcgis.com)](#)
- **Permitting Enhancement & Evaluation Platform** – This online resource conveys and tracks critical steps and target timeframes for permit applications and other requests for DEQ approval. Through PEEP, DEQ is working to foster transparency, collaboration and efficiency in the agency's evaluation process.
  myDEQ Portal (virginia.gov)
  As of April 2025, the information in PEEP is available in the [Virginia Permit Transparency platform](#).
- **Pollution Response & Preparedness (PReP) Incident Lookup Tool** – Report and view reported pollution incidents throughout the Commonwealth, as well as obtain additional information for each incident report.
  PREP Lookup Tool: Pollution Incident Report (PREP) Lookup Tool (arcgis.com)
  As of April 2025, Pollution Incident report information is available on the [Environmental Data Mapper](#).
  Report a Pollution Incident: [PReP (virginia.gov)](#)
- **Statewide PFAS Sampling Dashboard** – This dashboard presents per- and polyfluoroalkyl substances (PFAS) detection and concentrations, without respect to screening thresholds or regulatory standards. It will be updated to reflect how sampling results relate to water quality criteria once they are developed by EPA and adopted by DEQ.
  [Statewide PFAS Sampling Dashboard (arcgis.com)](#)
- **Virginia Brownfields Dashboard** – Developed through a collaboration between Virginia Energy and DEQ, this dashboard centralizes existing information on potential brownfield sites in Virginia to promote the clean-up and reuse of properties where hazardous materials, pollution, or contaminants are present.
  [Virginia Brownfields Dashboard (arcgis.com)](#)
- **Virginia Coastal GEMS** – This mapping tool is a gateway to coastal resource data and maps, coastal laws and policies, and coastal resource fact sheets.
  This application is not owned or managed by DEQ; however, it provides a wealth of relevant environmental data.
  [Coastal GEMS (vcu.edu)](#)
- **Virginia Environmental Data Hub** – This hub provides direct access to the spatial and non-spatial environmental data of the Commonwealth for the public and stakeholders.
  [Virginia Environmental Data Hub (arcgis.com)](#)
- **Virginia Transparency Platform (VPT)** – Users can access this online system to find real-time information on permit applications. Quickly check the status of applications, view permit applications in a specific locality, and learn about all the Virginia agencies participating in VPT.
  [Home | Virginia Permit Transparency](#)
- **Water Quality Success Stories of Virginia** – This story map provides a tour of water quality success stories in the Commonwealth, highlighting partnerships between local, state, federal and private stakeholders.
  [Water Quality Success Stories of Virginia (arcgis.com)](#)

What do I need to access DEQ's electronic resources and tools?
To use DEQ's electronic resources and tools, access to a computer or cell phone with internet will be needed.

What if I have problems using DEQ's electronic tools and resources?
DEQ has several instructional videos posted both on [www.deq.virgina.gov](#) and YouTube, many with step-by-step instructions for accessing and using the agency's online tools and resources.

Contact:
(804) 698-4000

An Overview of GIS, Story Maps & Data Tracking Tools
10/22/2024

Virginia Department of Environmental Quality

Handout:

Acronyms and Definitions

Brownfields – Properties for which redevelopment or reuse is complicated by the presence of hazardous materials, pollution or contaminants.
- For more information, click here to check out DEQ's webpage on brownfields.

Brownfields Success Stories – This interactive Story Map provides a visual summary of the various brownfield redevelopment projects DEQ has successfully carried out throughout Virginia.
- Click here to check out these Brownfield Success Stories.

Coastal GEMS – Coastal Geospatial & Educational Mapping System
DEQ's Coastal GEMS compiles over 100 data layers including water and land based natural resources along with conservation planning tools and useful contextual data. It is a gateway to Virginia's coastal resource data and maps, coastal laws and policies, and facts on coastal resource values. Used by local and regional planning agencies, state and federal agencies, academic institutions, and the public, Coastal GEMS is a tool to help prioritize areas for conservation and habitat restoration, inform environmental review processes, explore public access availability, discover data available for research and modeling, and educate about Virginia's coastal resources.
- Take a look at Coastal GEMS tool by clicking here.

DCR – Virginia Department of Conservation & Recreation
Homepage: Department of Conservation and Recreation (virginia.gov)

DEQ – Virginia Department of Environmental Quality
Homepage: Virginia DEQ | Home

EDM – Environmental Data Mapper
Designed for citizens and stakeholders, this GIS tool provides direct and interactive access to DEQ's geospatial data. The EDM includes 14 categories of DEQ-specific layers that can be filtered to view data on air, water, and land either separately or simultaneously.
- Explore EDM by clicking here.
- Use this link to connect to EDM Training & Use Resources.

