AMBIENT WATER QUALITY MONITORING SYSTEM INNOVATIONS—AN EN SUCCESS STORY

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2017 Exchange Network National Meeting

Innovations and Partnership

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Sheraton Philadelphia Society Hill Hotel
Philadelphia, Pennsylvania
#EN2017
http://www.exchangenetwork.net/en2017

ABSTRACT

This presentation will review and demonstrate project improvements to AWQMS and discuss additional upcoming improvements. All improvements discussed will be available at no additional charge to the rest of the AWQMS community, which currently includes 7 state agencies, approximately 75 tribal programs, and approximately 65 volunteer, watershed, and municipal agencies in Colorado.

Project Partners

- Maryland Department of the Environment

- Utah Division of Water Quality

- Alaska Department of Environmental Conservation

Background

- Prior to September 2009:
  - Distributed STORET + STORET Data Warehouse
- Since September 2009:
  - Water Quality Exchange (WQX) + STORET Data Warehouse
  - AWQMS 1.0 – A combined tribal, state, and EPA regional effort to replace "Distributed STORET"
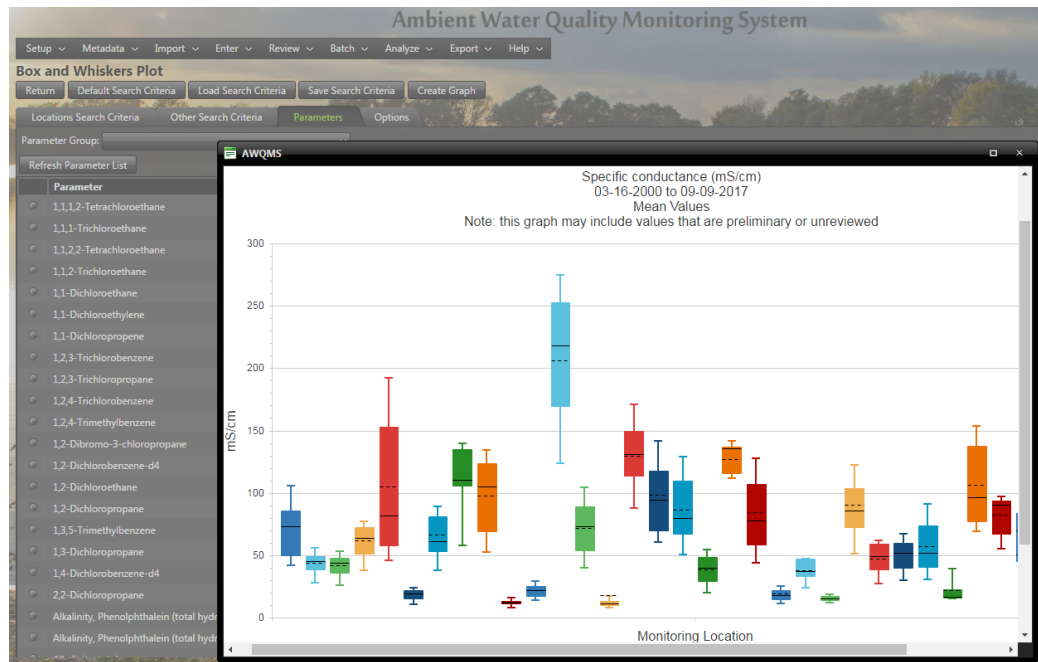
Background

- Since AWQMS 1.0:
  - Gold Systems has continued to maintain and upgrade AWQMS
  - Released 13 major releases of AWQMS with enhancements funded by many different partners
  - Version 6.0 due out this summer
  - Vibrant and growing AWQMS community

Background

- MDE Adopted AWQMS in 2011
  - Migrated data into AWQMS
  - MD DNR also "piggy-backs" on the MDE AWQMS
  - Recognized some additional needs that would make AWQMS more useful
  - Worked with states of UT and AK to apply for an Exchange Network grant

