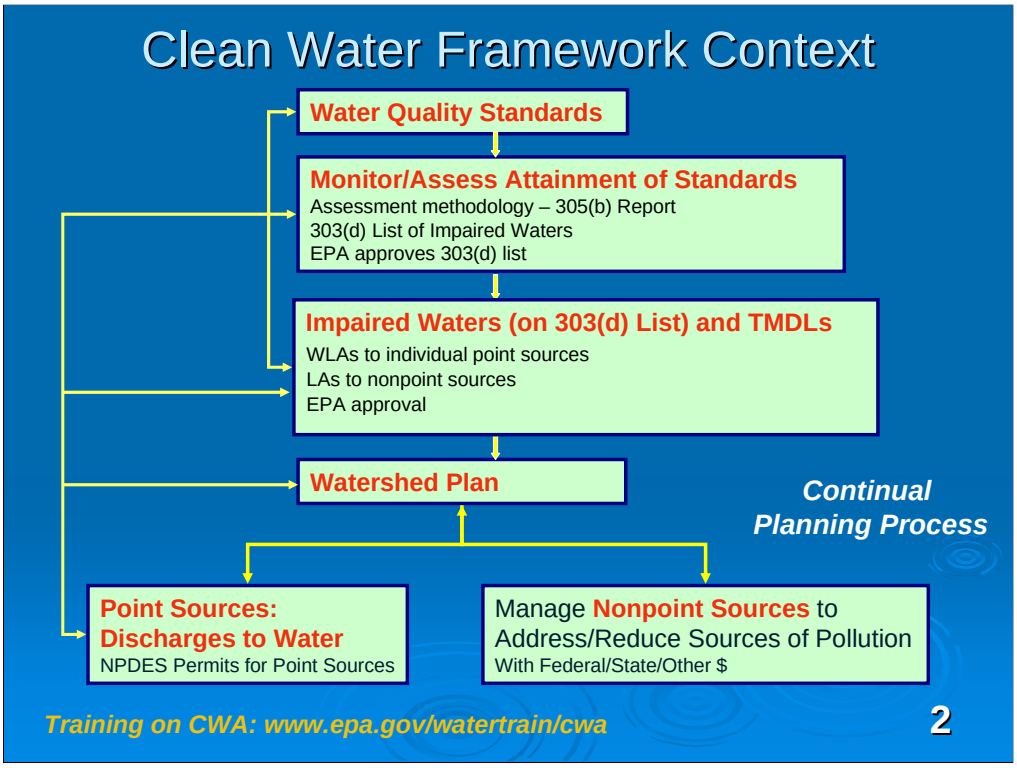
# Key EPA Internet Tools for Watershed Management

**Ansu John**
Tetra Tech, Inc.

March 28, 2007

*Webcast Sponsored by EPA's Watershed Academy*

1


Clean Water Framework Context
Water Quality Standards
Monitor/Assess Attainment of Standards
Assessment methodology – 305(b) Report
303(d) List of Impaired Waters
EPA approves 303(d) list
Impaired Waters (on 303(d) List) and TMDLs
WLAs to individual point sources
LAs to nonpoint sources
EPA approval
Watershed Plan
Continual Planning Process
Point Sources: Discharges to Water
NPDES Permits for Point Sources
Manage Nonpoint Sources to Address/Reduce Sources of Pollution
With Federal/State/Other $
Training on CWA: www.epa.gov/watertrain/cwa
2

Consistent, Comprehensive Watershed Planning:
www.epa.gov/owow/nps/watershed_handbook/

## Handbook for Developing Watershed Plans to Restore and Protect Our Waters (Draft)

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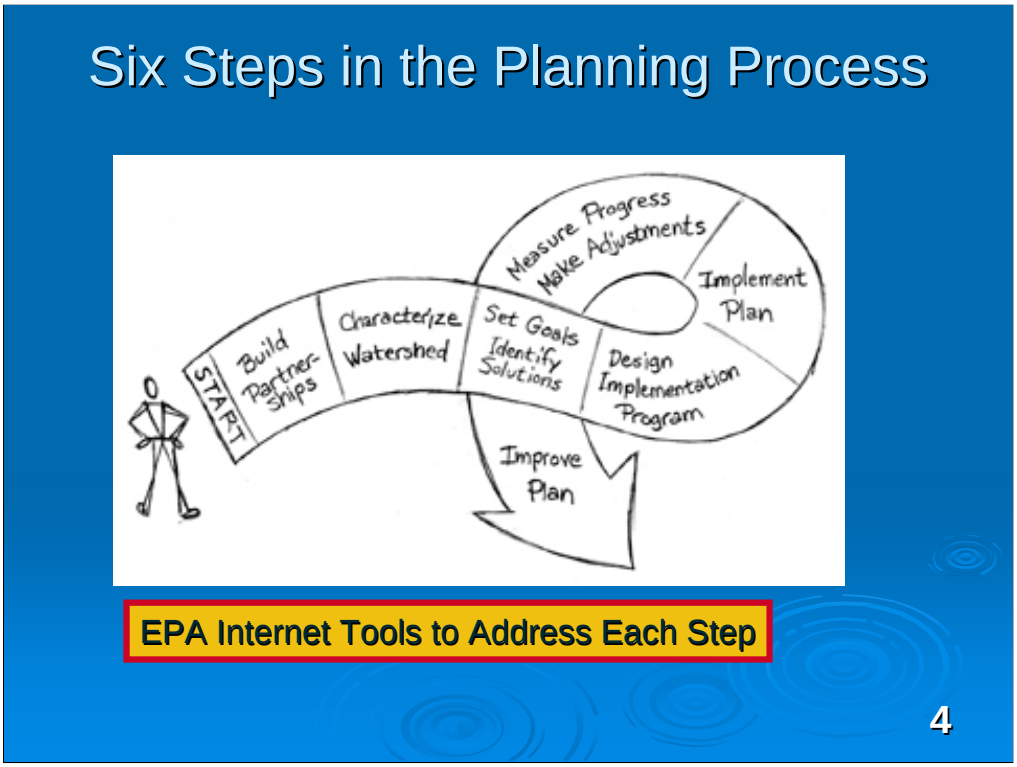



EPA recommends using the following six steps in developing a watershed plan:

Building Partnerships

Characterizing Your Watershed

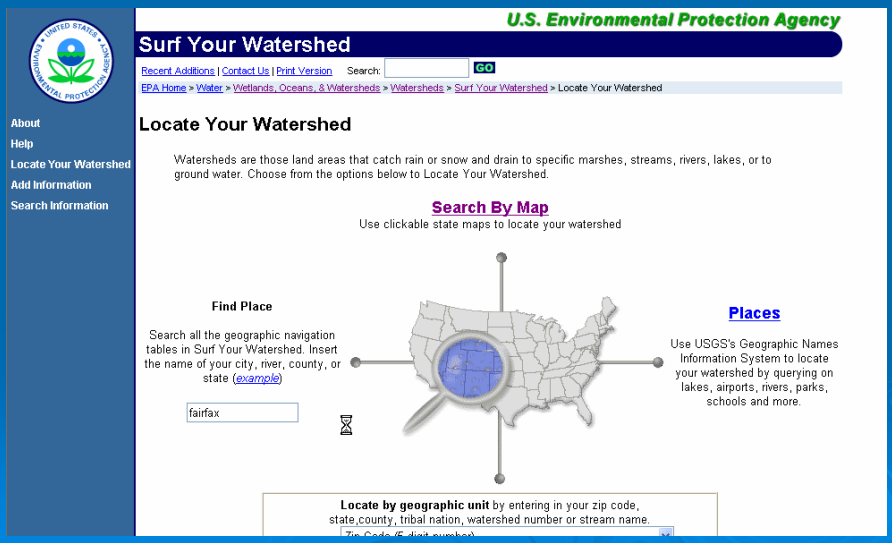
Setting Goals and Identifying Solutions

Design an Implementation Program

Implement the Watershed Plan

Measure Progress and Make Adjustments (adaptive management)

# Where to Start? Surf Your Watershed www.epa.gov/surf

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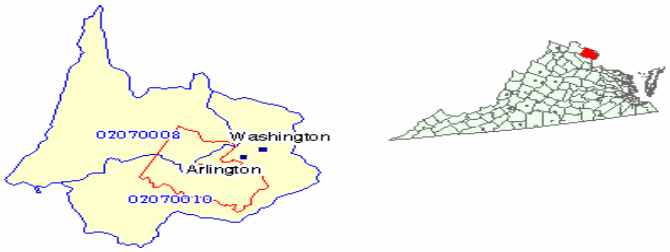
# Find 8-digit HUC through a “Place”

**Fairfax County, VA**

Click on the map to zoom in on your watershed




Current Population (2000 U.S., county) EXIT Disclaimer

This county crosses 2 watersheds.

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# Watershed Profile

**Middle Potomac-Catoctin**

**Watershed Profile**

Watershed Name: Middle Potomac-Catoctin
USGS Cataloging Unit: 02070008

Environmental Websites Involving this Watershed

Visit the Envirofacts Warehouse to retrieve environmental information from EPA databases on Air, Community Water Sources, Water Dischargers, Toxic Releases, Hazardous Waste, and Superfund Sites Geographic searches include zip code, city, EPA Region, or county.

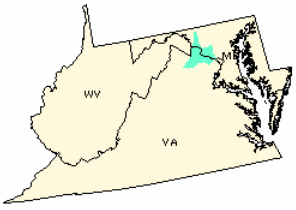
Citizen-based Groups at work in this watershed (Provided by Adopt your Watershed)

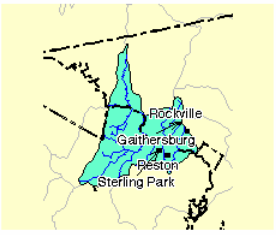
River Corridors and Wetlands Restoration Efforts

National Watershed Network (provided by Conservation Technology Information Center) EXIT Disclaimer

**Assessments of Watershed Health**

- Impaired Water for this watershed

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Launches a variety of links including to other federal agencies.

# Links to Watershed Information

Environmental Websites Involving this Watershed

Visit the Envirofacts Warehouse to retrieve environmental information from EPA databases on Air, Community Water Sources, Water Dischargers, Toxic Releases, Hazardous Waste, and Superfund Sites Geographic searches include zip code, city, EPA Region, or county.

Citizen-based Groups at work in this watershed (Provided by Adopt your Watershed)

River Corridors and Wetlands Restoration Efforts

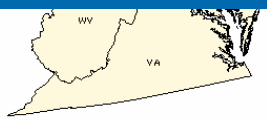
National Watershed Network (provided by Conservation Technology Information Center) EXIT Disclaimer

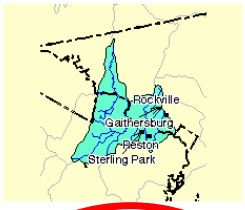
**Assessments of Watershed Health**

- Impaired Water for this watershed
- *Assessed Waters by Watershed*
  - Maryland
  - District of Columbia
  - Virginia
  - West Virginia

**Information provided by the United States Geological Survey (USGS)** EXIT Disclaimer

- Stream Flow (Source: USGS)
- Science in Your Watershed
- Water use data (1985-2000): Information about the amount of water used and how it is used.
- Selected USGS Abstracts




KNOW Watershed Information Network SURF SCIENCE

- Know Your Watershed EXIT Disclaimer
- Surf Your Watershed
- Science in Your Watershed EXIT Disclaimer

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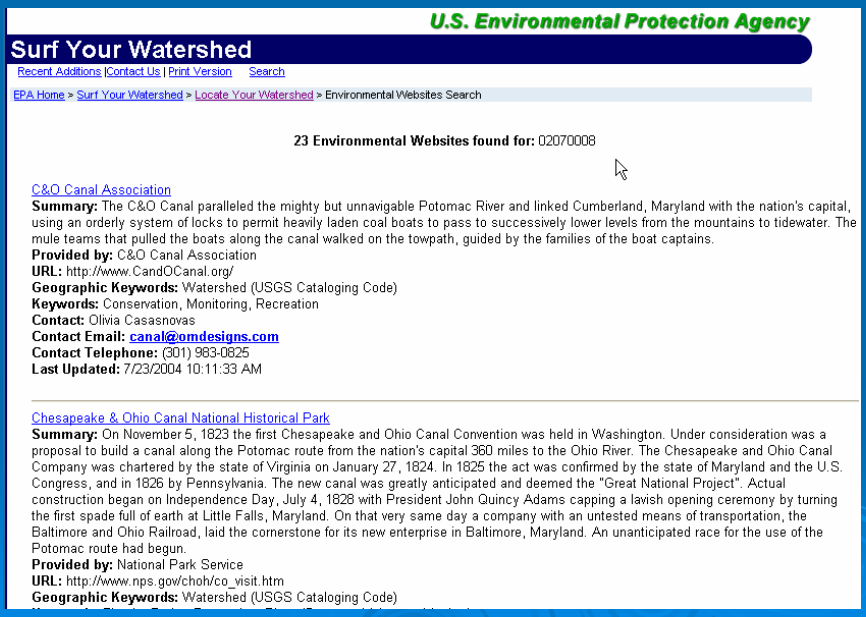
# Environmental Web sites



U.S. Environmental Protection Agency

Surf Your Watershed

Recent Additions | Contact Us | Print Version  Search

EPA Home > Surf Your Watershed > Locate Your Watershed > Environmental Websites Search

**23 Environmental Websites found for:** 02070008

C&O Canal Association
**Summary:** The C&O Canal paralleled the mighty but unnavigable Potomac River and linked Cumberland, Maryland with the nation's capital, using an orderly system of locks to permit heavily laden coal boats to pass to successively lower levels from the mountains to tidewater. The mule teams that pulled the boats along the canal walked on the towpath, guided by the families of the boat captains.
**Provided by:** C&O Canal Association
**URL:** http://www.CandOCanal.org/
**Geographic Keywords:** Watershed (USGS Cataloging Code)
**Keywords:** Conservation, Monitoring, Recreation
**Contact:** Olivia Casasnovas
**Contact Email:** canal@omdesigns.com
**Contact Telephone:** (301) 983-0825
**Last Updated:** 7/23/2004 10:11:33 AM

Chesapeake & Ohio Canal National Historical Park
**Summary:** On November 5, 1823 the first Chesapeake and Ohio Canal Convention was held in Washington. Under consideration was a proposal to build a canal along the Potomac route from the nation's capital 360 miles to the Ohio River. The Chesapeake and Ohio Canal Company was chartered by the state of Virginia on January 27, 1824. In 1825 the act was confirmed by the state of Maryland and the U.S. Congress, and in 1826 by Pennsylvania. The new canal was greatly anticipated and deemed the "Great National Project". Actual construction began on Independence Day, July 4, 1828 with President John Quincy Adams capping a lavish opening ceremony by turning the first spade full of earth at Little Falls, Maryland. On that very same day a company with an untested means of transportation, the Baltimore and Ohio Railroad, laid the cornerstone for its new enterprise in Baltimore, Maryland. An unanticipated race for the use of the Potomac route had begun.
**Provided by:** National Park Service
**URL:** http://www.nps.gov/choh/co_visit.htm
**Geographic Keywords:** Watershed (USGS Cataloging Code)

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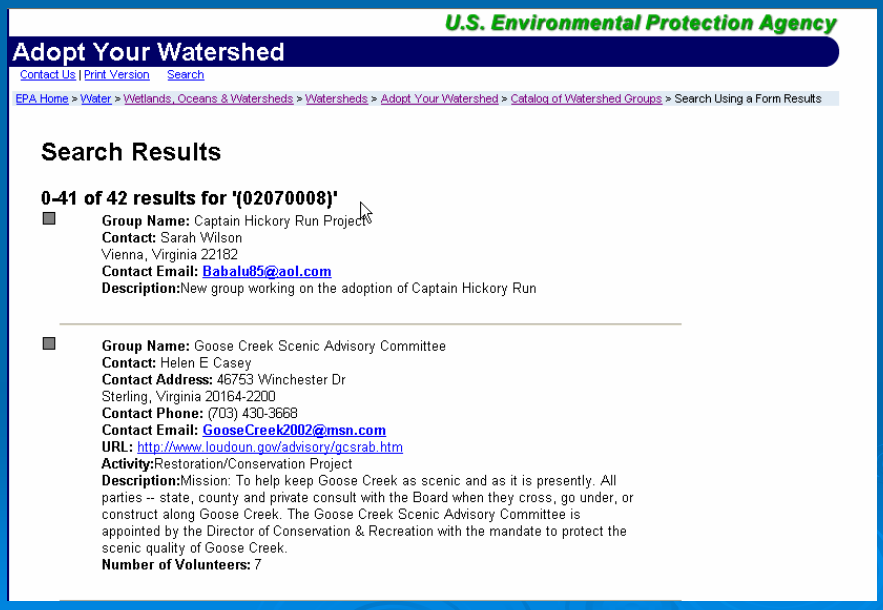
# Citizens Groups



U.S. Environmental Protection Agency

Adopt Your Watershed

Contact Us | Print Version Search

EPA Home > Water > Wetlands, Oceans & Watersheds > Watersheds > Adopt Your Watershed > Catalog of Watershed Groups > Search Using a Form Results

## Search Results

**0-41 of 42 results for '(02070008)'**

**Group Name:** Captain Hickory Run Project
**Contact:** Sarah Wilson
Vienna, Virginia 22182
**Contact Email:** Babalu85@aol.com
**Description:**New group working on the adoption of Captain Hickory Run