EPA – United States Environmental Protection Agency
U.S. Environmental Protection Agency | US EPA

GIS – Geographic Information Systems
It helps to connect data to a map. By integrating location data (where things are) with all types of descriptive information (what things are like there), GIS provides a foundation for mapping and analysis that is used in science and almost every industry. GIS helps users understand patterns, relationships, and geographic context. The benefits include improved communication, efficiency, management, and decision-making.

- DEQ offers multiple interactive GIS web mapping tools. Click here to learn more about them.

GIS Data – There are two main types of GIS data: raster data and vector data.
- Raster data – Stored electronic images (e.g., pictures taken as an aerial photograph or satellite images).
- Vector data – Includes spatial features (points, lines, and polygons) and attributes about that data (descriptive information).

GIS Hardware – Refers to any device such as a computer, smartphone, table, laptop, etc. Though GIS software can run on mobile devices, it is ideal to use a computer. Memory and computing power are important because spatial data includes many attributes making it very large.

GIS Methods – Involve using various techniques such as algorithms, statistics, formulas, and models to turn data into digestible and actionable information for easy interpretation.

GIS People – Includes both the GIS professionals inputting and analyzing data and the general public accessing DEQ GIS mapping tools. People collect data, develop procedures, identify research questions and define analysis tasks to run in GIS.

GIS Software – Geographic Information Systems require specialized software. DEQ utilizes ArcGIS which can be used in conjunction with databases, statistical packages, or programming languages to increase functionality.

HUC – Hydrological Unit Code
Hydrologic Units represent the area of the landscape that drains to a portion of the stream network. Each drainage has a unique Hydrologic Unit Code.
- Click here to go to DCR's webpage on hydrologic units.

myDEQ Portal – DEQ's comprehensive, online reporting and records access tool that is available to the public and registered users 24 hours a day, 7 days a week.
- Click here to explore the myDEQ Portal tool.

NPS – Nonpoint Source Pollution
This pollution occurs when rain runs off agricultural fields, city streets, construction sites, suburban lawns, roofs and driveways, and enters our waterways. The runoff often contains harmful substances, such as toxics, pathogens, excess nutrients and sediments. It is called nonpoint source pollution because it does not come from a single source, or point, such as a sewage treatment plant or an industrial discharge pipe.
- To learn more about NPS, click here.

NPS Nutrient Trading Data Viewer – DEQ offers stakeholders this easy-to-use and streamlined tool for locating nutrient banks and looking up further details about Nutrient Trading Credit / Bank availability, as well as supplemental reference hydrologic data layers.
- Click here to check out DEQ's NPS Nutrient Trading Data Viewer.

Nutrient trading – Nutrient trading can be employed to offset impacts to water quality caused by certain Virginia Pollution Discharge Elimination System (VPDES) Program permits. The VPDES Watershed General Permit allows point source dischargers in the Chesapeake Bay watershed to generate nutrient credits by discharging nutrient loads below the wasteload allocations included in the general permit. These nutrient credits can be acquired by other facilities that have exceeded their wasteload allocations to comply with the terms of the general permit.

- Click here to learn more about DEQ's nutrient trading program.

Open Data Portal – This portal is a central location to access, obtain and preview all available DEQ data collected, managed and distributed by the agency, with links to related supplemental fact sheets (specific to air, land, pollution response and prevention, water and renewable energy). The DEQ Open Data Portal leverages Esri's Open Data platform to provide stakeholders and the general public with accessible, transparent, and live data access and data download capabilities.

- Explore the Open Data Portal by clicking here.
- Click here for Open Data Help & FAQs.

PEEP – Permitting Enhancement & Evaluation Platform
It provides detailed DEQ permit and approval review information and data analytics; these additional functionalities will be made available in VPT once that platform is fully developed. The goal of PEEP is to make DEQ's permitting and approval processes more transparent.
As of April 2025, the information in PEEP is available in the Virginia Permit Transparency platform.

PFAS – Per- and polyfluoroalkyl substances
PFAS (also known as 'forever chemicals') are a class of persistent synthetic chemicals used worldwide in many consumer products, including shampoo, paints, fast food packaging, firefighting foam and non-stick cookware, among others. Manufactured beginning in the 1940s, PFAS include a group of more than 4,700 chemicals that are used in a variety of applications. EPA has reported that exposure to PFAS could lead to adverse health effects.

- Learn more about PFAS on DEQ's website by clicking here.

PReP – Pollution Response & Preparedness
DEQ's PReP program responds to pollution incidents that may impact air, land and water to protect human health and the environment. PReP staff work directly with responsible parties, local emergency response agencies, and other state and federal agencies to provide oversight and support on response actions.

