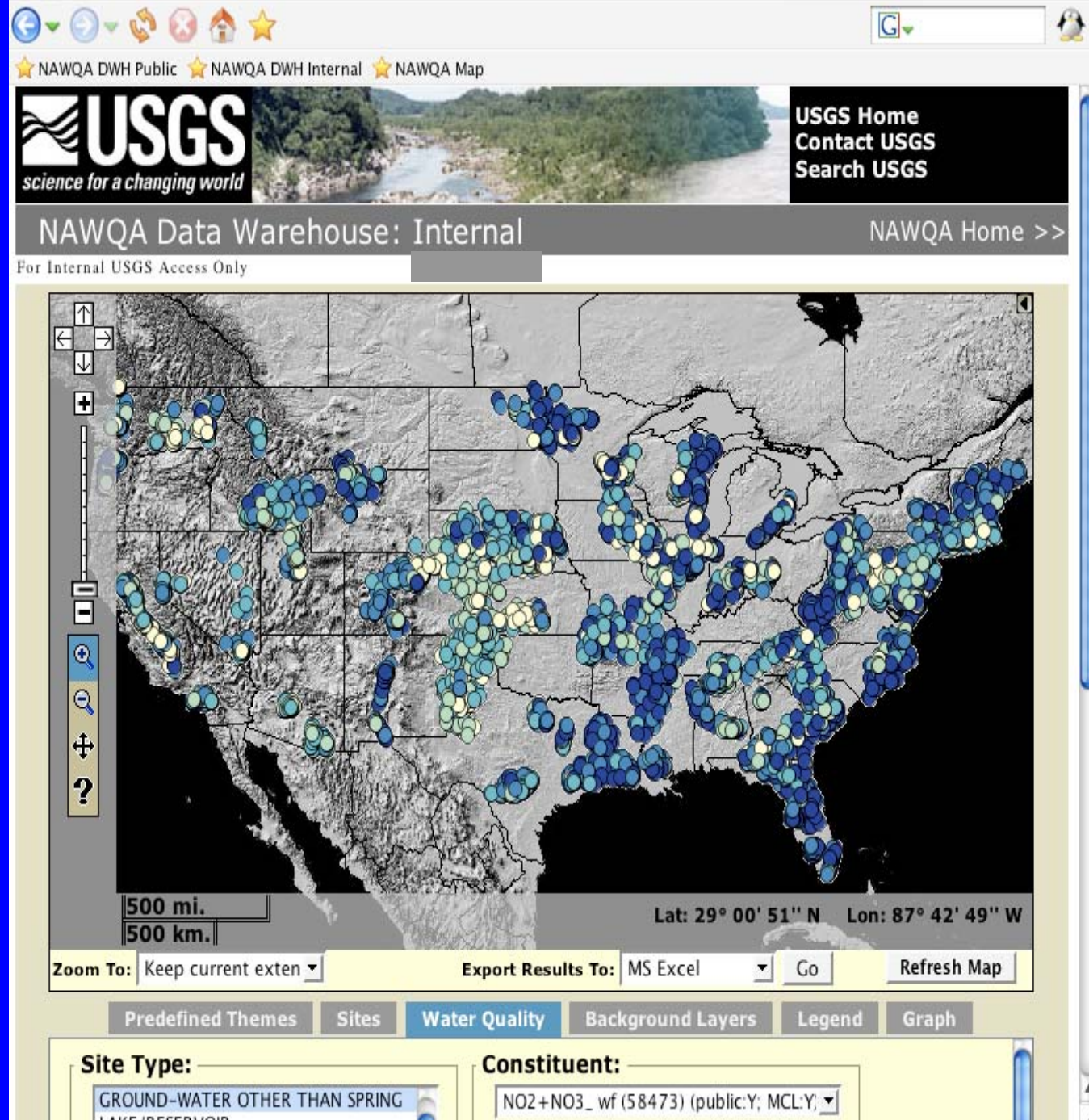


# Displaying Water Quality Information on Internet Maps

May 10, 2006

Sandy  
Williamson,  
Nate Booth, and  
Rick Bell

USGS NAWQA



# Talk Outline

- How you could use our website/data
- NAWQA Data Summary
- How to retrieve Data
- Mapping options **before or after** data retrievals

# How you could use our website/data

- Consistent National/Regional Data for Research
- Comparison of your results to National/Regional Background
- GIS / Exploratory data analysis / Mapping
- Examples and Ideas for your website

# Google: water quality data

The screenshot shows a Google search interface. At the top, the search bar contains the text "water quality data". Below the search bar, the results are displayed under the "Web" tab. The first result is "USGS NAWQA Data Warehouse", which is highlighted by a red arrow. The second result is "EPA > Water > Wetlands, Oceans, & Watersheds > Monitoring and ...". To the right of the search results, there are "Sponsored Links" for "Water quality data" and "WellDat". At the bottom right, a yellow box contains the text "Usage: About 2400 sessions per month".

Google Search: wa

File Edit View Favor

Google

Web Images Groups News Froogle more »

water quality data

Search

Advanced Search Preferences

Web

Results 1 - 10 of about 6,110,000 for [water quality data](#). (0.29 seconds)

[USGS NAWQA Data Warehouse](#)

... began its NAWQA (National **Water Quality** Assessment) program in 1991, systematically collecting chemical, biological, and physical **water quality data** from 42 ...

[infotrek.er.usgs.gov/pls/nawqa/nawqa.home](#) - 22k - Sep 11, 2004 - [Cached](#) - [Similar pages](#)

[EPA > Water > Wetlands, Oceans, & Watersheds > Monitoring and ...](#)

STORET (short for STOrage and RETrieval) is a repository for **water quality**, biological, and physical **data** and is used by state environmental agencies, EPA and ...

[www.epa.gov/storet/](#) - 14k - [Cached](#) - [Similar pages](#)

[United Nations Environment Programme GFMS/WATER](#)

Sponsored Links

[Water quality data](#)

Buy the Book from Amazon Free Shipping. Aff. [www.amazon.com](#)

[WellDat](#)

Public **Water** Supply Database Well Info, Analysis, Reports! [www.welldat.com](#)

Usage: About 2400 sessions per month

Internet

# NAWQA Data Summary

- 7,600 surface water sites and 8,100 wells
- 48,000 nutrient samples; 30,000 pesticide samples and 8,800 VOC samples
- 2,600 sediment and tissue contaminant samples
- About 2,000 samples each of Fish, **Invert and Algae community counts.**
- Daily stream flow and Ground water levels
  - Totaling 14+ million data values

## USGS National Water Quality Assessment Data Warehouse

NAWQA Data Home

MAP SITES & RESULTS  
Map Chemical Conc.

RETRIEVE DATA

Site Information

Constituent Finder

Ground Water

Surface Water/ Bed  
Sediment

Mixed (SW & GW)

Animal Tissue

Daily Stream Discharge

Bio Community

SEARCH SUMMARY  
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Data Retrieval Tips

About NAWQA Data

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FAQ

Contact Us

Other USGS Data

What's New

NAWQA Program Home

## NAWQA Data Warehouse Home

What's New? [Click here](#) for a list of recent updates

Data subject to change - source data extracted between 3/21/2006 and 3/30/2006. Data available through 9/30/2004.



[water.usgs.gov/nawqa/data](http://water.usgs.gov/nawqa/data)

### Get Started Here:

- ✧ Map Chemical Concentrations
- ✧ Data Selection/Navigation Help
- ✧ Constituent Finder
- ✧ View the Glossary

### About the NAWQA Data Warehouse

The U.S. Geological Survey (USGS) began its NAWQA (National Water Quality Assessment) program in 1991, systematically collecting chemical, biological, and physical water quality data from 42 **study units (basins)** across the nation. The data warehouse currently contains and links the following data up through 9/30/2004:














































- Chemical concentrations in water, bed sediment, and aquatic organism tissues for about 600 chemical constituents
- Site, basin, well and network characteristics with many descriptive variables
- Daily stream flow information for fixed sampling sites
- Ground water levels for sampled wells
- 7,600 surface water sites and 8,100 wells
- 48,000 nutrient samples and 30,000 pesticide samples as well as 8,800 VOC samples
- 2,600 samples of bed sediment and aquatic organism tissues

Most of these data came from the **USGS National Water Information System--NWIS Water-Quality Data** for NAWQA sites.



# Wildcard Site Name Search Result

	Suid	State Postal Code	Staid	Place Name	SW Site Type Desc	Totalarea, in sq.mi.	Huc	Latitude1983
1	PODL	MD	01595000	NORTH BRANCH POTOMAC RIVER AT STEYER, MD	STREAM	73.10	02070002	39.3
2	PODL	MD	01603000	NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD	STREAM	877.00	02070002	39.6
3	PODL	MD	01646500	POTOMAC RIVER NEAR WASH, DC LITTLE FALLS PUMP STA	STREAM	11560.00	02070008	38.9
4	PODL	VA	01646580	POTOMAC RIVER AT CHAIN BRIDGE, AT WASHINGTON, DC	STREAM	11570.00	02070010	38.9
5	PODL	WV	01600000	NORTH BRANCH POTOMAC RIVER AT PINTO, MD	STREAM	596.00	02070002	39.6
6	PODL	WV	01606500	SOUTH BRANCH POTOMAC RIVER NEAR PETERSBURG, WV	STREAM	642.00	02070001	39.0
7	PODL	WV	01608000	SOUTH FORK SB POTOMAC RIVER NEAR MOOREFIELD, WV	STREAM	283.00	02070001	39.0
8	PODL	WV	01608500	SOUTH BRANCH POTOMAC RIVER NEAR SPRINGFIELD, WV	STREAM	1471.00	02070001	39.4
9	PODL	WV	01618000	POTOMAC RIVER AT SHEPHERDSTOWN, WV	STREAM	5936.00	02070004	39.4

Longitude1983	Lat Long Accuracy Desc	TopoZone Map	US Census Tiger Map	USGS Natl Atlas Map	US EPA EnviroMapper Map	NAWQA Data for Site
-79.3 S						
-78.8 S						
-77.1 S						
-77.1 S						
-78.8 S						
-79.2 S						
-79.0 S						
-78.7 S						
-77.8 S						

# Constituent Finder

NAWQA Data Home

MAP SITES & RESULTS

Map Chemical Conc.

