



EPA Tools and Data Resources for Aquatic Habitats and Watersheds

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EPA Office of Water*



*National Fish Habitat Partnership
Board Meeting
March 7, 2018*

EPA Office of Water: Participation in NFHP since 2004

- Senior Official as non-voting NFHP Board member
- Representation on NFHP Federal Caucus
- Involvement in Science and Data Committee
- Special Projects

EPA Tools, Data and Resources of Interest to the Fish Habitat Partnerships

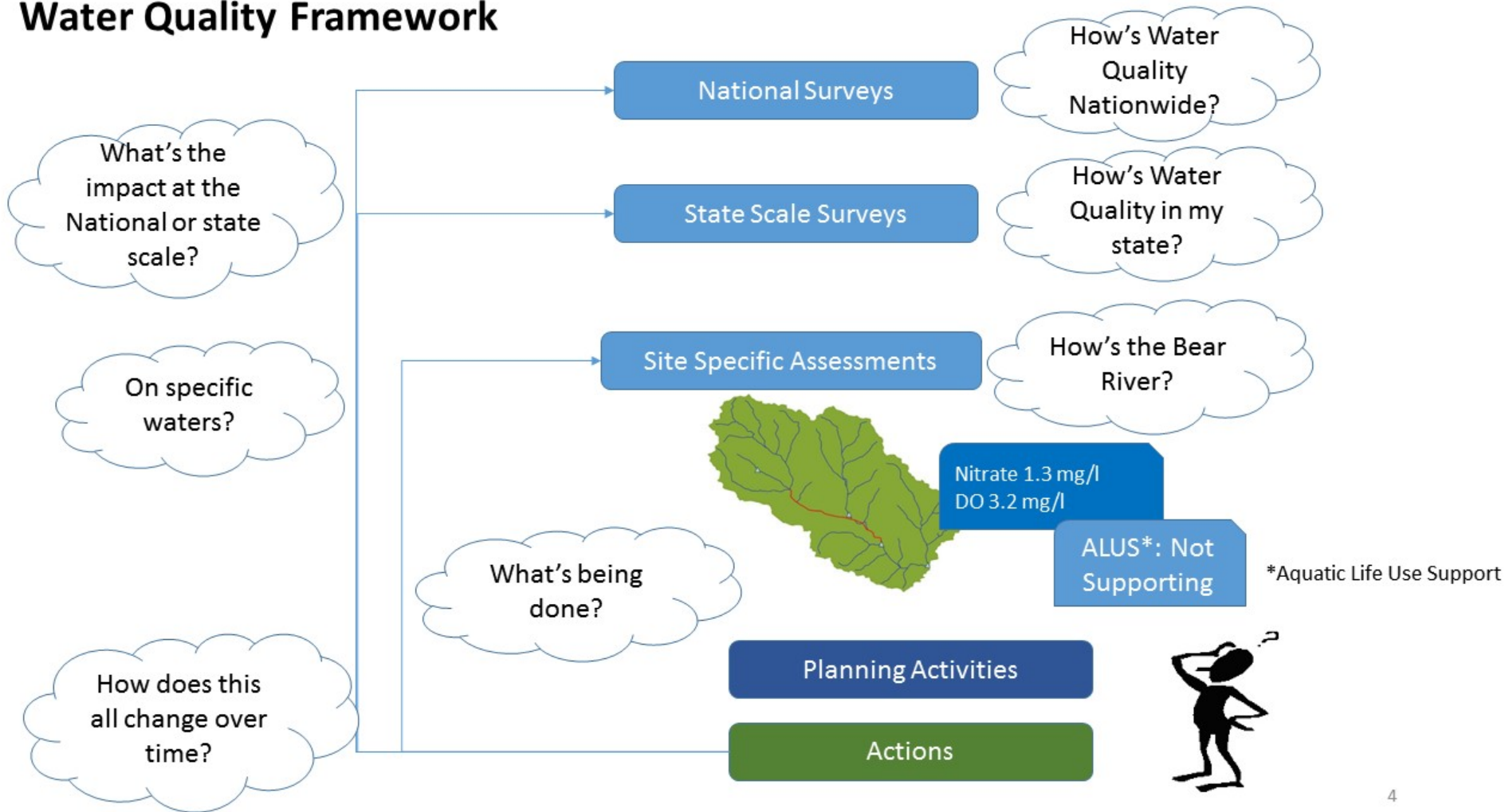


- Water Quality Databases
- Watershed Data and Tools
- Protection and Restoration Grants

- **Water Quality Databases**



Water Quality Framework

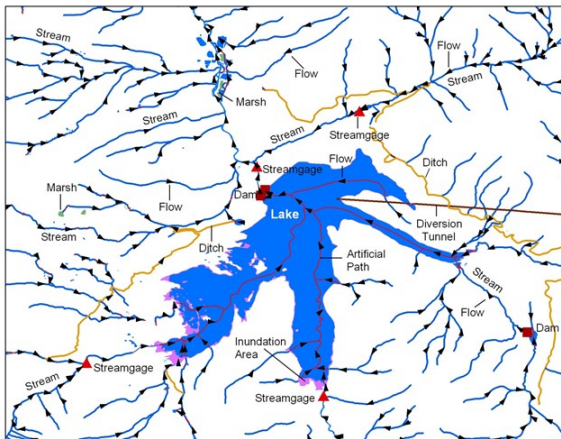


National Hydrography Dataset (NHD, NHDplus)

