

DRAFT STORET DASHBOARD

NWMC – Crystal City, VA

November 28, 2012

Charles Kovatch

U.S. EPA Office of Water

AGENDA

Review Water Quality Portal
Review Water Quality Exchange
Portal
 O&M
 Map and Display
 QA/QC Checks
 Outreach and Communications
 Additional Data Providers
 Integration with NEMI
 Integration with NHD
Review Portal FY13 Goals
Open discussion on Portal FY14 and
beyond
Discussion regarding role of WIS in
assisting WQP

DASHBOARD REQUIREMENTS

- STORET Team met with EPA Regions RMC, STORET User Community, OECA, and MAP to gather requirements
- General theme was to show the amount of data submitted by states, the amount of data available, and the amount of data by year
- Dashboard will be populated with data from STORET, as submitted by the states

VIEW AMOUNT OF DATA BY REGION

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» [Dashboard](#) » [Annual Data Submission by EPA Region](#)

These figures display the amount of data available within an EPA Region in the selected year (default to the current year). The number of records submitted in the selected year is compared to the number of records submitted to STORET over a five year average. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year:

<p>Region 1 (CT, ME, MA, NH, RI, VT)</p> <p>In 2012: 0 records 5 yr avg: 220,071/yr</p>	<p>Region 2 (NJ, NY, PR, VI)</p> <p>In 2012: 11,628 records 5 yr avg: 254,197/yr</p>	<p>Region 3 (DE, DC, MD, PA, VA, WA)</p> <p>In 2012: 12,197 records 5 yr avg: 209,653/yr</p>
<p>Region 4 (AL, FL, GA, KY, MS, NC, SC, TN)</p> <p>In 2012: 21,173 records 5 yr avg: 1,487,671/yr</p>	<p>Region 5 (IL, IN, MI, MN, OH, WI)</p> <p>In 2012: 19,140 records 5 yr avg: 1,173,683/yr</p>	<p>Region 6 (LA, AR, OK, NM, TX)</p> <p>In 2012: 37,124 records 5 yr avg: 426,288/yr</p>

VIEW AMOUNT OF DATA BY STATE

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These figures display the amount of data available within an EPA Region in the selected year by State. The number of records submitted in the selected year is compared to the number of records submitted to STORET over a five year average. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year:

Select EPA Region:

State	2012 Records	5 yr avg
Arkansas	27,149	102,464/yr
Louisiana	306	10,453/yr
New Mexico	738	13,771/yr
Oklahoma	2,007	22,256/yr
Texas	6,924	277,265/yr

VIEW AMOUNT BY STATE PROFILE

STORET – Dashboard: State Profile

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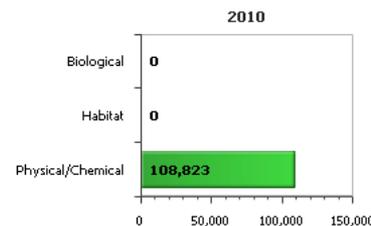
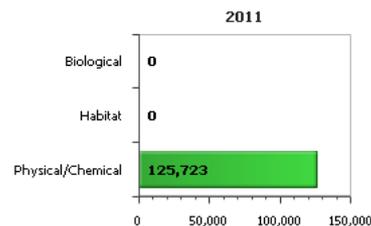
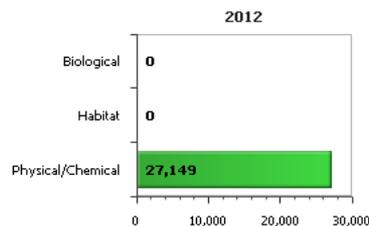
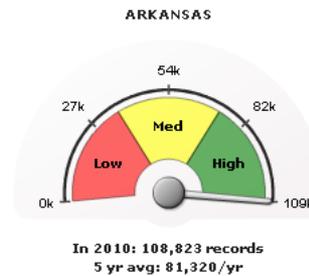
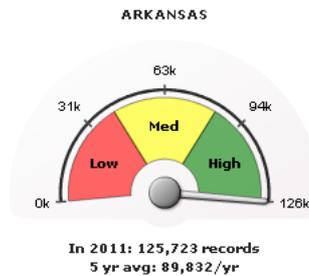
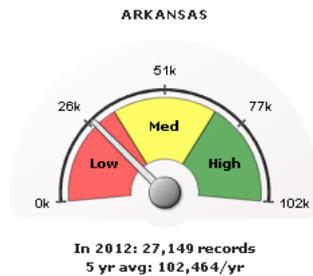
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These figures display the amount of data available within a state by the selected year. The number of records submitted in the selected year is compared to the number of records submitted to STORET over a five year average. The figures also display the number of records submitted by results categories. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year:

Select State:

Number of Organizations Submitting Data for ARKANSAS in 2012: **2**
 Total Number of Organizations Submitting Data for ARKANSAS: **11**
 Number of Distinct Characteristics Submitted for ARKANSAS in 2012: **52**
 Total Number of Distinct Characteristics Submitted for ARKANSAS: **916**
 Number of Stations in ARKANSAS with Data for 2012: **297**
 Total Number of Stations in ARKANSAS with Data: **873**
 Total Number of Stations in ARKANSAS: **1,405**



VIEW AMOUNT OF DATA BY STATE

STORET – Dashboard: Data Owners Contribution by State

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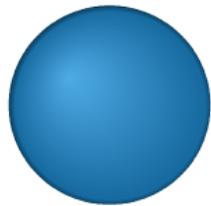
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These figures display the top five organizations within a state which submit data to STORET, listed by the selected year, over the last five years. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year:

Select State:

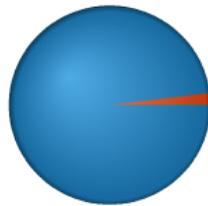
27,149 Total Records in State



2012 Top 5 Orgs

- ARDEQH2O_WQX - 99.97%
- TCEQMAIN - 0.03%

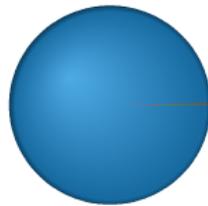
125,723 Total Records in State



2011 Top 5 Orgs

- ARDEQH2O_WQX - 98.01%
- Equilibrium - 1.88%
- EPAREG6_WQX - 0.07%
- TCEQMAIN - 0.04%

