

# DRAFT 2020 PENNSYLVANIA INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT

Clean Water Act

Section 303(d) List and 305(b) Report





## MISSION

The mission of the Pennsylvania Department of Environmental Protection (DEP) is to protect Pennsylvania's air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment. We work as partners with individuals, organizations, governments and businesses to prevent pollution and restore our natural resources.

## WELCOME!

Please scroll down to view the Integrated Report or use the top and side menus to jump to a topic. If problems are encountered while viewing content, please try opening the website using another web browser. Changing the browser zoom level may also provide a better user experience.

Public participation for this Integrated Report will be from [January 15th, 2020 to February 28th, 2020](#). DEP encourages the public to provide constructive comments during this period. To submit comments, and see comments from other individuals, please visit the [eComment tool](#). The links to view and comment on the Integrated Report will be made available in the "Open Comment Periods" section at the top of the eComment website during the public comment period. Written comments can also be mailed to Department of Environmental Protection, Policy Office, Rachel Carson State Office Building, P.O. Box 2063, Harrisburg, PA 17105. DEP suggests that comments be organized using the main headings above (e.g., Introduction, Section 303(d), Section 305(b), etc.), or by using the subheadings to the left of the screen and titled in **BLUE** on each slide (e.g., Home, Mission, Purpose, etc.). Simply hover over the gray dots to the left of the screen to see all subheadings and navigate to them at any point. Persons in need of accommodations as provided for in the Americans With Disabilities Act of 1990 should contact DEP's Water Quality Division at 717-787-9637 or through the Pennsylvania AT&T Relay Service at 800-654-5984 (TTD) to discuss how DEP may accommodate their needs.

Disclaimer: The information contained in this report is based on the data contained in DEP information systems and reports at the time of publication. Most information pertains to the biennial reporting period (October 1st, 2017 to September 30, 2019); however, some information may cover longer periods of record. Some datasets may be incomplete due to DEP's jurisdictional restrictions.

## PURPOSE

This report is the fourteenth in a series of reports prepared for Federal [Clean Water Act](#) (CWA) Section 303(d) listing, and Section 305(b) reporting. This listing and report are compiled and submitted to the United States Environmental Protection Agency (EPA) once every two years. Unlike the 305(b) report, EPA must approve or disapprove the 303(d) list.

The narrative that follows contains the data and results used to satisfy the requirements of Sections 303(d) and 305(b). This report covers the current status of Pennsylvania's waters and summarizes various programs in place to protect and improve water quality.

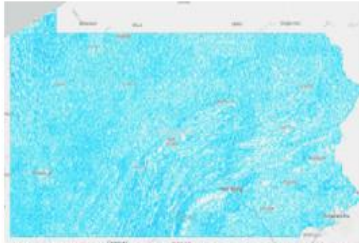
Due to the positive reviews during the 2018 Integrated Report, DEP will continue to produce the Integrated Report in this interactive format. This offers the ability to convey tremendous amounts of information in a way that is much easier to understand. DEP hopes this will greatly increase transparency and public understanding of the programs in place to protect our waters. Click [here](#) to discover more DEP interactive websites, mapping applications, and story maps.



LITTLE BUSH KILL NEAR BUSHKILL, PA

## PENNSYLVANIA WATER RESOURCES

Pennsylvania is a water rich state with approximately 85,500 miles of streams and rivers connecting over 700,000 acres of lakes, bays, and wetlands. Protection of these waters and the groundwater below is a challenging, but vital mission.



[View Pennsylvania Streams and Rivers](#)



[View Pennsylvania Lakes, Bays, and Wetlands](#)

## ATLAS OF SURFACE WATER IN PENNSYLVANNIA

State Population	12,813,969 <sup>†</sup>
State Surface Area (square miles)	45,333
Number of Major Surface Water Basins	6
Total Miles of Rivers and Streams	85,568 <sup>*</sup>
Number of Publicly Owned Lakes	241
Acres of Publicly Owned Lakes	99,943
Square Miles of Delaware Estuary	17
Square Miles of Presque Isle Bay	6
Miles of Great Lakes Shore	63 <sup>††</sup>
Acres of Freshwater Wetlands	376,473
Acres of Tidal Wetlands	56

<sup>†</sup> 2019 US Census estimate

<sup>††</sup> Lake Erie - 14 miles comprise the Presque Isle Peninsula.

<sup>\*</sup>DEP estimate based on 1:24,000 scale National Hydrography Dataset (NHD) stream coverage, which may change as the NHD is quality assured and corrected.



## PROTECTED USES AND CATEGORIES

As part of the obligation to protect Pennsylvania's waters, DEP conducts protected use (e.g., Aquatic Life, Water Supply, Recreation and Fishing, etc.) assessments. For more information on Pennsylvania's protected uses see 25 Pa. Code § 93.3.

Assessment determinations fall into three general statuses (i.e., attaining, impaired, or unassessed). For example, a body of water is considered "impaired" if it fails to meet one or more water quality standards. The categories to the right follow these general statuses but add more qualifiers.

Click on each category to view its description. Category 5 and 5alt are the "list" of impaired waters (i.e., 303(d) list) that require development of a Total Maximum Daily Load (TMDL). In the process of developing this list, a full status of all waters is created to satisfy Sections 305(b) and 314 reporting requirements. It is the integration of these requirements that creates the structure and function of DEP's Integrated Report. A fully interactive mapping application with advanced search and download features is also available with DEP's [Integrated Report Viewer](#).

DEP also produces a list of changes that were made from the previous (2018) Integrated Report. Click below to explore these changes.