<https://www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus>

The NHD is the Foundation

- Surface Water Features for the entire nation
- Lakes, rivers, reservoirs, stream gages, etc.
- Spatial Database



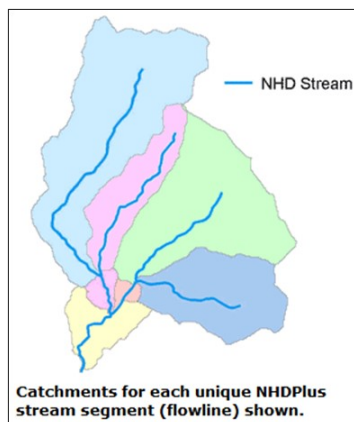
National Hydrography Dataset Plus (NHDPlus)

An integrated suite of geospatial products including flow volume and velocity estimates to support modeling



Incorporates -

- Hydrography (streams)
- Watershed Boundaries
- Elevation



Catchments for each unique NHDPlus stream segment (flowline) shown.



Water Quality Portal

<https://www.waterqualitydata.us>

- Interagency water quality monitoring data hub
- Hosts data from > 400 states, tribes, local orgs
- Much of the data used for state healthy/impaired assessment decisions
- Sequel to EPA STORET

The screenshot shows the homepage of the National Water Quality Monitoring Council (NWQMC) Water Quality Portal. At the top, the NWQMC logo features a water drop icon with the acronym 'NWQMC' and the tagline 'Working together for clean water'. The main heading is 'Water Quality Portal'. Below this, a paragraph explains that the portal is a cooperative service sponsored by the USGS, EPA, and the NWQMC, serving data from over 400 agencies. The page is organized into three main content areas: 'DOWNLOAD DATA' (with a background image of a person sampling water), 'HOW TO USE THE WQP' (listing guides and FAQs), 'NATIONAL RESULTS COVERAGE' (with a map of the US), and 'ABOUT THE WQP' (with a bar chart background). The footer includes 'Contact us' and logos for USGS and EPA.

National Water Quality Monitoring Council
Working together for clean water

Water Quality Portal

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). It serves data collected by over 400 state, federal, tribal, and local agencies.

DOWNLOAD DATA

Download water-quality data in Excel, CSV, TSV, and KML formats.

HOW TO USE THE WQP

- User Guide
- Web Services Guide
- FAQs
- Upload Data

NATIONAL RESULTS COVERAGE

Water-quality data in your state.

ABOUT THE WQP

- What is the WQP?
- Contributing organizations
- Other Water Quality Portals
- Explore WQP Sites

Contact us

USGS
science for a changing world

EPA
United States Environmental Protection Agency

ATTAINS (Assessment Total Maximum Daily Load Tracking and Implementation System)

https://ofmpub.epa.gov/waters10/attains_index.home

- ATTAINS is the tracking system for state-submitted surface water quality assessment conclusions:
 - What waters are being assessed
 - Their designated use support
 - State conclusions on impairment/non-impairment and causes
 - TMDLs, Alternatives, Protection Plans, and other improvement actions
 - Does not contain the locally collected monitoring data
- Major ATTAINS redesign soon TBA

The screenshot shows the EPA website's "Water Quality Assessment and TMDL Information" page. At the top, there is the EPA logo and navigation links for "Español", "中文: 繁體版", "中文: 简体版", "Tiếng Việt", and "한국어". Below the logo are navigation tabs: "Learn the Issues", "Science & Technology", "Laws & Regulations", and "About EPA". A search bar is located on the right with the text "Search EPA.gov".

Water Quality Assessment and TMDL Information

This site provides information reported by the states to EPA about the conditions in their surface waters. This information is required every two years under Clean Water Act Sections 305(b) and 303(d).

Because of differences in state assessment methods, the information in this site should not be used to compare water quality conditions between states or to determine water quality trends. For more information about this site and associated regulations and programs, visit the [Assessment and Total Maximum Daily Load Tracking and Implementation System \(ATTAINS\) site](#).

Two links are provided: [Which state reports are available?](#) and [National Summary of State Information](#).

Search for Water Quality Information

Click on the above map for a state's most recent data, or use the pull down boxes below to:

- Select data for a reporting cycle (e.g. most current available data, 2010, 2008)
- Select data for a particular state, EPA Region, or the nation as a whole
- Select data for a particular waterbody, such as Bear River (first choose the state, then type in the name of the waterbody)

The search form includes:

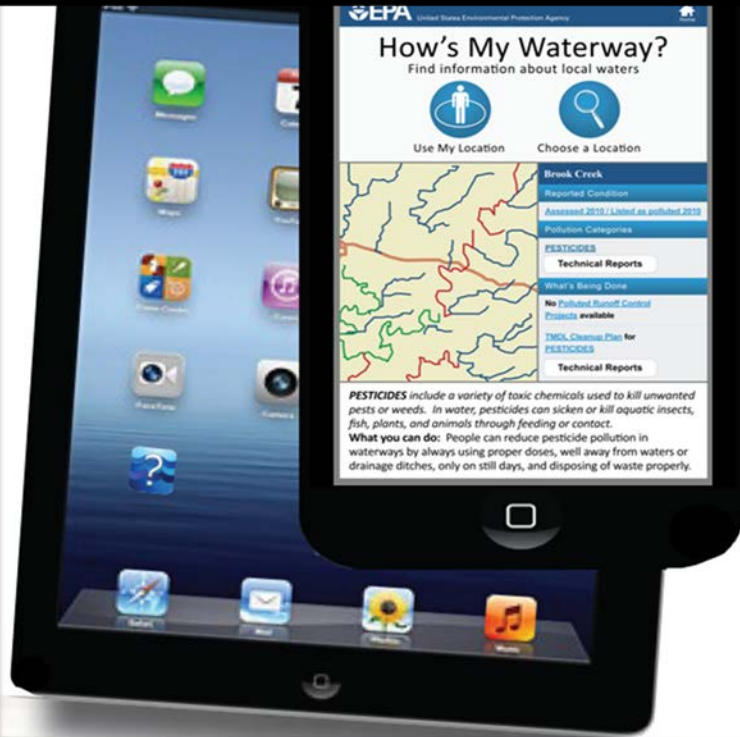
- Reporting Year:
- Nation/Region/States:
- Waterbody Name:
- Radio buttons for: All Information, Assessed Waters Report, Impaired Waters and TMDL Information

Buttons for "Reset" and "Search" are located below the form.

Use the radio buttons on the right to limit the results of your search. (Note: Total Maximum Daily Loads, or TMDLs, are pollution "budgets" developed to restore waters that are impaired).

How's My Waterway (1.0)

www.epa.gov/mywaterway



How's My Waterway

www.epa.gov/mywaterway

EPA's Office of Water designed *How's My Waterway 1.0* to deliver water quality information quickly and more clearly:

- an easy to use web tool
- focus on local waters
- instant results
- map or list format
- plain-English descriptions
- uses the same scientific data that States report to EPA.

How's My Waterway Version 2.0 (coming soon!)

Where do you want to explore?

Community

County

State

National

Enter address, zip or place

Go

- *Search*
- *Discover*
- *Learn in Plain English*
- *Get to the Data*

Water Quality Assessment

Waterbody Name: Cheatham Reservoir

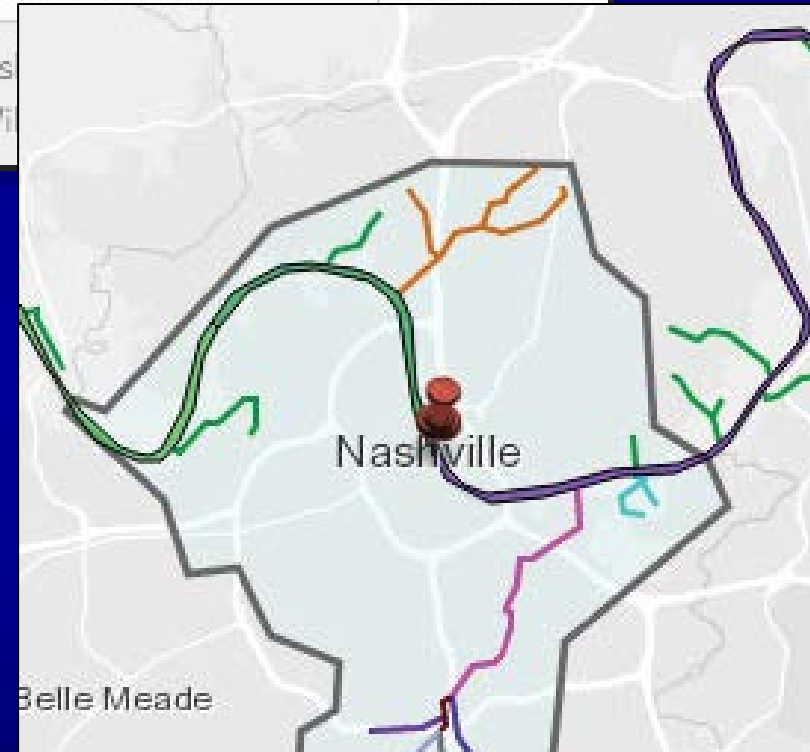
Evaluated Use

Condition

Drinking Water

Good

Fis
Wi



26

Monitoring Stations

Show on map

Causal Analysis/Diagnosis Decision Information System (CADDIS)

www.epa.gov/caddis

- A web area of methods, tools and references for identifying causes of biological degradation in waters
- Sequel to the widely-used *Stressor Identification* process
- Developed, peer-reviewed & maintained by EPA/ORD/NCEA

Causal Analysis/Diagnosis Decision Information System (CADDIS)

The Causal Analysis/Diagnosis Decision Information System, or CADDIS, is designed to help scientists and engineers in the Regions, States, and Tribes conduct causal assessments in aquatic systems. It is organized into five volumes.

