NWQMC Call: Update Chemical and Biological Data in STORET

NWQMC Call August 20, 2013

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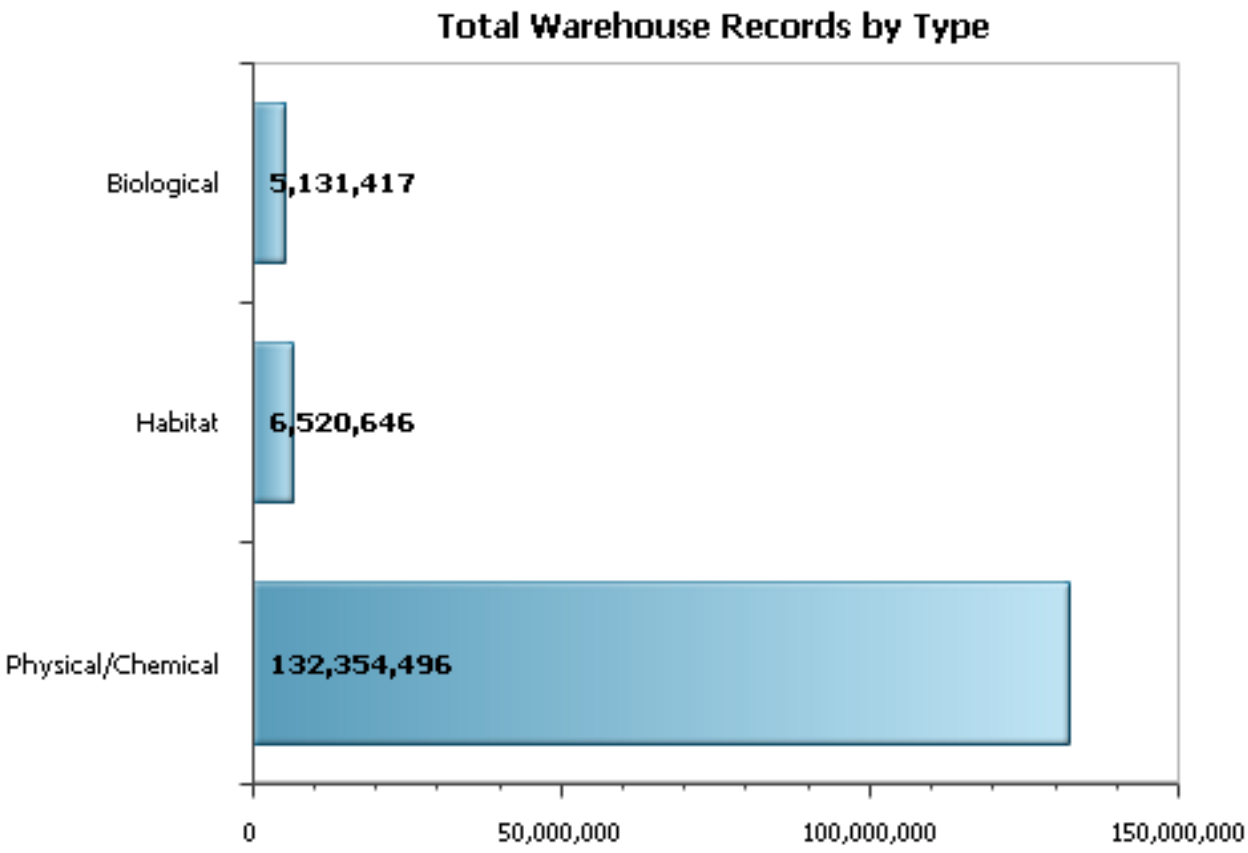
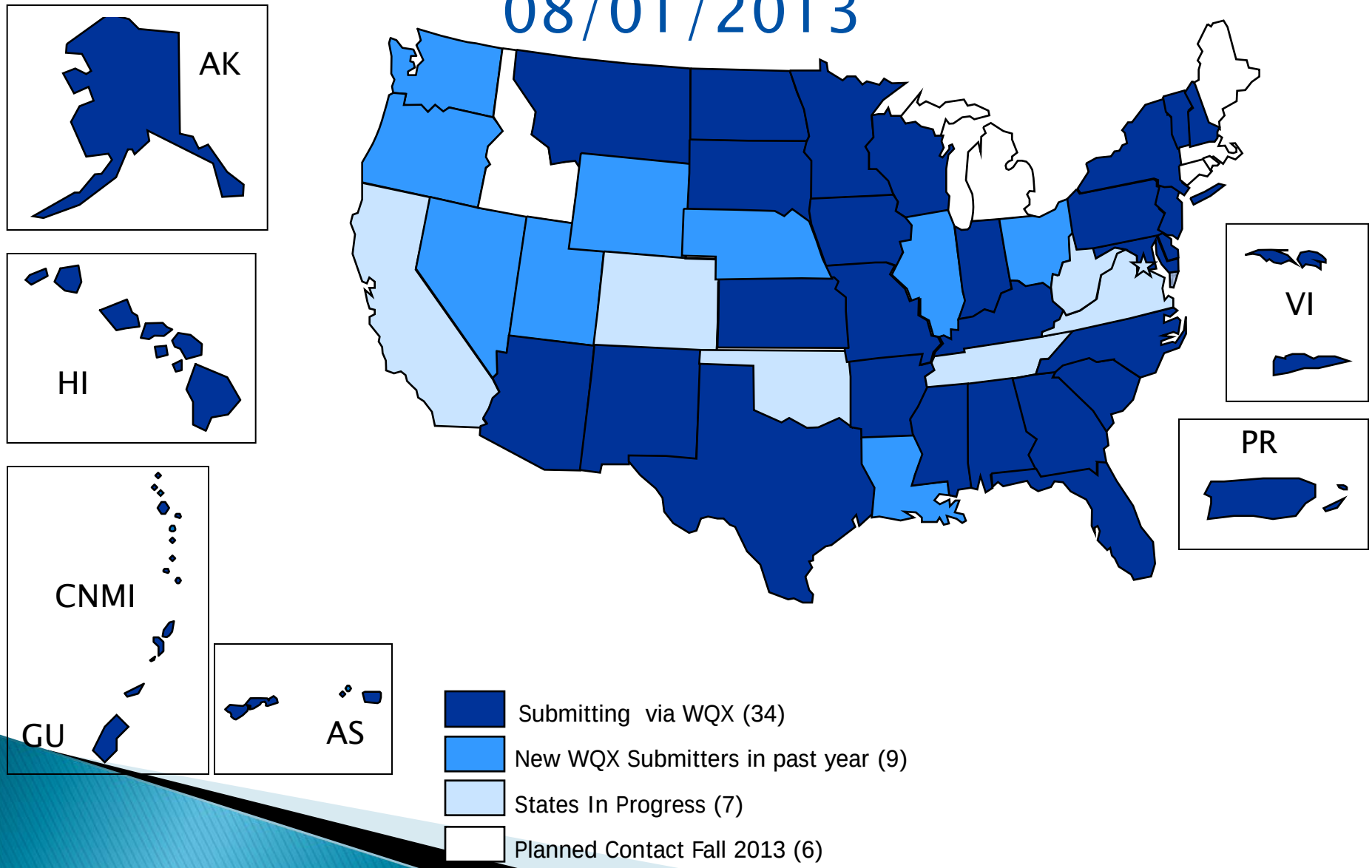
Agenda