AWQMS

- **A**mbient
- **W**ater
- **Q**uality
- **M**onitoring
- **S**ystem
- "Ah-Kwums" (Sort of like "Ah-Sum")

Brief AWQMS Overview

- Central Database

- Concurrent Access

- Secure Data

- Data Import / Entry Tools

- All WQX Validations

- Expected Parameter QC Validation

Brief AWQMS Overview

- Expected Value Range Validation

- Analysis: Graphs, Reports

- Analysis: Exports, Map

- Assessment Support

- Trip Planning

Brief AWQMS Overview

- Share with EPA:

  Built-In Node Client

  Submit Data to

  WQX & PRAWN

  You control it

- Share with Public/Others:

  Public Portal

  Web Services

Consolidate → Validate → Analyze → Assess → Share →

AWQMS

Ambient Water Quality Monitoring System

www.awqms.com

AWQMS Community

- Bi-monthly Call (started by Utah & MDE)

- www.awqms.com (user support)

AWQMS Community

Native American Environmental Protection Coalition

Great Lakes Tribal Water Quality Consortium

Colorado Data Sharing Network (CDSN)
is helping to enhance Colorado's watersheds and water quality by providing
CDSN's data partners and Colorado's citizens with an accessible and affordable tool kit

Home | About CDSN | Get Involved | Contact | Data Calls
AWQMS.wqx Portals (Database) | CDSN Google-Map | CDSN Web GIS

Federally Recognized Tribes in Region 8

Coalition of Oklahoma AWQMS Tribes

AWQMS: An Exchange Network Success Story

- More Result data in WQX via AWQMS than via any other single source

- 17% of Result data in WQX flowed to WQX via AWQMS

AWQMS

Ambient Water Quality Monitoring System

AWQMS: An Exchange Network Success Story

- 73 tribal organizations flow data to WQX using AWQMS.

- 31% of tribal organizations that flow data to WQX, are using AWQMS

- 7 states currently flow data to WQX using AWQMS

AWQMS

Ambient Water Quality Monitoring System

AWQMS: An Exchange Network Success Story

- 188 organizations use AWQMS to flow data to WQX.

- 26% of Organizations that flow data to WQX, are using AWQMS

- Newer numbers will be more impressive!

AWQMS
Ambient Water Quality Monitoring System

The AWQMS Big Picture

Real World
- Grab Samples
- Habitat Assessments
- Probe Readings
- Fish Census Counts
- Benthic M.I. Census Counts
- Etc., etc.

AWQMS

Ambient Water Quality Monitoring System

The AWQMS Big Picture

Real World
- Grab S.
- Habitat As.
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AWQMS

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"Data Limbo"
- Lab → .PDF
- Lab → Excel
- Lab → CSV
- Paper sheets
- Probe → CSV
- Flash Drive?
- Laptop?
- Network Server?

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Local Information
- AWQMS
- All Your Data
- Local Analysis Tools
- Local Data Verification
- Local Data QA/QC
- Local Decision Support
- Local Data Assessment
- Control what is sent to WQX and when it is sent
- Local Portal (Optional)

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Public Information
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- Water Quality Portal (WQP)
- Only Public Data
- Public Analysis Tools

AWQMS
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AWQMS

Ambient Water Quality Monitoring System

MDE, UTDEQ, AKDEC Project Goals

Project Goals

- GIS-Centric Web Services to AWQMS (Started)