Learn About CADDIS



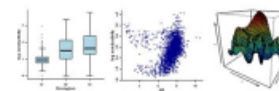
- [Basic Information](#)
 - [How To Cite CADDIS](#)
- [Frequent Questions](#)
- [Glossary](#)

Volume 2: Sources, Stressors and Responses



- [CADDIS Volume 2 Home](#)
- [Learn About Sources](#)
 - [Urbanization](#)
- [Learn About Stressors](#)
- [Learn About Responses](#)

Volume 4: Data Analysis



- [CADDIS Volume 4 Home](#)
- [Selecting an Analysis Approach](#)
- [Getting Started with Data Analysis](#)
- [Exploratory Data Analysis](#)
- [Download Software](#)

Volume 1: Stressor Identification



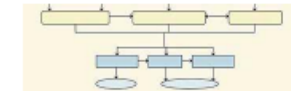
- [CADDIS Volume 1 Home](#)
- [Learn About Causal Assessment](#)
- [Getting Started](#)
- [Tips for Candidate Causes](#)
- [Types of Evidence Tables](#)

Volume 3: Examples and Applications



- [CADDIS Volume 3 Home](#)
- [Analytical Examples](#)
- [Worksheet Examples](#)
- [State Examples](#)
- [Case Studies](#) | [Galleries](#)

Volume 5: Causal Databases



- [CADDIS Volume 5 Home](#)
- [Learn About Interactive Conceptual Diagrams \(ICDs\)](#)
 - [ICD Quick Start Instructions](#)
 - [Open the ICD Application](#)
- [CADDIS Literature Database \(CADLink\)](#)

Search CADDIS

By Volume, Topic, or Keyword

Search

Helpful Links

- [CADDIS Recent Additions](#)
- [CADDIS Publications](#)
- [CADDIS Site Map](#)

Related Links

- [ICD Conceptual Diagram Application](#)
- [PECCO Appendix: Technical Details and Programs](#)
- [The Role of SI in Various Water Management Programs](#)
- [CADDIS Site References](#)

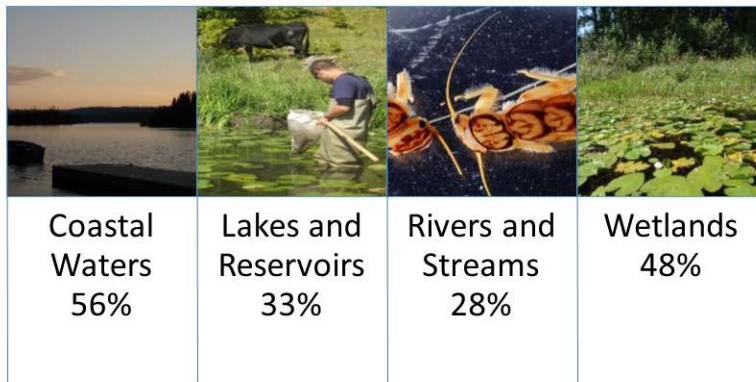
[More Related Links](#)

[Contact Us](#) to ask a question, provide feedback, or report a problem.

National Aquatic Resource Surveys (NARS)

<https://www.epa.gov/waterdata/national-aquatic-resource-surveys>

What percent of our nation's waters are in good condition based on biological indicators?



Coastal waters, rivers and streams based on benthic macroinvertebrates; wetlands based on plants.

- Lakes 2007
- Rivers/streams 2008-09
- Coastal 2010
- Wetlands 2011
- Lakes 2012
- Rivers/streams 2013-14
- Coastal 2015
- Wetlands 2016
- Lakes 2017
- Rivers/streams 2018-19
- Coastal 2020
- Wetlands 2021

What stressors are impacting our waters?
Nutrients and Habitat are problems across our waterbody types

Coastal Waters



- Phosphorus – 21%
- Water clarity – 16%
- Sediment toxicity – 13%

Lakes/Reservoirs



- Lakeshore habitat – 36%
- Physical habitat complexity – 32%
- Shallow water habitat – 20%
- Phosphorus – 18%

Rivers/Streams



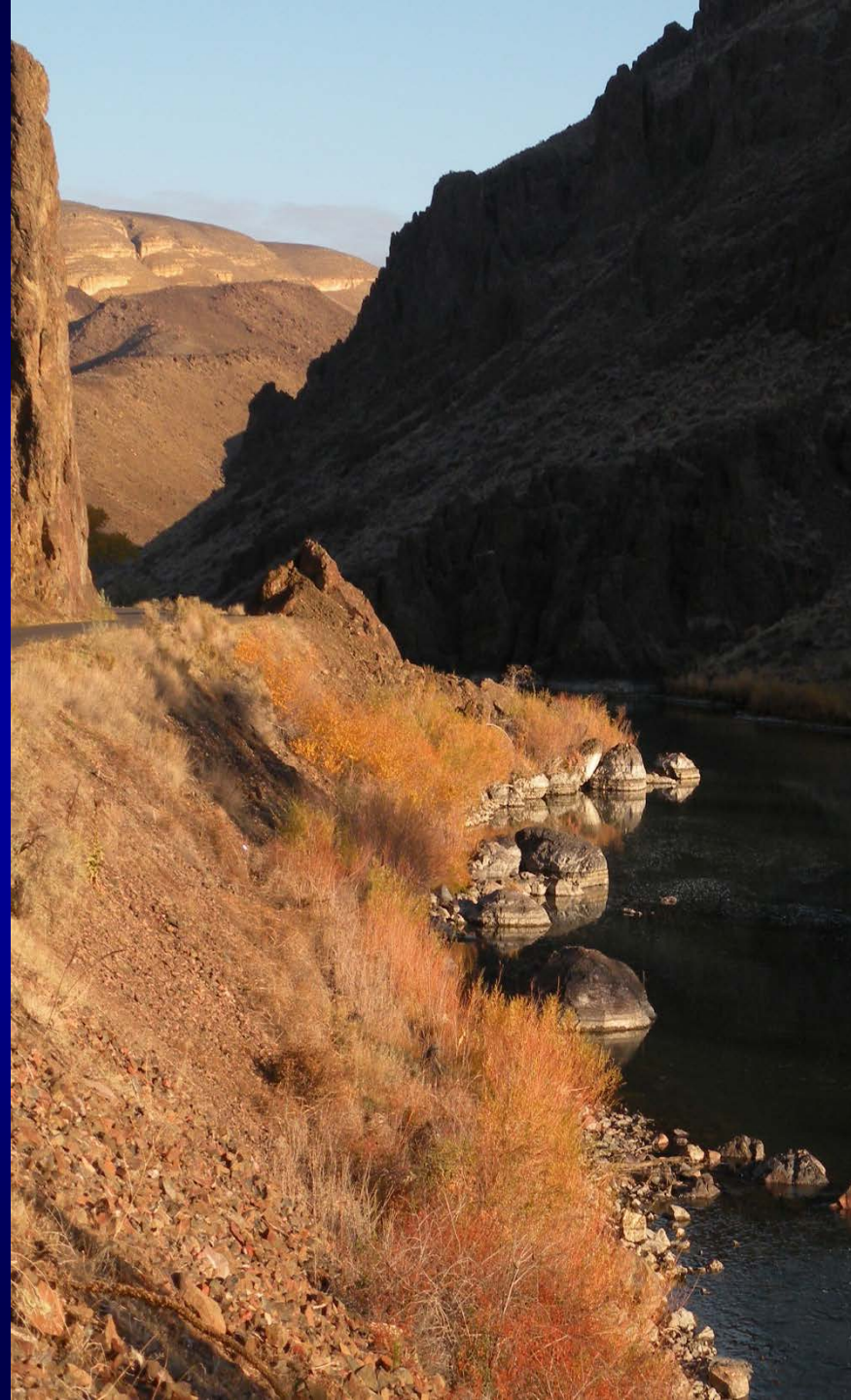
- Phosphorus – 46%
- Nitrogen – 41%
- Riparian Vegetation Cover – 24%
- Riparian Disturbance – 20%