[2018 TO 2020 CHANGES TABLE](#)

[2018 TO 2020 CHANGES MAP](#)

### CATEGORY 1

**DESCRIPTION:** Waters attaining all uses.

[Map of Category 1 Waters](#)

[View and Print Category 1 Streams](#)

[View and Print Category 1 Lakes](#)

### CATEGORY 2

### CATEGORY 3

### CATEGORY 4a

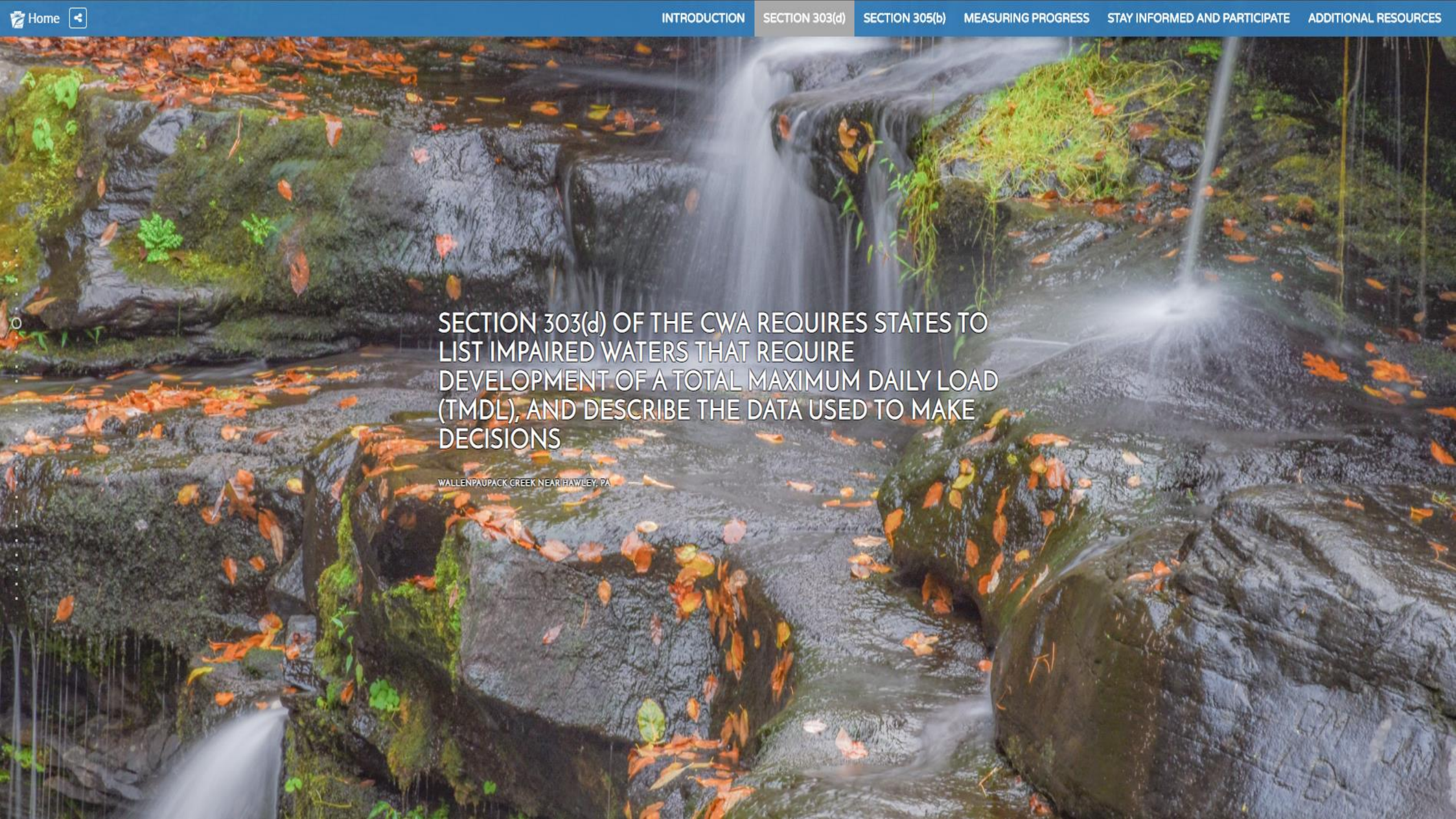
### CATEGORY 4b

### CATEGORY 4c

### CATEGORY 5

### CATEGORY 5alt





SECTION 303(d) OF THE CWA REQUIRES STATES TO LIST IMPAIRED WATERS THAT REQUIRE DEVELOPMENT OF A TOTAL MAXIMUM DAILY LOAD (TMDL), AND DESCRIBE THE DATA USED TO MAKE DECISIONS

WALLENPAUPACK CREEK NEAR HAWLEY, PA



## LISTING DATA

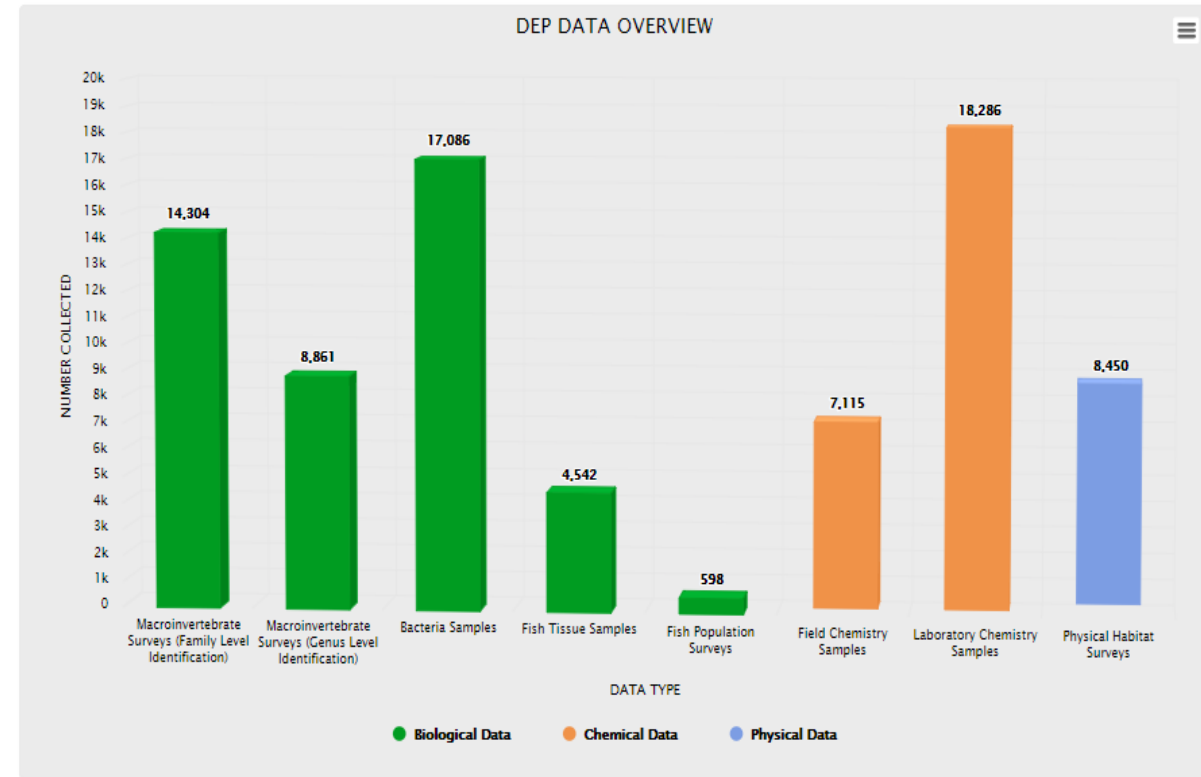
Just like Pennsylvania's waters, the datasets used to create this report are extensive. Explore the chart to see what types of data DEP uses. Most data used to build this report originate from DEP's [data collection protocols](#) and [assessment methods](#). Combined with a comprehensive assessment plan, these protocols and methods allow DEP to make sound decisions regarding water quality. Click below to see DEP's comprehensive monitoring and assessment plan.