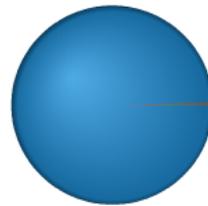
108,823 Total Records in State



2010 Top 5 Orgs

- ARDEQH2O_WQX - 99.75%
- CHEROKEE_WQX - 0.14%
- TCEQMAIN - 0.08%
- EPAREG6_WQX - 0.02%

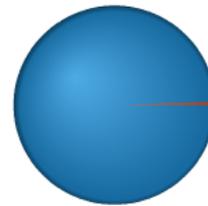
99,633 Total Records in State



2009 Top 5 Orgs

- ARDEQH2O_WQX - 99.67%
- CHEROKEE_WQX - 0.21%
- TCEQMAIN - 0.12%

99,107 Total Records in State



2008 Top 5 Orgs

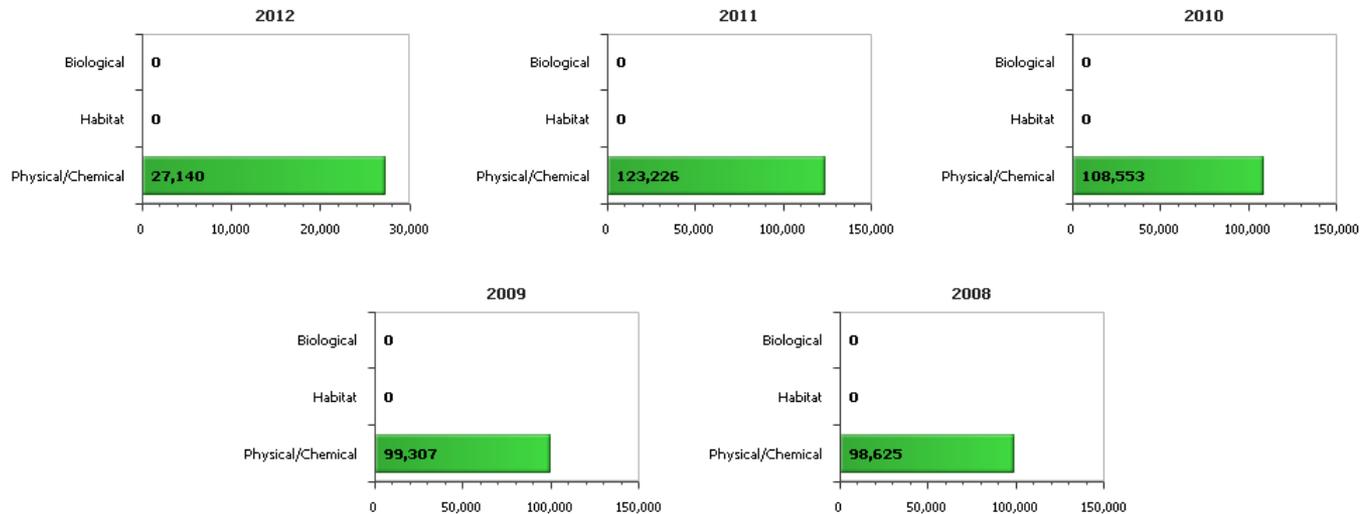
- ARDEQH2O_WQX - 99.51%
- CHEROKEE - 0.41%
- TCEQMAIN - 0.07%

To view more details, use the pull down menu and select a single organization by name to display Biological (fish, algae), Habitat (bank stability), and Physical/Chemical (pH, Temperature, metals).

VIEW AMOUNT OF DATA BY STATE

To view more details, use the pull down menu and select a single organization by name to display Biological (fish, algae), Habitat (bank stability), and Physical/Chemical (pH, Temperature, metals).

Select Organization:



VIEW AMOUNT OF DATA BY STATE

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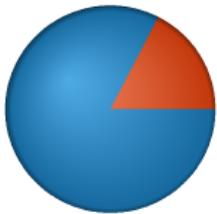
These figures display the top five organizations within a state which submit data to STORET, listed by the selected year, over the last five years. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year: 2012

Select State: FLORIDA

Go

585 Total Records in State



2012 Top 5 Orgs

21FLPBCH_WQX - 82.56%
21FLCOT_WQX - 17.44%

353,715 Total Records in State



2011 Top 5 Orgs

All others - 38.86%
21FLSJWM_WQX - 31.91%
21FLDOH_WQX - 8.82%
21FLA_WQX - 8.29%
21FLDADE_WQX - 7.17%
21FLEECO_WQX - 4.94%

886,670 Total Records in State



2010 Top 5 Orgs

All others - 43.88%
21FLSJWM_WQX - 21.09%
21FLSFWM_WQX - 19.59%
21FLGW_WQX - 6.57%
21FLDOH_WQX - 4.75%
21FLSEAS_WQX - 4.13%

1,274,138 Total Records in State



2009 Top 5 Orgs

All others - 46.43%
21FLSJWM_WQX - 16.62%
21FLSFWM_WQX - 15.34%
21FLSEAS_WQX - 9.22%
21FLSJWM_WQX - 7.71%
21FLGW_WQX - 4.68%

1,288,911 Total Records in State



2008 Top 5 Orgs

All others - 46.99%
21FLSFWM_WQX - 19.60%
21FLSJWM_WQX - 17.18%
21FLSEAS_WQX - 8.16%
21FLGW_WQX - 4.18%
21FLSWFD_WQX - 3.90%

To view more details, use the pull down menu and select a single organization by name to display Biological (fish, algae), Habitat (bank stability), and Physical/Chemical (pH, Temperature, metals).

VIEW THE TOP 10 SUBSTANCES

STORET – Dashboard: Top 10 Substances for Past 5 Years By State

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» Dashboard » Top 10 Substances for Past 5 Years By State

These tables provide a count of the top ten substances within a state's waters, listed by year, over the last five years. The records represent the data available in STORET on measurements of water quality as reported by ALL current organizations, including state, local, and tribal agencies and watershed groups.

Select Year: 2012
 Select State: ARKANSAS
 Query

Top 10 Substances for Past 5 Years for ARKANSAS

Go Actions

Activity Year

Activity Year : 2012

Substance	Result Count
Alkalinity, total	679
Ammonia-nitrogen	679
Bromide	679
Chloride	679
Fluoride	679
Inorganic nitrogen (nitrate and nitrite)	679
Orthophosphate	679
Sulfate	679
Temperature, water	678
Turbidity	676
pH	665
Dissolved oxygen (DO)	663
Kjeldahl nitrogen	640

FLORIDA

Activity Year : 2011

Substance	Result Count
Enterococcus	27627
pH	18840
Temperature, water	18038
Specific conductance	17815
Dissolved oxygen (DO)	17170
Salinity	12973
Fecal Coliform	11606
Kjeldahl nitrogen	9698
Turbidity	9374
Depth, Secchi disk depth	8672

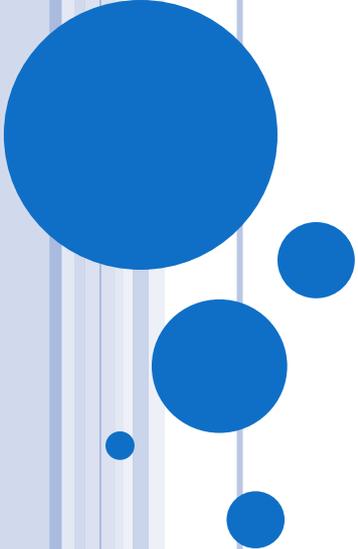
Activity Year : 2010

Substance	Result Count
Temperature, water	52695
Dissolved oxygen (DO)	51545
pH	48573
Specific conductance	48327
Enterococcus	35968
Salinity	30445
Kjeldahl nitrogen	28720
Phosphorus	25312
Inorganic nitrogen (nitrate and nitrite) as N	25047
Fecal Coliform	24782

NEXT STEPS FOR DASHBOARD

- Return to each group for review and comment on the dashboard views
- Make edits based on received comments
- Post the dashboard to our public website