Wetlands



- Vegetation removal – 27%
- Hardening – 27%
- Ditching – 23%

- **Watershed Data and Tools**



Water Data and Tools Web Area

www.epa.gov/waterdata

- 22 major tool sites, 6 themes
- Further hyperlinked to others
- Public, technical & non-technical

Water Data and Tools

Discover how data and tools help EPA protect and restore our waters to ensure that they are drinkable, fishable and swimmable. Learn about the following categories of water data tools:

Integrated Water Analysis



- [NHDPlus](#)
- [How's my Waterway](#)
- [WATERS GeoViewer](#)
- [All Integrated Water Analysis Tools](#)

Ambient Water Quality



- [BEACON 2.0](#)
- [NPDAT](#)
- [National Stormwater Calculator](#)
- [All Ambient Water Quality Tools](#)

Community Financing



- [Catalog of Federal Funding for Watershed Protection](#)
- [Financing Alternatives Comparison Tool](#)
- [Grants Reporting and Tracking System \(GRTS\)](#)
- [All Community Financing Tools](#)

Drinking Water



- [Safe Drinking Water Information](#)
- [Water Contaminant Information Tool \(WCIT\)](#)
- [Water Utility Response On The Go](#)
- [All Drinking Water Tools](#)

Water Restoration



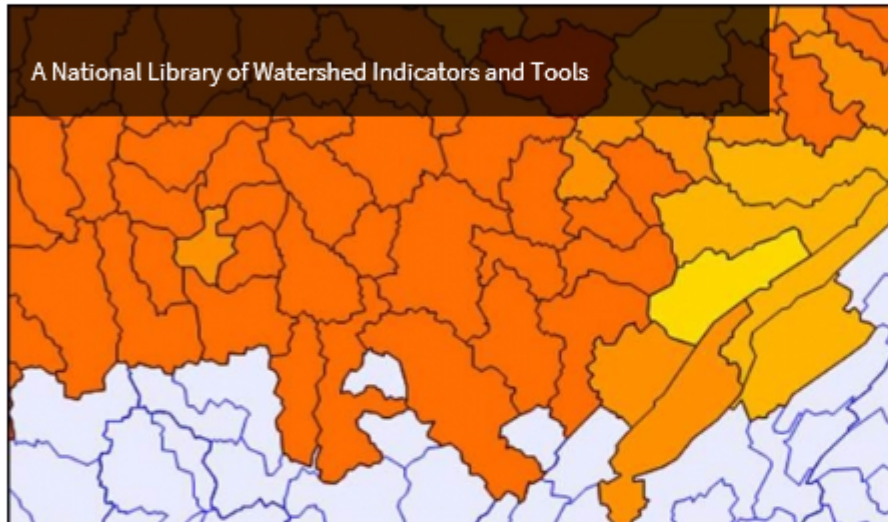
- [Surf Your Watershed](#)
- [Watershed Index Online \(WSIO\)](#)
- [Watershed Plan Builder](#)
- [All Water Restoration Tools](#)

Water Quality Models



- [Surface Water Quality Modeling](#)
- [Surface Water Quality Modeling Training](#)

Watershed Index Online



About Watershed Index Online (WSIO)

- [Introducing Watershed Index Online](#)
- [What EPA is Doing](#)
- [Watershed Index User Support](#)