  - Seamless integration w/GIS Tools

  - Starting with Web Feature Services

  - Get Locations Service

  - Eventually Get Beaches

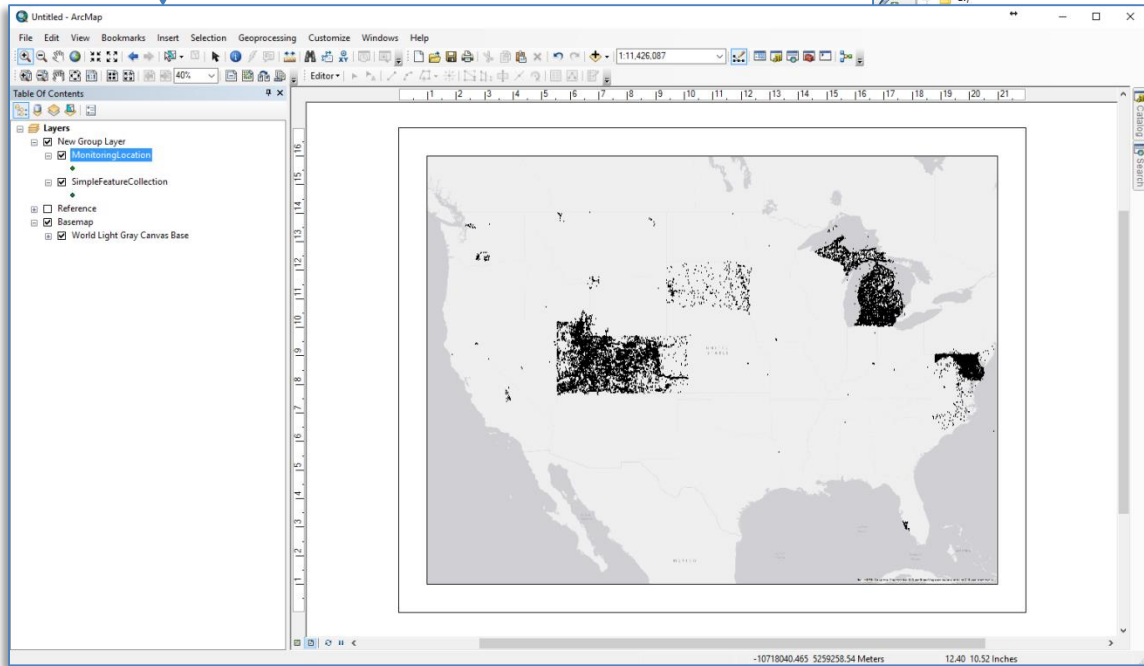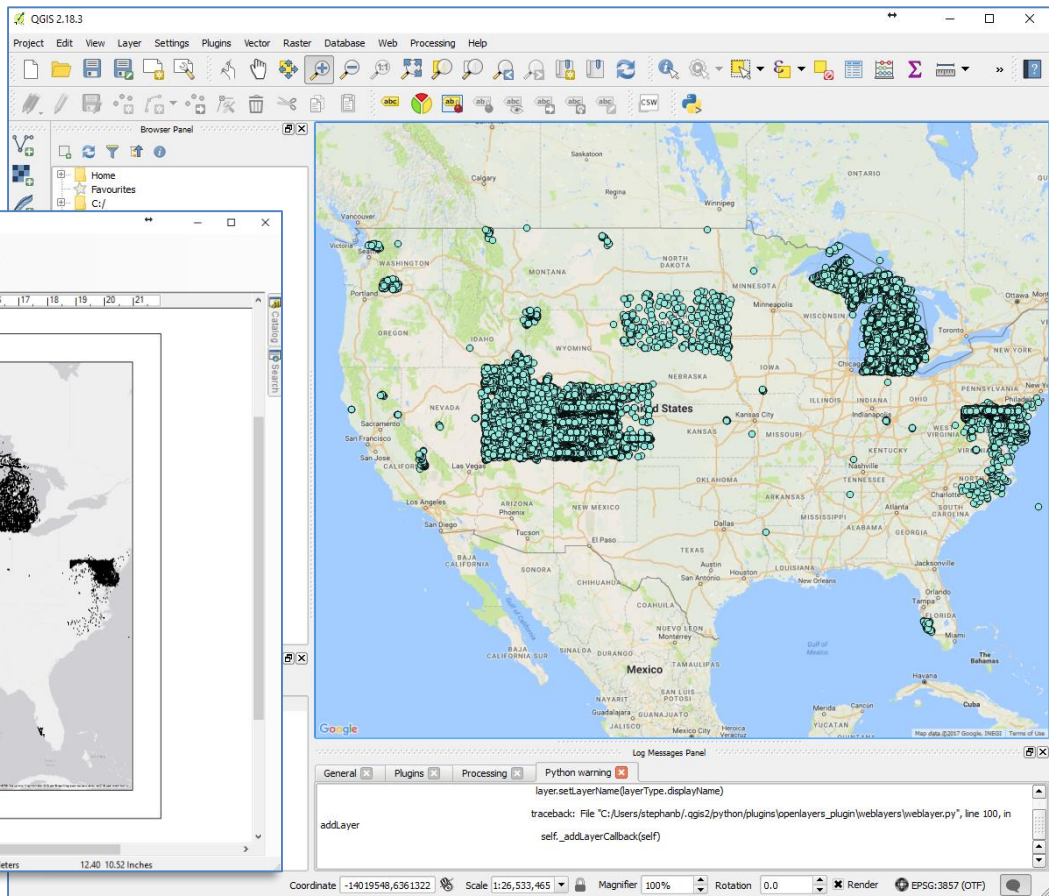 - Includes hyperlink to AWQMS REST services