INCREASE STATE DATA SUBMISSIONS

NWMC

November 28, 2012

Charles Kovatch

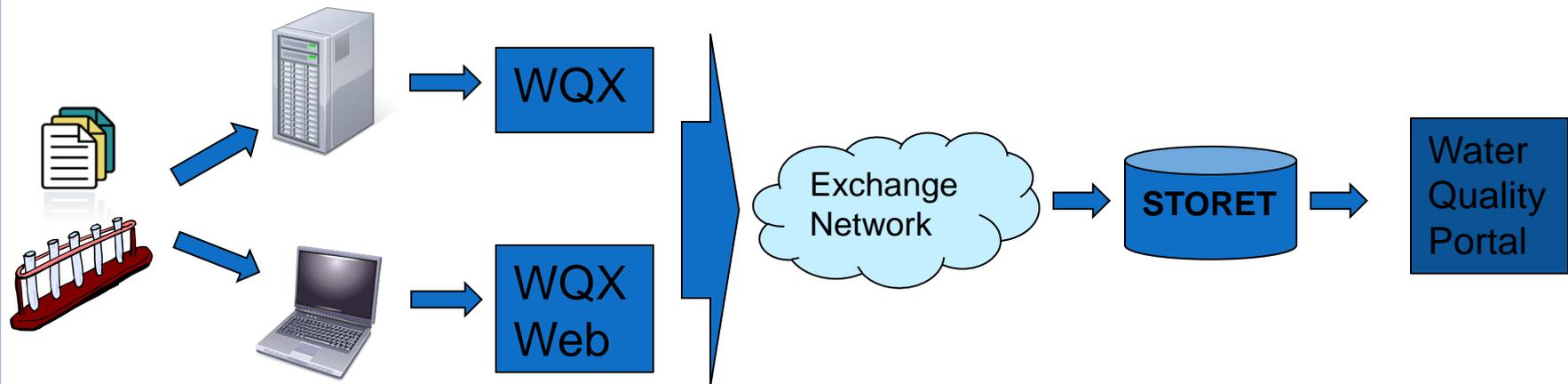
U.S. EPA Office of Water

WHAT ARE EPA'S TOOLS?

- WQX
 - Water Quality Data eXchange
 - XML Schema that provides standard data elements and file format
 - Intended for high volume data users
- WQX Web
 - Water Quality Data eXchange Web Template
 - Is based in MS Excel
 - If you can use a spreadsheet, this is for you



WHAT DO THE TOOLS DO?



- The tools benefit you by:
 - Enabling you to share data in one format
 - Enabling you to publish data at a national level
 - Allowing you to manage data in the format that best serves your program needs



HOW DO THE TOOLS WORK?

Question	Description	Data Field
WHO collected the sample?	Organization Name	Friends of the Potomac River
WHAT was collected?	Chemical Name	Copper
WHY was it collected?	Project Name	Quarterly Sample
WHERE was it collected?	Location Name Lat/Long	Memorial Bridge 40.594, -98.721
WHEN was it collected?	Date	July 24, 2012
HOW was it analyzed?	Method Name	USEPA 123ABC
WHAT were the results?	Result Value Result Units	5 ppm

- The tool benefits you by providing:
 - Structure to capture required data fields
 - A pick-list of common names for chemicals and analytical methods





HOW DOES THE WQX XML SCHEMA WORK?

- Establishes the structure to document a water monitoring sample through standard data fields
- Allows a data owner to use their existing database
- Requires a cross-walk between the database and WQX data standard
- Requires you to review the domain values or pick-list to match your database fields to the WQX schema
- **Is designed for a high volume data owner**
- **Requires coding to generate the XML schema**
- **Allows for automated machine-to-machine data submission**
- **Is a high front end investment and high long term ROI**



WQX XML EXAMPLE

```
<?xml version="1.0" encoding="UTF-8" ?>
- <WQX xmlns="http://www.exchangenetwork.net/schema/wqx/2" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.exchangenetwork.net/schema/wqx/2 http://www.exchangenetwork.net/schema/wqx/2/index.xsd">
- <Organization>
  - <OrganizationDescription>
    <OrganizationIdentifier>WQXTEST</OrganizationIdentifier>
    <OrganizationFormalName>Test Organization</OrganizationFormalName>
    <OrganizationDescriptionText>Here is a description of the organization.</OrganizationDescriptionText>
    <TribalCode>001</TribalCode>
  </OrganizationDescription>
- <Activity>
  - <ActivityDescription>
    <ActivityIdentifier>RDC-4</ActivityIdentifier>
    <ActivityTypeCode>Sample-Routine</ActivityTypeCode>
    <ActivityMediaName>Water</ActivityMediaName>
    <ActivityStartDate>2010-07-19</ActivityStartDate>
    <ProjectIdentifier>SHARK</ProjectIdentifier>
    <MonitoringLocationIdentifier>NJDEP-ML1</MonitoringLocationIdentifier>
  </ActivityDescription>
- <SampleDescription>
  - <SampleCollectionMethod>
    <MethodIdentifier>10366-C</MethodIdentifier>
    <MethodIdentifierContext>WQXTEST</MethodIdentifierContext>
    <MethodName>HOBO? U22 Water Temp Pro v2</MethodName>
    <MethodDescriptionText>Depending on water conditions and desired measurement location, the logger should be appropriately weighted, secured,
      and protected. Some monitoring applications require precise placement of the temperature sensor, such as measuring the temperature of a flow
      at the bottom of a stream or river. Ensure that the logger is appropriately secured so that the temperature sensor is in the desired measurement
      location.</MethodDescriptionText>
  </SampleCollectionMethod>
  <SampleCollectionEquipmentName>Miscellaneous (Other)</SampleCollectionEquipmentName>
</SampleDescription>
</Activity>
+ <Activity>
```



HOW DOES THE WQX WEB TOOL WORK?

- Establishes the structure to document a water monitoring sample through standard data fields
- Allows a data owner to use their existing database
- Requires a cross-walk between the database and WQX data standard
- Requires you to review the domain values or pick-list to match your database fields to the WQX Web template
- Is designed for a lower volume data owner
- Requires no coding to generate the XML schema
- Allows for manual user-to-machine data submission
- Is a lower front end investment and short term ROI



DATA ENTRY AND DATA FORMATTING WITH WQX WEB

Clipboard Font Alignment Number Styles Cells Editing

E2 Domain values last updated: 03/02/2012 10:38:00 AM

USEPA WQXWeb Physical Chemistry Template **Domain values last updated: 03/02/2012 10:38:00 AM**
Version 1.04

- This template is a data entry spreadsheet that guides data owners through organizing water quality data into a format that meets WQX data validation requirements.
- This template is intended to be paired with the WQXWeb Import Configuration - Import PhysChem Results.bin. Changes to the order of columns or the data format in this WQX Web template spreadsheet also need to be applied to the WQXWeb Import Configuration.
- Please refer to the latest version of the "WQXWeb Template Dictionary" for a detailed explanation of the contents within each data entry worksheet, in addition to a complete list of WQX Allowable Values. The dictionary also contains a list of all the columns available in each Data Entry worksheet.

Worksheets are color coded by function. The single pink tab contains buttons used to export data, the three yellow tabs are used to enter data, and the green tabs are reference lists for data columns that allow only specific values.