Watershed Tools and Data

- [WSIO Watershed Screening Tool](#)
- [RPS Statewide Watershed Screening Tools](#)
- [Watershed Map Services and Data Downloads](#)

Related EPA Topics

- [Recovery Potential Screening](#)
- [Healthy Watersheds Protection](#)
- [How's My Waterway](#)
- [Assessment and Total Maximum Daily Load Tracking and Implementation System](#)

[Contact Us](#) to ask a question, provide feedback, or report a problem.

www.epa.gov/wsio

460 watershed indicator national dataset download

Online customizable WSIO Tool to compare HUC12s

RPS Tools with embedded data for all states & territories

[Watershed Indicators](#)

- [Downloadable RPS statewide watershed screening tools](#)

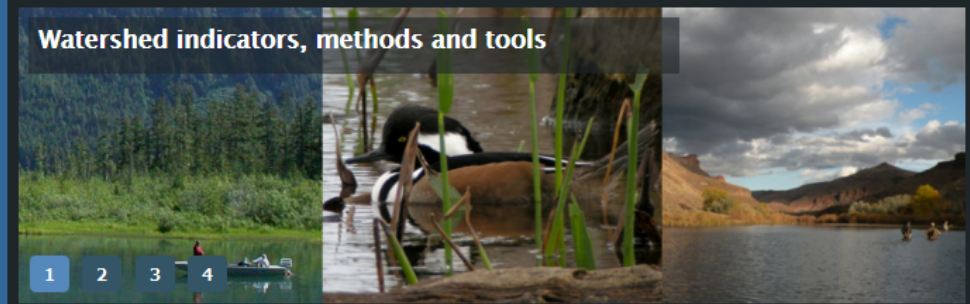
Recovery Potential Screening

www.epa.gov/rps



Learn the Issues | Science & Technology | Laws & Regulations | About EPA

Recovery Potential Screening: Tools for Comparing Impaired Waters Restoration

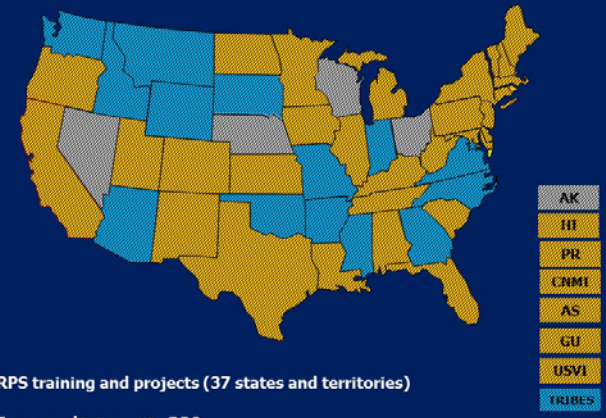


- Featured Resources**
- Methods for Watershed Assessment
 - Download RPS Tools Anywhere
 - Ecological, Stressor and Social Indicators of Watershed Condition

Monitoring under the Clean Water Act has identified tens of thousands of polluted US water bodies that are in need of restoration. Many healthy waters without watershed protection strategies are also at risk of becoming polluted. This Recovery Potential Screening (RPS) website provides technical tools and methods to help government and private programs compare watersheds and plan their efforts for greater likelihood of restoration and protection success. RPS users during the past ten years have included over 20 state water quality programs, local watershed groups, river basin managers (US and international), tribes and federal environmental agencies.

Use RPS	Download RPS Tools	Library of Watershed Indicators
Overview	Statewide RPS Tools	Indicators Overview
EPA and RPS	Generic RPS Tool	Ecological Indicators
Frequent Questions	RPS Tool User Manual	Stressor Indicators
Step by Step RPS Methodology	Other User Support Resources	Social Indicators

Recovery Potential Screening Tools and Support



Projects in 37 states and territories

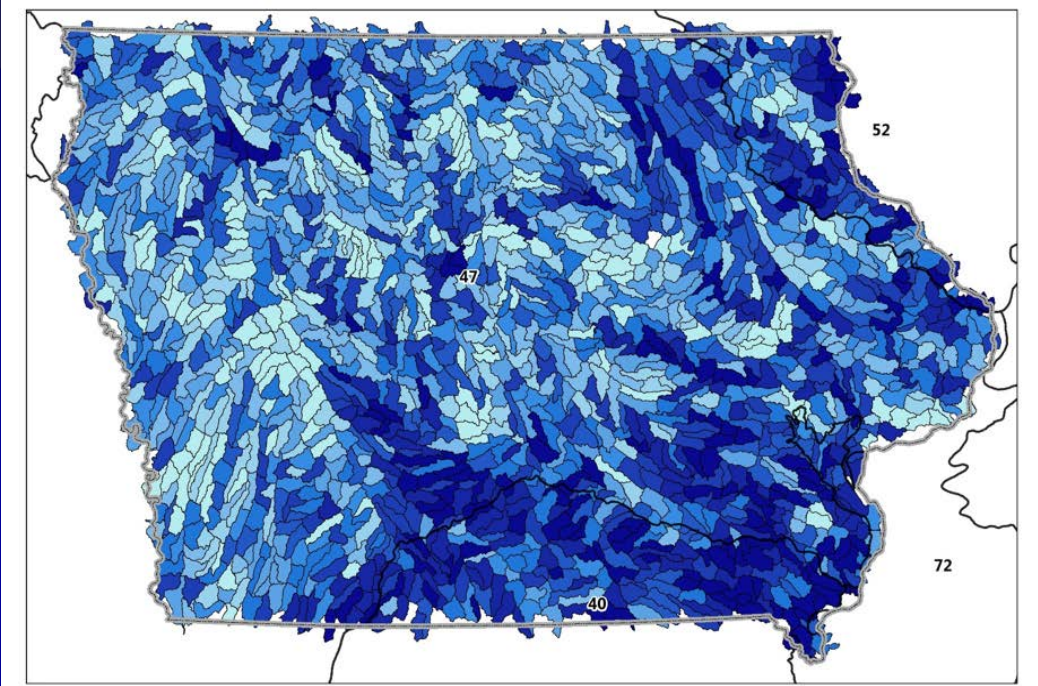
RPS Data and Tools for all states/territories