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Site Information

**Constituent Finder**

Ground Water

Surface Water/ Bed  
Sediment

Mixed (SW & GW)

Animal Tissue

Daily Stream Discharge

Bio Community

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Data Retrieval Tips

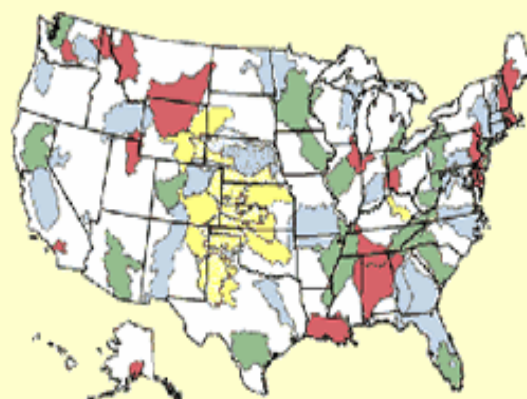
About NAWQA Data

Glossary

## NAWQA Data Warehouse Home

What's New? [Click here](#) for a list of recent updates

Data subject to change - source data extracted between 3/21/2006 and 3/30/2006. Data available through 9/30/2004.



### Get Started Here:

- ✧ [Map Chemical Concentrations](#)
- ✧ [Data Selection/ Navigation Help](#)
- ✧ [Constituent Finder](#)
- ✧ [View the Glossary](#)

### About the NAWQA Data Warehouse

The U.S. Geological Survey (USGS) began its NAWQA (National Water Quality Assessment) program in 1991, systematically collecting chemical, biological, and physical water quality data from 42 **study units (basins)** across the nation. The data warehouse currently contains and links the following data up through 9/30/2004:



# “Constituent Finder” search



Submit Query

Reset

**Query to find parameters (chemical or biological) of interest. Note code and use in additional queries.**

*Click Link on Query Results to view all NAWQA data for that parameter.*

Search by Parameter  
Name (i.e.phos):

nitr%

(%: Search All Parameters)

Search by Parameter  
Code (i.e.608):

(%: Search All Parameter Codes)

-OR-

-AND/OR-

Select a Sampling Schedule:

Search All Schedules



Limit parameters returned to only those that

GROUP: NUTRIENT  
 SCHEDULE: Nutrients - Nitrogen and  
 Phosphorous (2702) [8]

# Nitr%

Code	Link	Name	Constituent	Gas Num	Report Units	% of Samples where Parameter Analyzed
00613	<a href="#">data values</a> <a href="#">summary of detects</a>	Nitrite_ water_ filtered_ milligrams per liter as nitrogen	NITROGEN, NITRITE	14797-65-0	mg/L as N	56.00
00623	<a href="#">data values</a> <a href="#">summary of detects</a>	Ammonia plus organic nitrogen_ water_ filtered_ milligrams per liter as nitrogen	NITROGEN, AMMONIA + ORGANIC NITROGEN	17778-88-0	mg/L as N	50.00
00608	<a href="#">data values</a> <a href="#">summary of detects</a>	Ammonia_ water_ filtered_ milligrams per liter as nitrogen	NITROGEN, AMMONIA	7664-41-7	mg/L as N	56.70
00631	<a href="#">data values</a> <a href="#">summary of detects</a>	Nitrite plus nitrate_ water_ filtered_ milligrams per liter as nitrogen	NITROGEN, NITRITE + NITRATE		mg/L as N	57.20
00625	<a href="#">data values</a> <a href="#">summary of detects</a>	Ammonia plus organic nitrog water_ unfiltered_ milligrams per liter as nitrogen	ORGANIC NITROGEN			

Following slides show “data values”

# “RETRIEVE DATA” Options to make exportable tables

NAWQA Data Home

MAP SITES & RESULTS

Map Chemical Conc.

**RETRIEVE DATA**

Site Information

Constituent Finder

Ground Water

Surface Water/ Bed  
Sediment

Mixed (SW & GW)

Animal Tissue

Daily Stream Discharge

Bio Community

SEARCH SUMMARY  
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HELP

Data Retrieval Tips

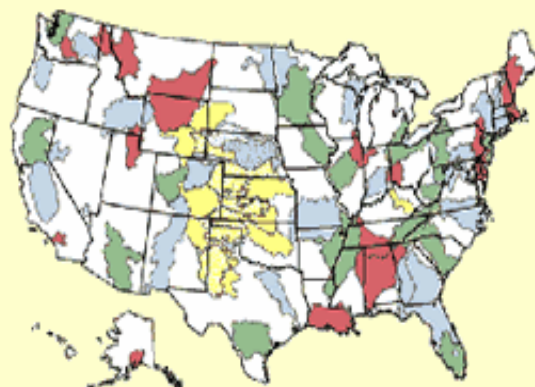
About NAWQA Data

Glossary

## NAWQA Data Warehouse Home

What's New? [Click here](#) for a list of recent updates

Data subject to change - source data extracted between 3/21/2006 and 3/30/2006. Data available through 9/30/2004.



### Get Started Here:

- ✧ Map Chemical Concentrations
- ✧ Data Selection/ Navigation Help
- ✧ Constituent Finder
- ✧ View the Glossary

### About the NAWQA Data Warehouse

The U.S. Geological Survey (USGS) began its NAWQA (National Water Quality Assessment) program in 1991, systematically collecting chemical, biological, and physical water quality data from 42 **study units (basins)** across the nation. The data warehouse currently contains and links the following data up through 9/30/2004:

# Search options

Top of  
window

Choose  
State(s)

Do Not Search by State



Bottom of  
window

Choose  
Land Use  
(s)

Do Not Search by Land Use



Choose  
Lab  
Schedule  
(s)

Nutrients - Nitrogen and Phosphorous (2702) [8]



Choose  
County(s)

Do Not Search by County



Choose  
Parameter  
(s)

Do Not Search by Parameter Name



Choose  
NAWQA  
Study Unit  
(s)

Albemarle-Pamlico Drainage



Enter  
HUC

☒ Exact:

Do Not Search by HU

☐ Starts with:

☐ Contains:

Enter  
Minimum  
for Result  
Value

0

Filter to  
only see  
detects?

NO



Choose  
water  
year(s)

Do Not Search by Water Year



Apply

# Surface Water / Bed Sediment, Results

Columns omitted for  
powerpoint display –

Can Export Delimited or  
Excel

							Primary Schedule Name	Nutrients - Nitrogen and					
							Parameter Short Name	NH3+orgN_wf	NH3+orgN_wu	NO2+NO3_wf			
							Parameter Code	00623	00625	00631			
							Report Units	mg/L as N	mg/L as N	mg/L as N			
								Remark	Value	Remark	Value	Remark	Value
Staid	Place Name	Land Use	Area (sq. mi.)	Huc	Medium	Result Datetime							
0204378000	NEWLAND CANAL NEAR ACORN HILL, NC	Forest	-999.00	03010205	SURFACE WATER	27-Jan-95 11:00 AM		--	1.00000	--	.90000	--	.63000
						06-Apr-95 12:30 PM		--	1.70000	--	1.70000	<	.05000
						07-Jun-95 12:30 PM		--	3.20000	--	3.40000	<	.05000
02043814	NEWLAND CANAL NR LYNCHS CORNER, NC	Agriculture	-999.00	03010205	SURFACE WATER	27-Jan-95 09:00 AM		--	1.40000	--	1.50000	--	.45000
						06-Apr-95 10:30 AM		--	1.50000	--	1.50000	<	.05000
						07-Jun-95 10:00 AM		--	3.80000	--	3.80000	--	.57000
0204386000	KNOBBS CR AT SR1332 NR ELIZABETH CITY, NC	Agriculture	-999.00	03010205	SURFACE WATER	26-Jan-95 01:30 PM		--	.80000	--	.80000	<	.05000
						06-Apr-95 07:30 AM		--	1.00000	--	1.00000	<	.05000
						05-Jun-95 04:30 PM		--	1.60000	--	1.70000	<	.05000

# Biological Community queries



USGS Home  
Contact USGS  
Search USGS

## USGS National Water Quality Assessment Data Warehouse

NAWQA Data Home

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**Bio Community**

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## Biological Community Samples

Select a data retrieval option:

[Sample Count](#)

[Taxonomic List Fish](#)

[Taxonomic List Invert](#)

[Taxonomic List Algae](#)

**[Sample Abundance Fish](#)**

[Sample Abundance Invert](#)

[Sample Abundance Algae Periphyton](#)

[Sample Abundance Algae Phytoplankton](#)

Biological community samples (fish, invertebrates, algae) are collected in streams and rivers as part of ecological studies in the U.S. Geological Survey's National Water-Quality Assessment (NAWQA) Program. Information from these ecological studies, together with chemical and physical data, provide an integrated assessment of water quality at local, regional, and national scales. During the program's first decade of operation (1991 - 2001), ecological studies were conducted to assess the occurrence and distribution of algal, invertebrate, and fish communities in about 59 study units (*Gilliom and others, 1995*). In the second decade of the program (2001 - 2011), biological community samples will be collected at selected sites to provide long-term trends monitoring. Ecological studies are also part of nationally guided studies addressing selected water-quality issues such as the effects of watershed urbanization on nutrient enrichment and stream ecosystems.

- [Available Data](#)
- [Types of Samples](#)
- [How to Retrieve Data](#)
- Types of Data Retrievals:
  - [Sample Count](#)
  - [Taxonomic List](#)
  - [Sample Abundance Data](#)



# Bio Community queries, Values

							Abundance
StationName	SampleM	Family	Genus	Species	Taxon	CommonName	
AHOSKIE CR NEAR POORTOWN, NC	FISH COM	Anguillidae	Anguilla	rostrata	Anguilla rostrata	American eel	27
		Aphredoderidae	Aphredoderus	sayanus	Aphredoderus sayanus	pirate perch	22
		Catostomidae	Erimyzon	oblongus	Erimyzon oblongus	creek chubsucker	67
		Centrarchidae	Enneacanthus	gloriosus	Enneacanthus gloriosus	bluespotted sunfish	12
			Lepomis	auritus	Lepomis auritus	redbreast sunfish	236
			Micropterus	salmoides	Micropterus salmoides	largemouth bass	6
		Cyprinidae	Cyprinella	analostana	Cyprinella analostana	satinfin shiner	110
			Notemigonus	crysoleucas	Notemigonus crysoleucas	golden shiner	21
			Notropis	amoenus	Notropis amoenus	comely shiner	43
				hudsonius	Notropis hudsonius	spottail shiner	122
		Esocidae	Esox	americanus	Esox americanus americanus	redfin pickerel	6
		Ictaluridae	Ameiurus	natalis	Ameiurus natalis	yellow bullhead	21
			Noturus	gyrinus	Noturus gyrinus	tadpole madtom	35
		Percidae	Etheostoma	olmstedii	Etheostoma olmstedii	tessellated darter	104
			Perca	flavescens	Perca flavescens	yellow perch	1
ALBEMARLE CANAL NR SWINDELL, NC	FISH COM	Poeciliidae	Gambusia	holbrooki	Gambusia holbrooki	eastern mosquitofish	7
		Umbridae	Umbra	pygmaea	Umbra pygmaea	eastern mudminnow	3
		Anguillidae	Anguilla	rostrata	Anguilla rostrata	American eel	6
		Aphredoderidae	Aphredoderus	sayanus	Aphredoderus sayanus	pirate perch	1
		Catostomidae	Erimyzon	oblongus	Erimyzon oblongus	creek chubsucker	2
		Centrarchidae	Enneacanthus	gloriosus	Enneacanthus gloriosus	bluespotted sunfish	10

# “MAP SITES & RESULTS” Option to find what’s in the DWH

NAWQA Data Home

**MAP SITES & RESULTS**

Map Chemical Conc.