Group Name	Use	Worksheet Name	Description
Export	Use buttons on this tab convert Data Entry Worksheets (yellow tabs) to .txt files	Export	The Export tab contains buttons to automatically export data from each of the data entry worksheets into tab delimited files ready to be imported into WQXWeb.
Data Entry Worksheets	A template for submission of water quality monitoring data. Projects, Monitoring Locations and Results templates are provided for users	Projects	The Project tab contains information about the water quality data collection program
		Monitoring Locations	The Monitoring Locations tab contains information about the sites where water quality data is being collected
		Results	The Results tab contains the field and laboratory water quality data collected.
Allowable Values/ Look-up Lists/ Domain Values	Tables of allowable values for specific columns in the Data Entry worksheets. All green-colored cells contain the values that should be used in the worksheets. Others cells are included for additional reference.	Allowed Values - Monitoring Locs	This tab contains multiple tables of listing the values that can be entered in particular columns in the Monitoring Locations tab.
		Allowed Values - Results	This tab contains multiple tables of listing the values that can be entered in particular columns in the Results tab.
		Characteristics	This tab contains a table of all Characteristics in STORET that can be used in the Characteristic Name field in the Results tab. The table also has fields to indicate if a particular Characteristic requires a Sample Fraction or Field/Lab Analytical Procedure (or both) for a particular characteristic.
		Analytical Methods	This tab contains a list of all nationally available result analytical methods. Additional methods can be defined by an organization in the "Analytical & Collection Methods" tab.
		Units of Measure	This tab contains a single table listing all result units of measure available in WQX.
		Analytical & Collection Methods	This tab can be used to record organization specific Result Analytical Methods and Sample Collection Methods. Data entered in this tab is not exported to WQXWeb.

For assistance with using this template, please refer to the US EPA STORET/WQX online resources at <http://www.epa.gov/storet/>
The most recent copy of this template and corresponding dictionary can be downloaded from http://www.epa.gov/storet/wqx/wqxweb_downloads.html
If you have questions or comments about this template, please send email to the STORET Help Desk at STORET@epa.gov

Instructions Export Projects Monitoring Locations Results Allowed Values - Monitoring Loc Allowed Values - Results Characteristics Analytical Methods Url



DATA ENTRY WITH WQX WEB: MONITORING LOCATION FIELDS

	A	B	C	D	E	F	G	H	I
	Monitoring Location ID	Monitoring Location Name	Monitoring Location Type	HUC Eight-Digit Code	Monitoring Location Latitude	Monitoring Location Longitude	Monitoring Location Source Map Scale	Monitoring Location Horizontal Collection Method	Monitoring Location Horizontal Coordinate Reference System
1									
2	WQXTEST16465	WQXTEST 16465 POTOMAC RIVER NEAR	River/Stream	02070008	38.94978	-77.12764	2400	Interpolation-Map	NAD83
3	WQXTEST27576	WQXTEST 27576 FAKE RIVER, NOWHERE	River/Stream	02070008	38.94978	-77.12764	2400	Interpolation-Map	NAD83
4			River/Stream						
5			River/Stream Ephemeral						
6			River/Stream Intermittent						
7			River/Stream Perennial						
8			Riverine Impoundment						
9			Seep						
10			Spring						
11			State/Local Air Monitoring Station						



DATA ENTRY WITH WQX WEB: RESULTS FIELDS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Project ID	Monitoring Location ID	Activity Type	Activity Media Name	Activity Start Date	Activity Start Time	Sample Collection Method ID	Sample Collection Equipment Name	Characteristic Name	Result Value	Result Unit	Result Sample Fraction	Result Analytical Method ID	Result Analytical Method Context
1														
2	SL_MONIT	TWPK01	Field Msr/Obs	Water	2001-10-03	10:03:00			Temperature, water	49.46	deg F		2550	APHA
3	SL_MONIT	TWPK01	Field Msr/Obs	Water	2001-10-03	10:03:00			Turbidity	43	NTU		2130	APHA
4	SL_MONIT	LOPK01	Sample-Routine	Water	2001-09-10	9:48:00	STNDRD_SCP	Water Bottle	Ammonia-nitrogen	0.9022	mg/l	Dissolved	4500-NH3(C)	APHA
5	SL_MONIT	TWPK01	Sample-Routine	Water	2001-09-10	9:48:00	STNDRD_SCP	Water Bottle	Nitrate	7.2	mg/l	Dissolved	353.3	USEPA
6														
7														
8														
9														
10														
11														
12														
13														
14														



CONVERTING SPREADSHEET DATA TO WQX WEB COMPATIBLE FORMAT

USEPA WQXWeb Physical Chemistry Template Version 1.04

Domain values last updated: 03/02/2012 10:38:00 AM

Export Projects

Export Monitoring Locations

Export Results

These Export buttons will export data entered in the three yellow-colored Data Entry worksheets ('Projects', 'Monitoring Locations', and 'Results') into separate tab delimited text files. You will be prompted to choose a location where to save the file. The name of the most recent exported file will be saved in the 'Last Export Saved' table below.

The tab delimited text files exported using these buttons can be imported into WQXWeb using unique import configurations for each file.

Last Export Saved:

Projects	C:\Documents and Settings\jbisese\Desktop\ExportProject20120302.txt
Monitoring Locations	C:\Documents and Settings\jbisese\Desktop\ExportMonitoringLocations20120302.txt
Results:	C:\Documents and Settings\jbisese\Desktop\ExportPchemResults20120302.txt

Notes:

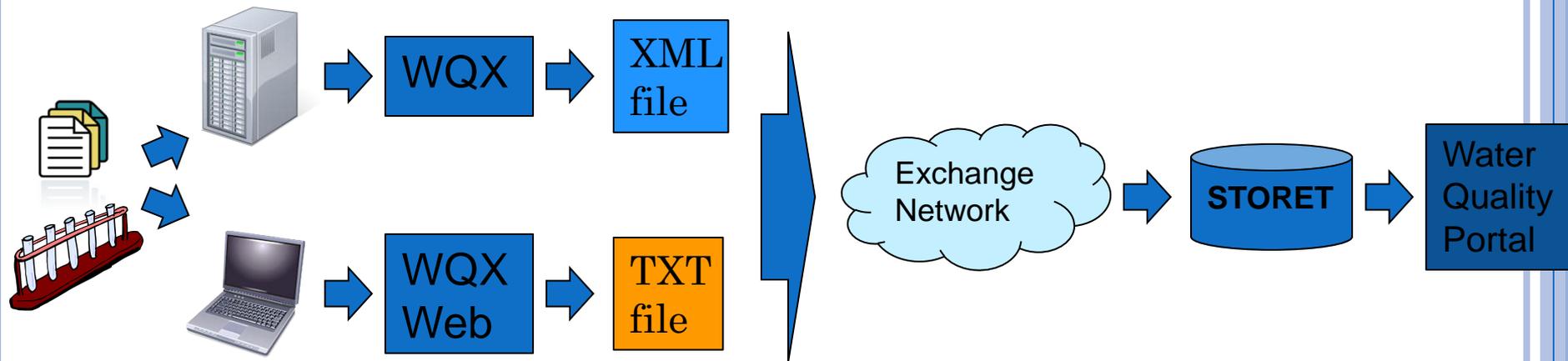
- Project and Monitoring Locations need to be submitted before Results can be submitted for the first time.
- The "Export Monitoring Location" button converts the County Name into a County Code as required by WQXWeb
- Once Projects and Monitoring Locations have been submitted then do not need to be resubmitted except to update information about them.
- Users can manually export data by saving any one of the Data Entry worksheets in 'Text-file tab-delimited' format. For the 'Monitoring Locations' worksheet this will not convert the County Name into a code