step by step instructions – indicators – tools
 (for more watershed indicator data also see www.epa.gov/wsio)

Preliminary Healthy Watersheds Assessments (PHWA)

www.epa.gov/hwp

Watershed (HUC12) health and vulnerability scores for all watersheds in each lower 48 state and Level 3 ecoregion (downloadable by state)

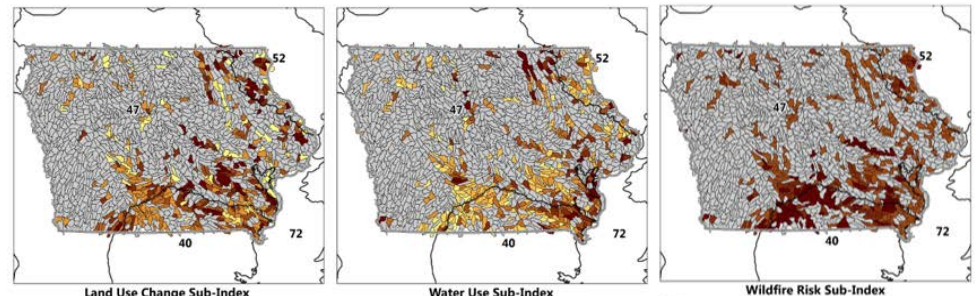


Iowa Boundary
 Ecoregion Boundaries
40 Ecoregion Number

Statewide Watershed Health Index (Percentile)

0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
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0 15 30 60 Miles



State
 Ecoregion Boundaries
40 Ecoregion Number

Sub-Index/Index (Percentile)

0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
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0 30 60 120 Miles

Healthy Watersheds Protection CONTACT US SHARE

- Healthy Watersheds Home
- Basic Information and FAQs
- Benefits of Healthy Watersheds
- EPA's Healthy Watersheds Program
- Preliminary Statewide Watershed Assessments**
- Integrated Assessment of Watershed Condition
- Protection Projects and Partnerships
- Additional Resources

Download 2017 Preliminary Healthy Watersheds Assessments

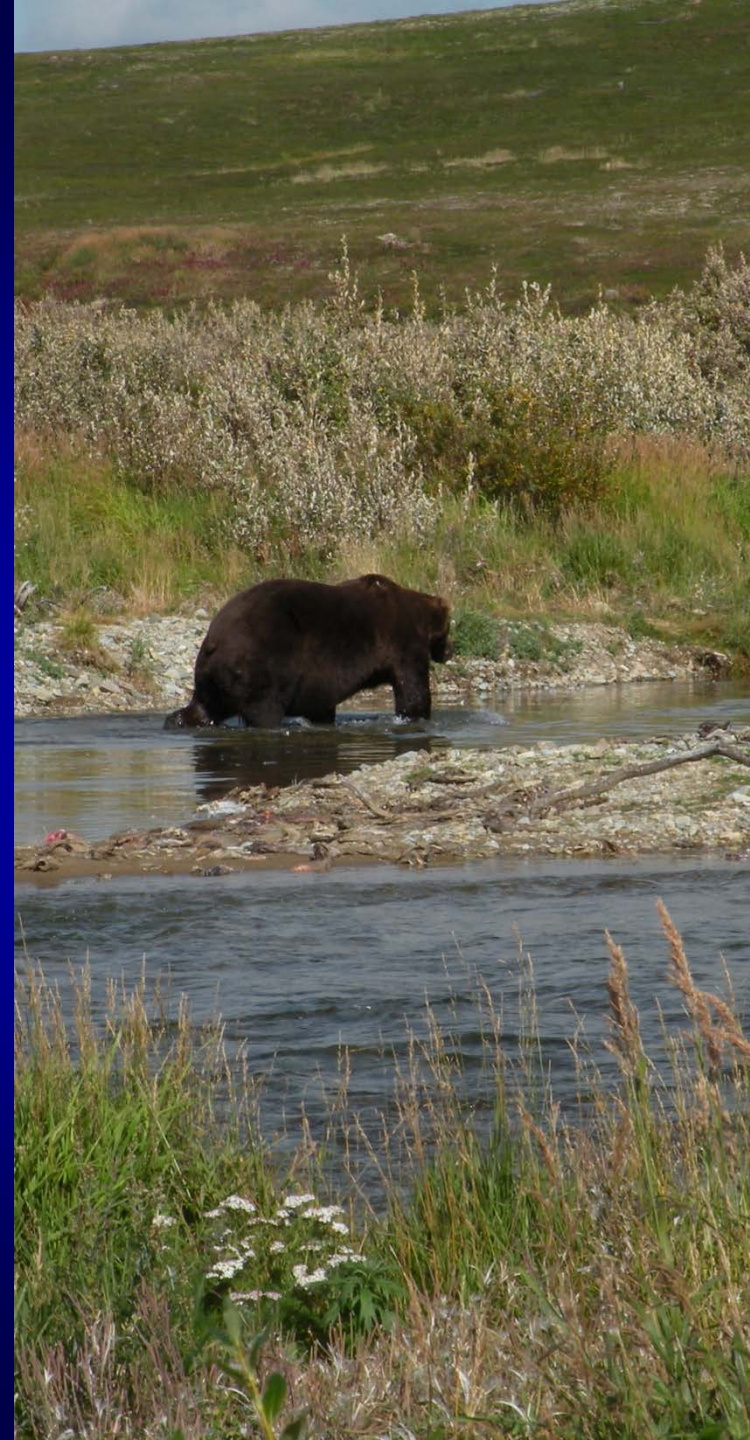
From this page you may download state-specific data from the Preliminary Healthy Watersheds Assessments (PHWA), developed by EPA's Healthy Watersheds Program in support of states' and other partners' efforts to identify and protect high quality waters. The PHWA project is a set of 48 statewide and 85 ecoregional-scale assessments that score watershed health and vulnerability across the conterminous United States. All PHWA products are available as zipped, state-specific data packages below.