[DEP'S COMPREHENSIVE ASSESSMENT PLAN](#)

DEP also readily accepts all outside datasets. By using a set of acceptance tiers, DEP ensures that all data are used according to their purpose and level of quality assurance. Click below to see DEP's data acceptance policy and the data solicitation report.

[DEP'S TIERED DATA ACCEPTANCE POLICY](#)

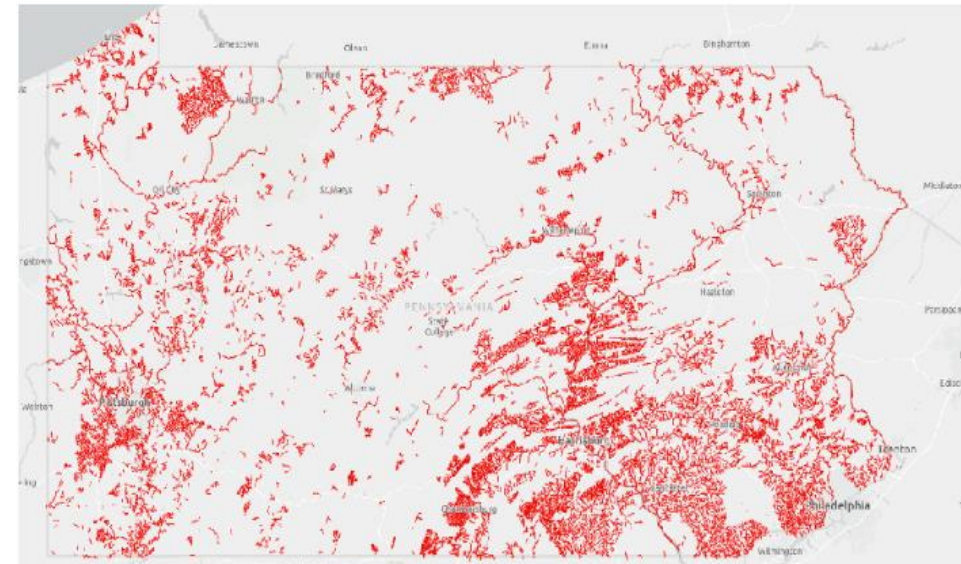
[DEP'S DATA SOLICITATION REPORT](#)



## 303(d) - CATEGORY 5

Section 303(d) is the list of impaired waters that require development of a TMDL (Category 5). Once a TMDL is approved by EPA, these waters will be placed in Category 4a until water quality standards are achieved.

Starting in 2016, DEP created an [Integrated Report Viewer](#) that allows users to view the status of waters in all reporting categories. This viewer has significantly increased the usability and transparency of the Integrated Report, but users can still download the information for each category in tabular form in the ["Uses and Categories"](#) section of this report. Click on the map to explore all Category 5 waters.



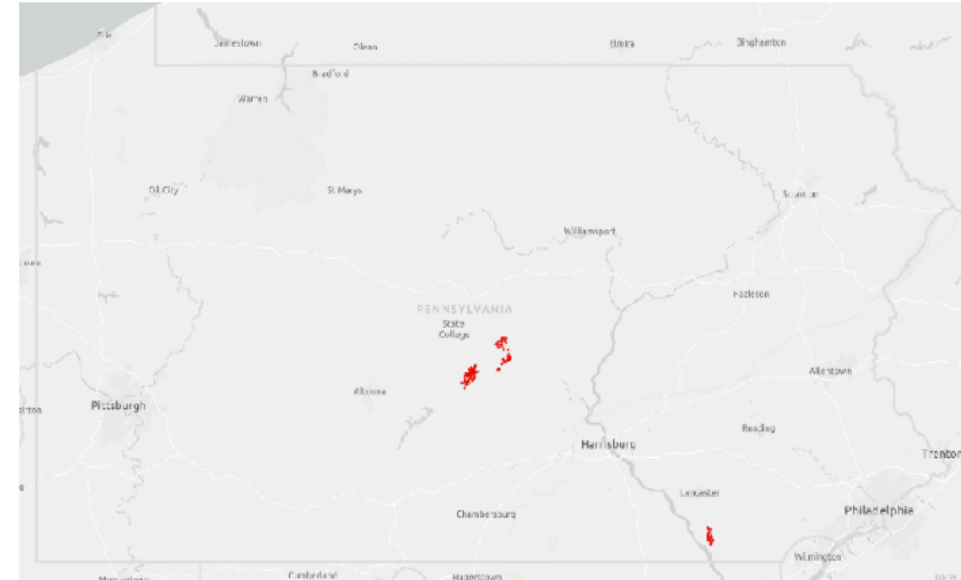
[View Streams and Lakes in Category 5](#)



## 303(d) - CATEGORY 5alt

The 5alt category – known as restoration alternatives – is a list of waters across Pennsylvania where implementation of restoration activities will begin immediately without development of a TMDL. DEP first incorporated the 5alt category in the 2016 Integrated Report. Waters are selected to be in the 5alt category because they have implementation plans and active public engagement. The goal of Category 5alt is to restore water quality before TMDLs are written, which brings possible advantages to the regulated community. Category 5alt still requires that a TMDL be completed unless water quality standards are achieved within a reasonable amount of time.

Click on the map to view Category 5alt waters. Category 5alt may also be downloaded as a table in the "[Uses and Categories](#)" section of this report.