Security Note: In order to use the export buttons on this page you must enable macros for this Excel spreadsheet, or set the macro security to 'Medium.' For more information on how to change macro security settings see the following articles:

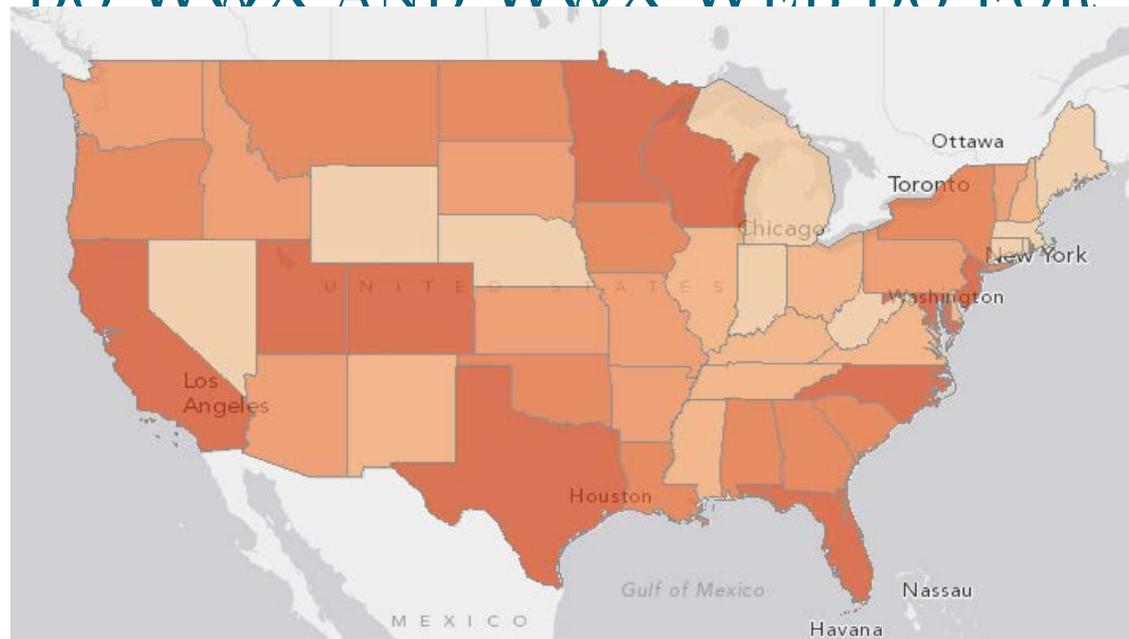
[Change Macro Security](#)
[About Macro Security](#)

For assistance with using this template, please refer to the US EPA STORET/WQX online resources at <http://www.epa.gov/storet/>
The most recent copy of this template and corresponding dictionary can be downloaded from http://www.epa.gov/storet/wqx/wqxweb_downloads.html
If you have questions or comments about this template, please send email to the STORET Help Desk at STORET@epa.gov

WHAT DO THE TOOLS DO? - REVIEW



WHAT DO WQX AND WQX WEB DO FOR YOU?



- Join 390 federal, states, and tribal, agencies and watershed organizations already using the WQX and WQX Web file formats
- Enable quick access to your data in one format and the Water Quality Portal for access to over 150 million records nationally



WHAT DO WQX AND WQX WEB DO FOR YOU?

- Improve interoperability of data systems through the use of standard water monitoring data fields
- Increase the value of your data by making it available to multiple users through the Water Quality Portal
- Increase your ability to use OTHERS data in conjunction with your data for analysis and modeling





WHAT DO WQX AND WQX WEB DO FOR YOU?

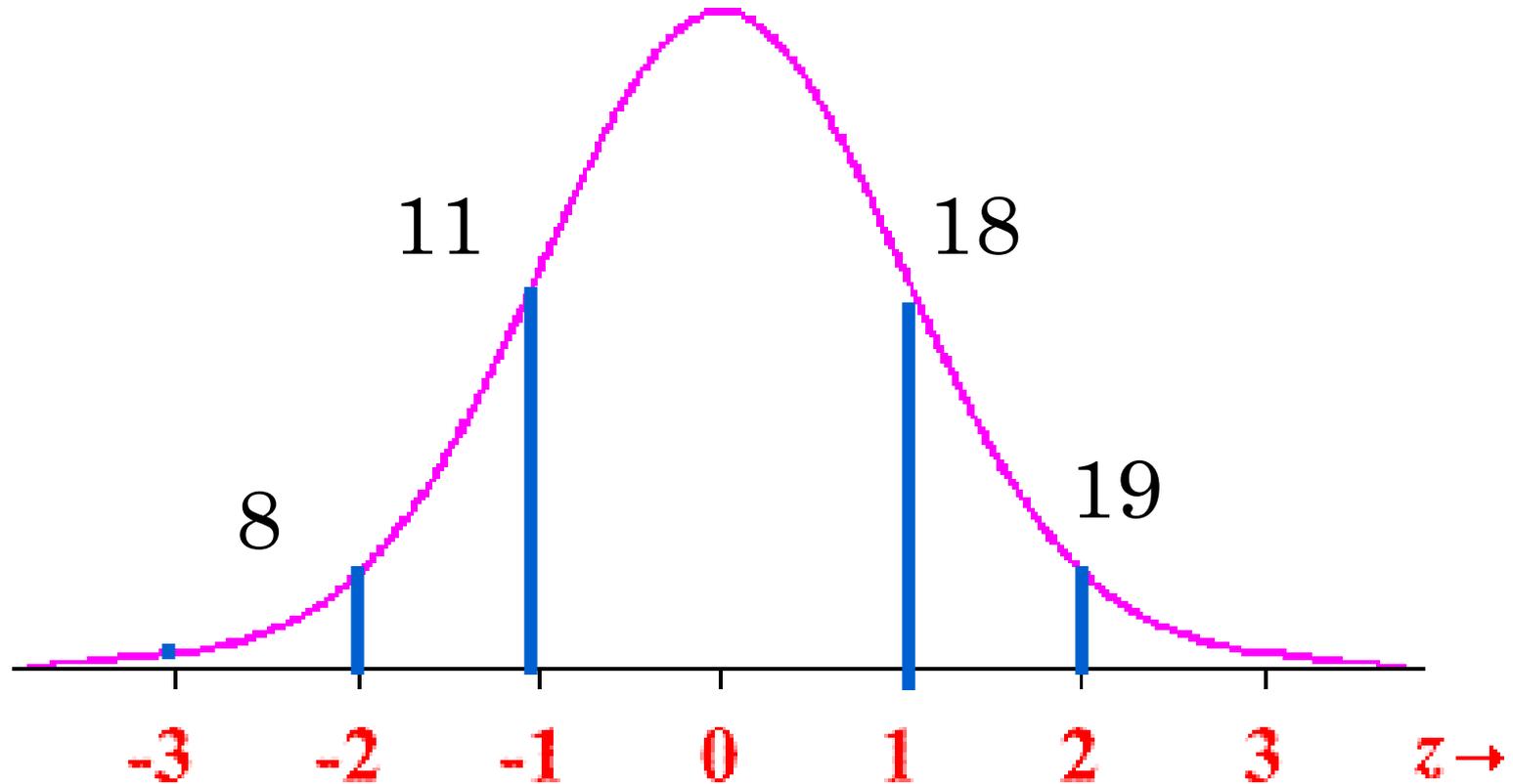
- Enable you to manage data in the format that best serves your program needs and share data based on common data elements
- Assure that your water data results contain the critical pieces of information to increase the utility of your data for analysis and modeling
- Provide a pick-list of common names for chemicals and analytical methods