You may need additional software to view some of the links on this page. See [EPA's Free Viewers and Readers page](#). The links will vary in file size.

Choose a state from the map above or the pull-down list below. Find your assessment copy in your computer's downloads folder, then open it offline.

Alabama GO

- **Protection and Restoration Grants**



Healthy Watersheds Consortium Grant

www.epa.gov/hwp

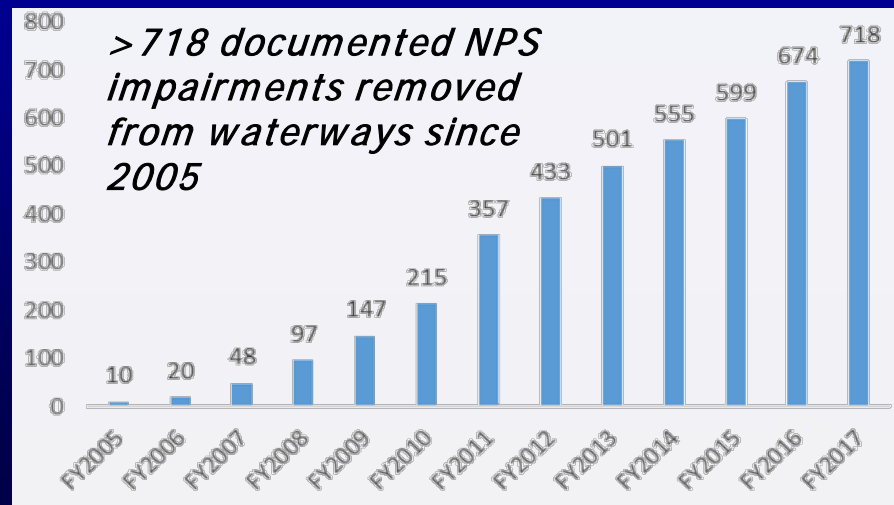
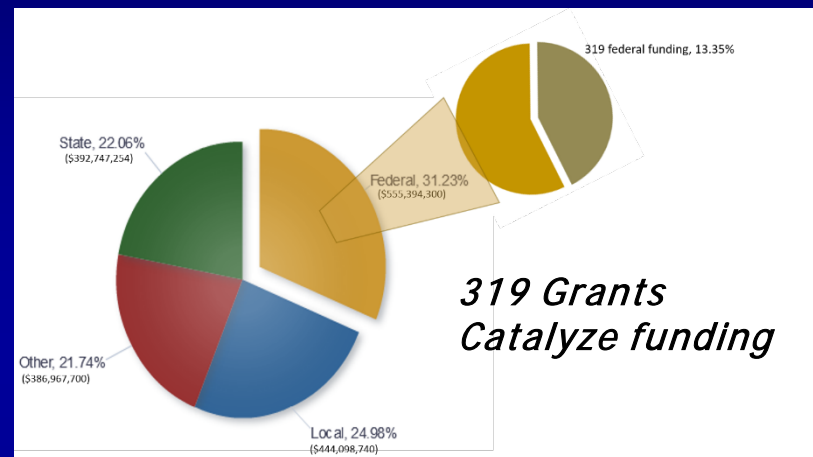
Goal: help programs and local projects protect high quality waterways through strategic conservation of intact watersheds (build capacity, leverage financing, advance protection practice)

- Grantee: US Endowment for Forestry and Communities, Inc.
 - EPA and NRCS are funding partners
- Sub-grants solicited and awarded annually
 - 25 first- and second-year awards totaled \$4.2M
 - Third year RFP just closed 2/1/2018

CWA Nonpoint Pollution Control Grants

<https://www.epa.gov/nps/319-grant-program-states-and-territories>

- Support the operation of state and tribal NPS programs
 - FY17 funding: \$167.9M distributed to states (Tribes \$8M)
 - ~ \$1M to ~ \$8.3M per state
 - 40% non-federal match required
- Use of funds requires 50/50 split between NPS program work and watershed project implementation
- Most states run RFP/competitive processes and award subgrants





Thank you for your time!

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