**Group Name:** Goose Creek Scenic Advisory Committee
**Contact:** Helen E Casey
**Contact Address:** 46753 Winchester Dr
Sterling, Virginia 20164-2200
**Contact Phone:** (703) 430-3668
**Contact Email:** GooseCreek2002@msn.com
**URL:** http://www.loudoun.gov/advisory/gcsrab.htm
**Activity:**Restoration/Conservation Project
**Description:**Mission: To help keep Goose Creek as scenic and as it is presently. All parties -- state, county and private consult with the Board when they cross, go under, or construct along Goose Creek. The Goose Creek Scenic Advisory Committee is appointed by the Director of Conservation & Recreation with the mandate to protect the scenic quality of Goose Creek.
**Number of Volunteers:** 7

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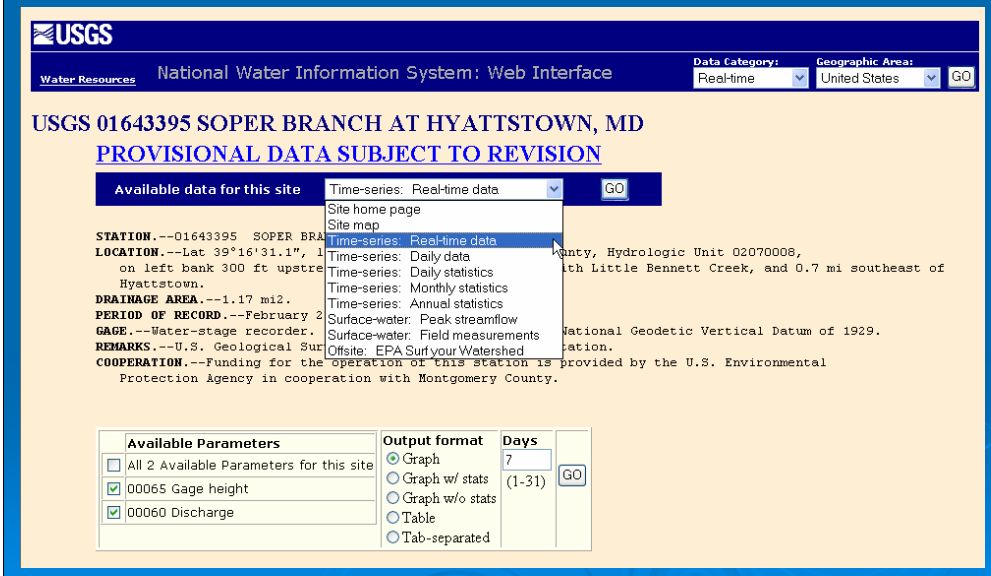
# USGS Stream Gage Stations

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# Watershed Hub: www.epa.gov/owow/watershed

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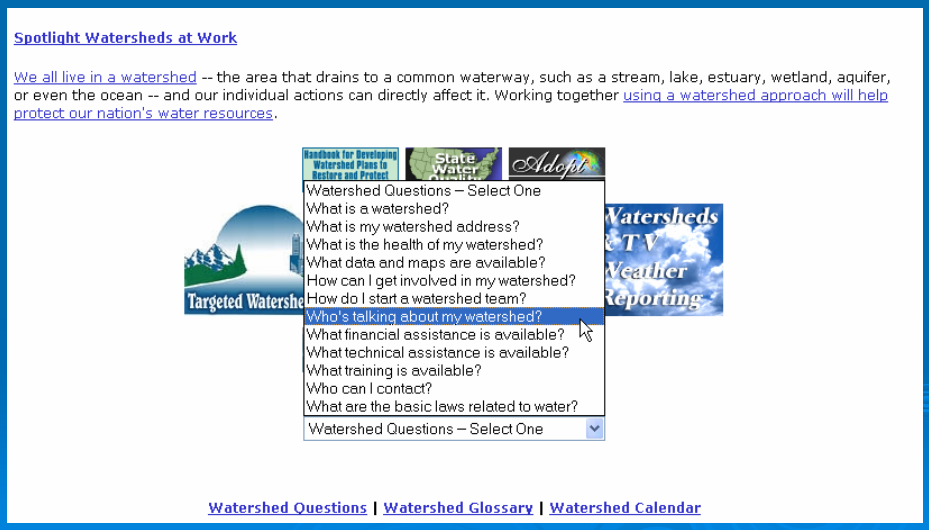
# Partners/Resources: Online Communities

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# Watershed Online Information Sharing: www.epa.gov/owow/watershed/information.html

**Join Listservers**

- WaterNews listserver - get your water news directly from the source, the EPA's Office of Water
- Watershed News
- The Volmonitor Listserver
- Biocriteria/Bioassessment Listserver
- NPSINFO Email listserver
- EPA Public Listservers
- Standards and Applied Science Division WQS-NEWS

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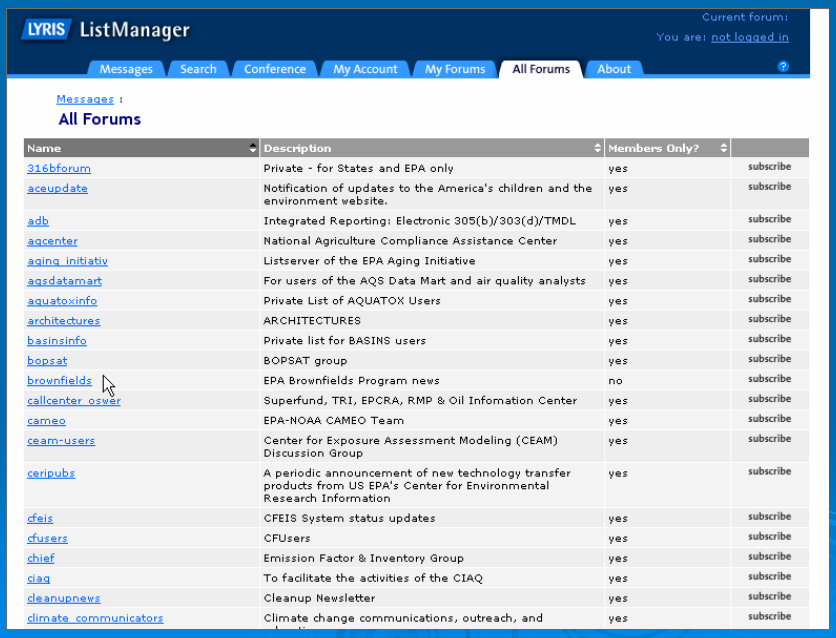
# EPA Public Listservers




| Name | Description | Members Only? | |
|---|---|---|---|
| 316bforum | Private - for States and EPA only | yes | subscribe |
| aceupdate | Notification of updates to the America's children and the environment website. | yes | subscribe |
| adb | Integrated Reporting: Electronic 305(b)/303(d)/TMDL | yes | subscribe |
| agcenter | National Agriculture Compliance Assistance Center | yes | subscribe |
| aging_initiativ | Listserver of the EPA Aging Initiative | yes | subscribe |
| aqsdatamart | For users of the AQS Data Mart and air quality analysts | yes | subscribe |
| aquatoxinfo | Private List of AQUATOX Users | yes | subscribe |
| architectures | ARCHITECTURES | yes | subscribe |
| basinsinfo | Private list for BASINS users | yes | subscribe |
| bopsat | BOPSAT group | yes | subscribe |
| brownfields | EPA Brownfields Program news | no | subscribe |
| callcenter_oswer | Superfund, TRI, EPCRA, RMP & Oil Infomation Center | yes | subscribe |
| cameo | EPA-NOAA CAMEO Team | yes | subscribe |
| ceam-users | Center for Exposure Assessment Modeling (CEAM) Discussion Group | yes | subscribe |
| ceripubs | A periodic announcement of new technology transfer products from US EPA's Center for Environmental Research Information | yes | subscribe |
| cfeis | CFEIS System status updates | yes | subscribe |
| cfusers | CFUsers | yes | subscribe |
| chief | Emission Factor & Inventory Group | yes | subscribe |
| ciaq | To facilitate the activities of the CIAQ | yes | subscribe |
| cleanupnews | Cleanup Newsletter | yes | subscribe |
| climate_communicators | Climate change communications, outreach, and | yes | subscribe |

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# Quarterly Newsletter on Watershed Topics
# www.epa.gov/owow/info/NewsNotes

Nonpoint Source

**News-Notes**

*The Condition of the Water-Related Environment*
*The Control of Nonpoint Sources of Water Pollution*
*The Ecological Management & Restoration of Watersheds*

A periodic report on the Condition of the Water-Related Environment, The Control of Nonpoint Sources of Water Pollution, and the Ecological Management and Restoration of Watersheds

**Search all issues of News-Notes by Keyword:**

GO

**Current Issue**

**January 2007, #80**

PDF (1.6 MB, 32 pages)

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# Watershed Planning Steps

- Build Partnerships
- Characterize the Watershed
- Set Goals and Identify Solutions
- Design an Implementation Program
- Implement the Program
- Measure Progress, Make Necessary Adjustments

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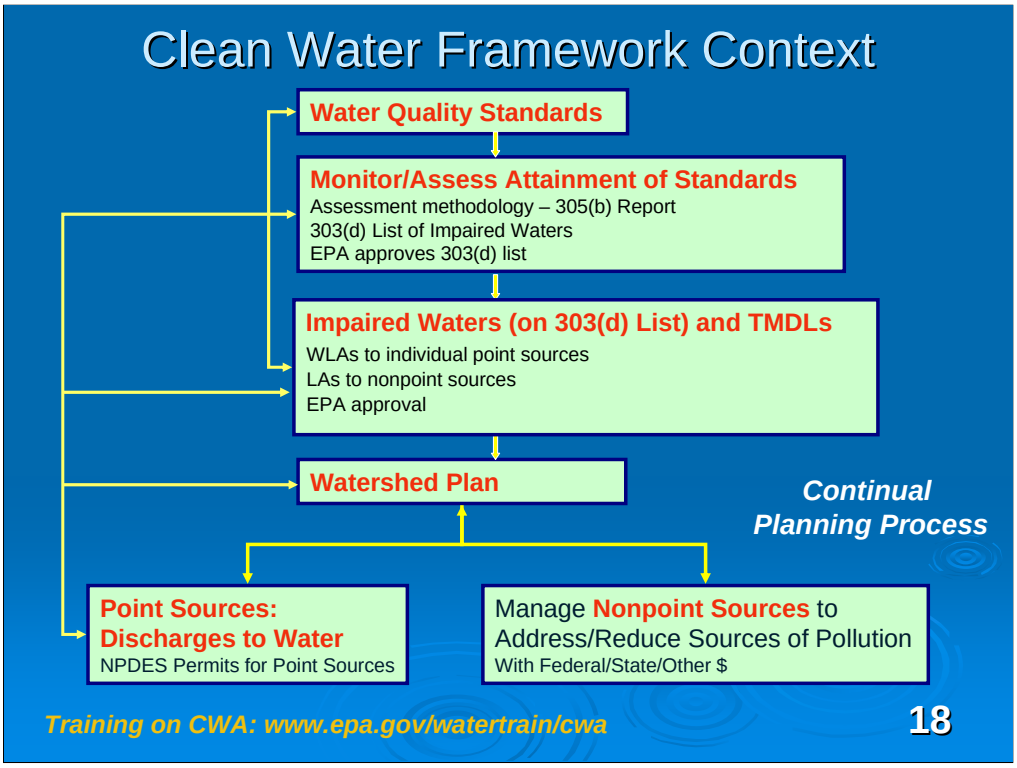
# Clean Water Framework Context




*Training on CWA: www.epa.gov/watertrain/cwa*

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# National Sources: EPA Water Program Databases

A. Water Quality Standards
B. Assessment
C. Impairments and TMDL

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# A. Water Quality Standards: www.epa.gov/waterscience/standards

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# WQS Database: www.epa.gov/wqsdatabase/

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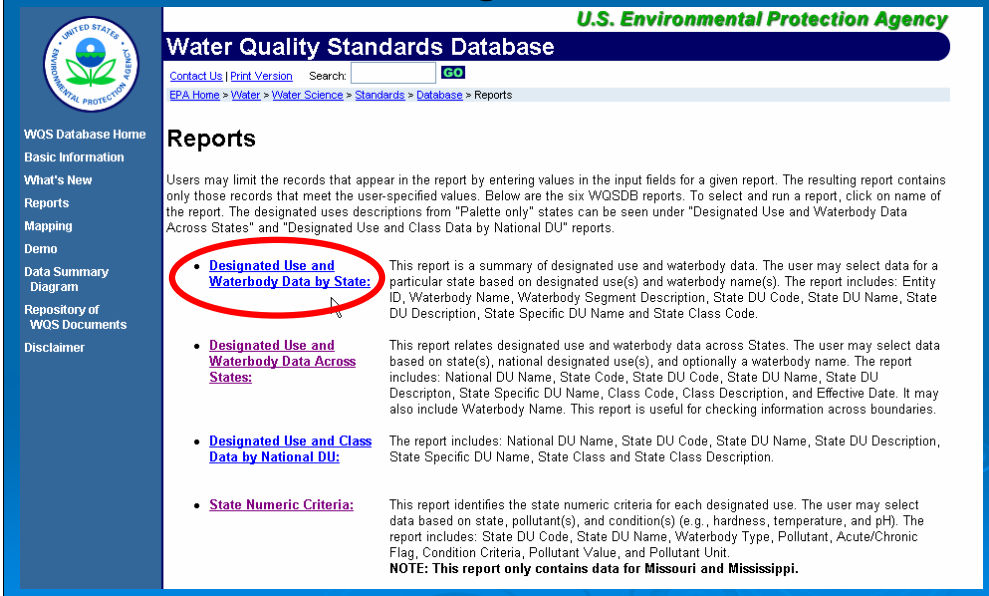
# Find Designated Uses

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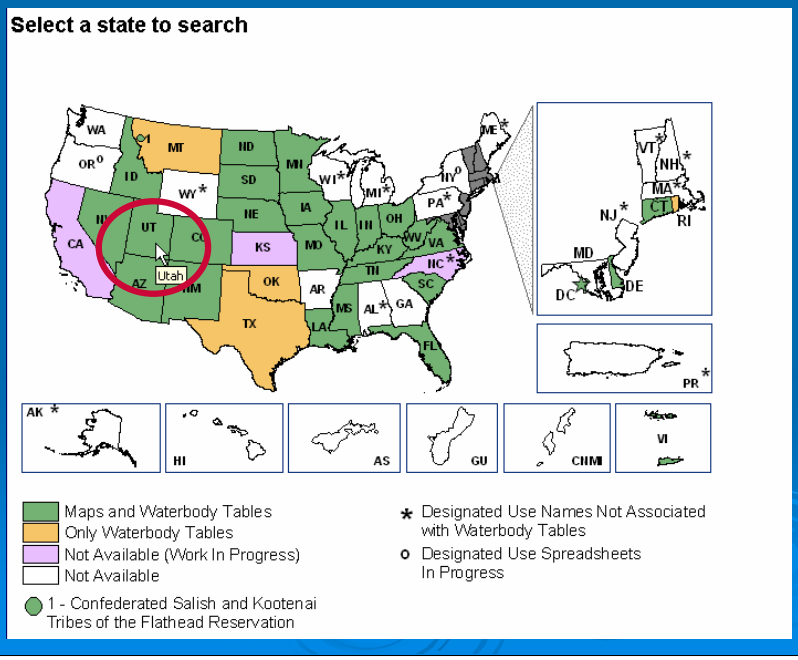
# Zoom Into Waterbody by State

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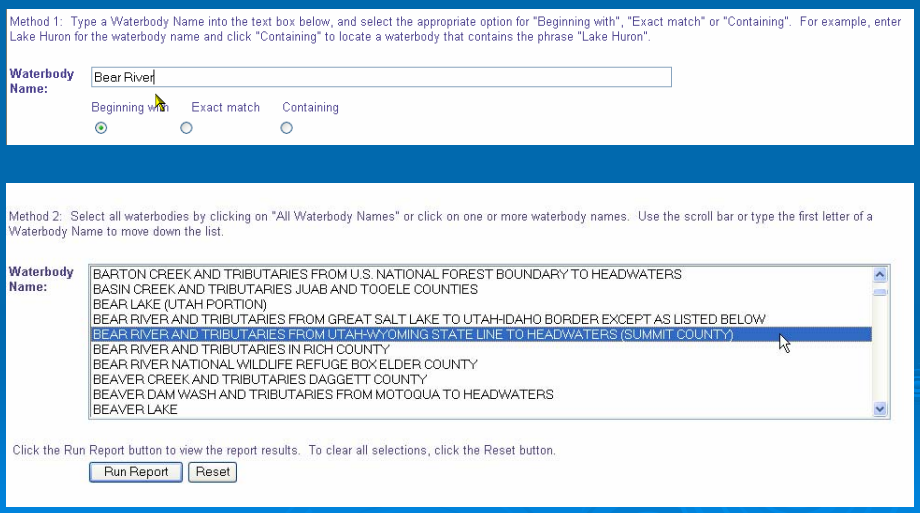
# Pick the Waterbody

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# Database Report Result = Designated Uses of Selected Waterbody

Click on

- the Entity ID link to view EnviroMapper.
- the Waterbody Name to get the expanded text.
- this link to view state disclaimer data: UT
- the State DU Description to get the expanded text.

