
Data Management and Sharing for Volunteer Monitoring Groups

National Water Quality Monitoring Conference

May 20, 2008

Kristen Gunthardt, US EPA Office of Water

How EPA Describes Monitoring Data

Three categories of data:

- Projects (Why data were collected)
 - Brief summary of monitoring plan
 - Monitoring Locations (Where data were collected)
 - Describe where monitoring takes place
 - Results (When, How and What were collected)
 - Measurements of what were monitored
-

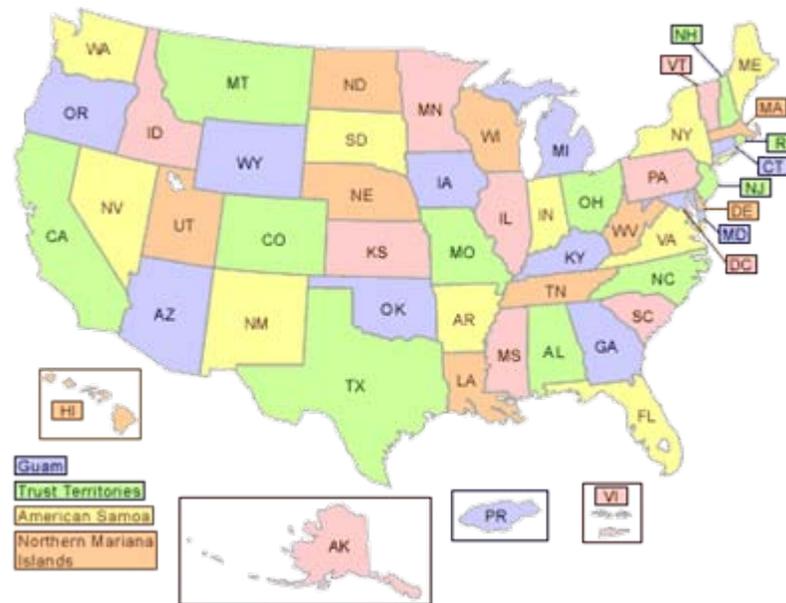
The National STORET Data Warehouse

- A national repository of water quality monitoring data – “Modernized STORET”
- Stores water data of all types (biological, chemical, physical) submitted by states, tribes, watershed groups, other federal agencies, and universities
- Web-enabled: Data are available -- and can be submitted -- using the Web
- Encourages data sharing at a national level



Managing Data Locally

- Data sharing at a national level benefits from:
 - Well documented data at a local level
 - Well managed data at a local level



Microsoft Excel - Data_tep_20080515_125534_BioResults.txt

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

125%

Reply with Changes... End Review...

Arial 10 B I U

A146 EPA National Aquatic Resource Survey Data

	A	B	C	O	V	AA	AB
1	Org Name	Station ID	State	Activity Typ	Characteristic Name	Result Valu	Units
202	EPA National Aquatic Resource Survey Data	VAEQ99-0422	VIRGINIA	Sample	Heptageniidae	7	count
203	EPA National Aquatic Resource Survey Data	VAEQ99-0455	VIRGINIA	Sample	Heptageniidae	5	count
228	EPA National Aquatic Resource Survey Data	VAEQ99-0453	VIRGINIA	Sample	Heptageniidae	15	count
238	EPA National Aquatic Resource Survey Data	VAEQ99-0461	VIRGINIA	Sample	Heptageniidae	1	count
239	EPA National Aquatic Resource Survey Data	VAEQ99-0444	VIRGINIA	Sample	Heptageniidae	3	count
245	EPA National Aquatic Resource Survey Data	VAEQ99-0421	VIRGINIA	Sample	Heptageniidae	3	count
332	EPA National Aquatic Resource Survey Data	VAEQ99-0436	VIRGINIA	Sample	Heptageniidae	13	count
336	EPA National Aquatic Resource Survey Data	VAEQ99-0487	VIRGINIA	Sample	Heptageniidae	37	count
361	EPA National Aquatic Resource Survey Data	VAEQ99-0459	VIRGINIA	Sample	Heptageniidae	9	count
364	EPA National Aquatic Resource Survey Data	VAEQ99-0467	VIRGINIA	Sample	Heptageniidae	3	count
381	EPA National Aquatic Resource Survey Data	VAEQ99-0481	VIRGINIA	Sample	Heptageniidae	4	count
382	EPA National Aquatic Resource Survey Data	VAEQ99-0476	VIRGINIA	Sample	Heptageniidae	12	count
441	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	NAKED01	VIRGINIA	Sample	Heptageniidae	21	count
442	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	NAKED01	VIRGINIA	Sample	Heptageniidae	3	count
443	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	COLLETS01	VIRGINIA	Sample	Heptageniidae	6	count
445	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	NFDRY01	VIRGINIA	Sample	Heptageniidae	41	count
446	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	COLLETS01	VIRGINIA	Sample	Heptageniidae	87	count
447	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	COLD_COMFORT01	VIRGINIA	Sample	Heptageniidae	20	count
448	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	NFDRY01	VIRGINIA	Sample	Heptageniidae	33	count
449	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	ENTRY01	VIRGINIA	Sample	Heptageniidae	91	count
450	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	BARCLAYS01	VIRGINIA	Sample	Heptageniidae	32	count
451	Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD	SWIFT01	VIRGINIA	Sample	Heptageniidae	10	count
1336	EPA National Aquatic Resource Survey Data	VAEQ99-0456	VIRGINIA	Sample	Heptageniidae	2	count
1354	EPA National Aquatic Resource Survey Data	VAEQ99-0459	VIRGINIA	Sample	Heptageniidae	1	count
1358	EPA National Aquatic Resource Survey Data	VAEQ99-VA66	VIRGINIA	Sample	Heptageniidae	36	count
1364	EPA National Aquatic Resource Survey Data	VAEQ99-0464	VIRGINIA	Sample	Heptageniidae	1	count

