

# \* AWQMS:

## Data Extraction, Utilization, and Assessment

Session C5: Data Soup: Recipes & Secret Spices

Chris Adams, Oklahoma Water Resources Board

Mark LeBaron, AWQMS / Gold Systems, Inc.

11th NATIONAL MONITORING CONFERENCE



Working Together for Clean Water

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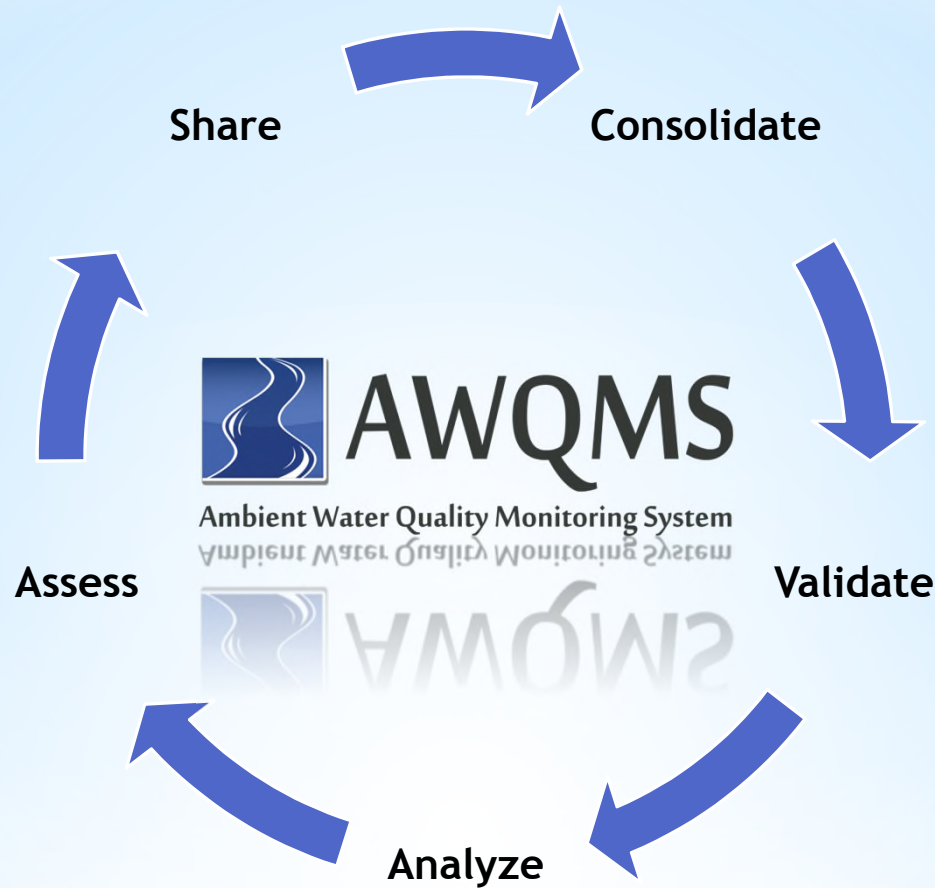
Denver, Colorado



- \*OKWRB's implementation of AWQMS
- \*Using Water Quality Portal data within AWQMS
- \*Challenges encountered while using multi-agency data
- \*Solutions and demonstrations

**\* An innovative approach for  
using Water Quality Portal data**

**\*OKWRB's  
implementation of the  
Ambient Water Quality  
Monitoring System  
(AWQMS)**



\* A web-based water quality sample and observations database application



- \* Data Consolidation - One secure, multi-user place for all types of our water quality data
- \* Optimized for both both time series and discrete samples
- \* Data Quality & Consistency Checking
- \* Data Management / Editing Tools
- \* Basic Data Analysis (Statistics, Reporting, and Graphing)Tools
- \* Built in Google Mapping Tools

## \* Major AWQMS Capabilities

- \* Easily submit data to WQX and related feedback tools
- \* Export to other crosstab and flat file formats
- \* Public water quality portal (if needed)
- \* Integration with other systems via web services
- \* Trip Planning
- \* Easily submits BEACH Notifications to PRAWN (if needed)
- \* WQX Domain values auto-sync
- \* Assessments Meta Data & Exceedance Exports

## \* Other Features Worth Mentioning

- \* Data Preparation:
  - \* Batch updates for Activities data
  - \* Batch updates for Results data
- \* Redundant Data Entry for QC purposes
- \* Leverage EPA Water Quality Portal for combined data analysis