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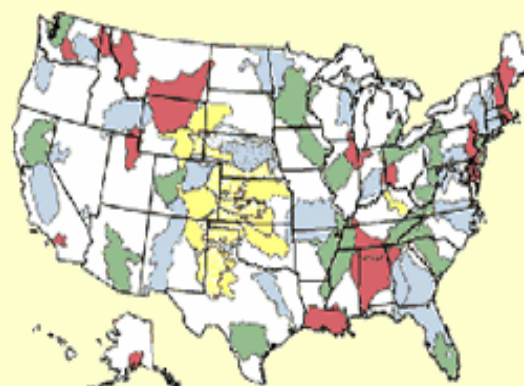
About NAWQA Data

Glossary

## NAWQA Data Warehouse Home

What's New? [Click here for a list of recent updates](#)

Data subject to change - source data extracted between 3/21/2006 and 3/30/2006. Data available through 9/30/2004.



### Get Started Here:

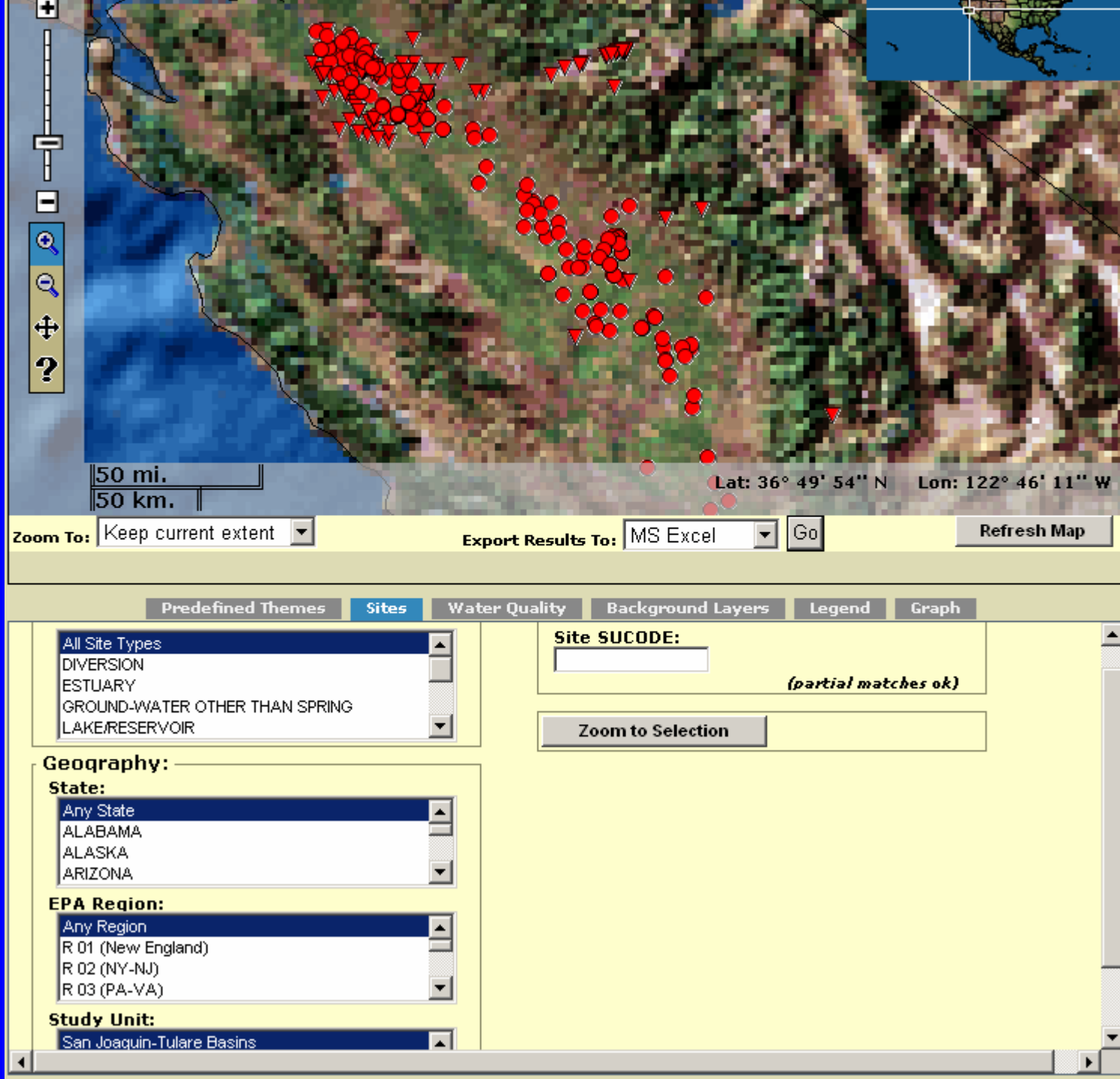
- ❖ Map Chemical Concentrations
- ❖ Data Selection/ Navigation Help
- ❖ Constituent Finder
- ❖ View the Glossary

### About the NAWQA Data Warehouse

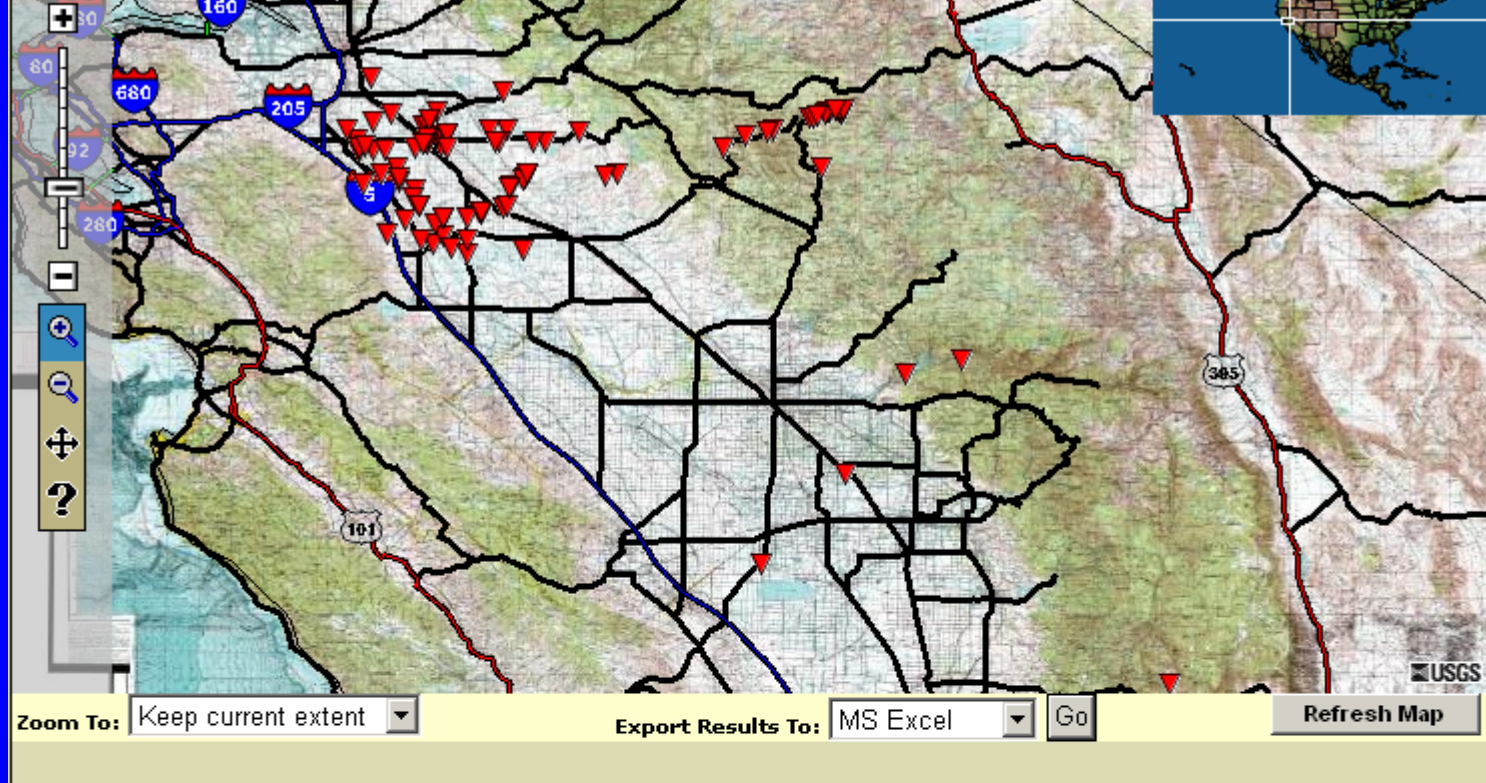
The U.S. Geological Survey (USGS) began its NAWQA (National Water Quality Assessment) program in 1991, systematically collecting chemical, biological, and physical water quality data from 42 **study units (basins)** across the nation. The data warehouse currently contains and links the following data up through 9/30/2004:

- Mapping Sites - San Joaquin Study Unit All Sites

- On Shaded Relief



- Pick SJ Study Unit Surface-Water sites



- On Topo Maps

Predefined Themes Sites Water Quality Background Layers Legend Graph

All Site Types  
DIVERSION  
ESTUARY  
GROUND-WATER OTHER THAN SPRING  
LAKE/RESERVOIR

Geography:

State:  
Any State  
ALABAMA  
ALASKA  
ARIZONA

EPA Region:  
Any Region  
R 01 (New England)  
R 02 (NY-NJ)  
R 03 (PA-VA)

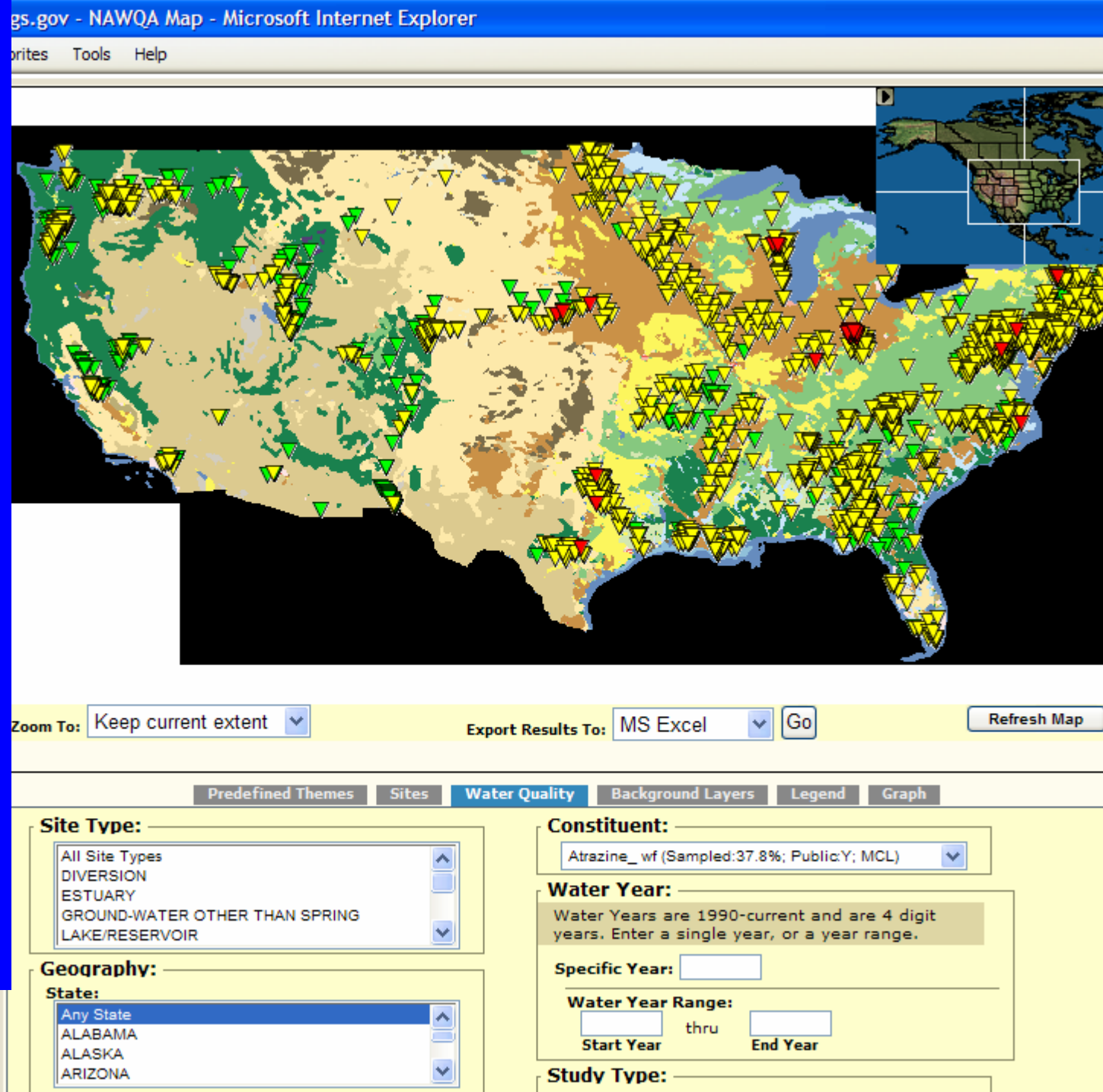
Study Unit:  
San Joaquin-Tulare Basins

Site SUCODE:  
  
(partial matches ok)

Zoom to Selection



- Atrazine in Surface Water
- Over Land Use Map

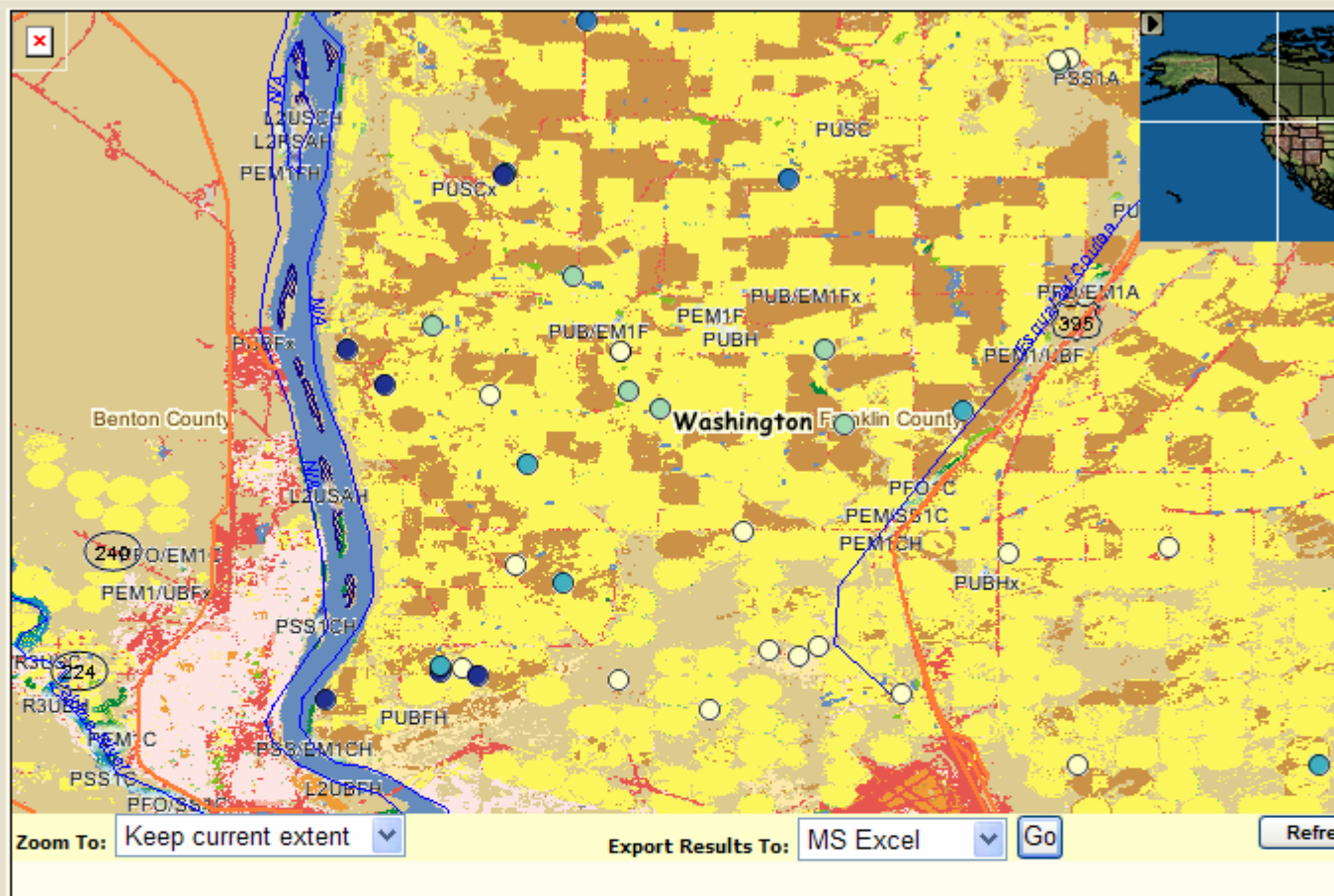


# Nitrate in Ground Water Over Land Use



View Favorites Tools Help

Internal USGS Access Only



Predefined Themes

Sites

Water Quality

Background Layers

Legend

Graph

Site Type:

All Site Types  
DIVERSION  
ESTUARY  
GROUND-WATER OTHER THAN SPRING  
LAKE/RESERVOIR

Geography:

State:

Any State  
ALABAMA  
ALASKA  
ARIZONA

Constituent:

NO2+NO3\_ wf (Sampled:52.1%; Public:Y; MCL)

Water Year:

Water Years are 1990-current and are 4 digit years. Enter a single year, or a year range.

Specific Year:

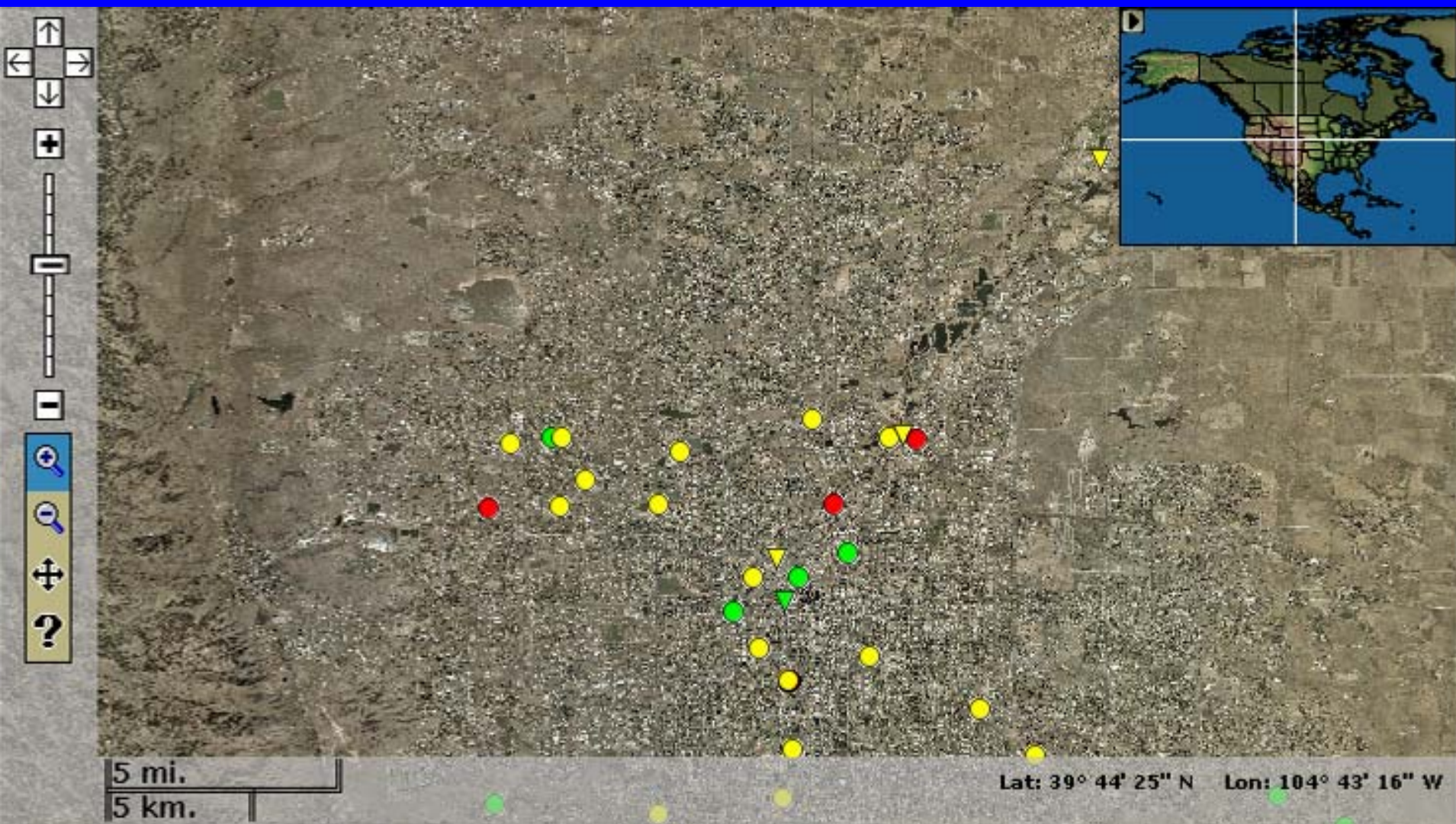
Water Year Range:

Start Year thru End Year

Study Type:



# Denver MTBE wide zoom

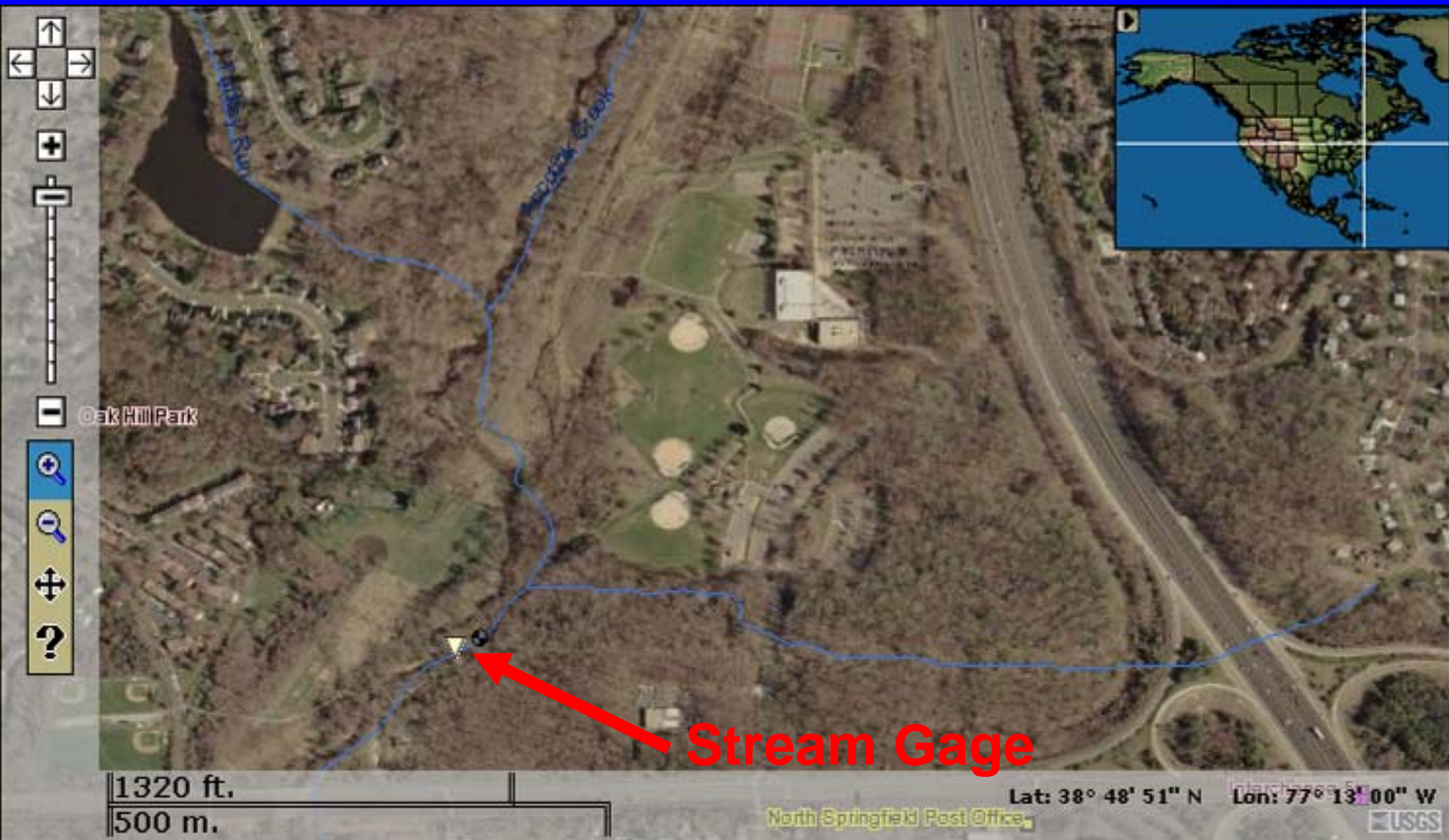


# Denver MTBE close zoom





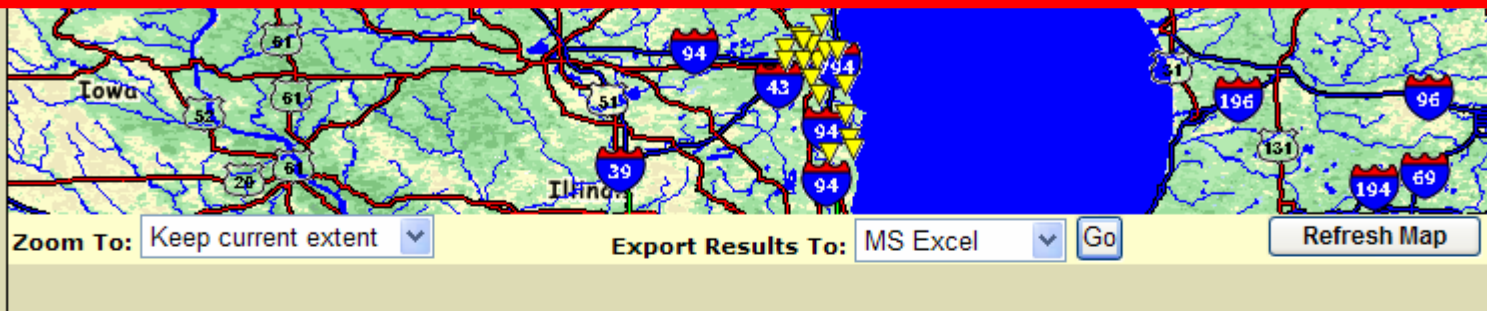
# Caffeine in DC Area w- hi-res



# Geography - Options - Water Quality

Predefined Themes	Sites	Water Quality	Background Layers	Legend	Graph
<b>Site Type:</b>					
<div>All Site Types AGGREGATE GROUND WATER DIVERSION ESTUARY GROUND-WATER OTHER THAN SPRING</div>					
<b>Geography:</b>					
<b>State:</b> <div>Any State ALABAMA ALASKA ARIZONA</div>					
<b>EPA Region:</b> <div>Any Region R 01 (New England) R 02 (NY-NJ) R 03 (PA-VA)</div>					
<b>Study Unit:</b> <div>Any Study Unit Acadian-Pontchartrain Albemarle-Pamlico Drainage Allegheny and Monongahela Basins</div>					
<b>Constituent:</b> <div>Atrazine_wf (42431) (public:Y; MCL:Y)</div>					
<b>Water Year:</b> <div>Water Years are 1896-current and are 4 digit years. Enter a single year, or a year range.</div>					
<b>Specific Year:</b> <input type="text"/>					
<b>Water Year Range:</b> <div><input type="text"/> thru <input type="text"/> Start Year                      End Year</div>					
<b>Study Type:</b>					
<b>Site SUCODE:</b> <div><input type="text"/></div> <p><i>(partial matches ok)</i></p>					
<b>Data Display Options:</b>					
<b>Partition Type:</b> <div>Equal Count Equal Count (non-detects separate) Equal Range Human Health Limit</div>					
<div>Zoom to Selection</div>					

# 100+ Background Layers



Predefined Themes Water Quality Background Layers Legend Graph

**BOUNDARIES (8/21)** →

**ELEVATION (0/17)** →

**GEOLOGY (0/17)** →

**LAND USE/LAND COVER (1/23)** →

Select Recommended

Turn Off All

**HYDROGRAPHY (3/6)** →

**IMAGERY (0/7)** →

**STRUCTURES (0/4)** →

**TOPOGRAPHIC MAPS (0/3)** →

**TRANSPORTATION (1/17)** →

**GEOGRAPHIC NAMES (0/2)** →

**NATURAL HAZARDS/WEATHER (0/5)**

**OTHER (0/1)** →

**LAND COVER (1/21)** →

Select Recommended

Turn Off All

**INDEX/STATUS (LAND COVER) (0/2)**

☐ NDVI Aug 12 2004

☐ FCC Jun 25 2004

☐ FCC Jul 11 2004

☐ EVI Jul 11 2004

☐ EVI Aug 12 2004

☐ FCC Jul 27 2004

☐ FCC Aug 12 2004

☐ NDVI Jun 25 2004

☐ EVI Jun 25 2004

☐ NDVI Jul 11 2004

☐ EVI Jul 27 2004

☐ NDVI Jul 27 2004

☒ USGS Current Greenness (NDVI)

☐ America View MODIS NDVI 1st Day

☐ America View MODIS NDVI 2nd Day

☐ America View MODIS NDVI 5th Day

☐ America View MODIS NDVI 7th Day

<http://nationalmap.gov/>



# Overview – “Legend” information

The image displays two screenshots of the NAWQA Data Warehouse Layer Legend interface, showing different tabs and data.