- Update on activities since April call
- Provide overview of biological data in STORET
- Next Steps

Results in STORET



Status of State *Chemical* Water Monitoring Results Submitted via WQX in STORET 08/01/2013



Update of State Chemical Data Flows

- We have 43 states and territories using WQX to flow ambient water quality data to EPA
- In the past year, we have assisted 9 of those states to become new WQX data flows – IL, LA, NE, NV, OH, OR, UT, WA, WY
- We are currently working with 7 states who are near to flowing water data via WQX – CA, CO, DC, OK, TN, VA, WV
- There are 6 states which we plan to contact this Fall to assess the status of their data flow and work with them to flow data via WQX – CT, ID, MA, ME, MI, RI

Biological Data in WQX

- There are three entities (i.e. types of records) that can hold biological data:
  - **Results:**
    - The measurements, counts, or lab results relating to a particular species
  - **Metrics:**
    - The individual values and scores that make up a biological assessment
  - **Indexes:**
    - The overall biological assessment score

Data Flow

- In general terms…
  - Results are used to calculate Metric Values and Scores
  - Metric Scores are used to calculate an overall Index Score.

- There are relationships between all of these entities in WQX (so they can be linked to each other).

Biological Data Types

- Biological
  - Population Census
  - Species Density
  - Frequency Class
  - Group Summary
  - Individual
  - Tissue
  - Toxicity
- Metrics
- Index

Biological Intent

- “Population Census”
  - for providing the "Count“ or "Total Sample Weight" of a particular species found in a sample or collection event.

	Result 1	Result 2
Biological Intent	Population Census	Population Census
Taxonomic Name	Salmo trutta	Moxostoma erythrurum
Characteristic	Count	Total Sample Weight
Result Value	231	9728
Result Unit	count	g
Value Type	Actual	Actual

Metric Data

This is a set of Metric Types that are provided under the “USEPA” Context

ID
% Burrower Taxa
% Chironomid Taxa
% Clinger Taxa
% Ephemeroptera Taxa
% EPT Individuals
% EPT Taxa
% Individuals in top 3 taxa
% Individuals in top 5 taxa
% Non-Insect Individuals
% Non-Insect Taxa

ID
% Tolerant Individuals
Clinger Taxa Richness
Ephemeroptera Taxa Richness
EPT Taxa Richness
Intolerant Richness
Scraper Richness
Shannon Diversity
Shredder Richness
Total Taxa Richness

Metric Examples

A Metric has a “Score” (which is required) and a “Value” (which is optional).

	Metric 1	Metric 2
Metric Type ID*	2000-DE-%Clingers	Total Taxa Richness
Metric Type Context	21DELAWQ_WQX	USEPA
Metric Score	6	4.482758
Metric Value	59	26
Metric Value Unit	%	count
Index ID		BEARRV23-2013/05/04-FISH2

* Metric Type meta-data can also include citations and documentation on the formula and scale (e.g. 1-100) for the score

Index Examples

An Index has a “Score”, but does not have a “Value”.

The Index Type ID can be any value that your organization chooses to create.

	Metric 1	Metric 2
Monitoring Location ID	VERDE_RIVER_164	BEARRV23
Index Calculated Date	06/05/2001	05/04/2013
Index ID	30841	BEARRV23-2013/05/04-FISH2
Index Type ID*	IBI	Stream Fish Index
Index Type Context	21ARIZ_WQX	IDEQ_WQX
Index Score	75.0369517	82.65292

* Index Type meta-data can also include citations and documentation on the scale (e.g. 1-100) for the score

WQX Web Biological Data Template

- The Biological and Metric- Index Templates assist in formatting biological and habitat metrics and indices data.

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
1	Sample Collection Method ID	Sample Collection Equipment Name	Sample Collection Equipment Comment	Characteristic Name	Result Detection Condition	Result Value	Result Unit	Result Sample Fraction	Result Status ID	Result Value Type	Biological Intent	Subject Taxonomic Name	Sam A
2	GRE:BEN-Kick	D-Frame Net		Count		2	count		Final	Actual	Population Census	Dicranota	
3	GRE:BEN-Kick	D-Frame Net		Count		11	count		Final	Actual	Population Census	Baetis	
4	GRE:BEN-Kick	D-Frame Net		Count		15	count		Final	Actual	Population Census	Hydropsychidae	
5	GRE:BEN-Kick	D-Frame Net		Count		1	count		Final	Actual	Frequency Class	Cheumatopsyche	
6	GRE:BEN-Kick	D-Frame Net		Count		1	count		Final	Actual	Frequency Class	Chironomini	
7	FISH:Elec:Tow:A	Tow Net		Length, Total (Fish)		350	mm		Final	Actual	Individual	Prosopium spilonotus	
8	FISH:Elec:Tow:A	Tow Net		Weight		408	g		Final	Actual	Individual	Prosopium spilonotus	
9	FISH:Elec:Tow:A	Tow Net		Fish Anomalies - Tumors		4	count		Final	Actual	Group Summary	Prosopium spilonotus	
10	FISH:Elec:Tow:A	Tow Net		Count		6	count		Final	Actual	Frequency Class	Prosopium spilonotus	
11	FISH:Elec:Tow:A	Tow Net		Mercury		0.2	mg/kg	Total	Final	Actual	Toxicity	Prosopium spilonotus	Whole
12	FISH:Elec:Tow:A	Tow Net		Lead		450	mg/kg	Total	Final	Actual	Tissue	Prosopium spilonotus	Whole
13													
14													