Project Goals – GIS Centric Web Services

Project Goals

- AWQMS RESTful Web Services (Complete)

  - Get Locations

  - Get Activities & Results

  - Can filter by various search criteria

  - An AWQMS community partner has added Get Projects, Get Metrics, Get Indexes

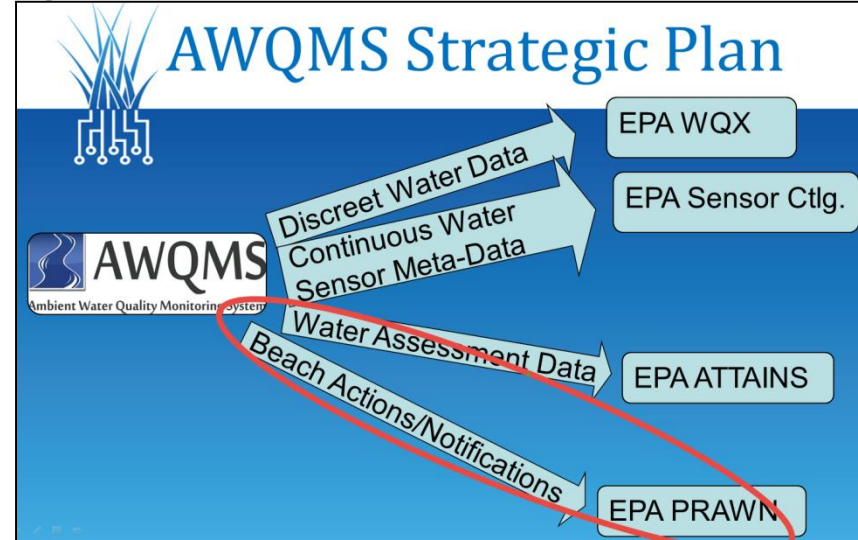# **Project Goals**

- Auto-Sync AWQMS Domain Values Lists with WQX DVLs <u>(Complete)</u>
  - Includes All WQX domain lists - Nightly
  - We rarely manually update AWQMS DVLs anymore
  - **Drastically increased our WQX submission success rate!!**

Project Goals

- Auto-Calc Metals Standards for Data Analysis (Starting Soon)
  - E.g., based on Hardness
  - <u>Major input from the state of UT DWQ</u>

Project Goals

- Beach Actions/Notifications <u>(Complete)</u>

  - Define & Track Beaches

  - Log Actions/Notifications

  - Submit Notifications to PRAWN via EN

  - <u>Major additional input from AK DEC</u>

Project Goals

- Assessment Related Support <u>(Under Way)</u>

  - Manage Assessment Units & Associated Locations

  - Manage Designated Uses List

  - Manage WQ Standards Per Designated Use

  - Ability to relate WQX organizations to an ATTAINS organization

Questions?

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Mark LeBaron
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