## \* Recent New Features

- \* Integration with EPA national solution for Continuous Monitoring (time series sensor) Data (Interoperable Watersheds Network)
- \* Capture and submit assessments to ATTAINS
- \* Better decision support for assessments
- \* Auto calculation of water quality standards for metals
- \* Integrated Continuous Monitoring Data Review & QA Processess
- \* Automated generation of benthic macroinvertebrate abundance metric scores per associated index type

## \* Major Features Under Construction



**\*Using Water Quality  
Portal data within  
AWQMS**



National  
Water Quality  
Portal

Web Services

1. Request data

2. Respond with data

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**AWQMS**

Ambient Water Quality Monitoring System

Ambient Water Quality Monitoring System



AWQMS

**\* Request & Receive  
WQP Data**

2. Respond with data

- \* One-time configuration
- \* Configure as many as you need
- \* Schedule the period
- \* Data is stored in AWQMS but flagged as “External”
- \* Can be reviewed / analyzed like any other data in AWQMS

OK Water Resources Board



**AWQMS**

Ambient Water Quality Monitoring System



AWQMS

**\* Request & Receive  
WQP Data**

# \*Challenges encountered while using multi-agency data



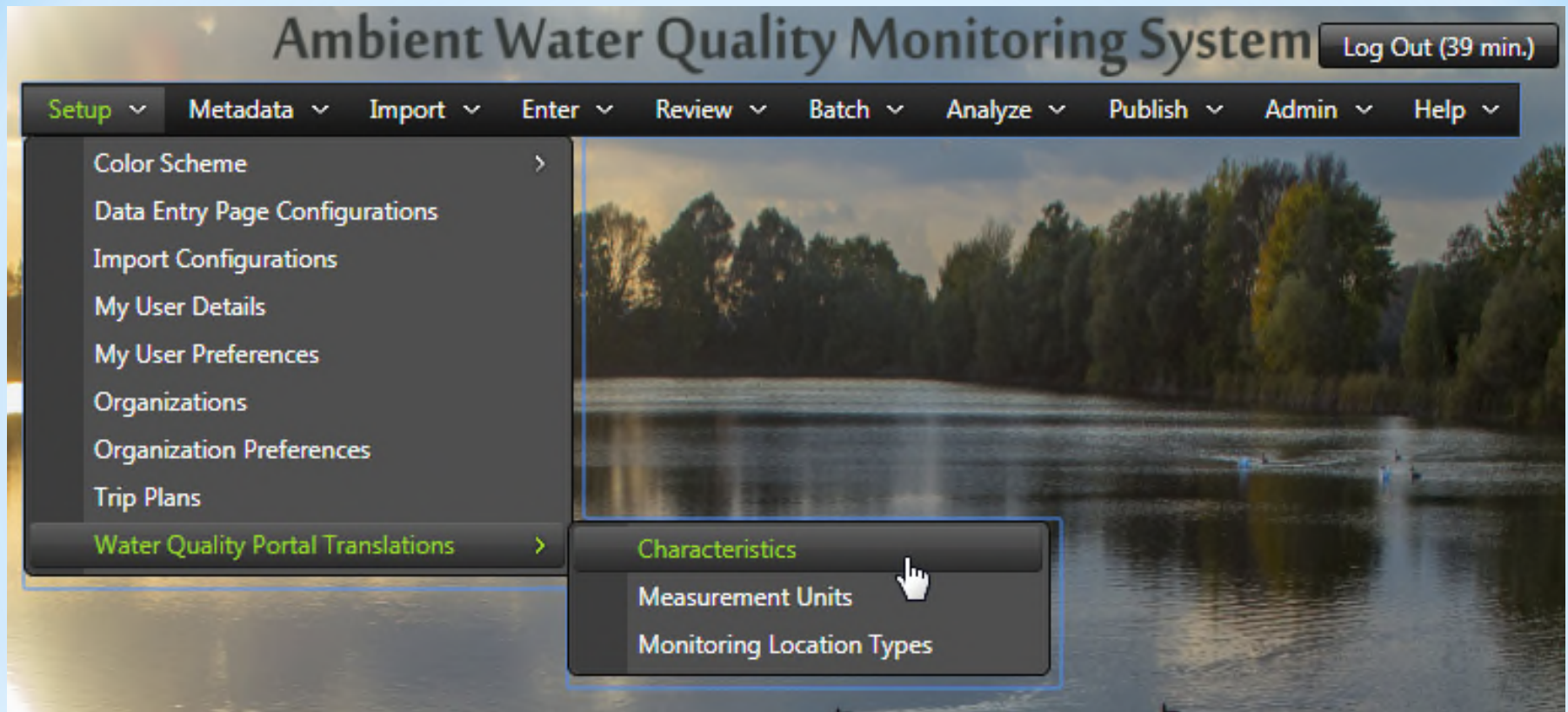
- \* Characteristics, Measurement Units, and Monitoring location types
- \* Monitoring Locations
- \* Assessment Units
- \* Designated Uses
- \* Water quality criteria
- \* Ability to provide filtering criteria