CURRENT STORET STATE DATA SUBMISSION

- High >100,000 records average annual
 - (8) FL, WI, MN, NC, AL, TX, MD, AR
- Medium 40-100,000 records average annual
 - (11) KS, IA, ND, NJ, IN, ME, DE, VT, MT, GA, PA,
- Low <40,000 records average annual
 - (18) SD, AZ, SC, KY, NH, NY, MS, NM, MP, MI, HI, UT, VI, GU, MO, AS, NE, ID
- Non-submitters
 - (19) CA, PR, AK, CO, CT, DC, IL, LA, MA, NV, OH, OK, OR, RI, TN, VA, WA, WV, WY

DATA SUBMITTERS

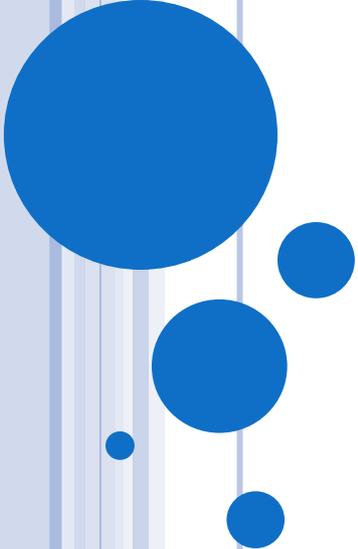


$N=56$

WHAT ARE YOU HEARING OR EXPERIENCING WITH SUBMITTING DATA VIA WQX?

NEXT STEPS

- Engage Groups
 - Council, ACWA, MAP, Regions
- Contact States
 - High – Thank you. Share lessons learned.
 - Medium – Assess data.
 - Low – Assess data, identify challenges.
 - Non-submitters – Begin discussions.
- Identify other activities



NHD PLUS UPDATE

NWMC

November 28, 2012

Charles Kovatch for Tommy Dewald

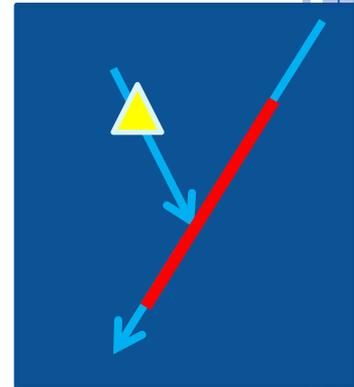
U.S. EPA Office of Water

PURPOSE

- Review NHD Plus function
- Provide update on NHD Plus v2
- Propose next steps for support to WQP

NATIONAL HYDROGRAPHY DATASET

- NHD based upon concepts from EPA Reach File 1 (RF1) (1982)
 - Stream network with stream addresses
- NHD developed by EPA and USGS-Mapping (2000)
 - EPA water applications expertise
 - USGS mapping & maintenance infrastructure
- Success of initial NHD led to development of more detailed version by USGS-Mapping, USFS and states (2007)
- NHD currently maintained through USGS-led state stewardship program

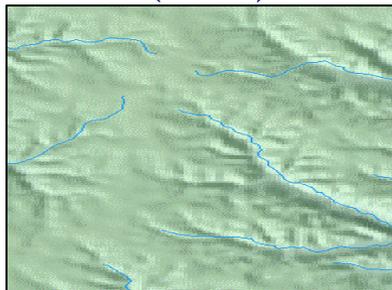


NATIONAL HYDROGRAPHY DATASET *PLUS* (*NHDPLUS*)

- Developed by EPA and USGS-Water (2006) to provide flow volume and velocity estimates for pollution dilution modeling
 - Builds upon NHD stream network – integrated with elevation and HUC12s
 - Additional stream attributes (stream order, flow, etc)
 - Catchments and attributes (precipitation, temperature, land cover)
- Success of initial version led to just-completed Version 2 production by EPA and USGS-Water
- *NHDPlus* team
 - EPA - Tommy Dewald, Cindy McKay (c), Tim Bondelid (c)
 - USGS-Water - Rich Moore, Craig Johnston, Al Rea, [Greg Schwarz, Kernell Ries, Dave Wolock]

NHDPLUS SURFACE WATER GEOSPATIAL FRAMEWORK

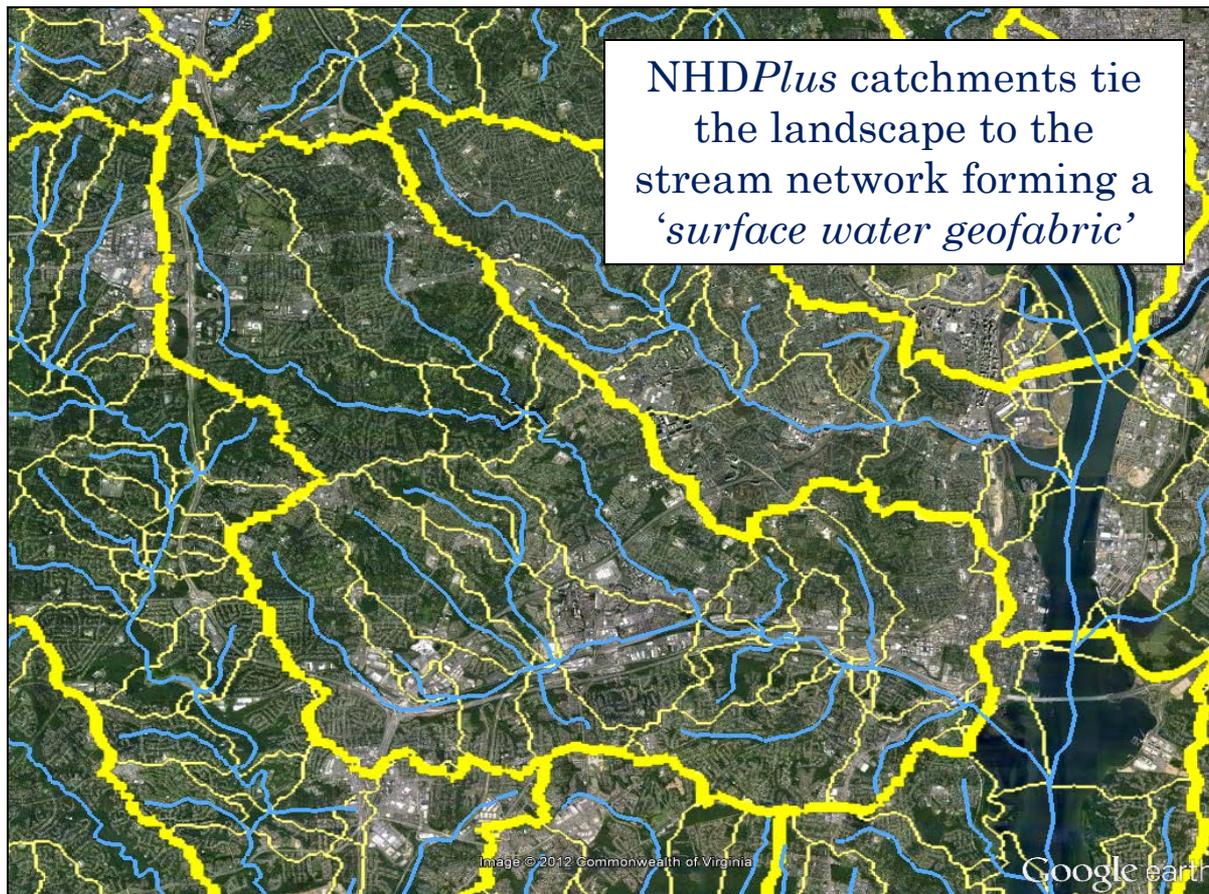
Elevation
(30m)