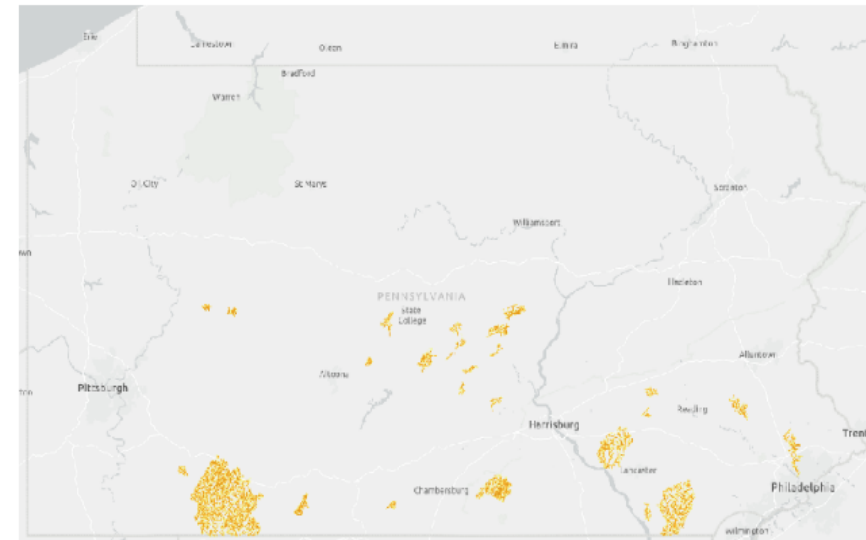
[View Streams and Lakes in Category 5alt](#)

## RESTORATION PRIORITIES

As part of Section 303(d), states are required to set prioritization ranking for impaired waterbodies. DEP conforms with this requirement by creating a list of watersheds that are identified as restoration priorities. For more information on how waters are selected as restoration priorities, DEP has created a [restoration prioritization strategy](#).

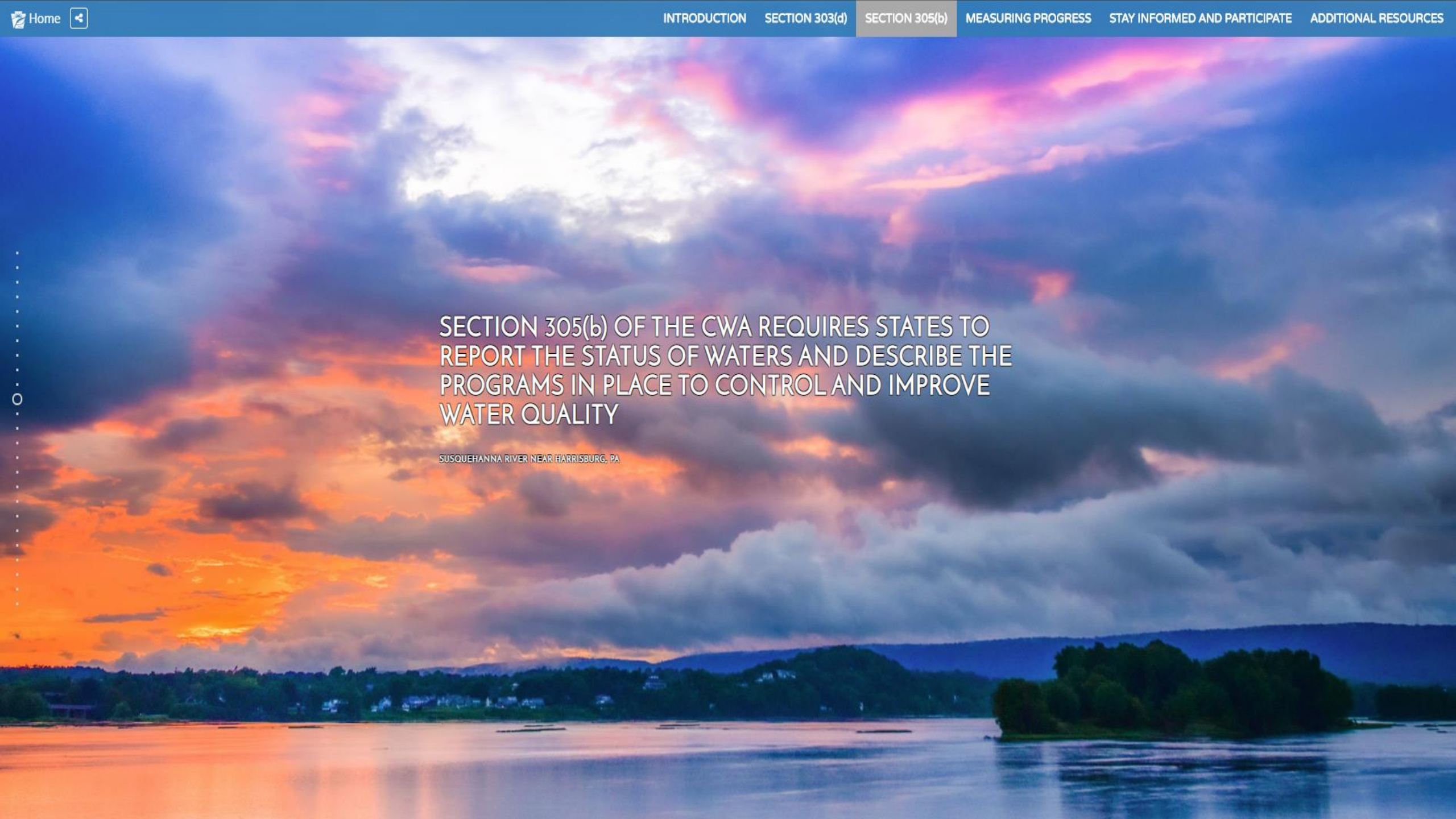
Click on the map to view the current set of restoration priority watersheds. These priority watersheds, along with cause(s) of impairment, may also be viewed in table format below:

[RESTORATION PRIORITY WATERSHEDS](#)



[View Streams Prioritized for Restoration](#)





SECTION 305(b) OF THE CWA REQUIRES STATES TO  
REPORT THE STATUS OF WATERS AND DESCRIBE THE  
PROGRAMS IN PLACE TO CONTROL AND IMPROVE  
WATER QUALITY