Note: A "No feature found" response from En... ...er means the data are in WQSDB but not in the RAD.

| Waterbody Entity ID | Waterbody Name | Waterbody Segment Description | State DU Code | State DU Name | State DU Description | State Specific DU Name | Class Code |
|---|---|---|---|---|---|---|---|
| UT-R-BEAR-0021 | BEAR RIVER AND TRIBUTARIES FROM UTAH-WYOMING STATE LINE TO HEADWATERS (SUMMIT CO | | 4 | Agricultural | Protected for agricultural uses including irrigation of crops and stock watering. | | |
| UT-R-BEAR-0021 | BEAR RIVER AND TRIBUTARIES FROM UTAH-WYOMING STATE LINE TO HEADWATERS (SUMMIT CO | | 3A | Cold Water Aquatic Life | Protected for cold water species of game fish and other cold water aquatic life. | | |
| UT-R-BEAR-0021 | BEAR RIVER AND TRIBUTARIES FROM UTAH-WYOMING STATE LINE TO HEADWATERS (SUMMIT CO | | 2B | Secondary Recreation | Protected for secondary contact recreation such as boating, wading, or similar uses. | | |

Count of Waterbody, Specific DU, DU, and Class: 3

***Bonus: Selected Waterbody can be mapped in "Enviromapper For Water"***

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# State, Tribal, & Territorial Standards: www.epa.gov/waterscience/wqs/

Click on a State to View its WQS Documents/Codes

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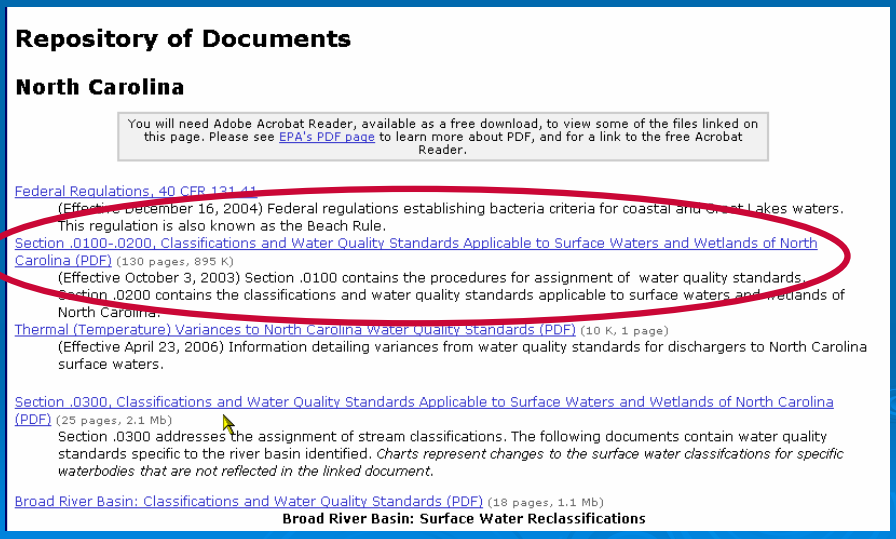
# State Documents: WQS Codes



**Repository of Documents**

**North Carolina**

You will need Adobe Acrobat Reader, available as a free download, to view some of the files linked on this page. Please see EPA's PDF page to learn more about PDF, and for a link to the free Acrobat Reader.

Federal Regulations, 40 CFR 131.41
(Effective December 16, 2004) Federal regulations establishing bacteria criteria for coastal and Great Lakes waters. This regulation is also known as the Beach Rule.

Section .0100-.0200, Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands of North Carolina (PDF) (130 pages, 895 K)
(Effective October 3, 2003) Section .0100 contains the procedures for assignment of water quality standards. Section .0200 contains the classifications and water quality standards applicable to surface waters and wetlands of North Carolina.

Thermal (Temperature) Variances to North Carolina Water Quality Standards (PDF) (10 K, 1 page)
(Effective April 23, 2006) Information detailing variances from water quality standards for dischargers to North Carolina surface waters.

Section .0300, Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands of North Carolina (PDF) (25 pages, 2.1 Mb)
Section .0300 addresses the assignment of stream classifications. The following documents contain water quality standards specific to the river basin identified. *Charts represent changes to the surface water classifcations for specific waterbodies that are not reflected in the linked document.*

Broad River Basin: Classifications and Water Quality Standards (PDF) (18 pages, 1.1 Mb)
**Broad River Basin: Surface Water Reclassifications**

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# QUESTIONS?

**Online Participants:** Submit questions online anytime.
**Phone Participants:** Please state your name and where you are calling from before your question.

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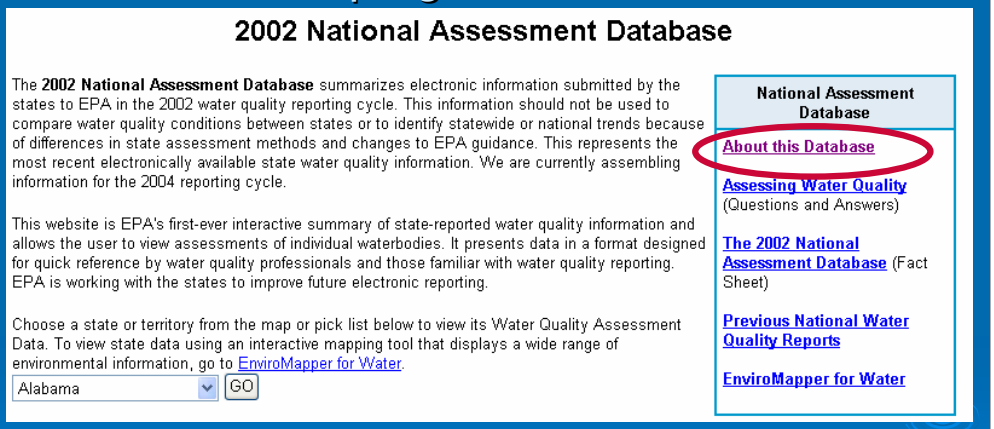
# B. Assessment
# www.epa.gov/waters/305b




About this Database:
Explains terms like: “Impaired”, “Threatened”
Explains Report headings like:
“Assessed Waters, Individual Use Support for Bays and Estuaries:”

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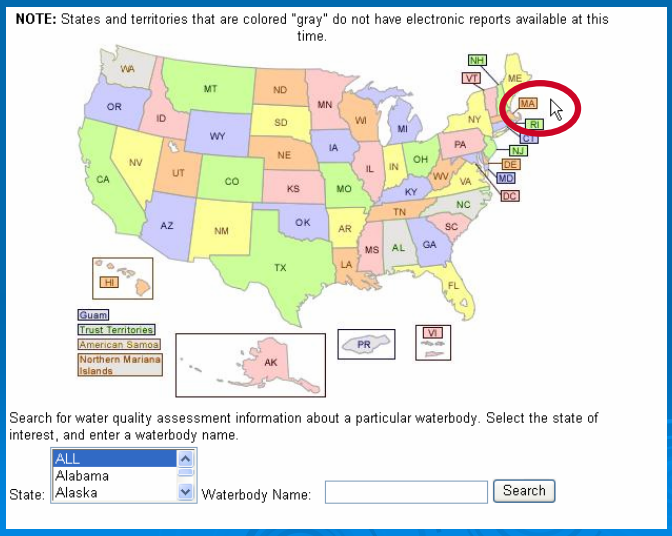
# Clickable Map: Zoom Into Statewide Assessment Reports

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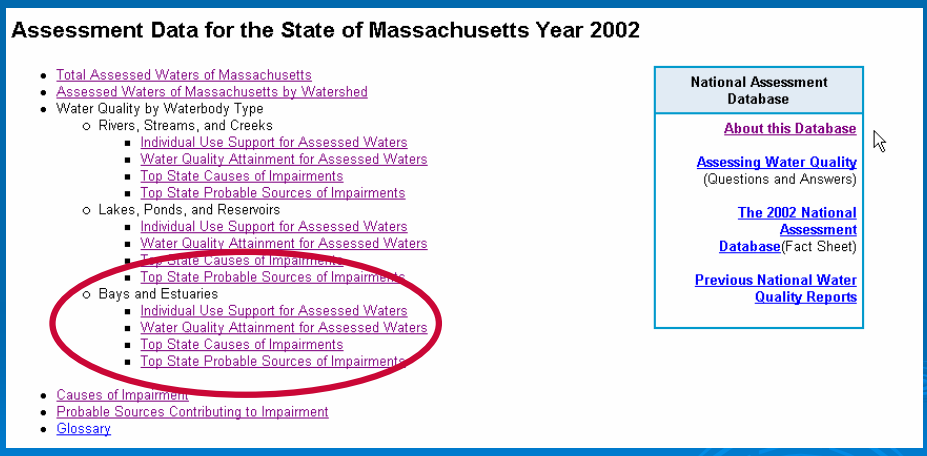
# State Report Sections: Type of Waterbody, Watersheds

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# Overall Report Card

**Massachusetts Assessed Waters**
**Individual Use Support for Bays and Estuaries**

Description of this table

| State Designated Use | Total Square Miles Assessed | Percent Good | Percent Threatened | Percent Impaired | % Good / % Threatened / % Impaired |
|---|---|---|---|---|---|
| Fish, Shellfish, and Wildlife Protection and Propagation | 101.64 | 65.83 | .00 | 34.17 | |
| Recreation | 174.07 | 82.07 | .00 | 17.93 | |
| Aquatic Life Harvesting | | | | 90.68 | |
| Aesthetic Value | | | | 10.25 | |

The state asse… …niles.

**Massachusetts Top Causes of Impairments for Bays and Estuaries**

Description of this table

| # | State Cause Name | Total Square Miles Impaired |
|---|---|---|
| 1 | PATHOGENS | 203.66 |
| 2 | TOTAL TOXICS | 58.08 |
| 3 | PRIORITY ORGANICS | 54.08 |
| 4 | NUTRIENTS | 21.72 |
| 5 | ORGANIC ENRICHMENT/LOW DO | 5.21 |
| 6 | TEMPERATURE, WATER | 4.80 |
| 7 | TURBIDITY | 4.70 |
| 8 | TOTAL SUSPENDED SOLIDS (TSS) | 4.60 |
| 9 | UNKNOWN TOXICITY | 4.00 |
| 10 | OBJECTIONABLE DEPOSITS | 2.00 |

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# Watershed-based Report: Selected Individual Watershed

**Assessment Data for**
**Massachusetts, Blackstone Watershed, Year 2002**

**Other Water Assessment Information**
The most current report available for this watershed is 2002.

Description of this table
For a report glossary please click here.

Click on the Water Name link to get 305(b) Lists/Assessment Unit Information Report

| Table Legend: | Water Status is Good | Water Status is Threatened | Water Status is Impaired | Water Status has not been Assessed |
|---|---|---|---|---|

| Water Name | Assessment Unit ID | Location | Map | State | Water Type | Water Size | Unit | Water Status |
|---|---|---|---|---|---|---|---|---|
| Aldrich Pond | MA51002 | Pink: Blackstone(51002) Sutton | Map Assessed Water | MA | FRESHWATER LAKE | 2 | ACRES | IMPAIRED |
| Arcade Pond | MA51003 | Pink: Blackstone(51003) Northbridge | Map Assessed Water | MA | FRESHWATER LAKE | 18 | ACRES | IMPAIRED |
| Auburn Pond | MA51004 | Pink: Blackstone(51004) Auburn | Map Assessed Water | MA | FRESHWATER LAKE | 16 | ACRES | IMPAIRED |

**National Assessment Database**

About this Database

Assessing Water Quality (Questions and Answers)

The 2002 National Assessment Database (Fact Sheet)

Previous National Water Quality Reports

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# Selected Individual Waterbody: Blackstone River, 3.7-mile Section

**Water Quality Attainments**

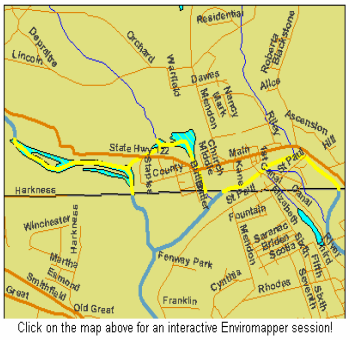
| Designated Use Category | State Designated Use | Attainment Status | Threatened |
|---|---|---|---|
| Fish, Shellfish, and Wildlife Protection and Propagation | ALUS | NOT SUPPORTING | No |
| Aquatic Life Harvesting | FISH CONSUMPTION | NOT SUPPORTING | No |
| Recreation | PRIMARY CONTACT | PARTIAL SUPPORT | No |
| Recreation | SECONDARY CONTACT | PARTIAL SUPPORT | No |
| Aesthetic Value | AESTHETICS | PARTIAL SUPPORT | No |

Fully Supported | Threatened | Partially Supported | Not Supported | Not Assesse

Note: State Designated Uses reported as "Not Attainable" are no longer recognized under the 2002 Integrated R categorized as "Not Supported".

**Causes of Impairment**

| State Impairment | EPA Impairment Classification |
|---|---|
| NUTRIENTS | NUTRIENTS |
| PATHOGENS | PATHOGENS |
| TOTAL TOXICS | TOTAL TOXICS |
| FLOW ALTERATION | FLOW ALTERATIONS |
| PRIORITY ORGANICS | TOXIC ORGANICS |
| ODOR THRESHOLD NUMBER | TASTE AND ODOR |




Click on the map above for an interactive Enviromapper session!

***Bonus: Map this section in "Enviromapper for Water"***

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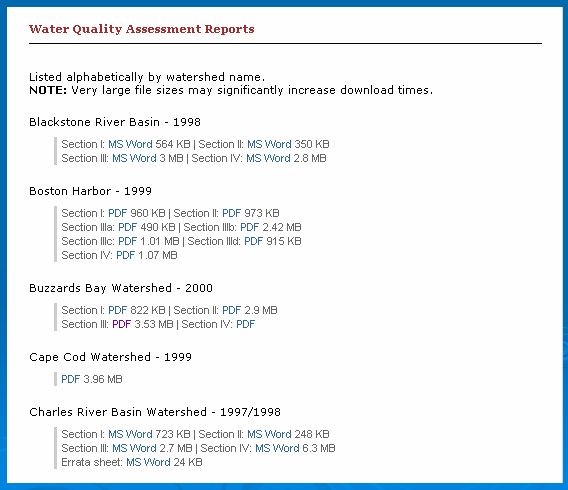
# Complement with In-Depth State Information

**State of Massachusetts websites:** EXIT Disclaimer: State 305(b) Water Quality Assessment Report(s)
State Water Quality Program

**MA: DEP**
**Water Quality Assessment Reports**



**Water Quality Assessment Reports**

Listed alphabetically by watershed name.
**NOTE:** Very large file sizes may significantly increase download times.