Hydrologic Units
(HUC12)



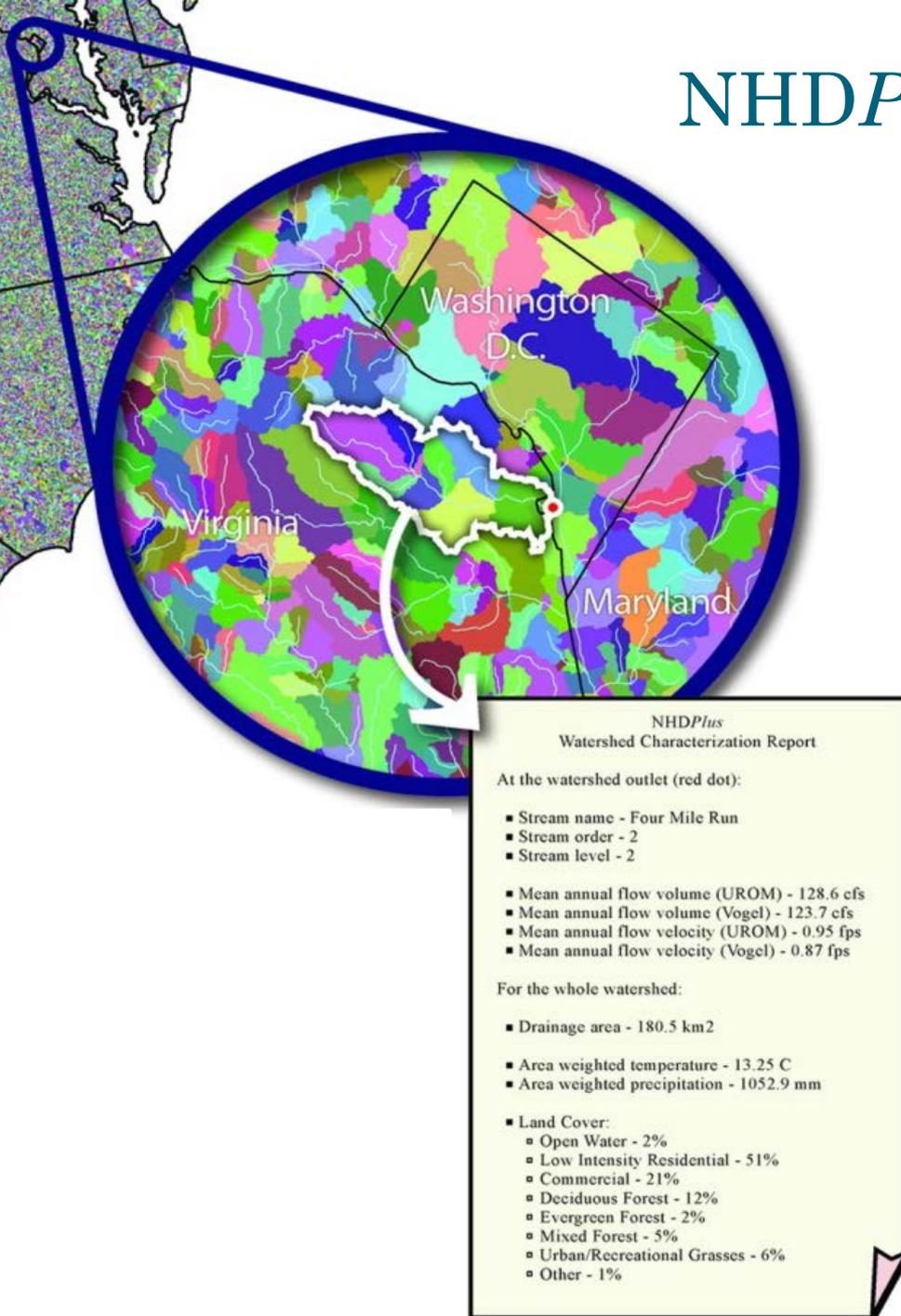
Stream



Stream Network	Map Scale	Map Accuracy	Total Stream Miles (mi)	# of Stream Segments	Stream Segment Average Length (mi)	# of Lakes	Catchment Average Area (sq mi)
Reach File Version 1 (RF1)	1:500K	+/- 254m	600,000	60,000	10	4,100	50 35
Medium Resolution NHD	1:100k	+/- 50m	3,200,000	2,600,000	1.2	38,000	1.1
High Resolution NHD	1:24K or better	+/- 12m	7,500,000	20,000,000	0.37	537,000	do not exist

(These figures are approximations (+/- 10%) provided for purposes of comparison.)