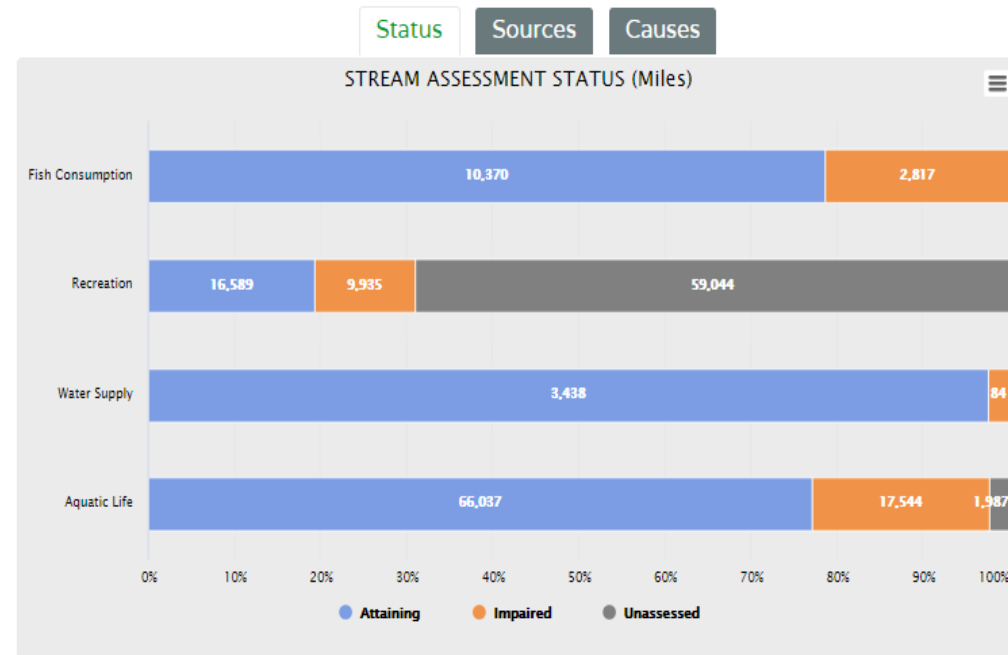
SUSQUEHANNA RIVER NEAR HARRISBURG, PA

## STREAM ASSESSMENT STATUS

The number of stream miles assessed, and the attainment/impairment status of each stream, varies by protected use. All wadeable streams in Pennsylvania have been assessed at least once for Aquatic Life use. DEP is currently conducting the second round of Aquatic Life use assessments on wadeable streams. DEP continues to work towards the goal of 100% assessment of all waterbodies in the state for all protected uses. Click on the charts to see the leading sources and causes of use impairment for streams across Pennsylvania.

Macroinvertebrates currently serve as the primary data source for Aquatic Life Use assessments of streams in Pennsylvania. Thousands of macroinvertebrate samples have been collected from streams across the state over the past two decades. Click on the link below to learn more about DEP's massive macroinvertebrate dataset and how it is used to measure water quality in Pennsylvania streams.

[MACROINVERTEBRATE STORY MAP](#)



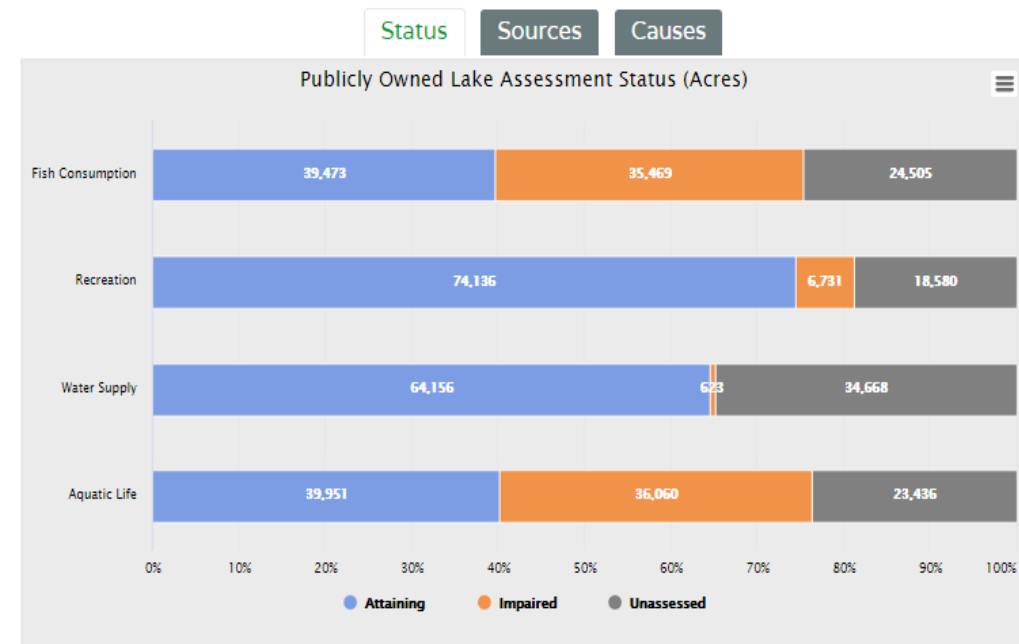
[Stream Assessment Status Descriptions](#)



## LAKE ASSESSMENT STATUS

As part of Section 305(b) reporting, Section 314 of the CWA requires states to report on the status of publicly owned lakes. DEP's definition of a publicly owned lake is a waterbody with public access. To meet this reporting goal, DEP employs several [lake assessment methods](#) and uses those methods to create assessment determinations. Explore the chart to see the current assessment status of uses on publicly owned lakes.

DEP, along with its partners, assesses other lakes that are not considered publicly owned. Please visit the [Integrated Report Viewer](#) to explore the assessment status of all lakes where DEP currently has assessments.



[Lake Assessment Status Descriptions](#)