Filter Mode Sum=0 NUM

PATCMON - Potomac Appalachian Trail Club Volunteer Monitoring - VA,MD 05/21/2005 - 11/13/2005 (117) Records

- [3 Stations](#)
- [72 Biological](#), [10 Nutrient](#), [35 Physical](#)



What is WQX?

- WQX defines the framework by which EPA compiles water quality monitoring data (physical, chemical and biological) that are collected by a number of entities via a shared schema.
- The schema allows for anybody to share data regardless of what the original source of the data was.
- All data flows into the STORET Warehouse

A Standard Sharing Template

- The physical conditions in the environment at the time of a site visit.
- The chemical and bacteriological make-up of the water sampled.
- Chemical analyses of fish tissue collected.



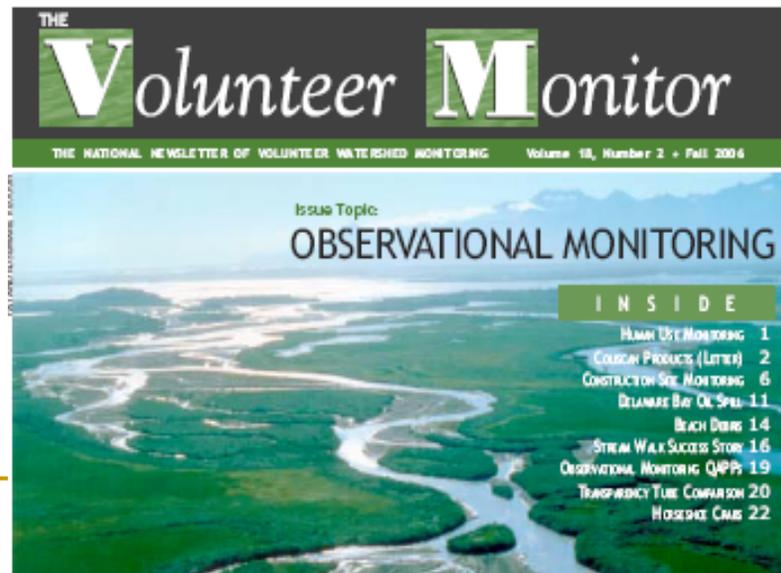
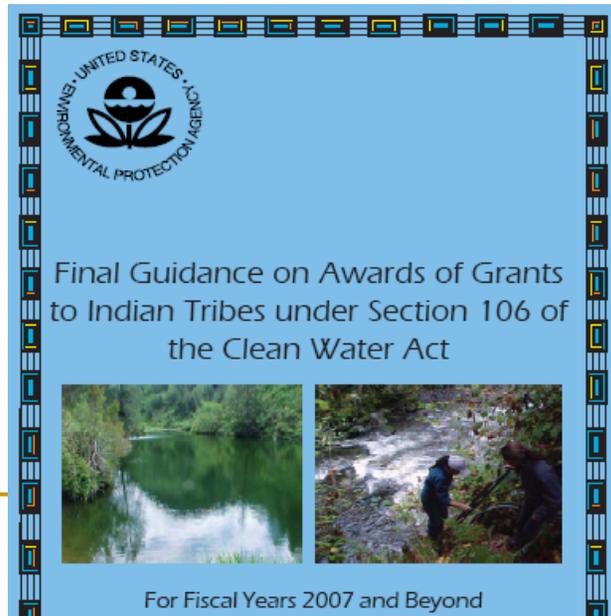
A Standard Sharing Template