NHDPlus DATA LAYERS

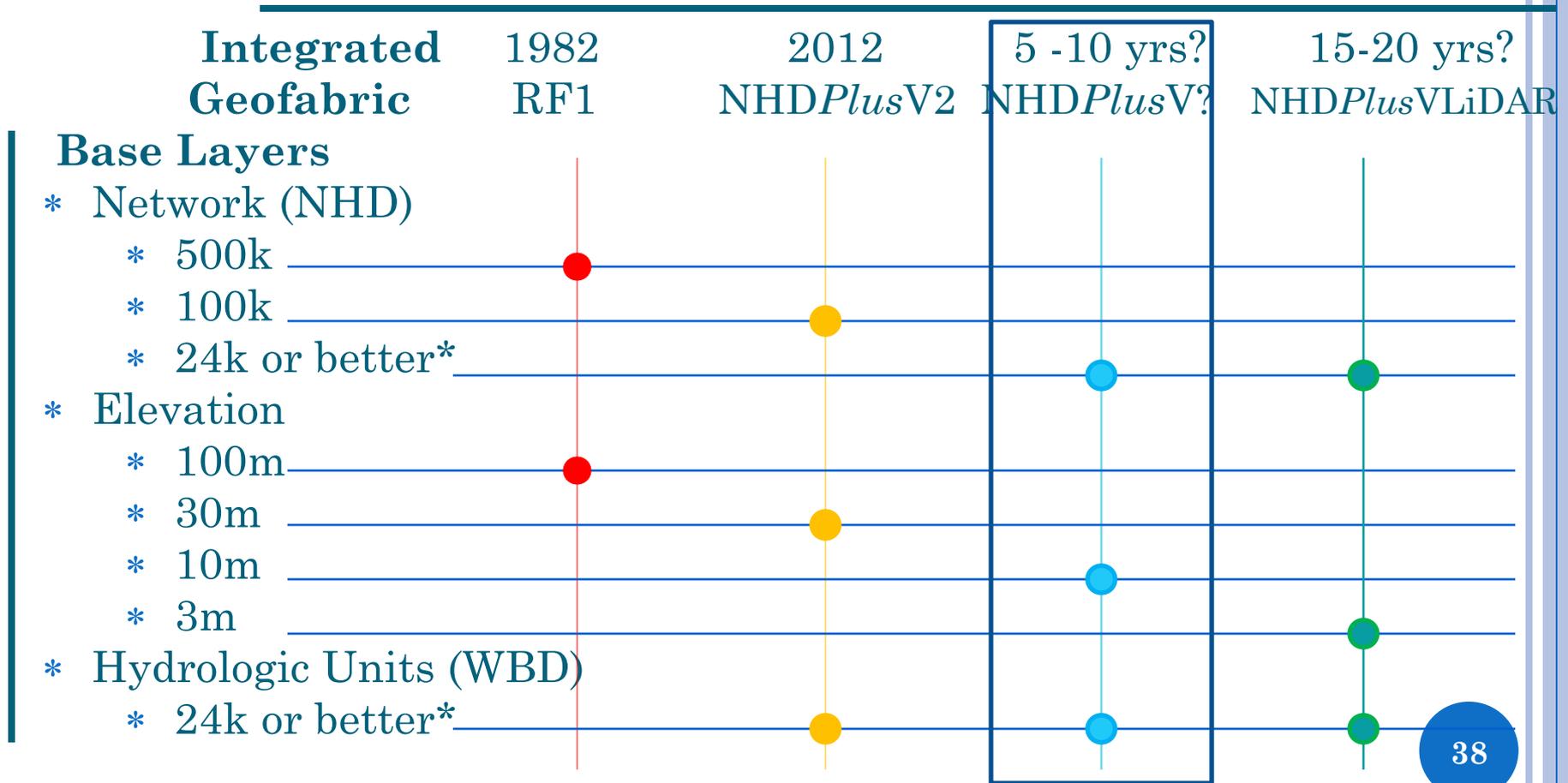


The inset map shows the watershed (white boundary) defining the drainage area upstream from the mouth of Four Mile Run (red dot) and a report of associated watershed characteristics – both produced using *NHDPlus*.

WQP FY-13 PLAN

- Task 4. Integration with NHD
 - In addition to a map interface to more easily visualize water-quality data coverage (Task 1), the NWQMC community has requested more geospatial querying abilities from WQP.
 - Linking surface water water-quality monitoring sites from the WQP with the National Hydrography Dataset (NHD) will provide three substantial capabilities.
 - First, water-quality data from multiple agencies can more easily be integrated using a common NHD address.
 - Second, querying for water-quality data upstream or downstream along rivers and streams of interest can be supported using NHD routing capabilities.
 - Third, additional geographic or monitoring datasets can be linked to WQP using NHD addressing.
 - Designing new WQP filters that are based on NHD and incorporating these filters into the WQP query page and map.

WHAT'S THE NEXT STEP FOR NHD *PLUS* DATASET?



(*24k or better = patchwork quilt that includes LiDAR-based data)

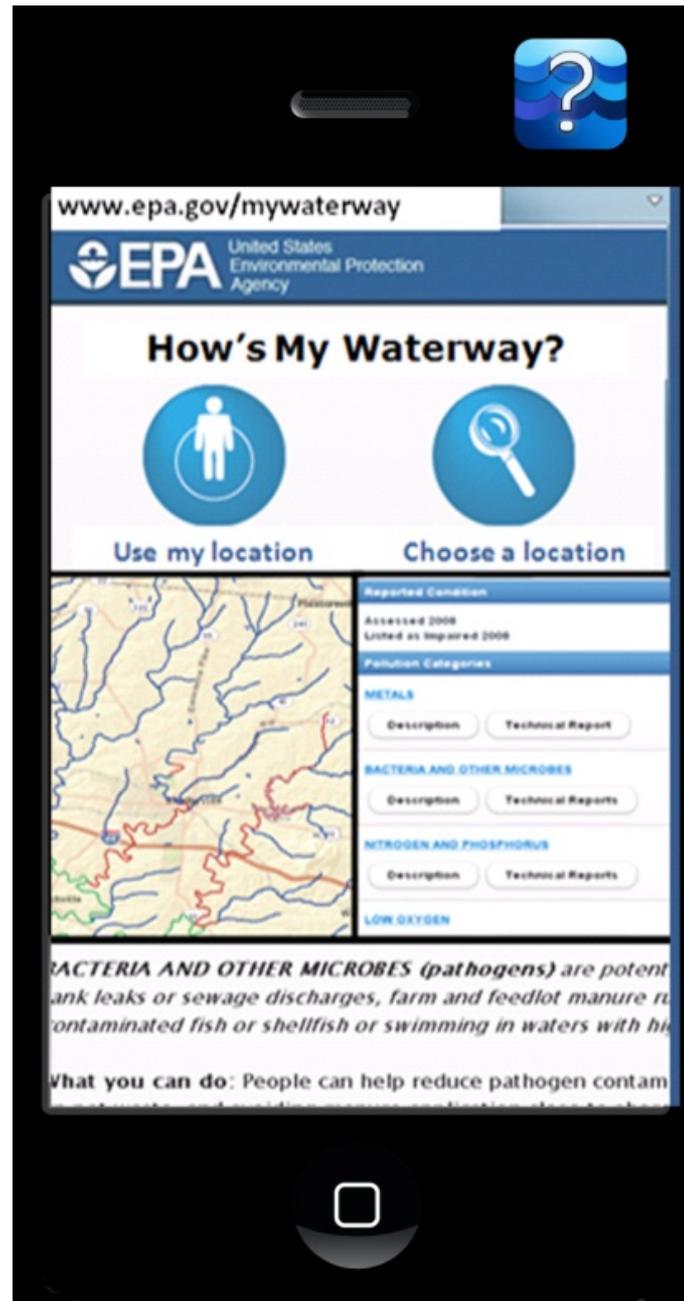
NOTEWORTHY NHDPLUS APPLICATIONS

- EPA National Aquatic Resource Surveys
- Displaying impaired waters
- Source water areas for drinking water
- Incident Command Tool for Water (ICWater)
- National Estuary Program mapper
- National pesticide risk assessment
- USGS StreamStats and Water Census
- National Fish Habitat Action Plan
- USFS post fire debris flow hazards
- FEMA flood risk analysis
- Critical loads of atmospheric sulfur and nitrogen in streams
- Sedimentation risks to water quality in reservoirs
- Native American historical migration paths

NEW EPA WATER APP

How's My Waterway

www.epa.gov/mywaterway



QUESTIONS?