**Left Screenshot:**

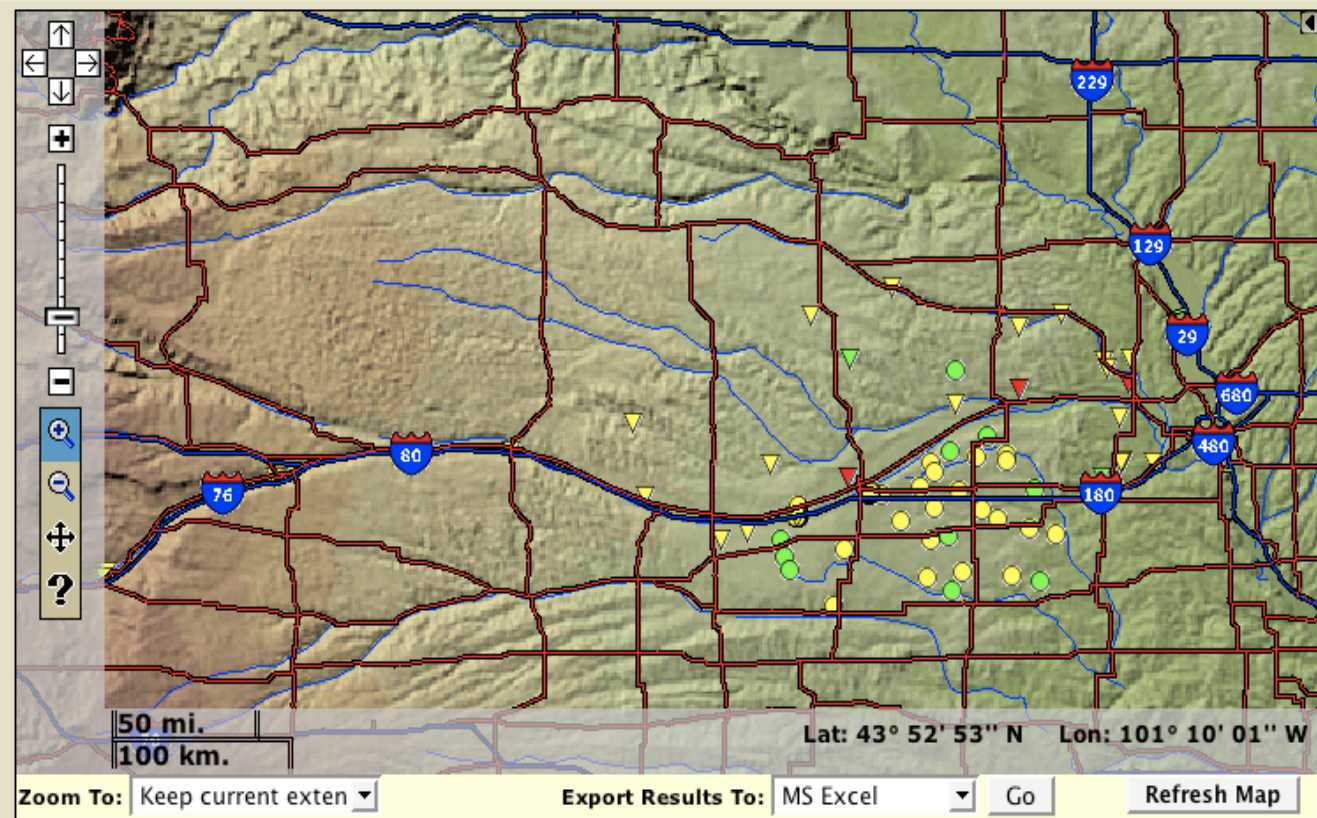
- Predefined Themes** | **Sites** | **Water Quality** | **Background Layers** | **Legend** | **Graph**
- NAWQA Data Warehouse Layer Legend**
- Site Type**
  - GW
  - ▼ SW
- 39632 Atrazine, water, filtered, recoverable, micrograms per liter**
- Legend:**
  - Not detected
  - Detected, not exceeded
  - Exceed MCL ( $\geq 3.0$ )
- Background Layer Legends**
- Realtime Gaging Stations**
- Realtime Gaging** | **Theme/Class** | **H**

**Right Screenshot:**

- Predefined Themes** | **Sites** | **Water Quality** | **Background Layers** | **Legend** | **Graph**
- NAWQA Data Warehouse Layer Legend**
- Site Type**
  - GW
  - SP
  - ▼ SW
  - ▲ ES
  - ✕ LK
- Background Layer Legends**
- US Major Roads (National Atlas)**
- Roads** | **Theme/Class** | **Transportation /**



# Boxplot of Mapped Data



Predefined Themes

Sites

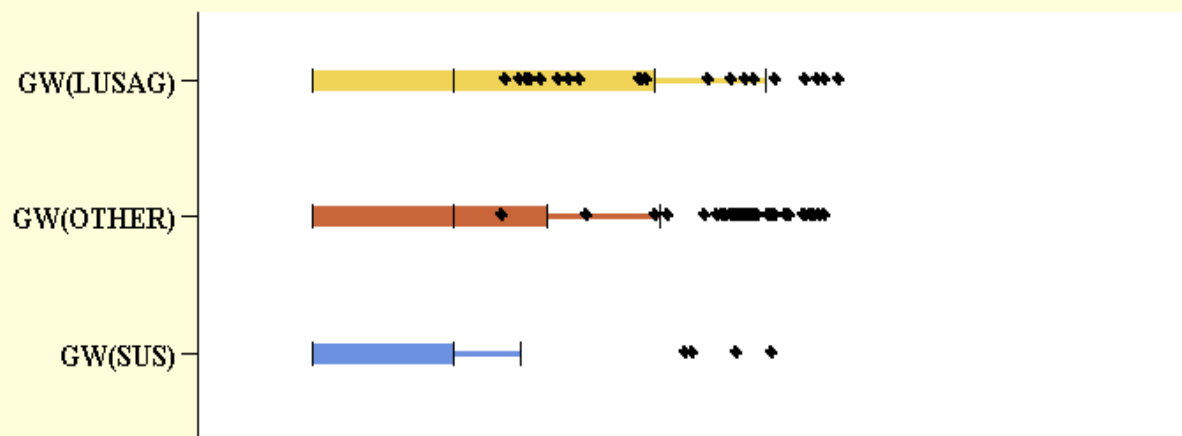
Water Quality

Background Layers

Legend

Graph

Atrazine\_wf





1320 ft.  
500 m.

Zoom To: Keep current extent Export Results To: MS Excel

Predefined Themes Sites Water Quality Background

LAND USE/LAND COVER (0/23) → INDEX/STATUS (IMAGERY) (0/1) →  
 GEOGRAPHIC NAMES (0/8) → DOQ (0/2) →  
 TRANSPORTATION (0/15) → OTHER IMAGERY (1/2) →  
 HYDROGRAPHY (0/34) → SATELLITE (0/2) →  
 BOUNDARIES (0/12) →  
 IMAGERY (1/7) →  
 TOPOGRAPHIC MAPS (0/5) →  
 ELEVATION (0/7) →  
 GEOLOGY (0/3) →  
 NATURAL HAZARDS/WEATHER (0/8) →  
 OTHER (0/3) →

Click on a  
site to see  
site  
summary

## Identify NAWQA Location

### STUDY INFORMATION

NAWQA STUDY UNIT	South Platte River Basin
STUDY CYCLE I START	1991
STUDY CYCLE II START	2001

### ADDITIONAL STUDY INFORMATION

STUDY WEBSITE	<a href="#">Link</a>
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### SITE INFORMATION

SITE TYPE	STREAM
AGENCY	USGS
STATION ID	394839104570300
STATION NAME	SAND CREEK AT MOUTH NR COMMERCE CITY, CO
STATE	COLORADO
COUNTY	ADAMS
LATITUDE/LONGITUDE (NAD83)	39.8 / -104.9
BASIN AREA (sq miles)	184
HUC	10190003
REPRESENTED LAND USE	Urban

### ADDITIONAL SITE INFORMATION

NWIS WEB LINK	<a href="#">Link</a>
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### RESULT INFORMATION

PARAMETER CODE	78032
PARAMETER NAME	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter
VALUE AT SITE	8.983
REPORTING UNITS	ug/L

### ADDITIONAL CONSTITUENT INFORMATION

PRIMARY LAB SCHEDULE	Volatile Organic Compounds (2020) [89]
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### SELECTION INFORMATION

SITE DISTANCE FROM CLICK	3.76 meters
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Export All Data in Current map view to:

- Excel
- Tab Delimited
- Google Earth

The screenshot displays a web-based map application. At the top left, there is a vertical toolbar with navigation icons (up, down, left, right arrows), a zoom-in (+) and zoom-out (-) button, a scale bar, and a search icon. The main map area shows a topographic view of a region with several colored data points (blue, green, yellow) clustered in the center. A scale bar at the bottom left indicates 25 miles and 25 kilometers. Coordinates at the bottom right show Lat: 48° 05' 13" N and Lon: 123° 39' 32" W. Below the map, there is a navigation bar with tabs for 'Predefined Themes', 'Sites', 'Water Quality', and 'Bios'. The 'Water Quality' tab is currently selected. To the right of the tabs are buttons for 'Legend' and 'Graph'. Below the navigation bar, there are two main sections: 'Site Type:' with a dropdown menu showing 'All Site Types', 'DIVERSION', 'ESTUARY', 'GROUND-WATER OTHER THAN SPRING', and 'LAKE/RESERVOIR'; and 'Constituent:' with a dropdown menu showing 'NO2+NO3\_wf (58473) (public:Y; MCL:Y;'. To the right of these sections are buttons for 'Zoom To: Keep current extent', 'Export Results To: Google KML', 'Go', and 'Refresh Map'. The 'Export Results To:' dropdown menu is open, showing options: 'Google KML', 'MS Excel', 'Tab Delimited', and 'Google KML'.

25 mi.  
25 km.