Blackstone River Basin - 1998
Section I: MS Word 564 KB | Section II: MS Word 350 KB
Section III: MS Word 3 MB | Section IV: MS Word 2.8 MB

Boston Harbor - 1999
Section I: PDF 960 KB | Section II: PDF 973 KB
Section IIIa: PDF 490 KB | Section IIIb: PDF 2.42 MB
Section IIIc: PDF 1.01 MB | Section IIId: PDF 915 KB
Section IV: PDF 1.07 MB

Buzzards Bay Watershed - 2000
Section I: PDF 822 KB | Section II: PDF 2.9 MB
Section III: PDF 3.53 MB | Section IV: PDF

Cape Cod Watershed - 1999
PDF 3.96 MB

Charles River Basin Watershed - 1997/1998
Section I: MS Word 723 KB | Section II: MS Word 248 KB
Section III: MS Word 2.7 MB | Section IV: MS Word 6.3 MB
Errata sheet: MS Word 24 KB

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# C. Impaired Waters and Total Maximum Daily Loads: www.epa.gov/waters/tmdl

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# Example (1 of 2) Summary of Impairments for State of Virginia

**Causes of Impairment**

**NOTE:** Click on the underlined "Cause of Impairment Reported" value to see a listing of those waters with that cause of impairment. Click on the underlined "General Impairment Name" to see the detailed state-reported impairment names.

| General Impairment Name | Cause of Impairment Reported | Percent of Reported |
|---|---|---|
| PATHOGENS | 605 | 35.07 |
| FISH CONSUMPTION ADVISORY - POLLUTANT UNSPECIFIED | 251 | 14.55 |
| OXYGEN DEPLETION | 191 | 11.07 |
| CAUSE UNKNOWN - BIOLOGICAL INTEGRITY | 171 | 9.91 |
| PH | 143 | 8.29 |
| METALS (OTHER THAN MERCURY) | 119 | 6.90 |
| PCBS | 70 | 4.06 |
| AMMONIA | 49 | 2.84 |
| NUTRIENTS | 33 | 1.91 |
| TEMPERATURE | 32 | 1.86 |
| PESTICIDES | 16 | .93 |
| MERCURY | 11 | .64 |

37

# Drill Down: All Waterbodies Listed for Pathogen Impairments

**Query Parameters:**

State = VA
Parent Impairment = PATHOGENS

**NOTE:** Click on the underlined Waterbody Name for a detailed Listed Water Report. Click on the underlined "MAP 303(d)" literal for a map of the Listed Water.

| State | Waterbody Name | Map of Listed Water | State Basin Name | Location | Cyles Listed |
|---|---|---|---|---|---|
| VA | AARONS CREEK | MAP 303(d) | ROANOKE | | 2004, 2002 |
| VA | ACCOKEEK CREEK | MAP 303(d) | POTOMAC | | 2004, 2002 |
| VA | ACCOTINK CREEK | MAP 303(d) | POTOMAC | | 2004, 2002 |
| VA | ADAIR RUN | No Spatial Data | NEW | | 2004 |
| VA | AIRFIELD POND (LOWER) UNNAMED TRIBUTARY | No Spatial Data | CHOWAN | | 2004 |
| VA | AIRFIELD POND (UPPER) UNNAMED TRIBUTARY | No Spatial Data | CHOWAN | | 2004 |
| VA | ALLEN CREEK | No Spatial Data | ROANOKE | | 2004, 2002 |
| VA | ALLEN CREEK, UT | No Spatial Data | ROANOKE | | 2004 |
| VA | ALMOND CREEK | No Spatial Data | LOWER JAMES | | 2004, 2002, 1998, 1996 |
| VA | ANGOLA CREEK | MAP 303(d) | APPOMATOX | | 2004, 2002 |
| VA | ANGOLA CREEK | MAP 303(d) | APPOMATOX | | 2004, 2002 |
| VA | APPOMATTOX RIVER | MAP 303(d) | APPOMATOX | | 2004, 2002, 1998, 1996, 1994 |
| VA | APPOMATTOX RIVER | MAP 303(d) | APPOMATOX | | 2004, 2002 |
| VA | APPOMATTOX RIVER | MAP 303(d) | APPOMATOX | | 2004, 2002, 1998 |
| VA | AQUIA CREEK | No Spatial Data | POTOMAC | | 2004 |
| VA | ASSAMOOSICK SWAMP - UNT | MAP 303(d) | CHOWAN | | 2004, 2002 |
| VA | ASSAMOOSICK SWAMP AND TRIBUTARIES, SEACORRIE SWAMP | No Spatial Data | CHOWAN | | 2004, 2002, 1998 |
| VA | ASSAWOMAN CREEK AND WOMANS BAY | No Spatial Data | OCEAN | | 2004, 2002 |
| VA | AUSTIN RUN | No Spatial Data | POTOMAC | | 2004 |

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# Example (2 of 2) Summary of Impairments for State of Virginia

**Waters Listed by Watershed**

| Watershed Name | Number of Waters on List | Percent of Reported |
|---|---|---|
| Hampton Roads | 25 | 1.85 |
| Lower Chesapeake Bay | 5 | .37 |
| Lower Dan | 15 | 1.11 |
| Lower James | 68 | 5.03 |
| Lower Potomac | 56 | 4.14 |
| Lower Rappahannock | 54 | 3.99 |
| Lynnhaven-Poquoson | 29 | 2.14 |
| Mattaponi | 9 | .67 |
| Maury | 7 | .52 |
| Meherrin | 11 | .81 |
| Middle James-Buffalo | 24 | 1.77 |
| Middle James-Willis | 15 | 1.11 |
| Middle New | 14 | 1.03 |
| Middle Potomac-Anacostia-Occoquan | 23 | 1.70 |
| Middle Potomac-Catoctin | 9 | .67 |
| Middle Roanoke | 31 | 2.29 |

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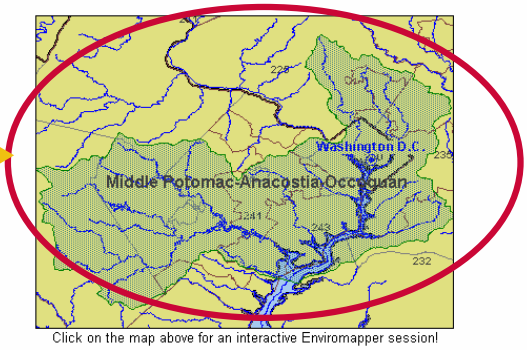
# Drill down: Waterbodies in Selected Watershed (Middle Potomac-Anacostia-Occoquan)

**Section 303(d) List Fact Sheet for Watershed**
**MIDDLE POTOMAC-ANACOSTIA-OCCOQUAN**

- Waters Listed by Waterbody
- Causes of Impairment
- Approved TMDLs by Pollutant
- Approved TMDLs by Year
- TMDL Document Search

Click for individual waterbody segments

Click here to see metadata for this report.




Click on the map above for an interactive Enviromapper session!

Click to launch Enviromapper For Water

40

# Individual Segment Selected from Virginia Watershed: (Lower Anacostia River)

**Listed Water Information**

**CYCLE : 2004**

Click here to see metadata for this report.

**Cycle:** 2004 **State:** DC **List ID:** DC_01_DCANA00E_01
**Waterbody Name:** LOWER ANACOSTIA RIVER
**State Basin Name:** ANACOSTIA RIVER
**Listed Water Map Link:** MAP 303(d)

**State Impairments:**

| State Impairment | Parent Impairment | Priority | Rank | Targeted Flag | Anticipated TMDL Submittal |
|---|---|---|---|---|---|
| BIS(2-ETHYLHEXYL) PHTHALATE | OTHER TOXIC ORGANICS | HIGH | | | |
| CHRYSENE | OTHER TOXIC ORGANICS | HIGH | | | |
| DIOXIN | DIOXINS | HIGH | | | |
| MERCURY | MERCURY | HIGH | | | |
| SELENIUM | METALS (OTHER THAN MERCURY) | HIGH | | | |
| TOTAL RESIDUAL CHLORINE | CHLORINE | HIGH | | | |

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# Additional Information: TMDL Studies on Selected Segment (Lower Anacostia River )

**Total Maximum Daily Load (TMDL) Information:**

Note: Click on the underlined TMDL Document Name for a detailed TMDL Document Report.

| TMDL Document Name | Status | Actual TMDL Establishment Date | TMDL Pollutant Description | TMDL Pollutant Type | State Impairment |
|---|---|---|---|---|---|
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | DEC-14-2001 | BOD | POINT/NONPOINT SOURCE | BOD |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-28-2003 | FECAL COLIFORM | POINT/NONPOINT SOURCE | FECAL COLIFORM |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-29-2003 | ARSENIC | POINT/NONPOINT SOURCE | METALS (OTHER THAN MERCURY) |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-29-2003 | COPPER | POINT/NONPOINT SOURCE | METALS (OTHER THAN MERCURY) |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-29-2003 | LEAD | POINT/NONPOINT SOURCE | METALS (OTHER THAN MERCURY) |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-29-2003 | ZINC | POINT/NONPOINT SOURCE | METALS (OTHER THAN MERCURY) |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | OCT-31-2003 | OIL AND GREASE | POINT/NONPOINT SOURCE | OIL AND GREASE |
| LOWER ANACOSTIA RIVER | APPROVED/ESTABLISHED | AUG-29-2003 | CHLORDANE | POINT/NONPOINT SOURCE | ORGANICS |

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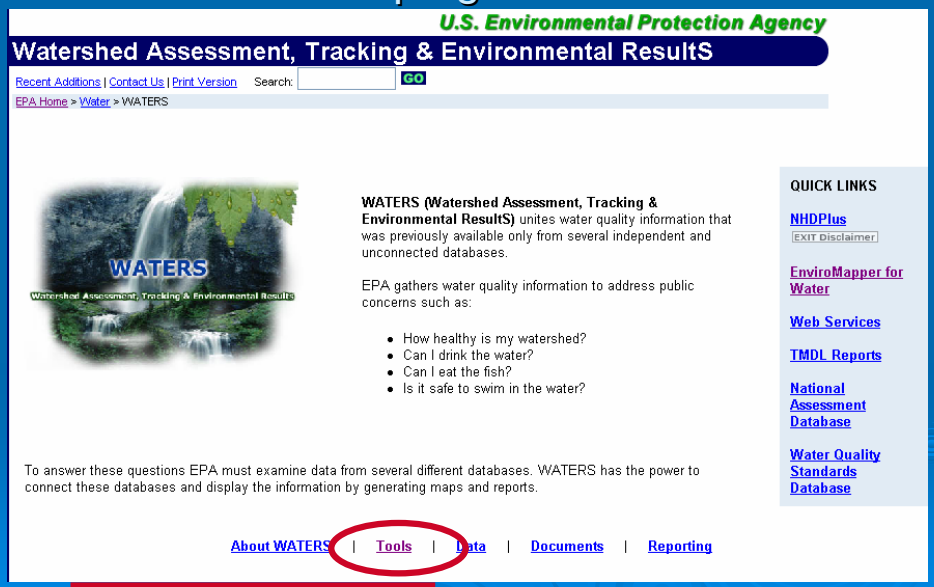
# WATERS integrates water program databases: www.epa.gov/waters




Use Tools to Query WATERS

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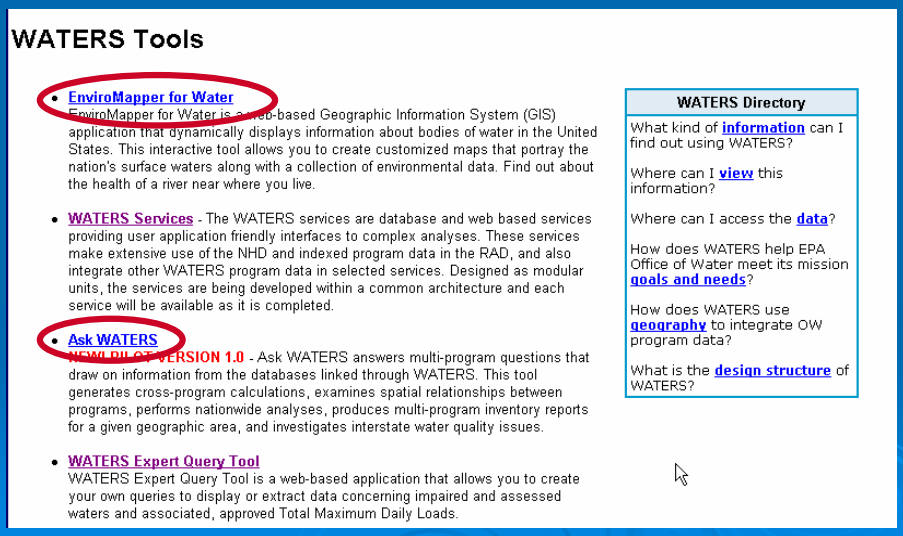
# www.epa.gov/waters/tools

-Generate Reports from Multiple Databases

-Visualize Waterbody Information On a Map

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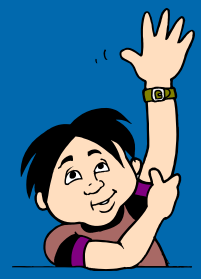
## Ask WATERS: www.epa.gov/waters/tools/ask_waters

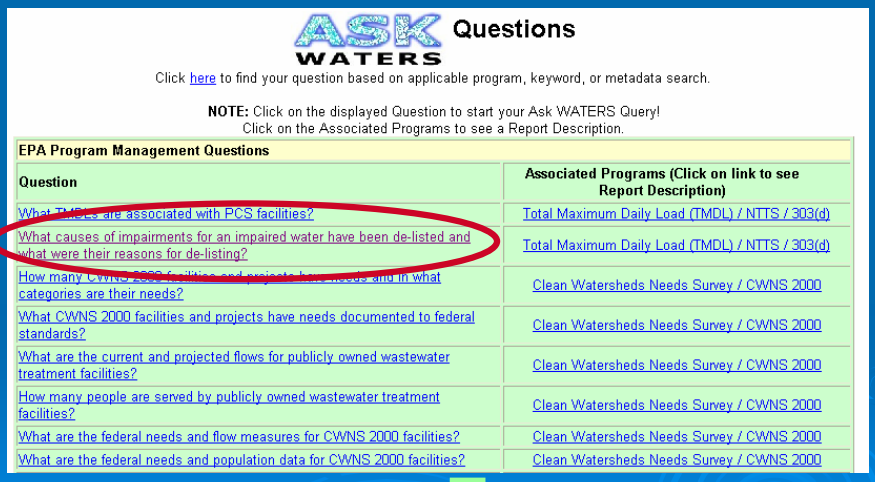


*Please ma'am….*

Ask WATERS answers multi-program questions that draw on information from the databases linked through WATERS.

45

# Example Simple Query



ASK WATERS Questions

Click here to find your question based on applicable program, keyword, or metadata search.

**NOTE:** Click on the displayed Question to start your Ask WATERS Query!
Click on the Associated Programs to see a Report Description.

| EPA Program Management Questions | |
|---|---|
| **Question** | **Associated Programs (Click on link to see Report Description)** |
| What TMDLs are associated with PCS facilities? | Total Maximum Daily Load (TMDL) / NTTS / 303(d) |
| What causes of impairments for an impaired water have been de-listed and what were their reasons for de-listing? | Total Maximum Daily Load (TMDL) / NTTS / 303(d) |
| How many CWNS 2000 facilities and projects have needs and in what categories are their needs? | Clean Watersheds Needs Survey / CWNS 2000 |
| What CWNS 2000 facilities and projects have needs documented to federal standards? | Clean Watersheds Needs Survey / CWNS 2000 |
| What are the current and projected flows for publicly owned wastewater treatment facilities? | Clean Watersheds Needs Survey / CWNS 2000 |
| How many people are served by publicly owned wastewater treatment facilities? | Clean Watersheds Needs Survey / CWNS 2000 |
| What are the federal needs and flow measures for CWNS 2000 facilities? | Clean Watersheds Needs Survey / CWNS 2000 |
| What are the federal needs and population data for CWNS 2000 facilities? | Clean Watersheds Needs Survey / CWNS 2000 |

**Web Page Has Many More Questions**

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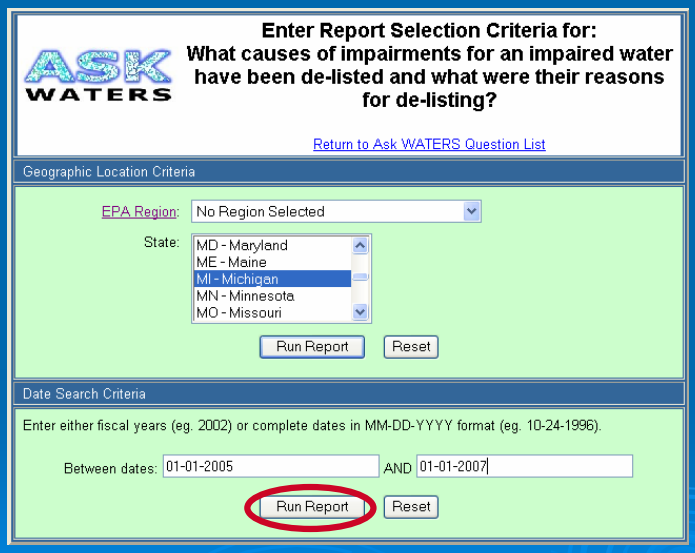
# Specify Region/State and Date Range

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# Result: Waters De-listed in Michigan

| FISCAL YEAR DELISTED | EPA DELISTED DATE | REGION | STATE | WATER BODY NAME | LIST ID | CAUSE DESCRIPTION | CYCLE | DELISTED REASON |
|---|---|---|---|---|---|---|---|---|
| 2006 | 05-JUN-06 | 5 | MI | ALDER CREEK | MI082821K | NUISANCE PLANT GROWTHS | 2004 | Change in impairment terminology |
| 2006 | 05-JUN-06 | 5 | MI | BASS RIVER | MI082801H | PATHOGENS | 2004 | TMDL Approved or established by EPA (4a) |
| 2006 | 05-JUN-06 | 5 | MI | BASS RIVER | MI082801H | MACROINVERTEBRATE COMMUNITY RATED POOR | 2004 | TMDL Approved or established by EPA (4a) |
| 2006 | 05-JUN-06 | 5 | MI | BASS RIVER | MI082801H | FISH AND MACROINVERTEBRATE COMMUNITIES RATED POOR | 2004 | TMDL Approved or established by EPA (4a) |
| 2006 | 05-JUN-06 | 5 | MI | BASS RIVER | MI082801H | FISH COMMUNITY RATED POOR | 2004 | TMDL Approved or established by EPA (4a) |
| 2006 | 05-JUN-06 | 5 | MI | BEAR CREEK (TYLER CREEK) | MI082811E | PATHOGENS | 2004 | TMDL Approved or established by EPA (4a) |
| 2006 | 05-JUN-06 | 5 | MI | BEAR LAKE | MI082701A | ALGAL BLOOMS | 2004 | Resegmented |
| 2006 | 05-JUN-06 | 5 | MI | BEAR LAKE | MI082701A | PHOSPHORUS | 2004 | Resegmented |

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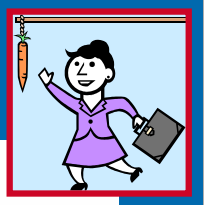
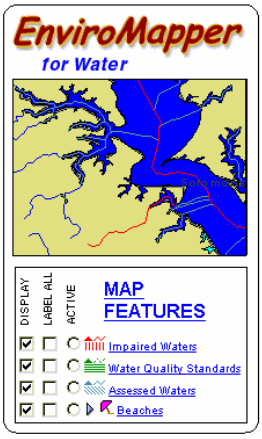
# www.epa.gov/waters/enviromapper

-Integrate Waterbody Information Visually

-Perform Queries Visually



## EnviroMapper for Water




NEW! VERSION 3.0

What's new in Version 3.0? Training Exercise Video Demo

**Welcome to EnviroMapper for Water!** EnviroMapper for Water is a web-based Geographic Information System (GIS) application that dynamically displays information about bodies of water in the United States. This interactive tool allows you to create customized maps that portray the nation's surface waters along with a collection of environmental data. Click on the graphic to the left to generate maps using EnviroMapper for Water!