- Learn more about DEQ's PReP program by clicking here.

Statewide PFAS Sampling Dashboard – This dashboard presents PFAS detection and concentrations without respect to screening thresholds or regulatory standards. The dashboard will be updated to reflect how sampling results relate to water quality criteria once they are developed by EPA and adopted by Virginia.

- Click here to take a look at the dashboard.

Story Map – A specific type of GIS tool that incorporates multi-media, such as narrative text and images, to take mapping data further and create a more interactive experience by providing important context and sharing content that matters in a more meaningful way. This interactive tool includes GIS maps and embedded data that helps tell a story, provides important context and shares content that matters. DEQ has features four Story Maps on its website:

- [Middle Chickahominy PFAS Study Story Map](#) – details the collaborative effort of the DEQ, Virginia Department of Health (VDH), and Henrico County to investigate the presence of per- and polyfluoroalkyl substances (PFAS) also known as "forever chemicals," in the Middle Chickahominy River Watershed.
- [Water Quality Successes of Virginia](#) – highlights partnerships between local, state, federal and private stakeholders in the Commonwealth of Virginia that worked together to restore impaired water quality.
- Citizen Nominated Water Quality Monitoring Story Map – identifies waterbodies with impaired water quality that were nominated by citizens to receive funding for monitoring. DEQ works with residents to review voluntarily collected water quality data from these waterbodies.

TMDL – Total Maximum Daily Load
When water quality monitoring data shows that state waters do not meet [water quality standards](#), clean-up plans called Total Maximum Daily Loads (TMDLs) are developed by DEQ to determine the total amount of a pollutant that a waterbody can receive and still meet water quality standards.
- Click [here](#) to connect to DEQ's TMDL webpage.

VDH – Virginia Department of Health
Homepage: [Home - Virginia Department of Health](#)

VDOT – Virginia Department of Transportation
Homepage: [Home | Virginia Department of Transportation](#)

Virginia Brownfields Dashboard – DEQ collaborated with the Virginia Department of Energy to centralize existing information in this unique dashboard to promote the reuse of brownfields and to meet the market demand for investment. This informational map shows the location of potential brownfield sites in the Commonwealth.
- Click [here](#) to check out the Virginia Brownfields Information dashboard.

Virginia Energy
Homepage: **[Virginia Energy](#)**

Virginia Environmental Data Hub – This site is aimed at increasing public outreach, involvement and transparency while also facilitating direct access to spatial and non-spatial environmental data of the Commonwealth for the public and stakeholders.
- To view what environmental data is available through this site, click [here](#).
- Click [here](#) to take a look at the Hub Help & FAQs webpage.

Virginia Open Portal Data – On this webpage, users can view the entire DEQ Data Catalog, or select a specific category of data (air, land, pollution response and prevention, water, renewable energy, external agency resources, to view datasets and their associated fact sheets.
- Click [here](#) to check out these available data sets.

VMRC – Virginia Marine Resources Commission
Homepage: [Virginia Marine Resources Commission](#)

VPR – Voluntary Remediation Program
This DEQ program encourages hazardous substance cleanups that might not otherwise take place. VPR is a streamlined mechanism for site owners or operators to voluntarily address contamination sites

with support from DEQ. The main goals are site redevelopment and enhanced environmental outcomes.

- To learn more about DEQ's VRP, click here.

VPT – Virginia Permit Transparency
A platform to make the permitting and approval processes more transparent for six Commonwealth agencies (DEQ, Virginia Energy, VMRC, VDOT, DCR and VDH), with additional agencies to be added in the future. More than 50 types of permits can currently be tracked through this system, and VPT users can find real-time information on permit applications (such as the status of an application and what permit applications have been submitted in a specific locality).

- Click here to try out the Commonwealth's VPT tracking system.

WIP – Watershed Implementation Plan
WIPs are roadmaps for how Chesapeake Bay states and the District of Columbia, in partnership with federal and local governments, will attain the Bay's Total Maximum Daily Load (TMDL).

- Virginia's Phase III Watershed Implementation Plan (WIP III) was completed in August 2019 in order to achieve nutrient and sediment reductions needed to restore the Chesapeake Bay and its tidal tributaries. It details best management practices, along with programmatic actions, necessary to achieve state basin planning targets for nitrogen and phosphorus.
- To learn more about WIPs and WIP III, click here.

Watershed – The area that drains to a common waterway, such as a stream, lake, estuary, wetland, aquifer or ocean.

- Virginia's major watersheds can be viewed on DCR's website by clicking here.