Lat: 48° 05' 13" N Lon: 123° 39' 32" W

Zoom To: Keep current extent

Export Results To: Google KML

Go Refresh Map

Predefined Themes Sites Water Quality Bios

Legend Graph

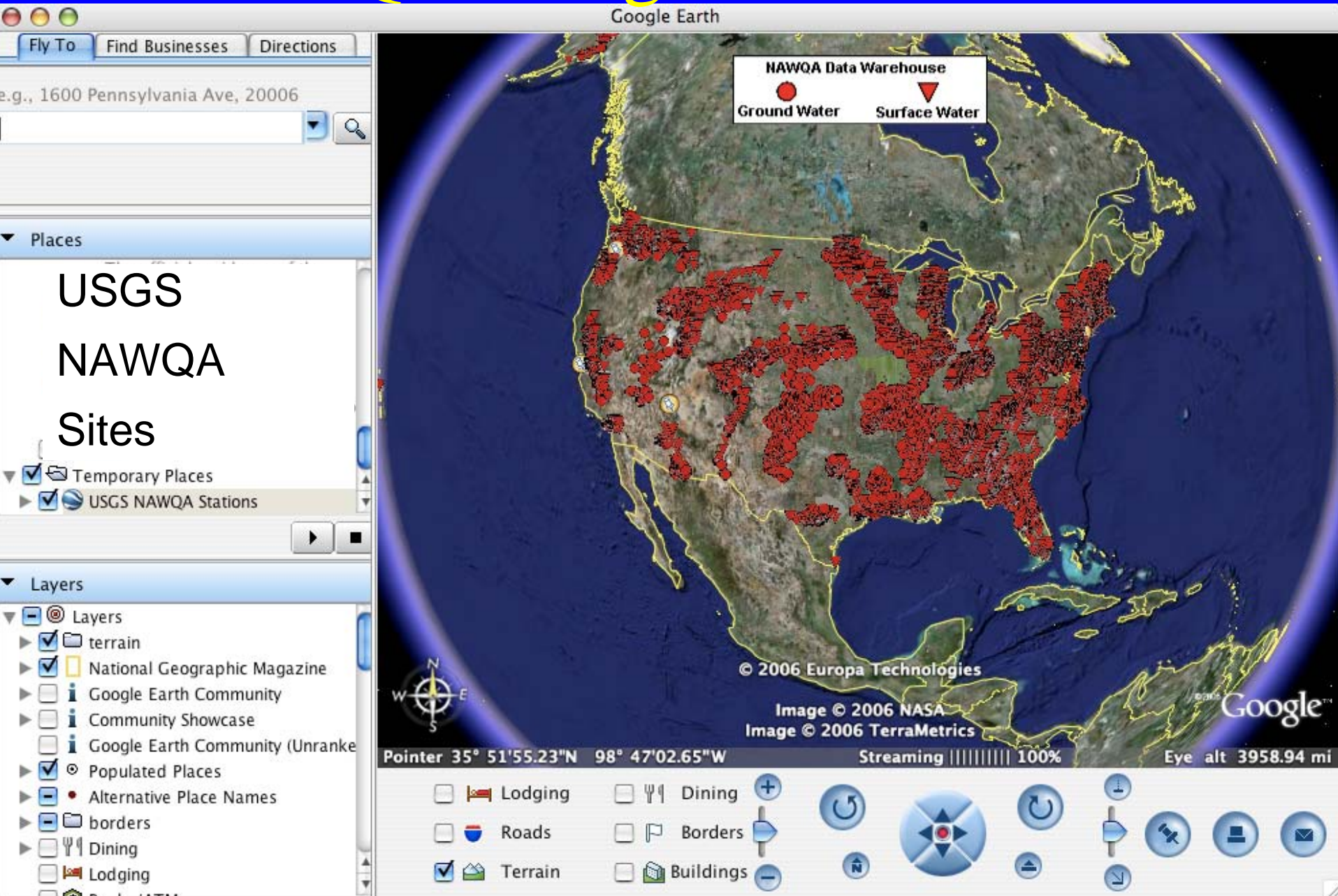
Site Type: All Site Types  
DIVERSION  
ESTUARY  
GROUND-WATER OTHER THAN SPRING  
LAKE/RESERVOIR

Constituent: NO2+NO3\_wf (58473) (public:Y; MCL:Y;)

Water Year: Water Years are 1896-current and are 4 digit years. Enter a single year, or a year



# NAWQA Google Earth Viewer





export(2).xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Su Id	Site Type	Station Id	Place Name	Latitude	Longitude	Parameter	Parameter	Result Value	Report Unit	Chronic Li	Life Criteri	Max Cont	Mo
2	LERI	GW	42425808	04N 09E 3	424257.8	0832232	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
3	LERI	GW	43034908	SUS087-2	430349.1	0830147	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
4	ALMN	GW	41505207	WR 835	415052	0792829	00631	Nitrite plus	53	mg/L as N	null	null	10	MC
5	MISE	GW	35105708	SH-UR-19	351056.7	0894956	00631	Nitrite plus	3.104	mg/L as N	null	null	10	MC
6	NVBR	GW	36064811	S212 S21	360648.5	1150854	00631	Nitrite plus	5.9	mg/L as N	null	null	10	MC
7	EIWA	GW	41505209	081N12W	415051.8	0921203	00631	Nitrite plus	06	mg/L as N	null	null	10	MC
8	SANJ	GW	37324012	004S011E	373239.7	1204736	00631	Nitrite plus	17	mg/L as N	null	null	10	MC
9	WILL	GW	44343712	11S/04W-3	443436.7	1231345	00631	Nitrite plus	18	mg/L as N	null	null	10	MC
10	PODL	GW	39043707	49W 11	390439.8	0774301	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
11	KANA	GW	37483608	GRB-0282	374836	0803006	00631	Nitrite plus	779	mg/L as N	null	null	10	MC
12	SPLT	GW	39423610	PW-6	394236	1045953	00631	Nitrite plus	3	mg/L as N	null	null	10	MC
13	SPLT	GW	39483010	I-270	394830.4	1045642	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
14	TRIN	GW	33125409	ZR-19-51-2	331244.4	0974203	00631	Nitrite plus	6.3	mg/L as N	null	null	10	MC
15	WHMI	GW	39521808	MT-1260 N	395218.2	0841008	00631	Nitrite plus	1.03	mg/L as N	null	null	10	MC
16	SANJ	GW	37463512	002S008E	374636.7	1210412	00631	Nitrite plus	23	mg/L as N	null	null	10	MC
17	SPLT	GW	39342210	XLN - 22	393422	1052401	00631	Nitrite plus	63	mg/L as N	null	null	10	MC
18	CCYK	GW	46192211	10N/30E-2	461922.7	1190525	00631	Nitrite plus	19	mg/L as N	null	null	10	MC
19	SPLT	GW	39373610	BELLVIEW	393737.8	1050040	00631	Nitrite plus	057	mg/L as N	null	null	10	MC
20	MISE	GW	35054308	SH-UR-26	350543.8	0894738	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
21	HDSN	GW	42503307	MT 390	425034.3	0744008	00631	Nitrite plus	6.3	mg/L as N	null	null	10	MC
22	SANT	GW	34550108	GRV-1382	345501	0823005	00631	Nitrite plus	071	mg/L as N	null	null	10	MC
23	SANT	GW	33130308	ORG- 400	331303	0804641	00631	Nitrite plus	341	mg/L as N	null	null	10	MC
24	KANA	GW	36474708	24C 1	364747	0805106	00631	Nitrite plus	261	mg/L as N	null	null	10	MC
25	ALBE	GW	35203607	BO-372 (N	352036	0765139	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
26	MISE	GW	33014209	S0133 W	330141.5	0910007	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
27	LERI	GW	42490508	05N 09E 2	424904.6	0832127	00631	Nitrite plus	43	mg/L as N	null	null	10	MC
28	TRIN	GW	33033209	ZR-19-59-5	330333.1	0974128	00631	Nitrite plus	0	mg/L as N	null	null	10	MC
29	EIWA	GW	41382309	079N06W2	413822.6	0913223	00631	Nitrite plus	1.299	mg/L as N	null	null	10	MC
30	EIWA	GW	42242609	088N14W2	422425.8	0922724	00631	Nitrite plus	931	mg/L as N	null	null	10	MC
31	USNK	GW	43282111	C41N 116W	432821	1104637	00631	Nitrite plus	56	mg/L as N	null	null	10	MC
32	CONN	GW	44304207	NH-BRW	443042	0711425	00631	Nitrite plus	2	mg/L as N	null	null	10	MC
33	SPLT	GW	40410610	SB008052	404106.0	1030822	00631	Nitrite plus	7.134	mg/L as N	null	null	10	MC

Export Data

Ready

Sum=0

SCRL

# DW Team Please Stand

- Rick Bell, AR – Training, Testing and Support
- Pete Ruhl, Reston and Mitch Harris, IL– BioTDB
- Ken Skach, OR – Data checking/ contact with SU's
- Nate Booth, WI - Technical Leader
- Jessica Thompson, WI Aggregation / Discoverer
- John Hollis, WI Java/Mapping
- Eric Everman, MN Java/Mapping

[water.usgs.gov/nawqa/data](http://water.usgs.gov/nawqa/data)