The application can be used to view environmental information from the national level down to community level (within one mile), and provides the ability to pan, zoom, label and print maps. You can also link to text reports after identifying a specific waterbody of interest. Have you always wondered about the health of a river near where you live? Now you can find out by creating a map using EnviroMapper for Water.

**Check the status of data availability.**

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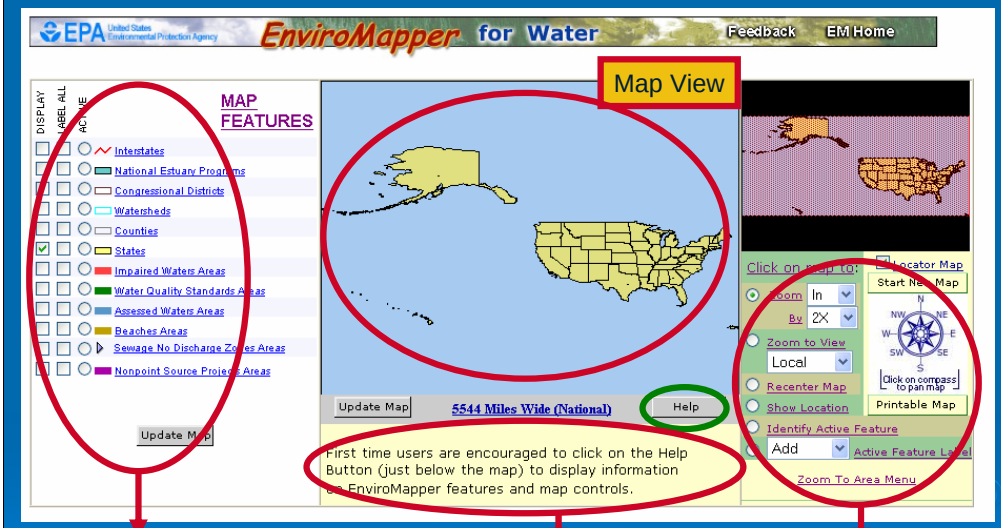
# Default National Scale Interface




Map View

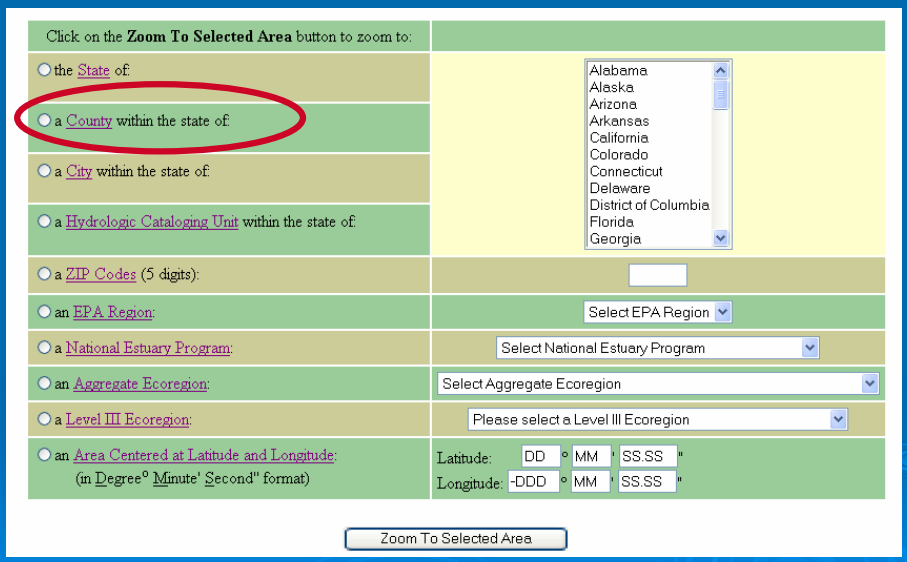
Map Features or "Data Layers"

Message Area

Map Tools

50

# Multiple Ways to Zoom In

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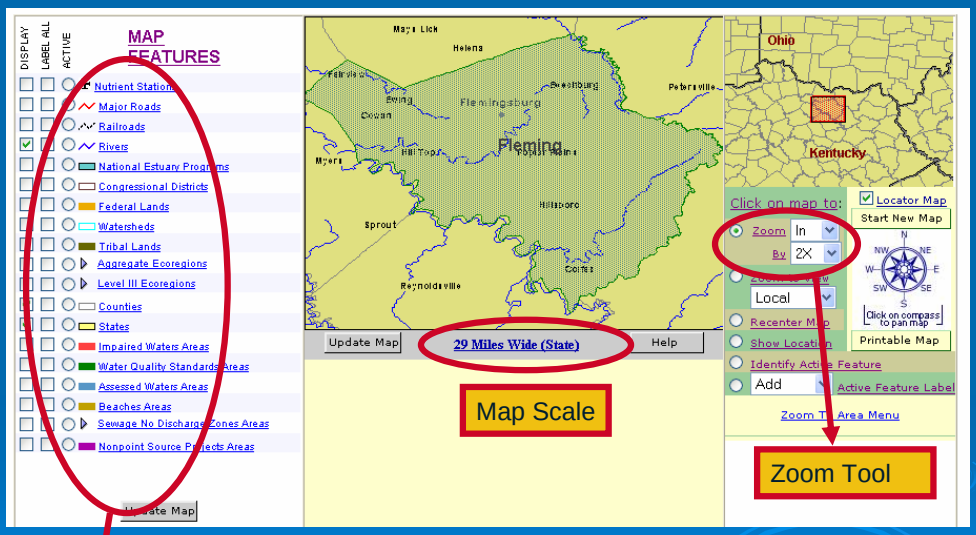
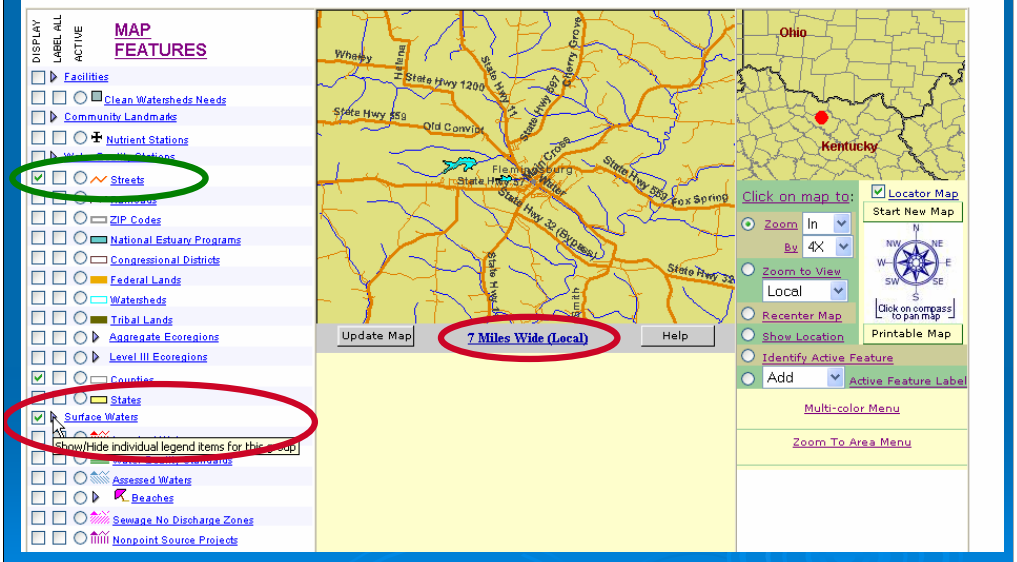
# County Scale




**Map Features Change with Map Scale**
More Data Layers Available at County Level

52

# Zoom Scale < 25 miles wide




**National Hydrography Dataset = "Surface Water" Map Feature Visible at Map View Scales < 25 miles**

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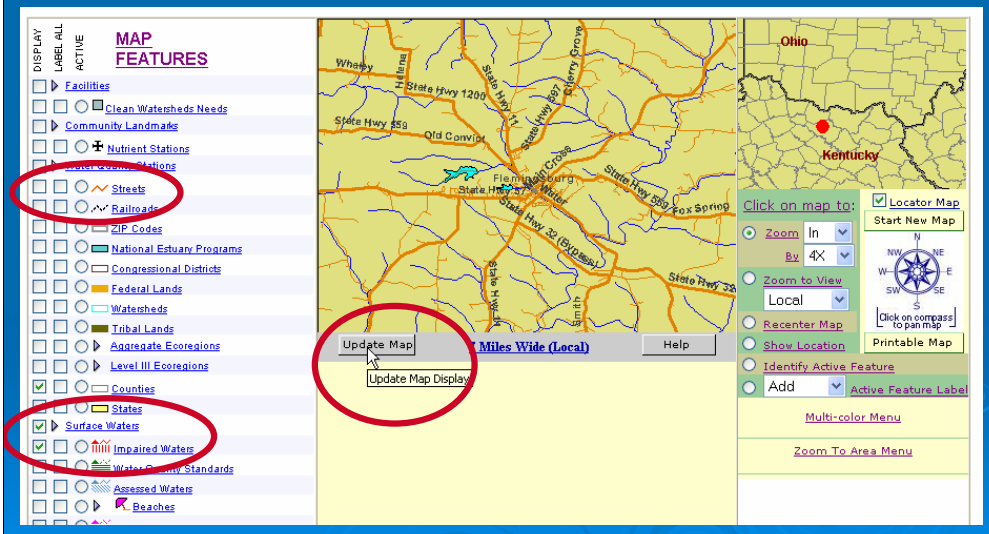
Please check with Tommy Dabolt: high-res NHD based on 1:24,000 scale USGS topos, View scale equivalent = 25 miles?

# Map Features: Turn Display On/Off Then, Update Map

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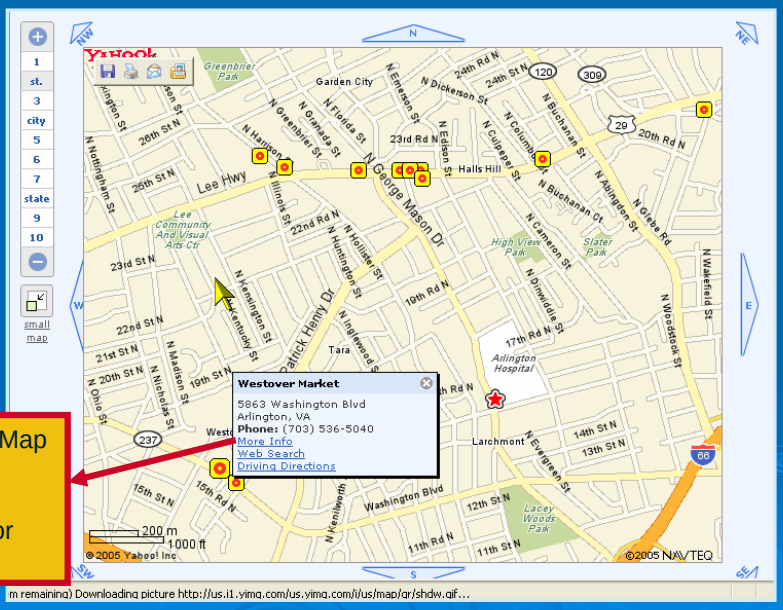
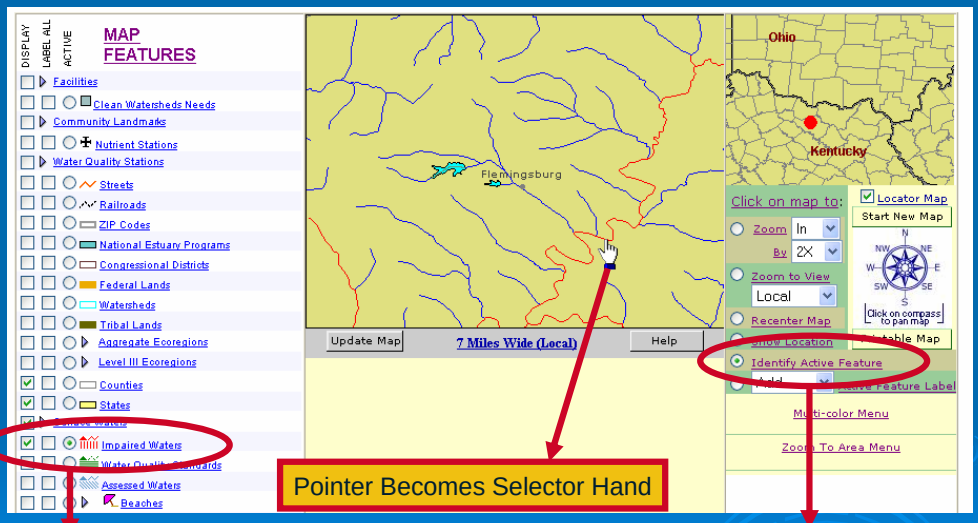
# Example Internet Map Application




Point on A Map Has More Information Available for Display

55

# Identify a Map Feature (the Active Map Feature)




Click the Radio Button to Make Map Feature Active

Pointer Becomes Selector Hand

Identify Active Feature Tool

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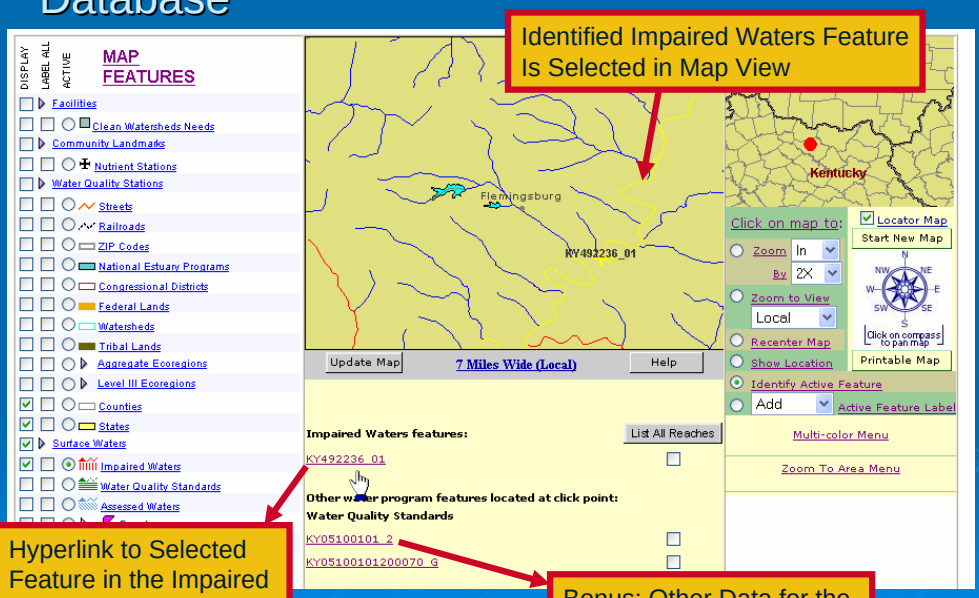
# Identify Feature Also Performs a Query on the Database

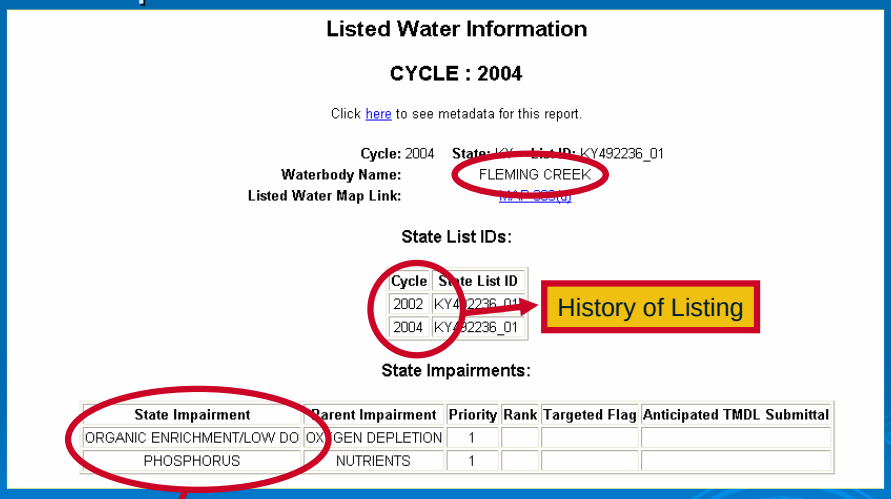



57

# Hyperlink to Data Pull from Database

58

# Pop-up Box: Information Reported from Impaired Waters/TMDL Database



**Listed Water Information**

**CYCLE : 2004**

Click here to see metadata for this report.