**\* Ensuring consistency  
for analysis and  
assessment**

# \*Solutions and demonstrations

- \* Ability to set up translations on characteristics , measurement units, and monitoring location types in AWQMS
- \* Ability to configure retrieval of data from the WQP using AWQMS
- \* Ability to display WQP data in the AWQMS internal Google map
- \* Ability to analyze WQP data alongside our own latest data in AWQMS

**\* Solutions and  
demonstrations**



\* Ability to set up translations on characteristics in AWQMS



Log Out (45 min)

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

### Water Quality Portal Translations (for Characteristic Name)

Save Add New Cancel Search

Translate From: Contains ▾ Characteristic Name: Contains ▾

Translate From	Characteristic Name	Method Speciation	Sample Fraction	Statistical Base Code	Time Basis	Temperature Basis	Value Type	Discard?
✗ 1H-Benzotriazole, 5-methyl-	5-Tolyltriazole							<input type="checkbox"/>
✗ 2,4-Pyrimidinediamine, 5-[(3,4,5-trimethoxyphenyl)methyl]-	Trimethoprim							<input type="checkbox"/>
✗ 2-Amino-N-isopropylbenzamide	Benzamide, 2-amino-N-(1-methylethyl)-							<input type="checkbox"/>
✗ 2-Propanol, 1,3-dichloro-, phosphate (3:1)	Tris(1,3-dichloro-2-propyl)phosphate							<input type="checkbox"/>
✗ Alkalinity	Alkalinity, total							<input type="checkbox"/>
✗ Alpha emitting radium isotopes	Radium							<input type="checkbox"/>
✗ Androst-4-en-3-one, 17-hydroxy-, (17.beta.)-	Testosterone							<input type="checkbox"/>
✗ Androstan-17-one, 3-hydroxy-, (3.alpha.,5.alpha.)-	Androsterone							<input type="checkbox"/>
✗ Benzenesulfonamide, 4-amino-N-(2,6-dimethoxy-4-pyrimidinyl)-	Sulfadimethoxine							<input type="checkbox"/>
✗ Carbonate (CO3)	Carbonate	as CO3						<input type="checkbox"/>
✗ Cholestan-3-ol, (3.beta.,5.beta.)-	Coprosterol							<input type="checkbox"/>
✗ cis-Androsterone-2,2,3,4,4,5	Androsterone							<input type="checkbox"/>

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Item 1 to 56 of 56

\* Ability to set up translations on characteristics in AWQMS

# Ambient Water Quality Monitoring System

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Organization Detail

Return

Save

Cancel

Delete

Retrieve External Data

User Access Rights

Preferences

ID:\* WIDNR\_WQX

Name:\* Wisconsin Department of Natural Resources

Description:

Source:\* External - WQX/STORET (via Water Quality Portal) ▾

Tribe:

Internal - AWQMS

External - WQX/STORET (via Water Quality Portal)

External - USGS/NWIS (via Water Quality Portal)

Address: (Limit 5)

\* Ability to configure retrieval of data from the WQP using AWQMS

# Ambient Water Quality Monitoring System

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Organization Detail

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Retrieve External Data

User Access Rights

Preferences

ID:\*

Name:\*

Description:

Source:\*

Tribe:

Address: (Limit 5)

\* Ability to configure retrieval of data from the WQP using AWQMS



# Ambient Water Quality Monitoring System

Log Out (45 min.)

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Organization Preferences for WIDNR\_WQX

Return

Save

Cancel

### Water Quality Portal (WQP)

☒ Automatically download monitoring locations and results from the Water Quality Portal every  ▾ days

☒ When displaying results on the map, use results in AWQMS (rather than retrieving them from the WQP everytime). This is recommended to improve performance.

Keep  ▾ years of data in AWQMS.