- Biological Taxon Abundance data, including population census, frequency class, group summaries, and individual results
- Toxicity data
- Habitat Assessment scores and their related metric scores
- Biological Index scores and their related metric scores



The XML Generation Tool

- The tool will be easy to use and accept basic input formats (i.e. Excel Spreadsheets)
- Tool will have translations for mapping data to WQX domain values or defaults
- Tool creates WQX XML (standard file) that a user can send through WQX



What is XML?

- A horrible name for a web submission tool... any better ideas??
 - A standard web language that allows people to display, transfer, share, interact... with data
 - A wonderful tool that we can use to share water quality monitoring data nationally
-

File Edit View Insert Format Tools Data Window Help Adobe PDF Type a question for help

Arial 10 B I U \$ % 200%

A2 MDWSA

	J	K	L	M	N	O	P
	Sample Collection Equipment Name	Characteristic Name	Result Measure Value	Measure Unit Code	Result Sample Fraction Text	Result Value Type Name	Result Analytical Method Identifier
1							
2		Temperature, water	18.75	deg C		Actual	
3		pH	8.49	None		Actual	
4	Water Bottle	Phosphorus	2.24	mg/l	Total	Calculated	
5							
6							
7							
8							
9							
10							
11							
12							

<MethodName>Unspecified</MethodName>
 </ResultAnalyticalMethod>

- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

XML Generation Tool

You are here: [Home](#)

Welcome to the WQX XML Generation Tool!



- This tool will assist you with the creation of an XML file compatible with the WQX System.**
- The following links will assist you with the most common features of the application:
- [Create a New Dataset:](#) Create a set of data that will be compatible with the Water Quality Exchange Standards.
 - [Continue with an Existing Dataset:](#) Continue where you left off on an existing dataset that has not been finalized.
 - [Export a Dataset:](#) Select a finalized dataset that you wish to export to an XML document.
 - [Query Domain Values:](#) Retrieve the list of allowed values for a specific domain.



XML Generation Tool

You are here: [Home](#) » Create Dataset

Create a New Dataset

To Insert or Update Data:

[Import a File of Projects](#)

[Import a File of Monitoring Locations](#)

[Import a File of Activities and Results](#)

To Delete Data:

[Import a File of Project Identifiers to be deleted](#)

[Import a File of Monitoring Location Identifiers to be deleted](#)

[Import a File of Activity Identifiers to be deleted](#)

[Flag specific Projects from WQX to be deleted](#)

- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

- 
- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

Map Import Columns to WQX Elements:

Column	Pick	WQX Element	Default Value	Format	Translation Count
1		Activity Start Date	<input type="text"/>	MM/DD/YYYY	0 Add/Edit
2		Activity Start Time	<input type="text"/>	HH:MI:SS AM/PM	0 Add/Edit
3		Activity Type Code	Sample-Routine		0 Add/Edit
4		Characteristic Name	{None}		
		Result Measure Unit			7 Add/Edit
		Activity Media Name			
5		Result Measure Value	<input type="text"/>		0 Add/Edit
6		{Ignore}			
7		Activity Latitude Measure	<input type="text"/>	DD.DDDDDDD	0 Add/Edit
					



XML Generation Tool

You are here: [Home](#) » [Create Dataset](#) » Import File Detail

Import File Detail

- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

Import Configuration:

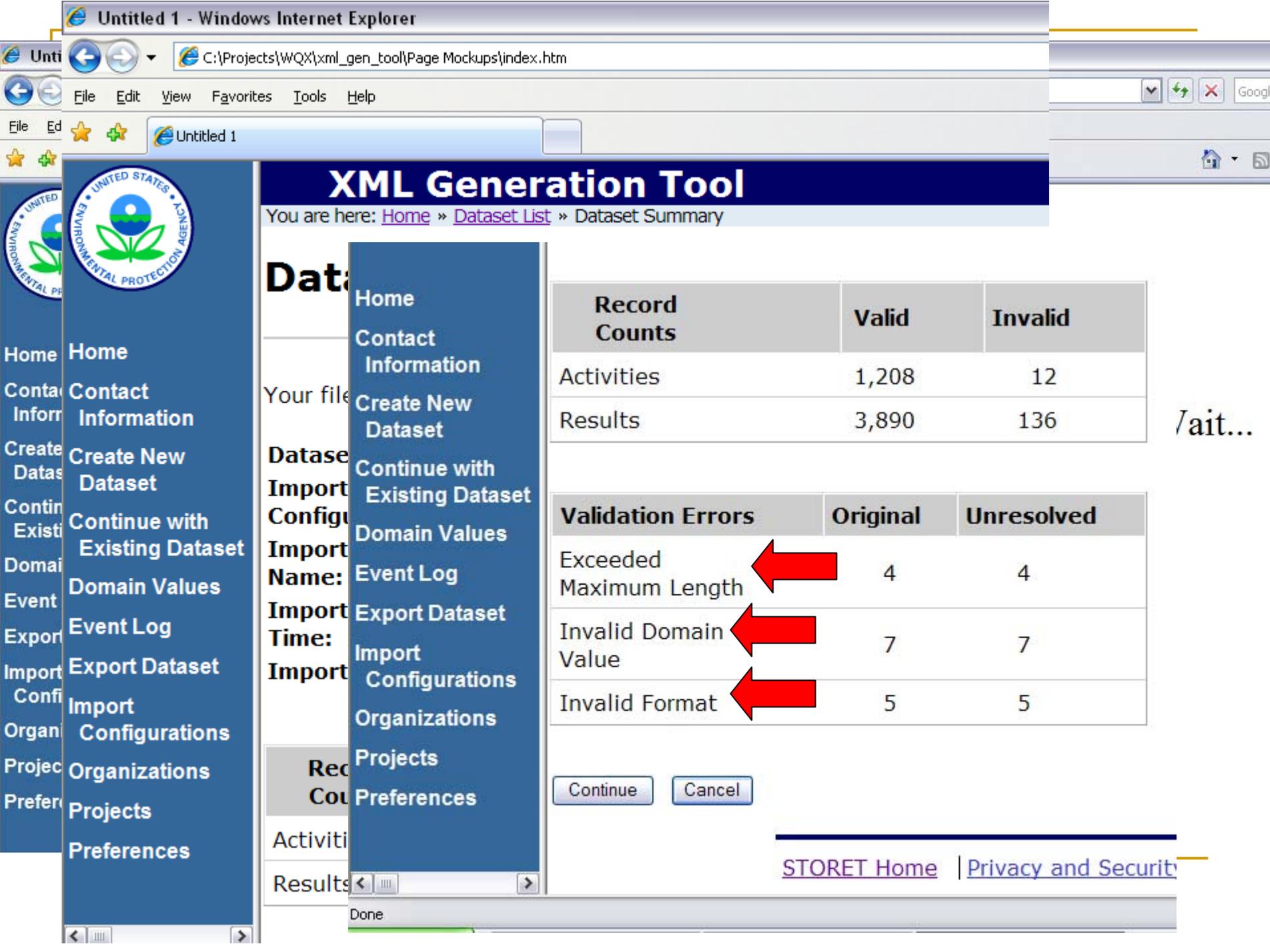
Import File Name:

Attachments Zip File:

Default Values for this Dataset (change as necessary):

WQX Element	Default Value
Organization Identifier	{None}
Project Identifier	<input type="text"/>
Activity Start Time Zone	EST

Ignore First Row of Import File



XML Generation Tool

You are here: [Home](#) » [Dataset List](#) » Dataset Summary

Data

- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

Record Counts	Valid	Invalid
Activities	1,208	12
Results	3,890	136

/ait...

Validation Errors	Original	Unresolved
Exceeded Maximum Length	4	4
Invalid Domain Value	7	7
Invalid Format	5	5



XML Generation Tool

You are here: [Home](#) » [Export Data](#) » [Dataset List](#) » [Header Information Detail](#) » [Generate XML File](#) » Submit File

Submit File to CDX

Your XML File has been downloaded successfully.

The next step is to submit it to CDX to be processed.

If your organization has its own node on the Exchange Network, then you should submit your users that do not have access to a node, CDX provides a web-based solution, CDX Lite, that

Please indicate how you wish to proceed.

- Use CDX Lite to submit my file to the Water Quality Exchange (WQX)
- Return to the Home Page. I'll submit on my own.

Continue

- Home
- Contact Information
- Create New Dataset
- Continue with Existing Dataset
- Domain Values
- Event Log
- Export Dataset
- Import Configurations
- Organizations
- Projects
- Preferences

Contacting STORET

- Contact:
 - The STORET Team: storet@epa.gov
 - 1-800-424-9067
 - Or Visit:
 - www.epa.gov/storet
 - www.epa.gov/storet/wqx.html
 - <http://www.exchangenetwork.net>
-