**Cycle:** 2004 **State:** KY **List ID:** KY492236_01

**Waterbody Name:** FLEMING CREEK

**Listed Water Map Link:** MAP IT!

**State List IDs:**

| Cycle | State List ID |
|---|---|
| 2002 | KY492236_01 |
| 2004 | KY492236_01 |

History of Listing

**State Impairments:**

| State Impairment | Parent Impairment | Priority | Rank | Targeted Flag | Anticipated TMDL Submittal |
|---|---|---|---|---|---|
| ORGANIC ENRICHMENT/LOW DO | OXYGEN DEPLETION | 1 | | | |
| PHOSPHORUS | NUTRIENTS | 1 | | | |

Reason for Impairment

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# Bonus: Information for Identified Segment from WQS Database

U.S. Environmental Protection Agency

Water Quality Standards Database

Contact Us | Search: GO

EPA Home > Water > Water Science > Standards > Database

**Designated Use Data**

**Entity ID:** KY05100101_2
**Reach Code:**
**State:** KY
**Waterbody Name:** FLEMING CREEK
**Waterbody Type:** River

| State DU Name | State DU Description | Effective Date |
|---|---|---|
| Primary Contact Recreation Water | Waters suitable for full body contact recreation during the recreation season of May 1 through October 31. | DEC 08, 1999 |
| Secondary Contact Recreation Water | Waters that are suitable for partial body contact recreation, with minimal threat to public health due to water quality. | DEC 08, 1999 |
| Warm Water Aquatic Habitat | Any surface water and associated substrate capable of supporting indigenous warm water aquatic life. | DEC 08, 1999 |

WQSDB Reports

***Note: Three Designated Uses for Fleming Creek***

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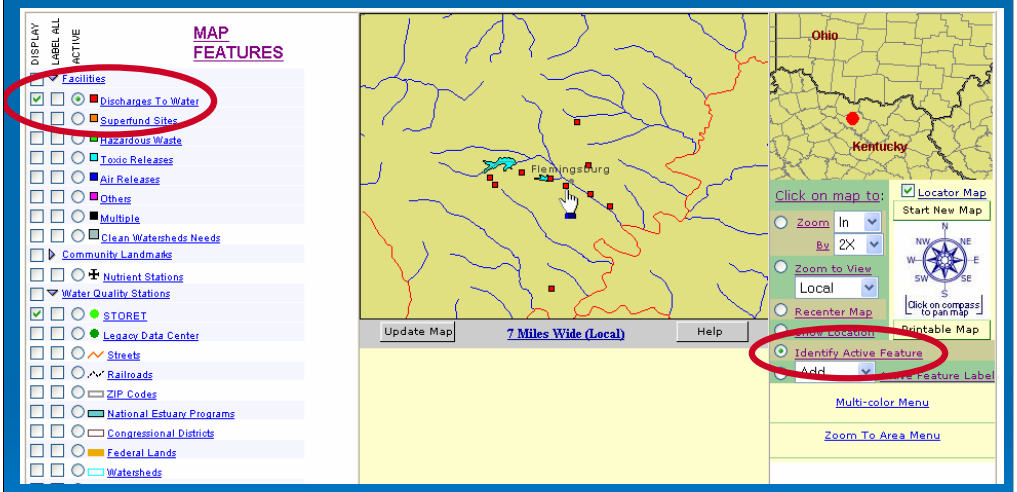
# Point Sources: Discharges to Water




***Permit Compliance System database tracks facilities with permits to discharge effluent to waters of the United States.***
***(These permits are called "NPDES Permits")***

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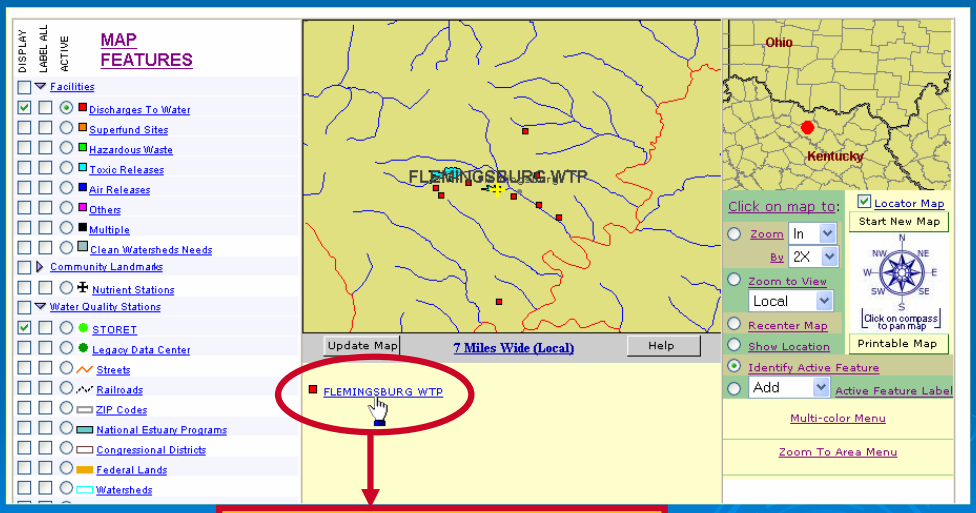
# Identify Feature Also Performs a Query on the Database




Hyperlink to Data Pull From the Permit Compliance System Database

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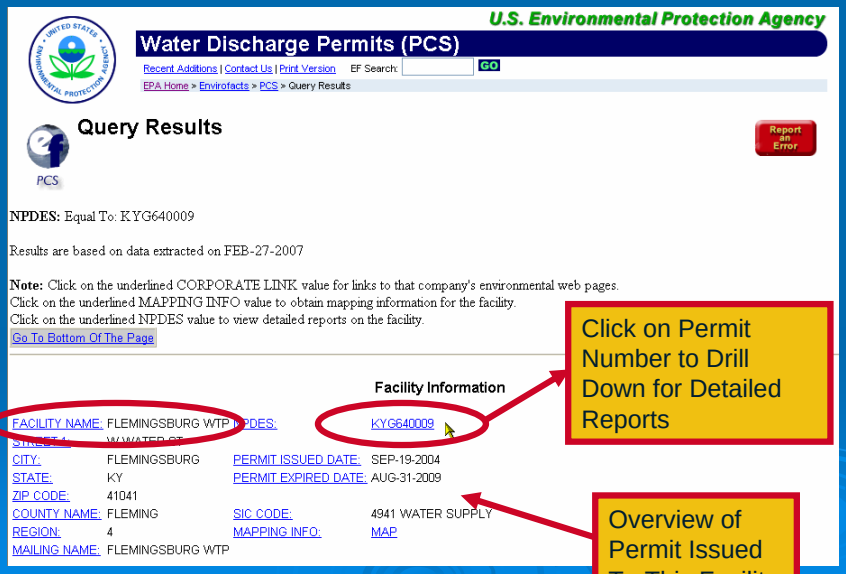
# Pop-up Box: Information Reported from PCS Database




Click on Permit Number to Drill Down for Detailed Reports

Overview of Permit Issued To This Facility

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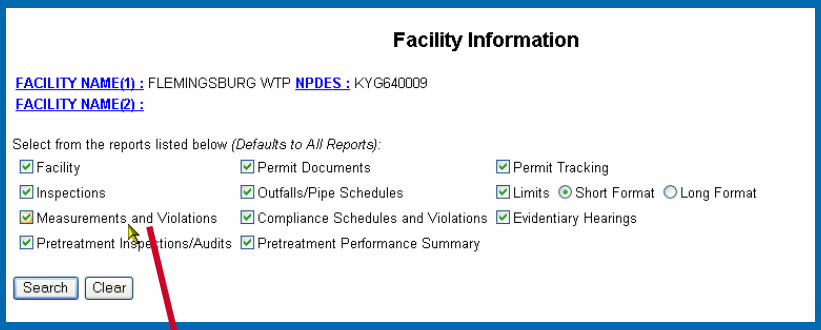
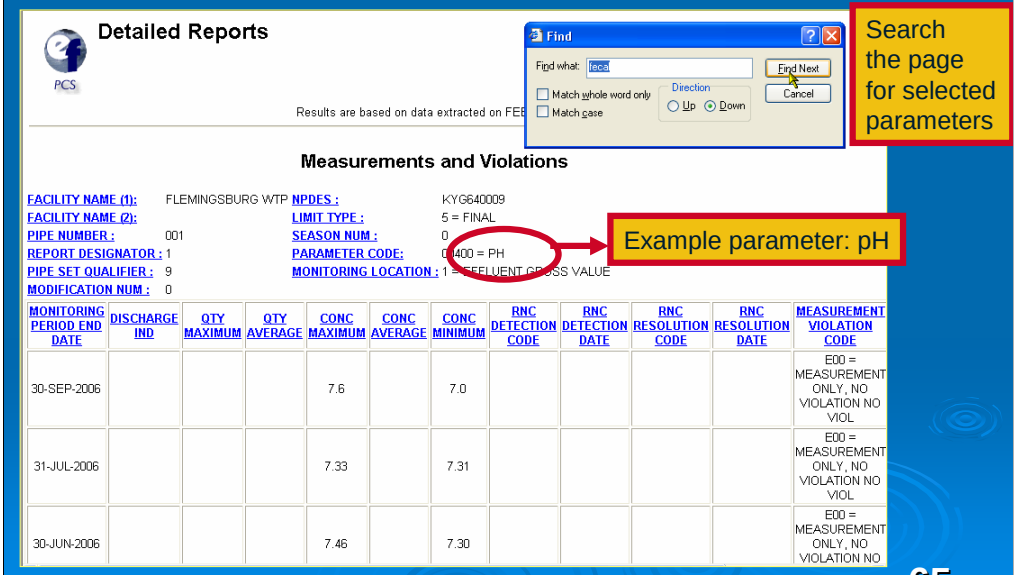
# Detailed Reports from PCS




Example Detailed Report: Measurements and Violations
(parameters in discharge that the facility is required to monitor and report)

64

# Measurements / Violations Report: Data for Permit-Required Parameters

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# QUESTIONS?

**Online Participants:** Submit questions online anytime.
**Phone Participants:** Please state your name and where you are calling from before your question.

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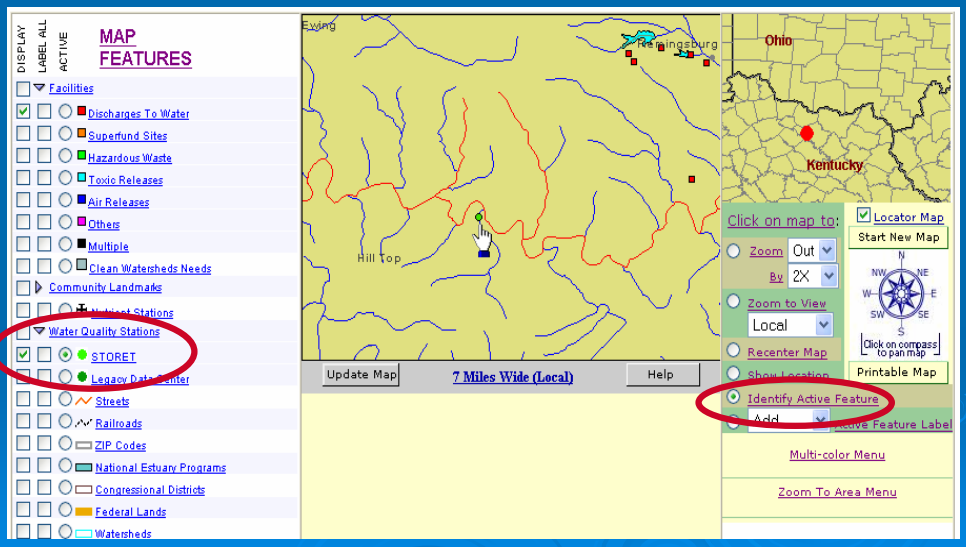
# Back to Enviromapper for Water for Water Quality Monitoring Data from STORET




*West of Flemingsburg, STORET station identified*

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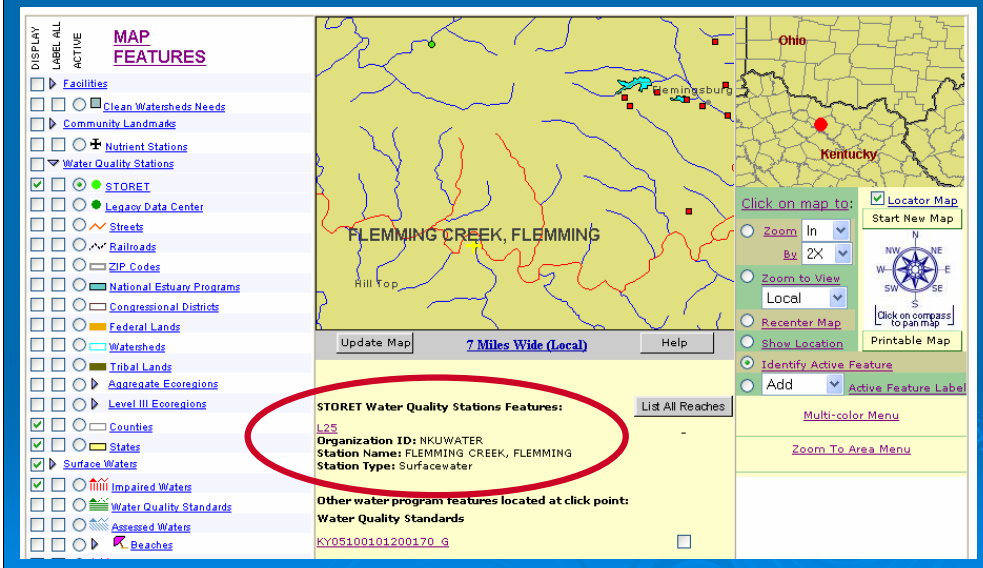
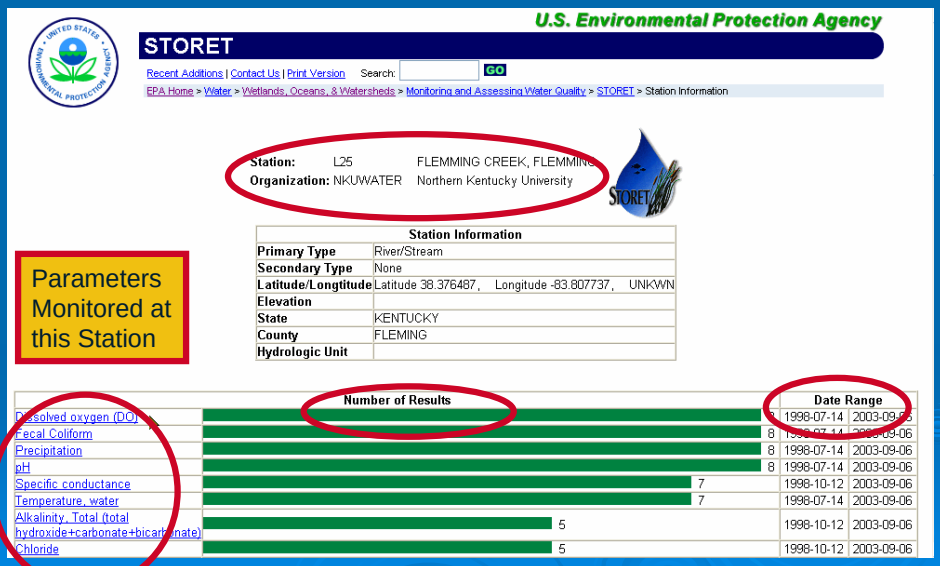
# STORET Station Data Pull in Message Area




*Click to Open STORET Pop-up Box, with Data for Site*

68

# STORET Database Query Results: Summary of Available Data



U.S. Environmental Protection Agency

STORET

Recent Additions | Contact Us | Print Version Search: GO

EPA Home > Water > Wetlands, Oceans, & Watersheds > Monitoring and Assessing Water Quality > STORET > Station Information

**Station:** L25 FLEMMING CREEK, FLEMMING
**Organization:** NKUWATER Northern Kentucky University

| Station Information | |
|---|---|
| **Primary Type** | River/Stream |
| **Secondary Type** | None |
| **Latitude/Longtitude** | Latitude 38.376487, Longitude -83.807737, UNKWN |
| **Elevation** | |
| **State** | KENTUCKY |
| **County** | FLEMING |
| **Hydrologic Unit** | |

Parameters Monitored at this Station

| | Number of Results | Date Range | |
|---|---|---|---|
| Dissolved oxygen (DO) | 8 | 1998-07-14 | 2003-09-06 |
| Fecal Coliform | 8 | 1998-07-14 | 2003-09-06 |
| Precipitation | 8 | 1998-07-14 | 2003-09-06 |
| pH | 8 | 1998-07-14 | 2003-09-06 |
| Specific conductance | 7 | 1998-10-12 | 2003-09-06 |
| Temperature, water | 7 | 1998-07-14 | 2003-09-06 |
| Alkalinity, Total (total hydroxide+carbonate+bicarbonate) | 5 | 1998-10-12 | 2003-09-06 |
| Chloride | 5 | 1998-10-12 | 2003-09-06 |