\* Ability to configure retrieval  
of data from the WQP using  
AWQMS



# Ambient Water Quality Monitoring System

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Organizations

Search Add New

Organization Name:	Starts With ▾ W	Organization ID:	Contains ▾
ID	Name	Source	
<a href="#">WIDNR_WQX</a>	Wisconsin Department of Natural Resources	External - WQX/STORET (via Water Quality Portal)	
WILLOWCREEK	Willow Creek Reclamation Committee	Internal - AWQMS	

\* Ability to configure retrieval of data from the WQP using AWQMS

# Ambient Water Quality Monitoring System

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Integrated Locations Map (including external organizations)

Return

Default Search Criteria

Load Search Criteria

Save Search Criteria

Create Map

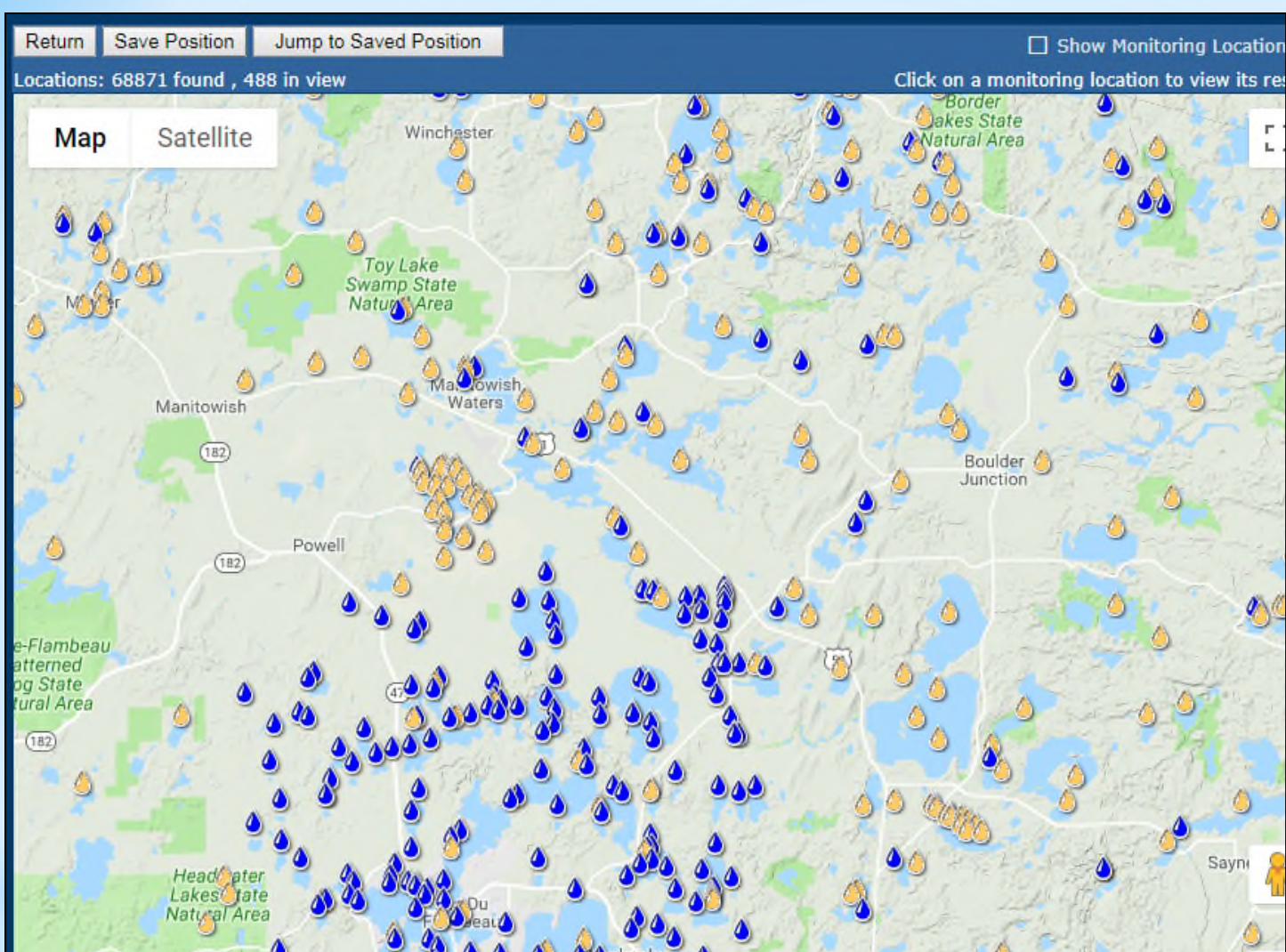
### Organizations Search Criteria

Organizations: 2 items checked ▾

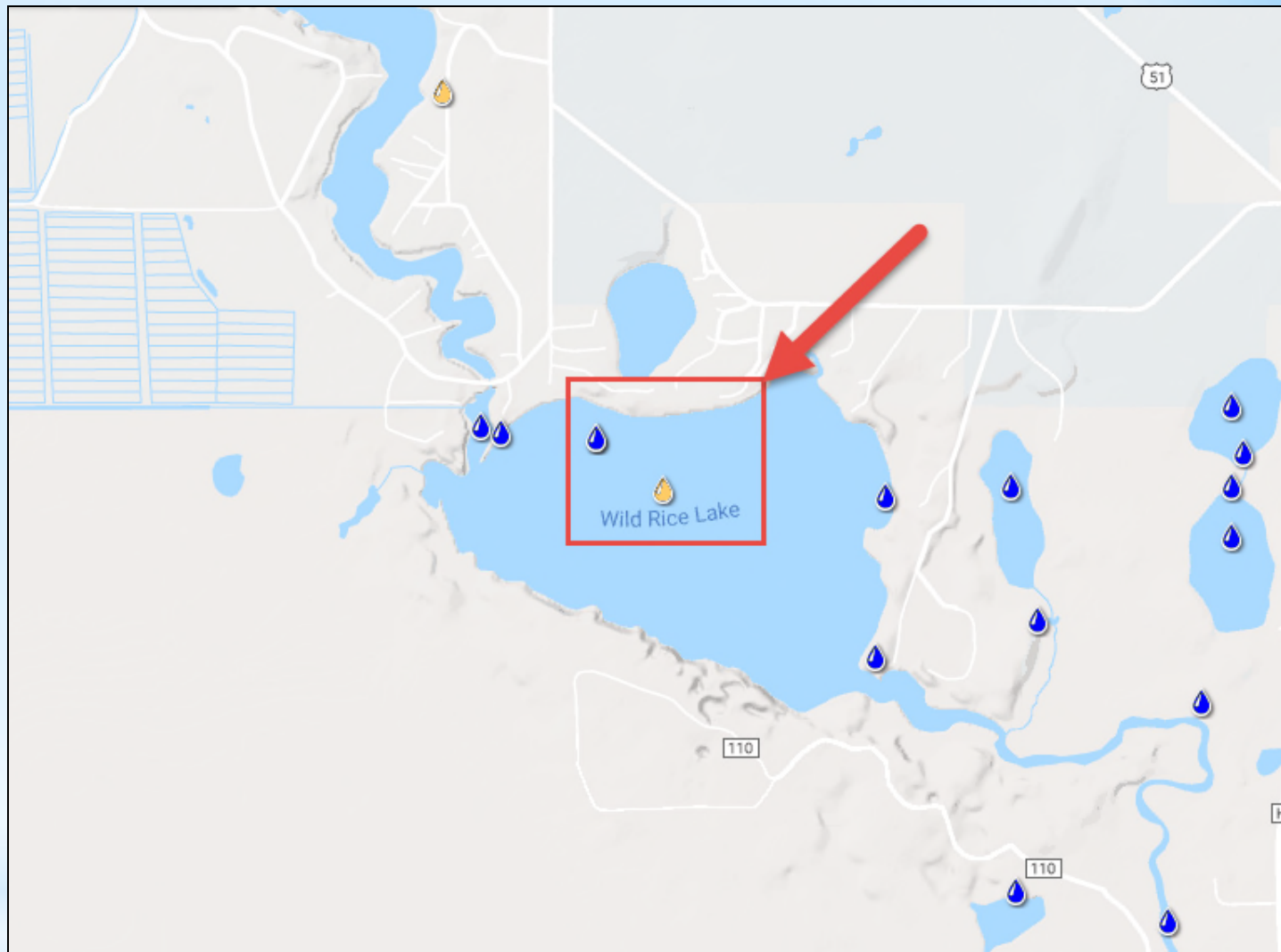
- ☒ LDFWATER2007 ~ Lac Du Flambeau Band of Lake Superior Chippewa Indians Water Program
- ☒ WIDNR\_WQX ~ Wisconsin Department of Natural Resources
- ☐ LEWWTP\_WOX ~ Littleton/Englewood Wastewater Treatment Plant