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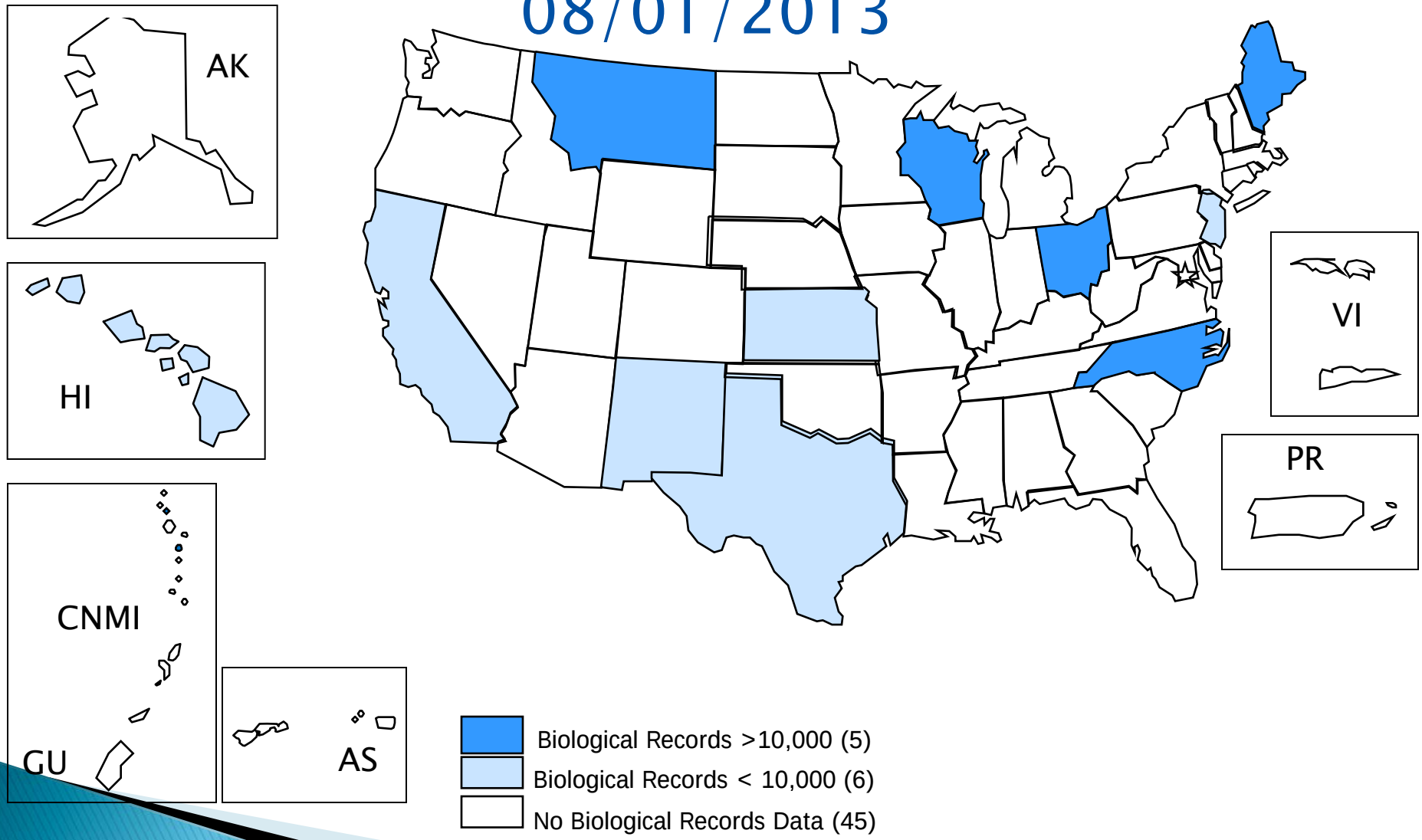

Update of State Biological Data Flows

- Review data from the 11 states using WQX to flow biological data to EPA
- Engage with 11 states to understand their data flow and discuss ways to increase the amount of data
- Identify other states who are interested in flowing biological data

Next Steps

- Continue working with 7 states who are near to flowing water chemistry data via WQX – CA, CO, DC, OK, TN, VA, WV
- Contact 6 states this Fall to assess the status of their water chemistry data flow and begin work with them to flow data via WQX – CT, ID, MA, ME, MI, RI
- Conduct Biological Data Webinar this Fall to explain the template and promote the data flow
- Review data from the 11 states using WQX to flow biological data to EPA
- Work with Portal team on adding Biological Data output to Portal