*Parameters = Characteristics (STORET Terminology)*

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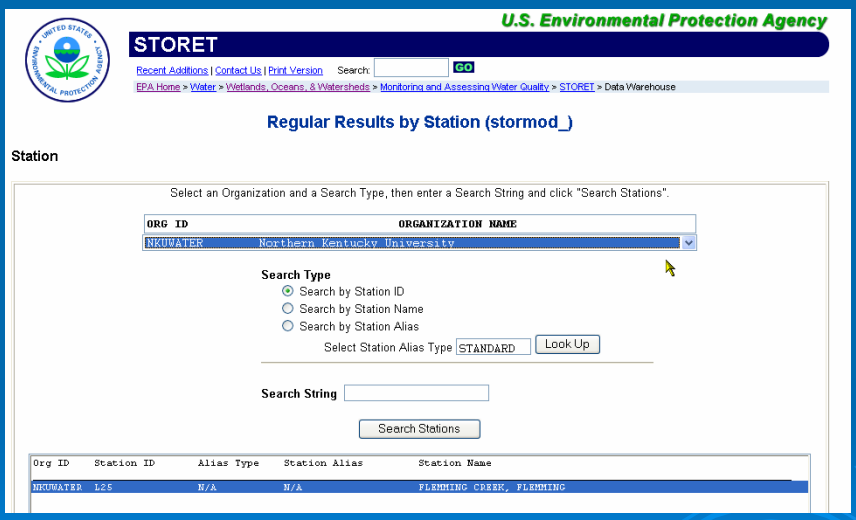
# Drill Down for Data




Selected Station and Selected Parameter (*Characteristic*) Create a Customized Query in the STORET Interface

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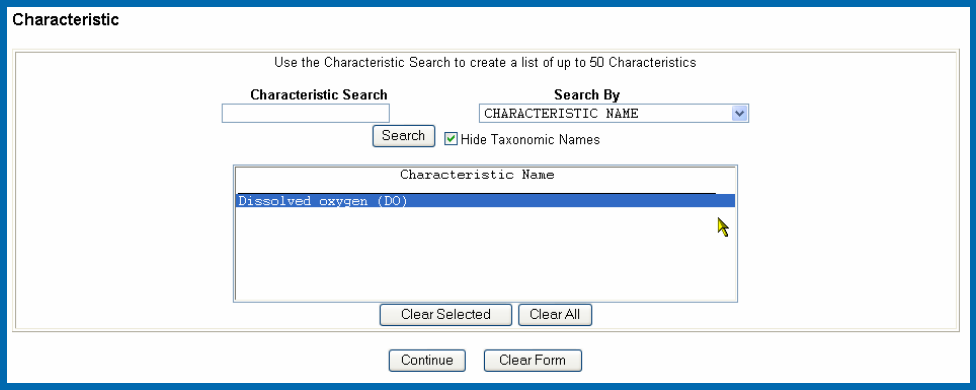
# Scroll Down for Characteristic




***Selected Characteristic = Dissolved Oxygen***
***Use Characteristic Search for Additional Characteristics***

Click Continue to Receive Data File (Prepared By STORET) via E-mail

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# STORET: www.epa.gov/storet

Try the 3-page STORET Data Warehouse Exercise

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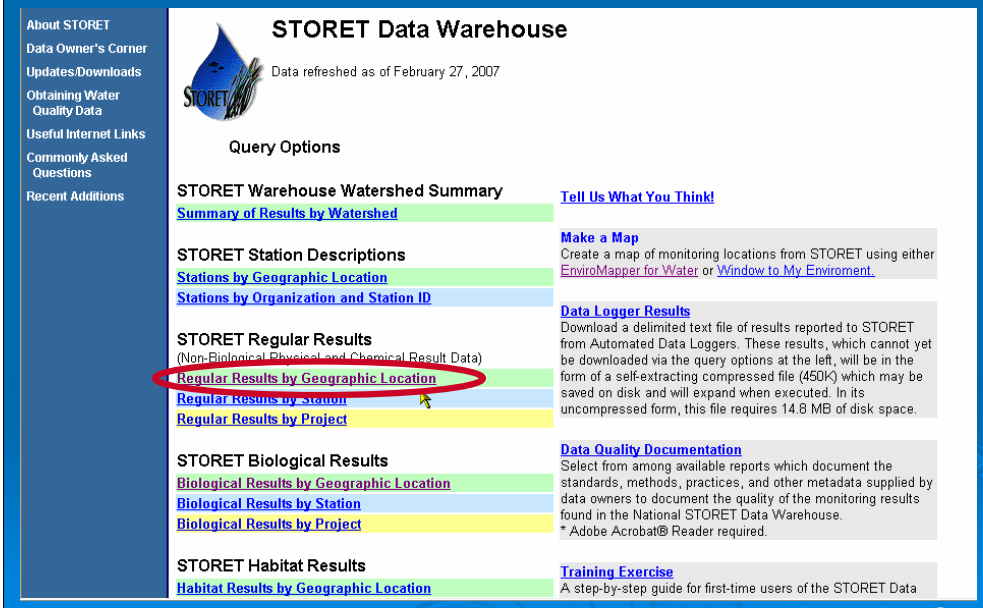
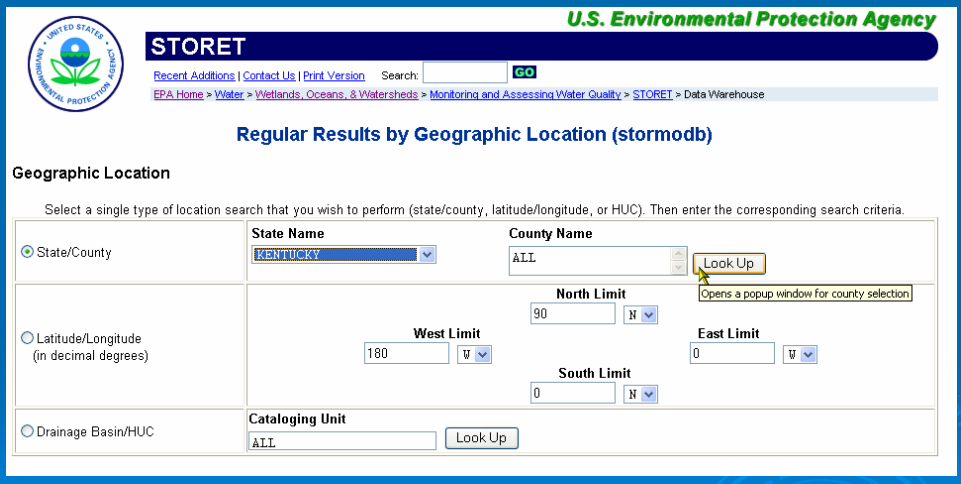
# Download Data for Selected Location




73

# State and County Selection Through List-boxes

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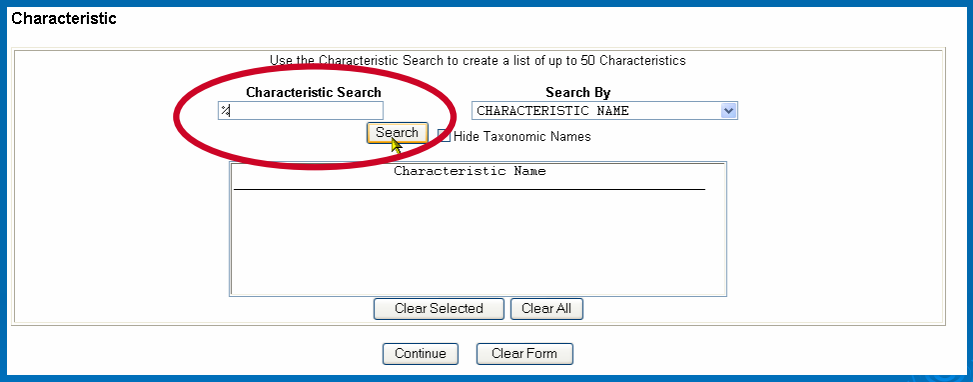
# Wildcard (%) Search for Characteristics




***Control + Click for Multiple Selections***

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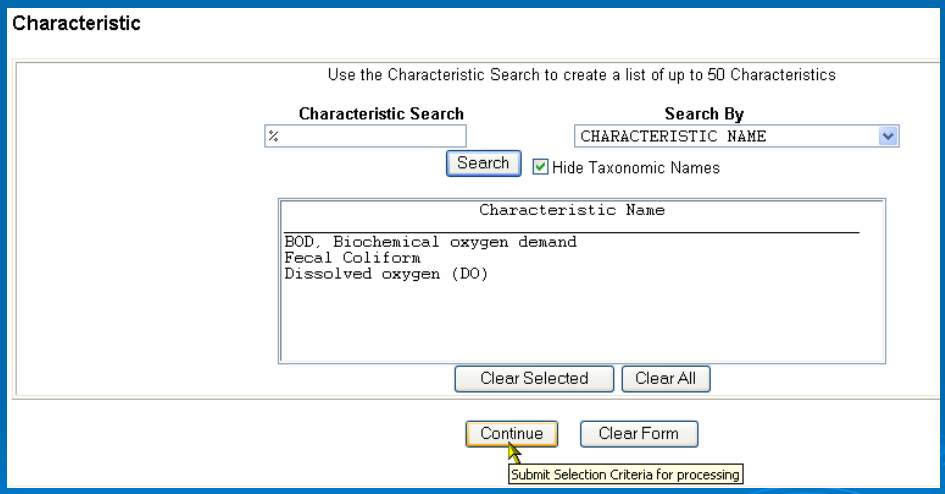
# Submit Search

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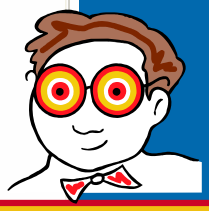
# Choose Fields from Database (*Default, Pre-selected Fields Work Great!*)

**Select Data Elements for Report**

| | | |
|---|---|---|
| ☐ Org ID | ☐ Actual Activity Lat/Long* | ☐ Converted Result Value |
| ☑ Org Name | ☐ Conv Actual Activity Lat/Long* | ☐ Converted Result Unit |
| ☑ Station ID | ☐ Well Number | ☐ Result Comment |
| ☐ Station Name | ☐ Pipe Number | ☐ Result Free Text |
| ☑ Station Location Info* | ☐ Additional Act Location Info* | ☐ Weight Basis |
| ☑ Station Lat/Long* | ☑ Activity Depth | ☐ Temperature Basis |
| ☐ Conv Station Lat/Long* | ☑ Activity Depth Unit | ☐ Duration Basis |
| ☐ Station Types* | ☐ Activity Upper Depth | ☐ Particle Size Basis |
| ☐ S/G/O Indicator | ☐ Activity Rel Depth | ☐ Distance Measured From |
| ☑ Visit Num | ☐ Activity Lower Depth | ☐ Distance Measured To |
| ☐ Visit Start* | ☐ Upr Lwr Depth Unit | ☑ Analytical Proc ID |
| ☐ Visit Stop* | ☐ Activity Depth Ref Point | ☐ Additional Anal Proc Info* |
| ☐ Trip ID | ☐ Sample Collection ID | ☐ Lab Remark |
| ☐ Trip Name | ☐ Field Gear ID | ☐ Dilution Ind |
| ☑ Activity ID | ☐ Field Gear Config ID | ☐ Recovery Ind |
| ☑ Activity Start* | ☐ Sample Preservation* | ☐ Correction Ind |
| ☐ Activity Stop* | ☐ Portable Data Logger | ☐ Other Lab Info* |
| ☑ Activity Medium | ☑ Characteristic Name | ☐ Num of Reps |
| ☐ Activity Matrix | ☐ CAS Num | ☐ Precision |
| ☑ Activity Type | ☐ EPA Registry Num | ☐ Bias |
| ☑ Activity Category-Rep Num | ☐ ITIS Num | ☐ Conf Level |
| ☐ Activity Intent | ☑ Sample Fraction | ☐ Correction for Bias Ind |
| ☐ Activity Comment | ☑ Value Type | ☐ Result Document/Graphic Name |
| ☐ Field Set | ☑ Statistic Type | ☐ Result Document/Graphic URL |
| ☐ Actual Point Type | ☑ Result Value as Text | ☐ Activity Document/Graphic Name |
| ☐ Actual Point Sequence | ☐ Result Value as Number | ☐ Activity Document/Graphic URL |
| ☐ Actual Point Name | ☑ Units | |



*Caution: Eyes Might Start to Glaze Over*

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# Download Prepared Data

***Left-click: Download to Specified Location on Your Computer***
***Right-click: Open Comma-delimited Text File in Browser***

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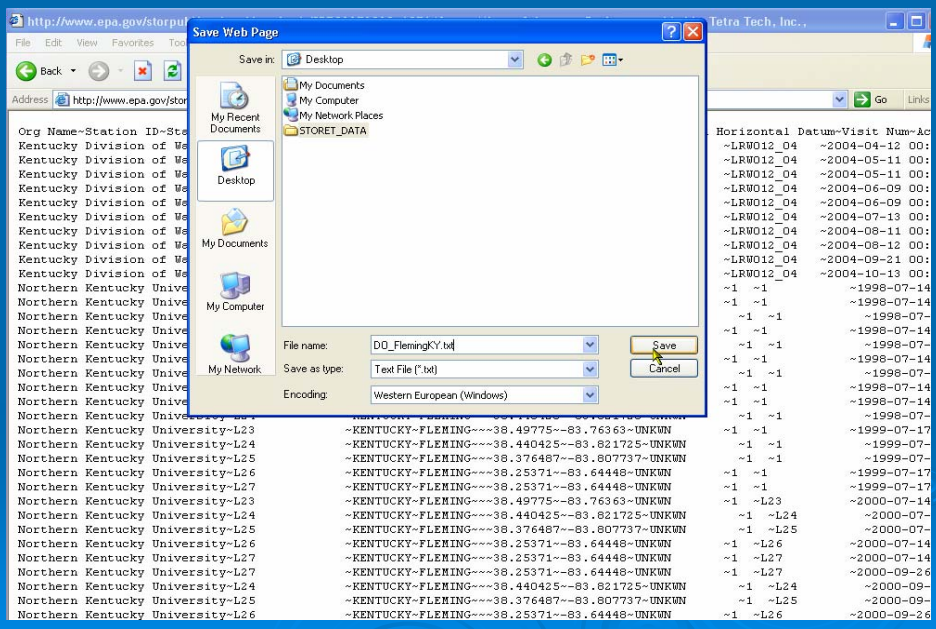
# Save as .txt file




*Browser Menu Bar: File > Save As*

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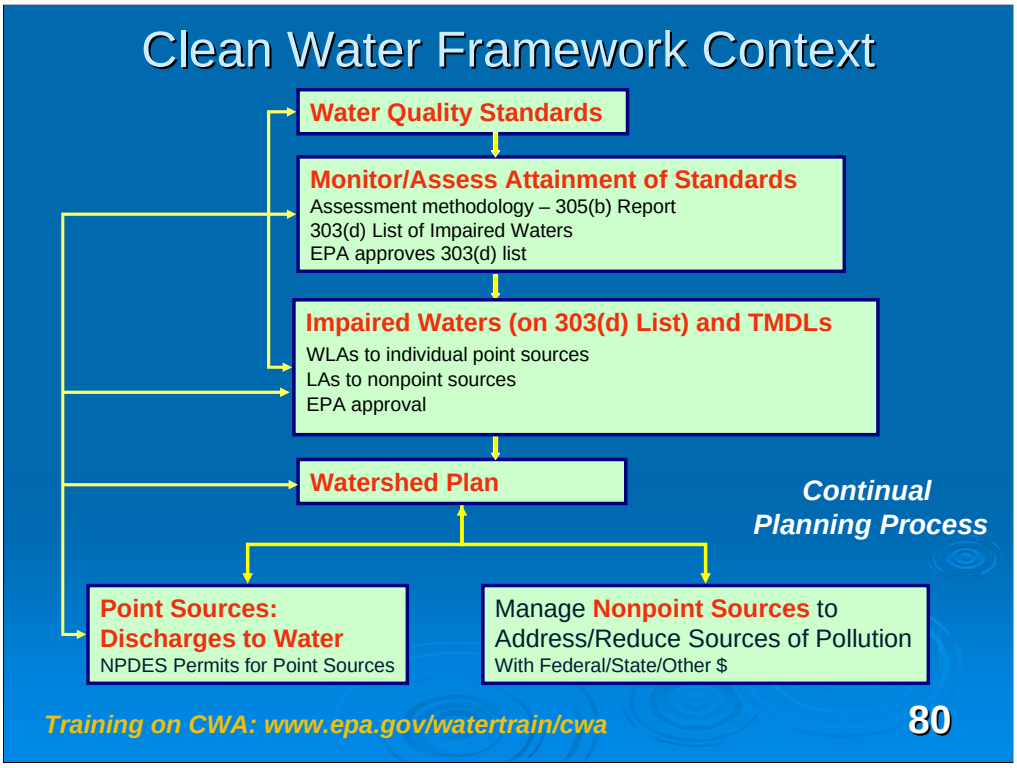
Clean Water Framework Context
Water Quality Standards
Monitor/Assess Attainment of Standards
Assessment methodology – 305(b) Report
303(d) List of Impaired Waters
EPA approves 303(d) list
Impaired Waters (on 303(d) List) and TMDLs
WLAs to individual point sources
LAs to nonpoint sources
EPA approval
Watershed Plan
Continual Planning Process
Point Sources: Discharges to Water
NPDES Permits for Point Sources
Manage Nonpoint Sources to Address/Reduce Sources of Pollution
With Federal/State/Other $
Training on CWA: www.epa.gov/watertrain/cwa
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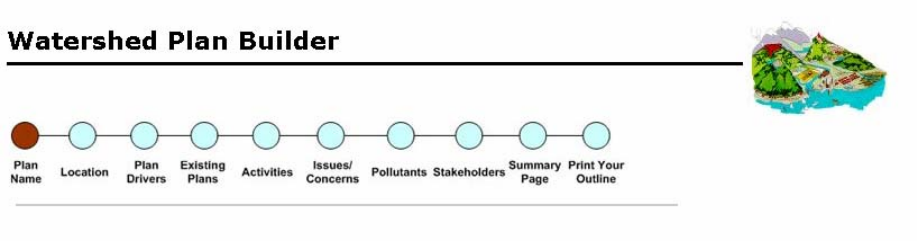
# April Webcast: The Watershed Plan Builder

EPA's new interactive Web-based tool designed to promote the development of comprehensive watershed protection and restoration plans.