\* Ability to display WQP data in the  
AWQMS internal Google map





\* Ability to display WQP data in the  
AWQMS internal Google map



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AWQMS internal Google map



## Organizations Search Criteria

Organizations: 2 items checked

- ☒ LDFWATER2007 ~ Lac Du Flambeau Band of Lake Superior Chippewa Indians Water Program
- ☒ WIDNR\_WQX ~ Wisconsin Department of Natural Resources

## Activities

Search

Clear Search Criteria

Add New

Export to Excel

Search Criteria

Activities

Organization ID:

Monitoring Locations:

Project ID:

Date (min):

Media:

All items checked

☒ Check All

☒ WR\_DP

☒ 643270

\* Ability to analyze WQP data  
alongside our own latest  
data in AWQMS

# Ambient Water Quality Monitoring System

Log Out (44 min)

Setup ▾ Metadata ▾ Import ▾ Enter ▾ Review ▾ Batch ▾ Analyze ▾ Publish ▾ Admin ▾ Help ▾

## Activities

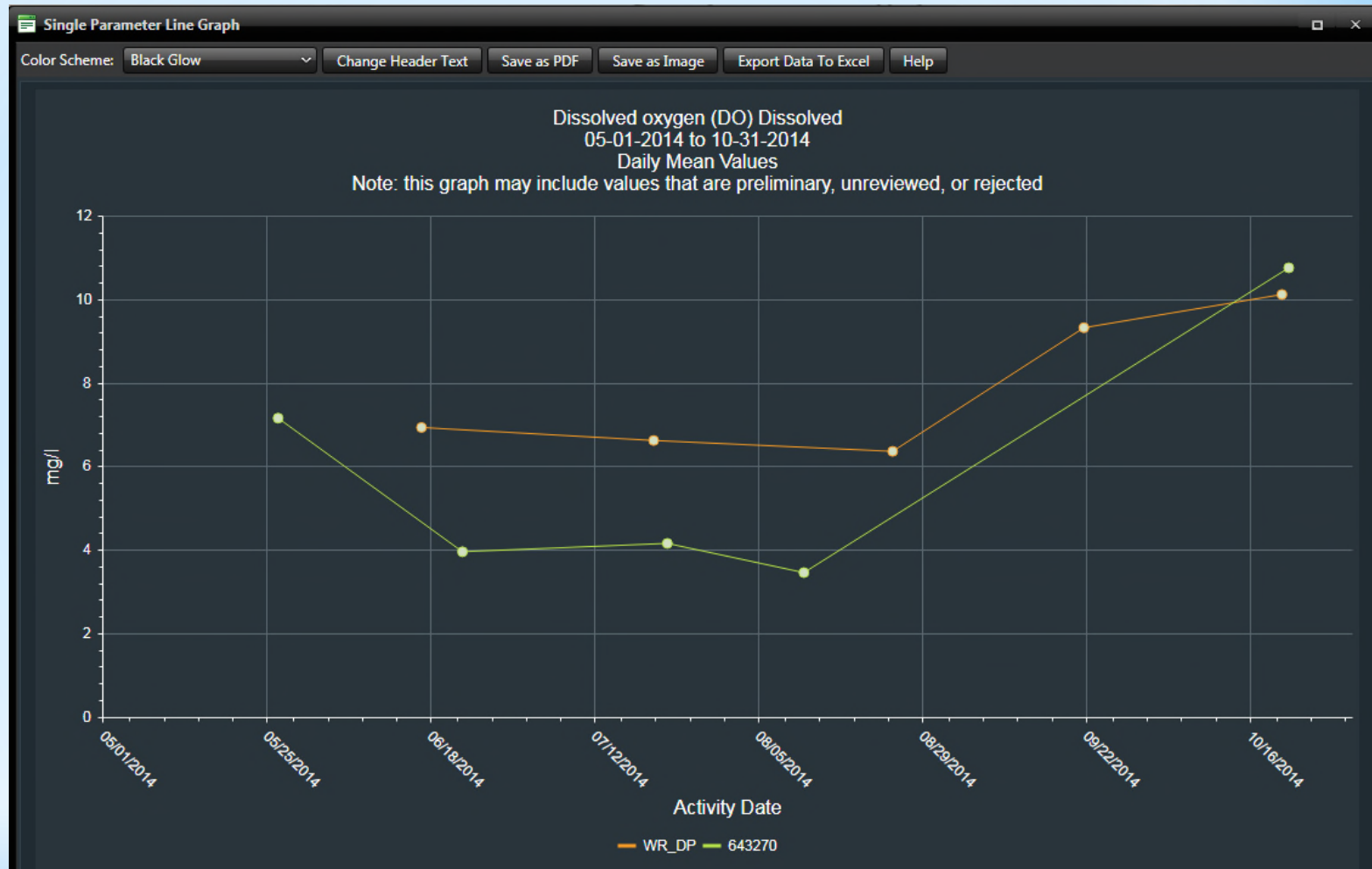
Search Clear Search Criteria Add New Export to Excel