# Displaying Water Quality Information on Internet Maps

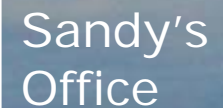
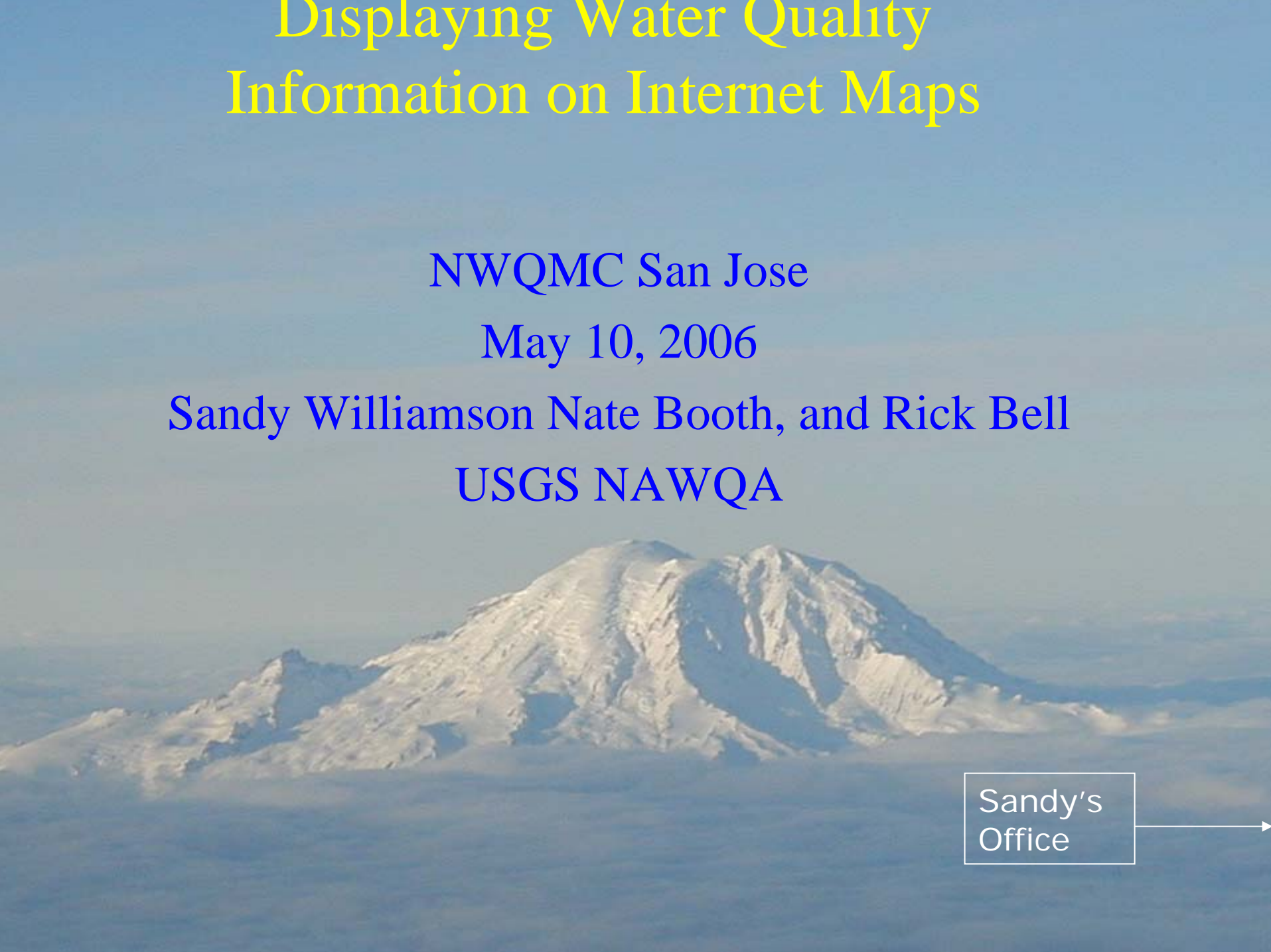
NWQMC San Jose

May 10, 2006

Sandy Williamson Nate Booth, and Rick Bell

USGS NAWQA

Sandy's  
Office



# Summary Report Occurrence Plots

USGS NAWQA Data Warehouse -

File Edit View Favorites Tools Help

**USGS**  
science for a changing world

USGS National Water Quality Assessment

**NAWQA Data Home**

**MAP SITES & RESULTS**  
Map Chemical Conc.

**RETRIEVE DATA**  
Site Information  
Constituent Finder  
Ground Water  
Surface Water/  
Bed Sediment  
Mixed (SW & GW)  
Animal Tissue  
Daily Discharge  
Bio Community

**GENERATE INTERPRETIVE GRAPHICS**

5/15/04 NEW Data r

**NOTE: 4/29/04 The**  
differences. Review do  
parameter values, cli

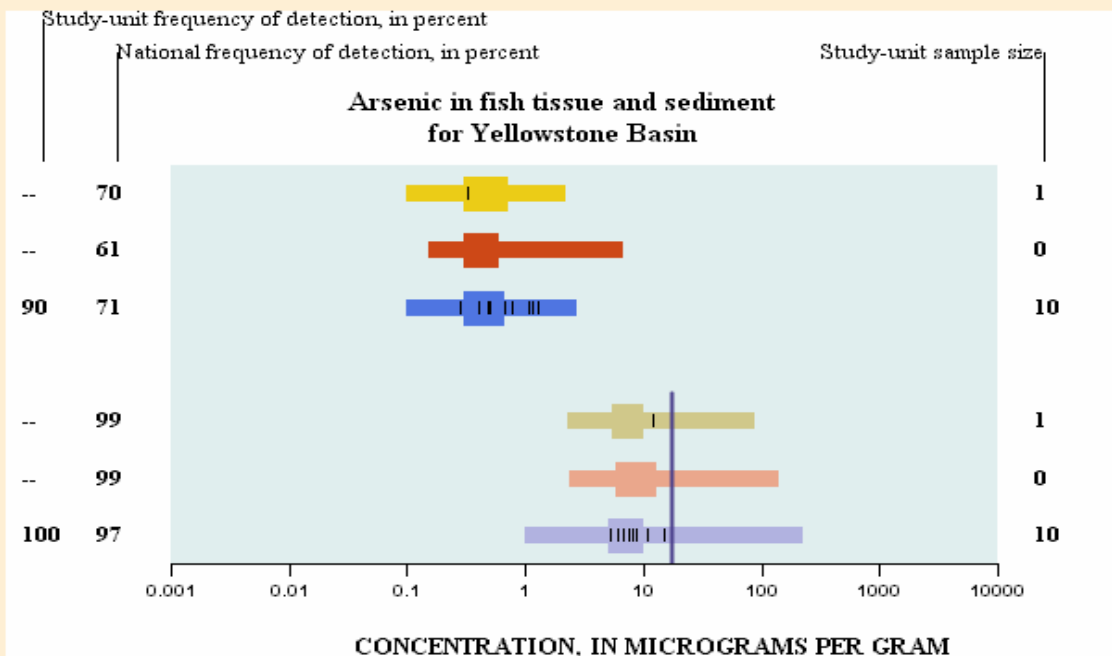
[See What's New](#)

Get Started Here:  
**Select an option:**

Yellowstone Basin

Arsenic in fish tissue and sediment

Submit



## CHEMICALS IN FISH TISSUE AND BED SEDIMENT

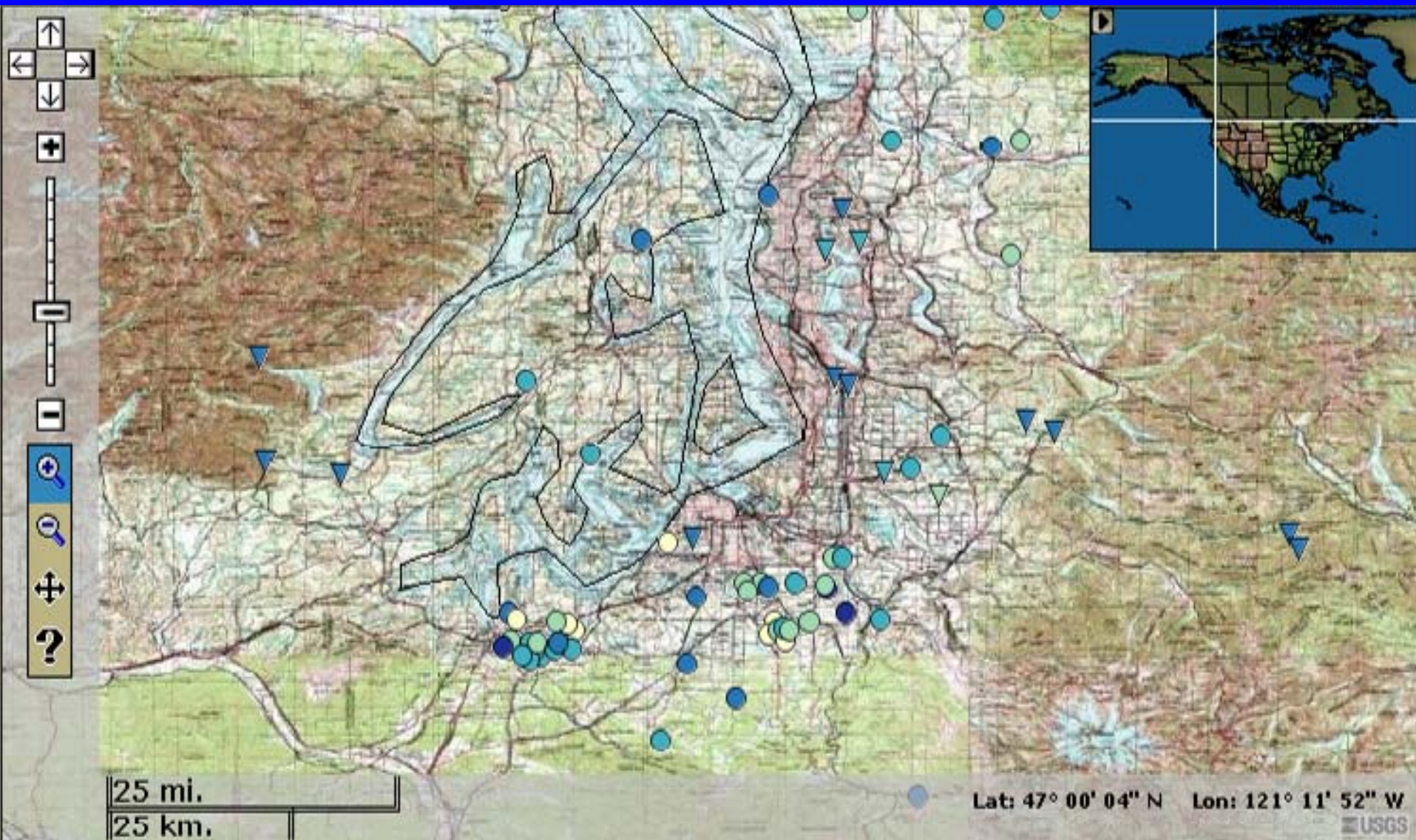
Concentrations and detection frequencies, 1999–2001—  
Study-unit frequencies of detection are based on small sample sizes;  
the applicable sample size is specified in each graph.

- Detected concentration in Study Unit
- Frequencies of detection, in percent. Detection frequencies were not censored at any common reporting limit. The left-hand column is the study-unit frequency and the right-hand column is the national frequency
- Not measured or sample size less than two
- Study-unit sample size

National ranges of concentrations detected, by land use, in 51 NAWQA Study Units, 1999–2001. Range includes only samples



# Nitrate in Puget Sound





# Washington Ag Sites