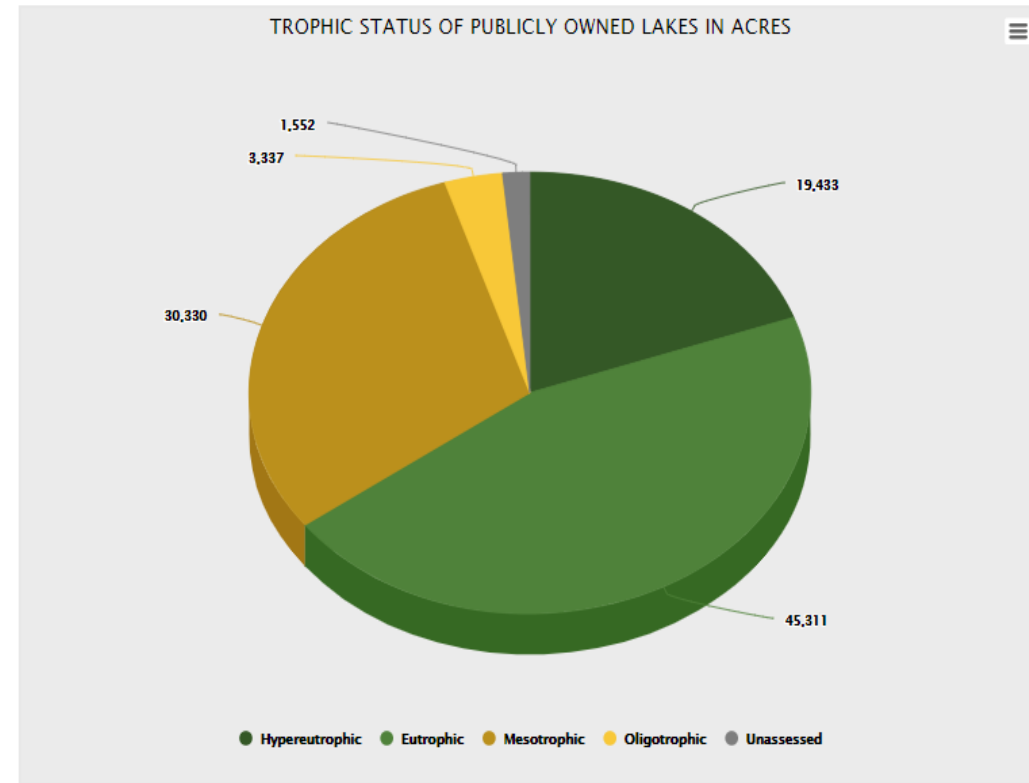
## LAKE TROPHIC STATUS

As part of the Section 305(b) reporting, Section 314 requires states to report the trophic status of publicly owned lakes. DEP bases overall lake trophic status on average seasonal values of phosphorus, Secchi depth, and chlorophyll-a. These values are used to calculate the Carlson's Trophic State Index (TSI) for each parameter. TSI scores of 40 and below indicate oligotrophic (not productive) conditions, scores between 40 and 50 indicate mesotrophic (moderately productive) conditions, scores between 50 and 65 indicate eutrophic (productive) conditions, and scores greater than 65 indicate hypereutrophic (excessively productive) conditions.

Click on the map below to see trophic status of each publicly owned lake.



[View Trophic Status of Publicly Owned Lakes  
Restoration Priority Watersheds](#)





## GROUNDWATER STATUS

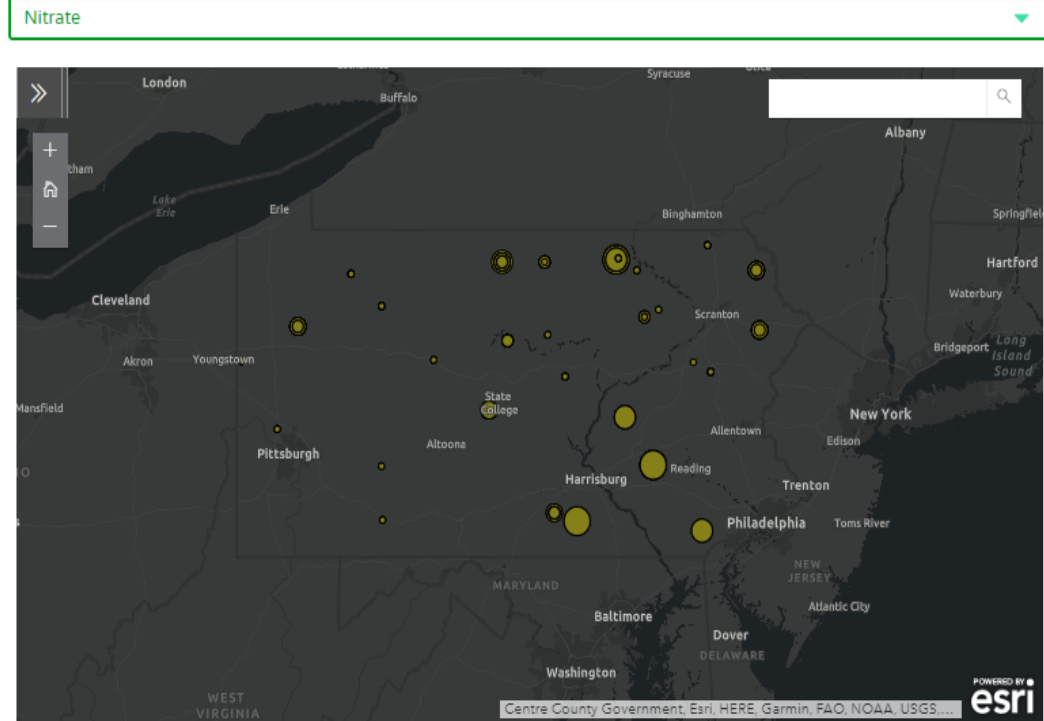
Groundwater monitoring efforts in Pennsylvania are displayed in the [Status of Statewide and Legacy Groundwater Quality Monitoring Programs](#). The Legacy Ambient and Fixed Station Network Groundwater Quality Monitoring Program began in 1985 to characterize general background and assess changes in groundwater quality within the 478 groundwater basins identified in the state. Because of resource constraints, monitoring efforts have been limited since the late 1990s and only ~12% of the state has been monitored. Under a joint funding agreement with DEP in 2005, the United States Geological Survey (USGS) compiled electronically available groundwater quality data to help point out data gaps and guide future monitoring efforts. Over 24,000 wells from 14 different agencies/programs were included in the project. For more information and to access the full report, please visit the [USGS reports webpage](#).

A new project was initiated in 2014 to sample at select stations throughout the state on a regular basis. This effort is referred to as the “Expanded” (or “Statewide”) Fixed Station Groundwater Quality Monitoring Network to distinguish it from the original “Legacy” effort. From this information, DEP has begun to better understand the status of groundwater quality in Pennsylvania.

Use the map to see the status of select water quality parameters in Pennsylvania’s groundwater from the new, expanded/statewide network.

DEP previously identified and prioritized sources of groundwater contamination based on regional office input for earlier versions of this report. The information was reviewed and updated in the [Sources of Groundwater Contamination and Prioritization Document](#).

Use the dropdown menu to select a parameter of interest.



## CONTROL PROGRAMS

DEP has a series of programs in place to control sources of water quality impacts. Click on each program to see an overview of how the program protects water quality, how much the program invests in protecting water, and to visit important links related to that program.



MINING

**PROGRAM OVERVIEW** DEP's Office of Active and Abandoned Mining Operations is responsible for the policies and implementation of programs that regulate or minimize the impact from the extraction of coal and other minerals. The office is organized into four Bureaus that have distinct roles and responsibilities for the safe extraction of mineral resources and the reclamation and protection of environmental resources. The Bureau of District Mining Operations is responsible for permitting and inspection of mining sites across Pennsylvania.