Search Criteria

Activities

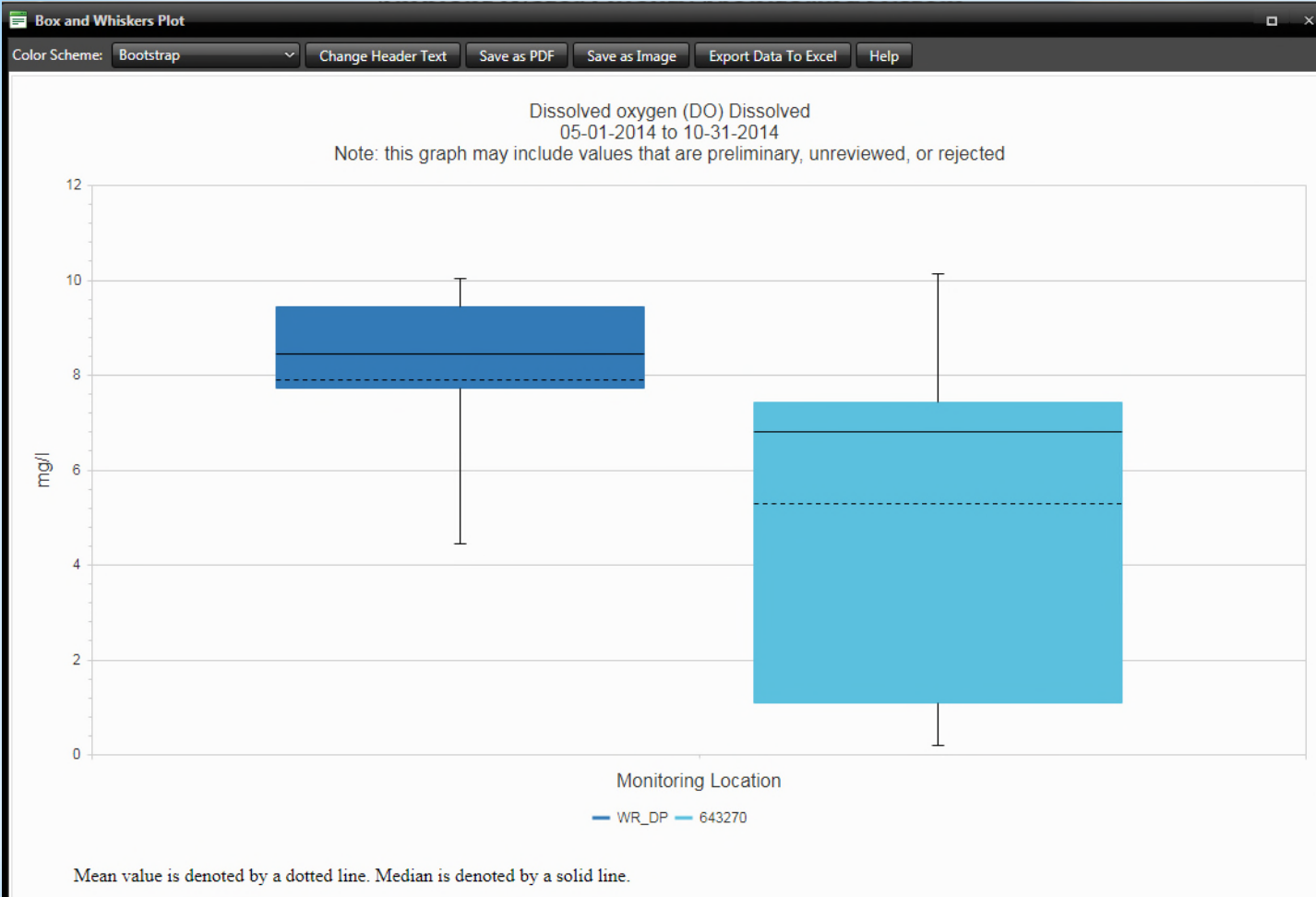
Organization ID	Activity ID	Date ▾	Activity Type	Media	Monitoring Location ID	Monitoring Location Name
WIDNR_WQX	<a href="#">105575216</a>	10-22-2014	Sample-Routine	Water	643270	Wild Rice Lake - Deep Hole
WIDNR_WQX	<a href="#">105575224</a>	10-22-2014	Field Msr/Obs	Water	643270	Wild Rice Lake - Deep Hole
WIDNR_WQX	<a href="#">105575254</a>	10-22-2014	Sample-Routine	Water	643270	Wild Rice Lake - Deep Hole
WIDNR_WQX	<a href="#">105575260</a>	10-22-2014	Field Msr/Obs	Water	643270	Wild Rice Lake - Deep Hole
LDFWATER2007	<a href="#">WRL DP2014-10215</a>	10-21-2014	Field Msr/Obs	Water	WR_DP	WildRiceLake_Deep
LDFWATER2007	<a href="#">WRL DP2014-10216</a>	10-21-2014	Field Msr/Obs	Water	WR_DP	WildRiceLake_Deep
LDFWATER2007	<a href="#">WRL DP2014-10213</a>	10-21-	Field Msr/Obs	Water	WR_DP	WildRiceLake_Deep