**Registration opens: April 9, 2007**

# Watershed Planning Steps

- Build Partnerships
- Characterize the Watershed
- Set Goals and Identify Solutions
- Design an Implementation Program
- Implement the Program
- Measure Progress, Make Necessary Adjustments

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# Show Me the Money
# www.epa.gov/owow/funding.html

U.S. Environmental Protection A

## Watershed Funding

Recent Additions | Contact Us | Print Version Search: GO

EPA Home > Water > Wetlands, Oceans, & Watersheds > Watershed Funding

- Watershed Funding Home
- Requests for Proposals
- EPA Watershed Funding Programs
- Additional Federal Funding Opportunities
- Databases and Funding Opportuntities
- Sustainable Funding
- Sustainable Funding Planning Tools
- Resources for Nonprofit Organizations
- Resources for State and Local Governments
- Resources for Funders

Committed watershed organizations and state and local governments need adequate resources to achieve the goals of the Clean Water Act and improve our nation's water quality. To support these efforts, the U.S. Environmental Protection Agency (EPA) has created this Web site to provide tools, databases, and information about sources of funding to practitioners and funders that serve to protect watersheds.

Requests for Proposals

Sustainable Funding Planning Tools and Training

EPA Watershed Funding Programs

Resources for Nonprofit Organizations

Additional Federal Funding Opportunities

Resources for State and Local Governments

Databases of Funding Opportunities

Resources for Funders

Sustainable Funding

**Features**

**Grant Opportunities:**

2006/2007 Request for Targeted Watershed Grants (TWG) Project Implementation Proposals

2006/2007 Request for Proposals for Capacity Building Grants

Integrating Clean Water, Drinking Water and Land Use Planning Efforts

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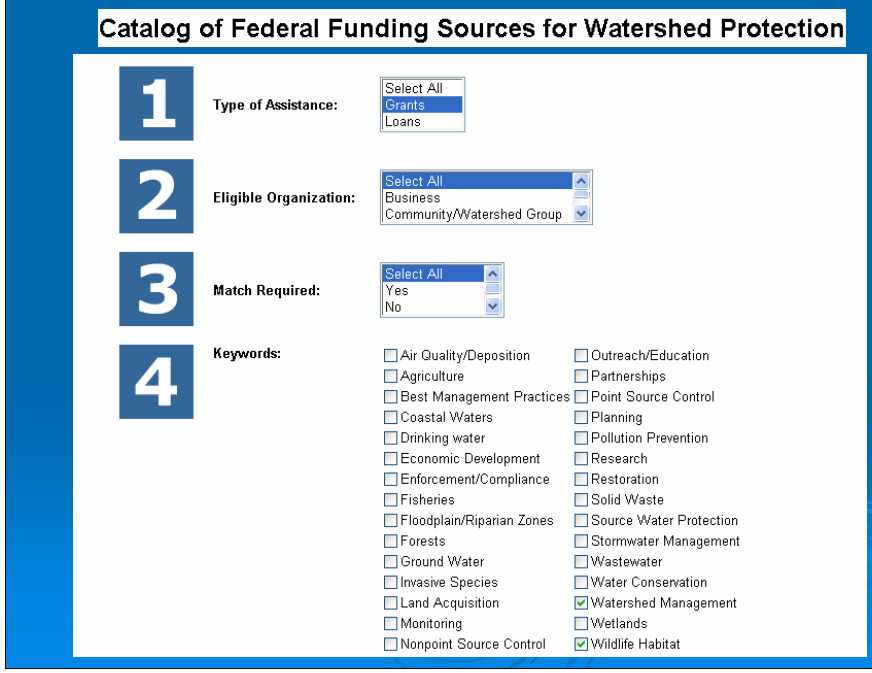
# www.epa.gov/watershedfunding

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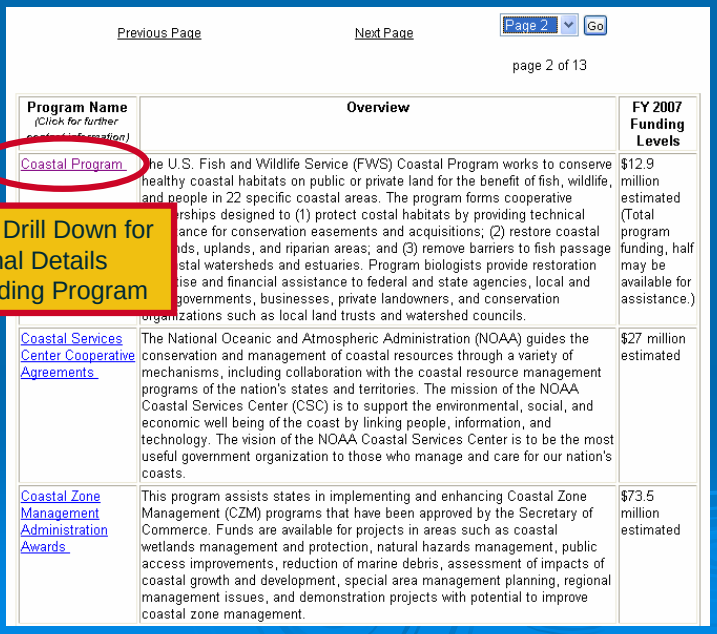
# Results by Table: Programs and Overview



Previous Page  Next Page  Page 2 Go

page 2 of 13

| Program Name (Click for further [illegible] information) | Overview | FY 2007 Funding Levels |
|---|---|---|
| Coastal Program | he U.S. Fish and Wildlife Service (FWS) Coastal Program works to conserve healthy coastal habitats on public or private land for the benefit of fish, wildlife, and people in 22 specific coastal areas. The program forms cooperative erships designed to (1) protect costal habitats by providing technical ance for conservation easements and acquisitions; (2) restore coastal nds, uplands, and riparian areas; and (3) remove barriers to fish passage stal watersheds and estuaries. Program biologists provide restoration tise and financial assistance to federal and state agencies, local and governments, businesses, private landowners, and conservation organizations such as local land trusts and watershed councils. | $12.9 million estimated (Total program funding, half may be available for assistance.) |
| Coastal Services Center Cooperative Agreements | The National Oceanic and Atmospheric Administration (NOAA) guides the conservation and management of coastal resources through a variety of mechanisms, including collaboration with the coastal resource management programs of the nation's states and territories. The mission of the NOAA Coastal Services Center (CSC) is to support the environmental, social, and economic well being of the coast by linking people, information, and technology. The vision of the NOAA Coastal Services Center is to be the most useful government organization to those who manage and care for our nation's coasts. | $27 million estimated |
| Coastal Zone Management Administration Awards | This program assists states in implementing and enhancing Coastal Zone Management (CZM) programs that have been approved by the Secretary of Commerce. Funds are available for projects in areas such as coastal wetlands management and protection, natural hazards management, public access improvements, reduction of marine debris, assessment of impacts of coastal growth and development, special area management planning, regional management issues, and demonstration projects with potential to improve coastal zone management. | $73.5 million estimated |

Click to Drill Down for Additional Details On Funding Program

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# Details of Funding Program

**Funding Program Name: Coastal Program**

| | |
|---|---|
| **Application Deadline** | Contact your local Coastal Program office to find out if there are deadlines. |
| **When Funds are Available** | Check with the individual Coastal Program location |
| **Average annual number of applicants** | Not available |
| **Typical percentage of applicants funded** | Not available |
| **Is a matched amount required?** | |
| **Match Amount** | Match is encouraged. |
| **Funding Level FY 2005** | $11.7 million |
| **Funding Level FY 2006** | $13 million |
| **Funding Level FY 2007** | $12.9 million estimated (Total program funding, half may be available for assistance.) |
| **Typical lowest amount awarded** | $5,000 |
| **Typical highest amount awarded** | $50,000 |
| **Typical median amount awarded** | $15,000 |
| **Other details on funding** | This program provides financial assistance in the form of cooperative agreements. The listed budget includes both administrative costs and project funding. |
| **Primary Address** | U.S. Department of the Interior<br>U.S. Fish and Wildlife Service<br>Branch of Habitat Restoration, Division of Fish and Wildlife Management and Habitat Restoration<br>4401 North Fairfax Drive, Room 400<br>Arlington, VA 22203 |
| **Primary Telephone** | (703) 358-2201 |
| **Primary Email** | Please contact by telephone or mail |

# Watershed Hub: www.epa.gov/owow/watershed

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# www.epa.gov/owow/watershed/wacademy/

***Get A Certificate from EPA's Watershed Academy by Completing 15 On-line, Self-Paced Training Courses***

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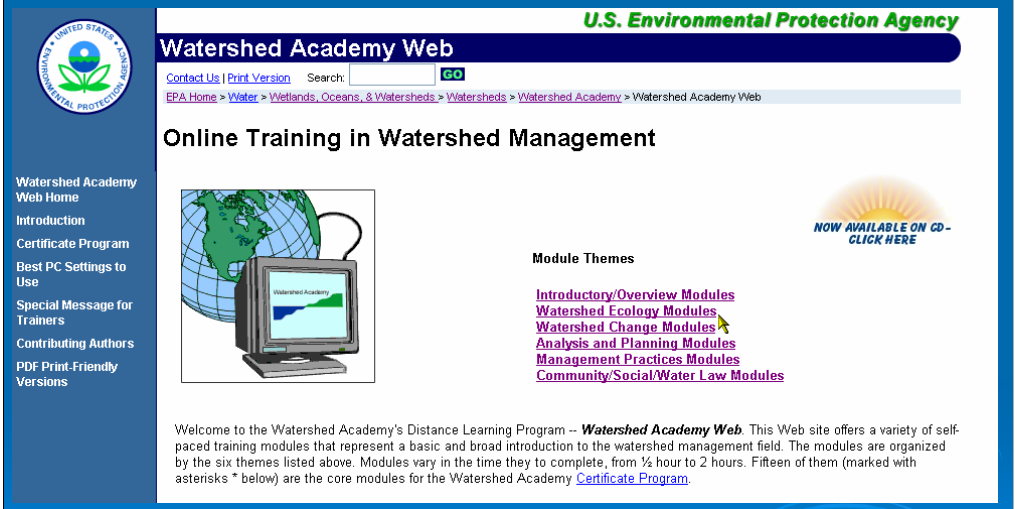
# www.epa.gov/watertrain

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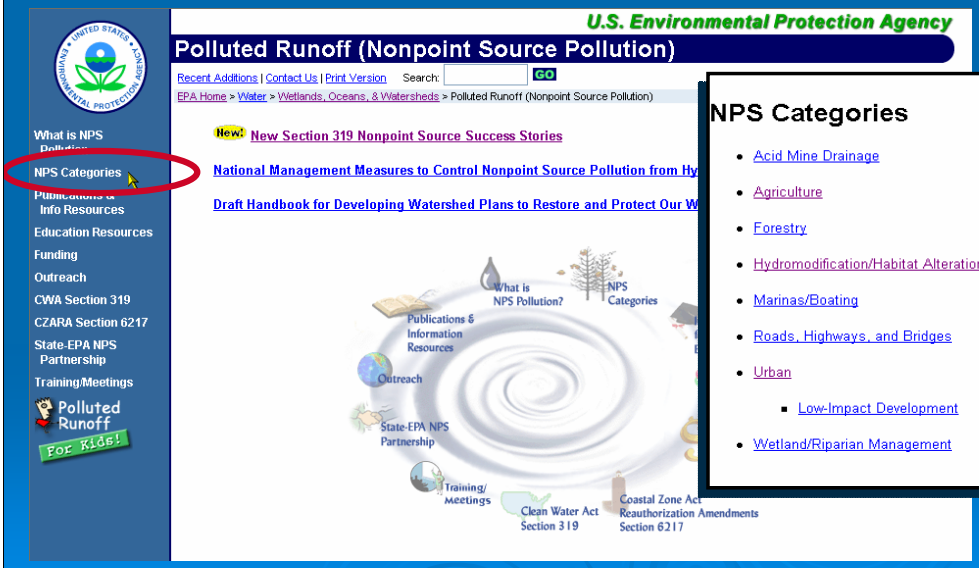
# www.epa.gov/owow/nps

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# www.epa.gov/owow/nps/urban.html

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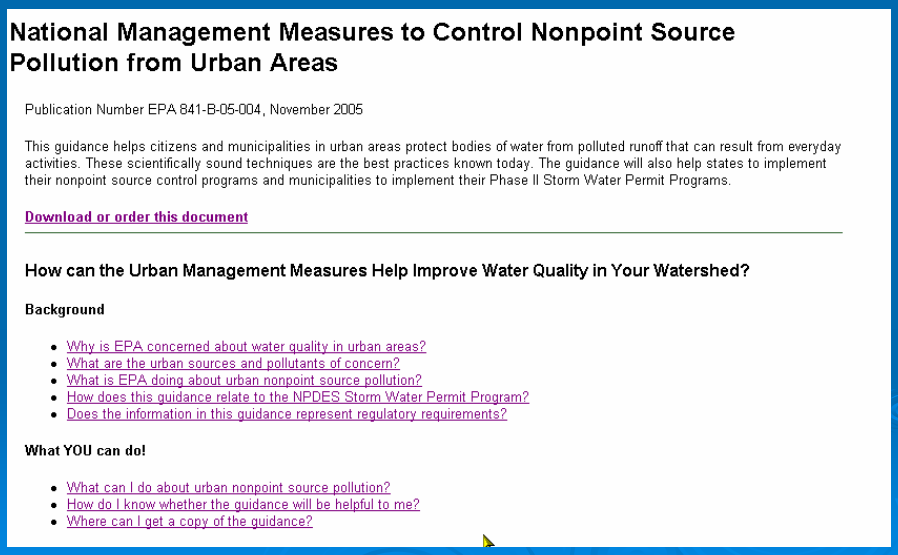
# Example Link: Technical Guidance Document on Urban BMPs



**National Management Measures to Control Nonpoint Source Pollution from Urban Areas**

Publication Number EPA 841-B-05-004, November 2005

This guidance helps citizens and municipalities in urban areas protect bodies of water from polluted runoff that can result from everyday activities. These scientifically sound techniques are the best practices known today. The guidance will also help states to implement their nonpoint source control programs and municipalities to implement their Phase II Storm Water Permit Programs.

Download or order this document

**How can the Urban Management Measures Help Improve Water Quality in Your Watershed?**

**Background**

- Why is EPA concerned about water quality in urban areas?
- What are the urban sources and pollutants of concern?
- What is EPA doing about urban nonpoint source pollution?
- How does this guidance relate to the NPDES Storm Water Permit Program?
- Does the information in this guidance represent regulatory requirements?

**What YOU can do!**

- What can I do about urban nonpoint source pollution?
- How do I know whether the guidance will be helpful to me?
- Where can I get a copy of the guidance?

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# Example Link: Model Local Ordinances

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# Example Ordinance

U.S. Environmental Protection Agency

## Model Ordinances to Protect Local Resources

Contact Us | Print Version Search: GO

EPA Home » Water » Wetlands, Oceans and Watersheds » Polluted Runoff (Nonpoint Source Pollution) » Model Ordinances to Protect Local Resources » Open Space Development

- Home
- Aquatic Buffers
- Erosion & Sediment Control
- Open Space Development
- Stormwater Control Operation & Maintenance
- Illicit Discharges
- Post Construction Controls
- Source Water Protection
- Miscellaneous Ordinances
- Site Map
- Links

### Open Space Development

Open space development, also called "cluster development," is an alternative site planning technique that concentrates dwelling units in a compact area to reserve undeveloped space elsewhere on the site. In this technique, lot sizes, setbacks, and frontage distances are minimized to allow for open space. The typical open space development creates less impervious cover and reduces the need to clear and grade 35 percent to 60 percent of the site. Open space areas are often used for neighborhood recreation, stormwater management facilities, or conservation purposes. Open space preserved in a natural condition needs little maintenance and helps to reduce and sometimes to treat stormwater runoff from development.

The model open space ordinance is intended to be a guide. It contains language that fosters development that is substantially consistent with many local zoning standards yet allows for modifications from the original standards to ensure appropriate, fair, and consistent decision making. The model ordinance sets guidelines for management of open space and the amount of open space required on a site, but it is not intended to be a "one size fits all" document.

When you see this symbol, it is time to make a decision or get more information.

Certain issues are not covered in this ordinance because many localities provide for them in other ordinances or they are too specific to each community. For example, language on road widths is not included because it is often a part of subdivision or other ordinances. Although most ordinances contain a section on the development review process, such language was not included because the review process varies widely by locality.

In addition to the model ordinance, this section includes other information you might find useful in drafting an open space development ordinance:

Model Ordinances Language

Ordinances & Supporting Materials

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# QUESTIONS?

**Online Participants:** Submit questions online anytime.
**Phone Participants:** Please state your name and where you are calling from before your question.

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Need More Info?
Check Out Additional Resources

We Welcome Your Comments.
Please fill out the Feedback Form

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