[VIEW AND PRINT FULL PROGRAM DESCRIPTION](#)

NONPOINT SOURCE COMPLIANCE

NUTRIENT TRADING

OIL AND GAS

SAFE DRINKING WATER

CLEAN WATER PERMITTING

SEWAGE FACILITIES PLANNING

RADIATION PROTECTION

WETLANDS PROTECTION

WATER QUALITY

STORAGE TANKS

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

PENNSYLVANIA DEPARTMENT OF HEALTH



## RESTORATION PROGRAMS

DEP also has a series of programs in place to restore water quality. Primary funding sources come from the grant issued under Section 319 of the CWA (\$1,000,000 annually) and Pennsylvania's Growing Greener funds (\$3,000,000 annually). Click on each program to see an overview of how the program restores water quality and to visit that program's website.

### TMDLS

**PROGRAM OVERVIEW** Section 303(d) of the Clean Water Act (CWA) requires states to establish a Total Maximum Daily Load (TMDL) for all pollutants identified as preventing attainment of water quality standards. TMDLs set the maximum amount of a pollutant, the pollutant load, that can be delivered to a waterbody without violating water quality standards. The TMDL also allocates the allowable pollutant load among the various sources in the watershed (e.g. point and nonpoint sources such as agriculture, wastewater treatment plants, mine drainage). Waters that are not attaining water quality standards are often referred to as "impaired" waters.

[VIEW AND PRINT FULL PROGRAM DESCRIPTION](#)