\* Ability to analyze WQP data alongside our own latest data in AWQMS



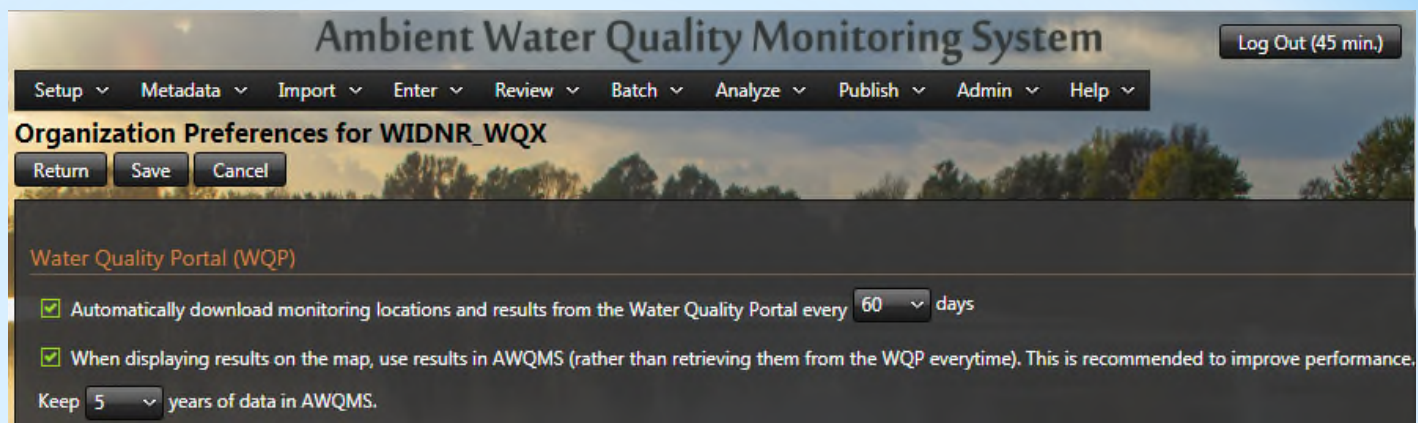
\* Ability to analyze WQP data  
alongside our own latest  
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\* Ability to analyze WQP data  
alongside our own latest  
data in AWQMS





- \* Need Ability to Filter WQP Data by Lat/Long Box
- \* Need to efficiently process and track partial WQP Downloads
- \* Need to address some of the issues preventing WQP data from being saved in AWQMS
- \* Need a separate page for managing/viewing WQP Settings and Status

- Credit: Brian Boling, ORDEQ

\* **Making a good tool into a great tool**

# \* Questions?

## \* AWQMS: Data Extraction, Utilization, and Assessment

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Chris Adams  
Quality Assurance & Data Manager  
Water Quality Division  
Oklahoma Water Resources Board  
405.530.8998  
Chris.Adams@owrb.ok.gov

Mark LeBaron  
Program Manager & Sr. Business  
Analyst  
AWQMS / Gold Systems, Inc.  
801.456.6145  
markl@goldsystems.com

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NWQMC