### RESTORATION ALTERNATIVES

### GROWING GREENER

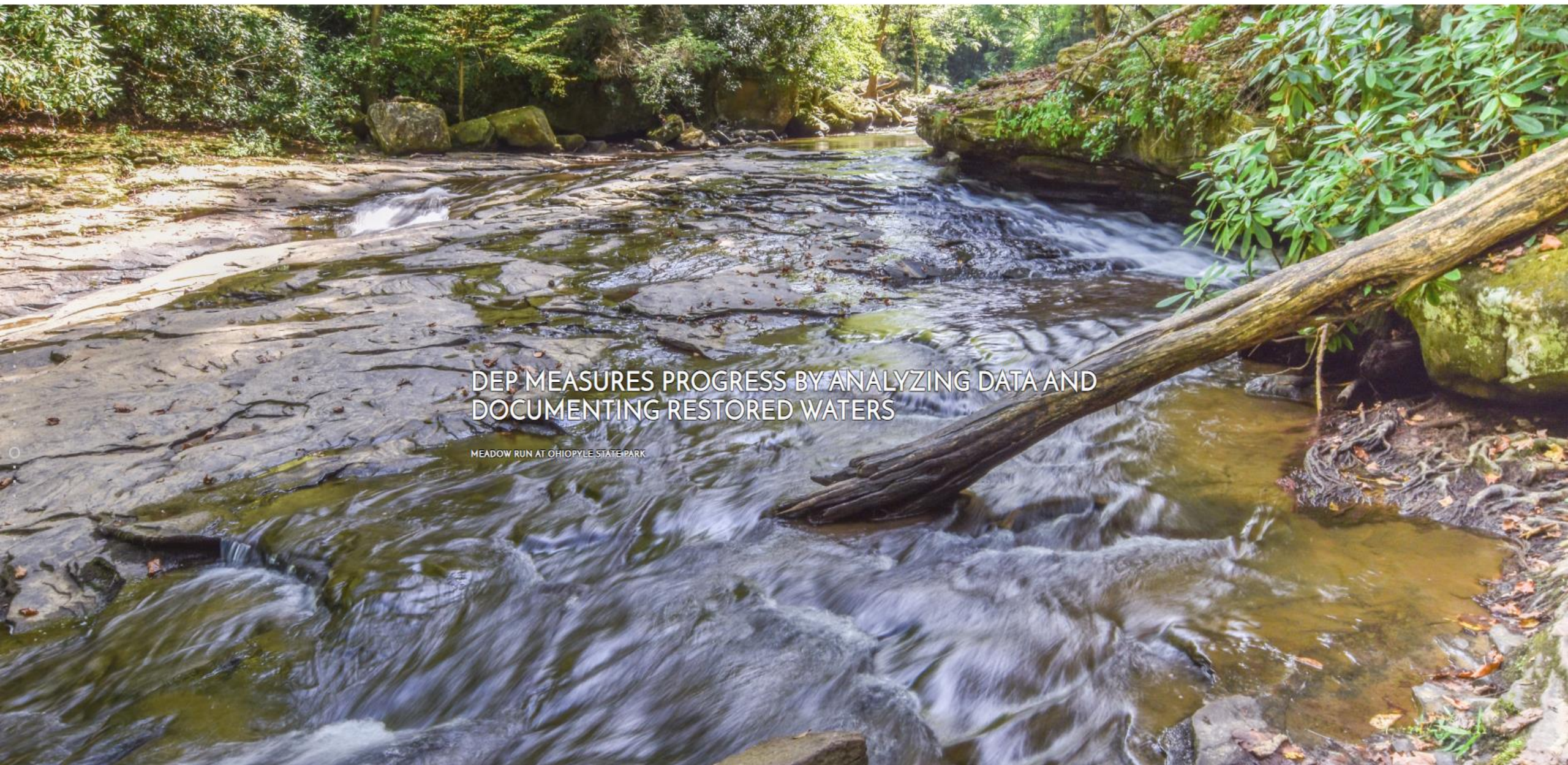
### SECTION 319

### ABANDONED MINE LANDS

### CHESAPEAKE BAY

### GREAT LAKES





## DEP MEASURES PROGRESS BY ANALYZING DATA AND DOCUMENTING RESTORED WATERS

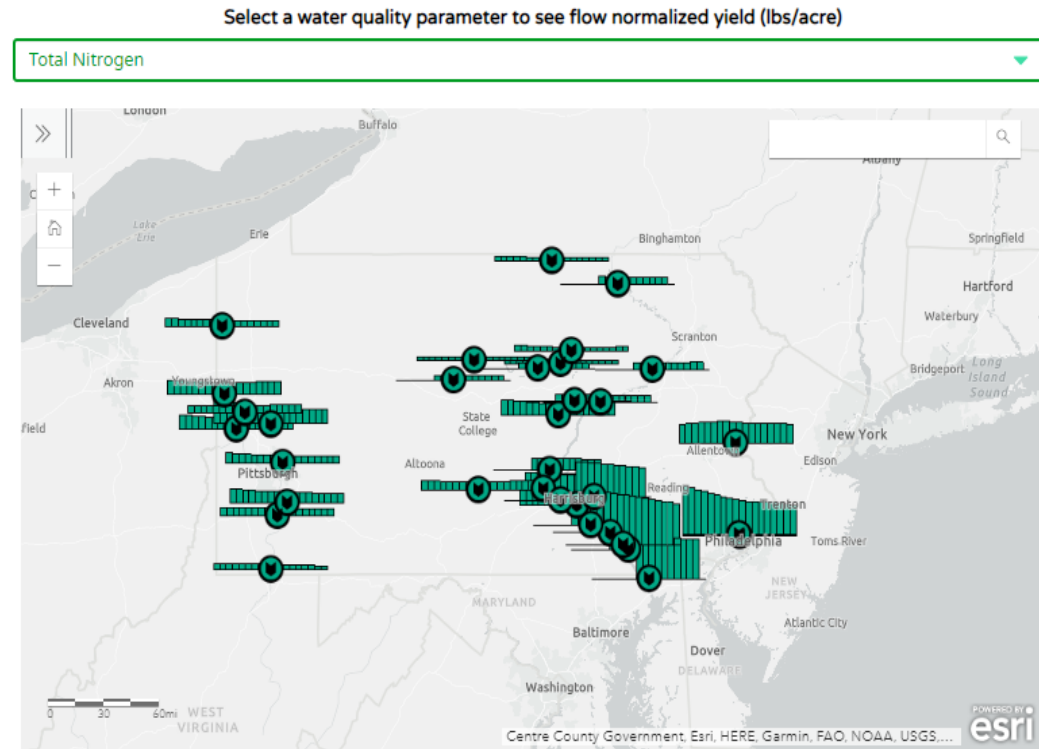
MEADOW RUN AT OHIOPYLE STATE PARK



## TRENDS

DEP has sentinel monitoring stations throughout Pennsylvania that are specifically designed to record trend data. This monitoring program is called the Water Quality Network (WQN). More information on these stations can be found on DEP's [WQN mapping application](#). From the data collected at these stations, trend reports are developed like the one the Susquehanna River Basin Commission (SRBC) creates for the [Chesapeake Bay](#).

As technology and data analyses advance, more resources are being developed to view DEP's trend data. For example, USGS has created a [national dataset of trends](#) that can be viewed and downloaded. This allows DEP to show data in new and meaningful ways for this Integrated Report. In the map, water quality parameters are displayed as yields (pounds per acre) through time. Displaying data as pounds per acre allows sites to be compared to each other, regardless of waterbody size. This dataset is also available in [tabular format](#).



## RESTORATION EFFORTS

DEP supports and tracks aquatic resource restoration efforts throughout Pennsylvania. Strong partnerships among landowners, stakeholders, and state and federal agencies are proving to be the best way forward in restoring Pennsylvania's waters. The stories highlighted here are just a few examples of hard work leading to successful restoration.

[TURTLE CREEK RESTORATION PROJECT](#)

[ABANDONED MINE LAND TRUST FUND](#)

[INDIAN CREEK PASSIVE MINE DRAINAGE TREATMENT SYSTEM](#)

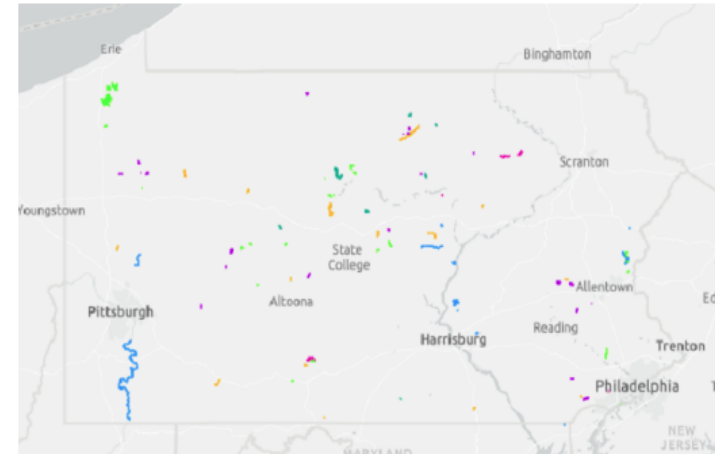
[LAKE RESTORATION EFFORTS](#)

## RESTORED WATERS

DEP documents the restoration of waters through a delisting process that is approved by EPA. DEP delistings can consist of removal of one or more causes of impairment, full restoration of water quality standards, or even corrections in previous assessment determinations/delineations. Click below to see DEP's impairment delistings for the 2020 Integrated Report.

### 2020 IMPAIRMENT DELISTINGS

Overall, restoring waters to the point they can be removed from the impaired categories (4a, 4b, 4c, 5, and 5alt) requires a tremendous amount of resources, dedication, and strong partnerships. Some of DEP's greatest successes have come from treating abandoned mine drainage, which makes up the majority of restored waters to date. Click on the map to see all waters that have been restored to water quality standards.



[View Restored Waters](#)



## STAY INFORMED AND PARTICIPATE

### eComment

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### eNotice

DEP developed an electronic notification system for the public to use to stay up-to-date with many types of environmental topics. This tool is called [eNotice](#) and you may register to receive free notifications of important actions DEP takes. It’s easy.

### DEP Newsletter

DEP publishes a [biweekly newsletter](#) that features information about hot topics, recent actions, regulatory updates, webinars and upcoming events.

### Contact Us

For questions or assistance please contact the Water Quality Division at 717-787-9637 or send an email to [RA-epwater@pa.gov](mailto:RA-epwater@pa.gov).

## ADDITIONAL RESOURCES

Please visit other DEP websites to learn more about how DEP protects water quality and how the public can get involved.

[WATER](#)[EDUCATION](#)[BAY PROGRAM](#)[STORMWATER](#)

## SOCIAL MEDIA

Use the share button at the top to share this report with others, and click on the buttons below to follow the latest DEP activities.

[!\[\]\(f1c5da15572e3e09d343161be98f508d\_img.jpg\) TWITTER](#)[!\[\]\(235bfe13ebf007ce2eea9e689707fac7\_img.jpg\) FACEBOOK](#)[!\[\]\(eabd9f9ababee93effadc3b380fe65fd\_img.jpg\) YOUTUBE](#)[!\[\]\(83bbbd261710c59db0214aa27b2edc0d\_img.jpg\) LINKEDIN](#)[!\[\]\(166772600a13ad0a433053f90fe45649\_img.jpg\) INSTAGRAM](#)