

# Water Quality Portal: Using REST API Services to Support Data Discovery

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# Overview

- History of Water Quality Exchange
- Introduce Water Quality Portal
- Development of the Portal REST API Services
- Demonstration of Portal Services
- Looking Forward

# Water Quality Data Exchange (WQX)

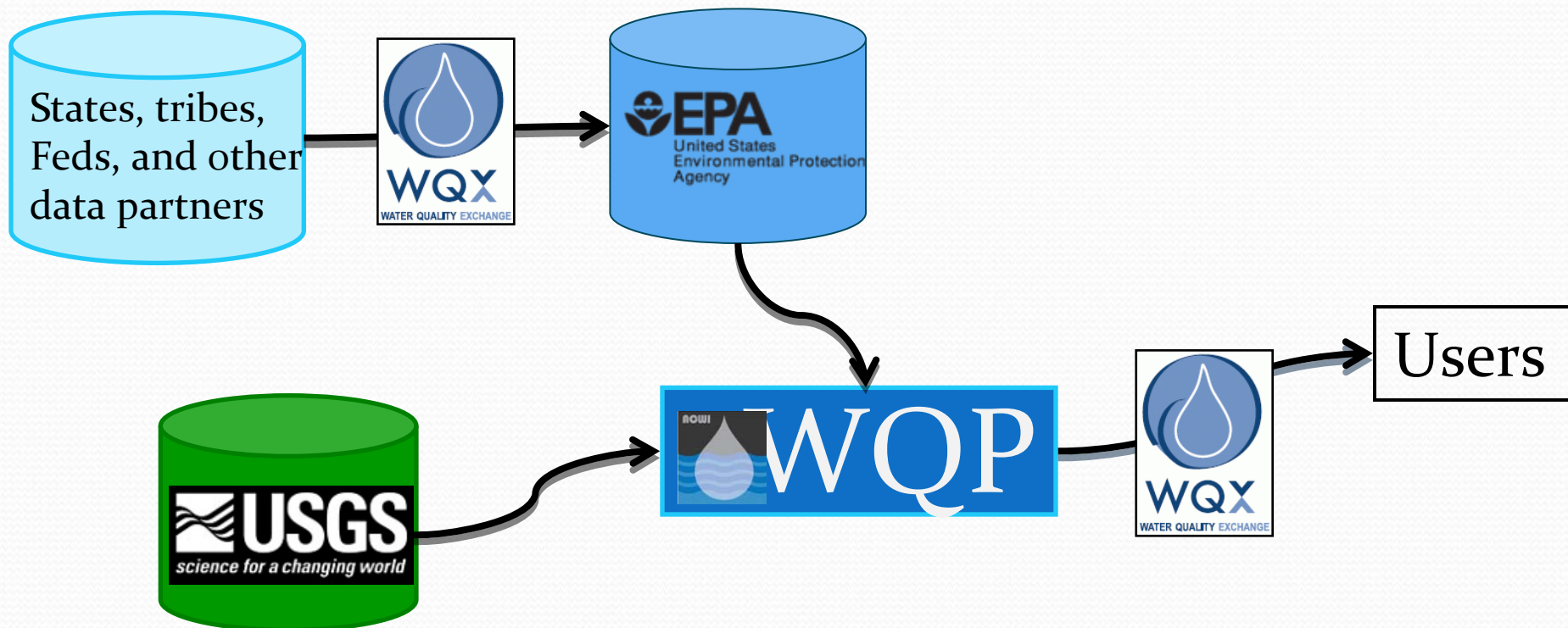
- Launched in 2007 to provide a format for submitting water quality data to EPA
- Partnered with Exchange Network to increase the ability of others to share water quality data
  - Over 390 WQX users
  - Over 30 million water data records flowed since 2009
- Established a flexible model for sharing data with other data partners





# Interagency Cooperation

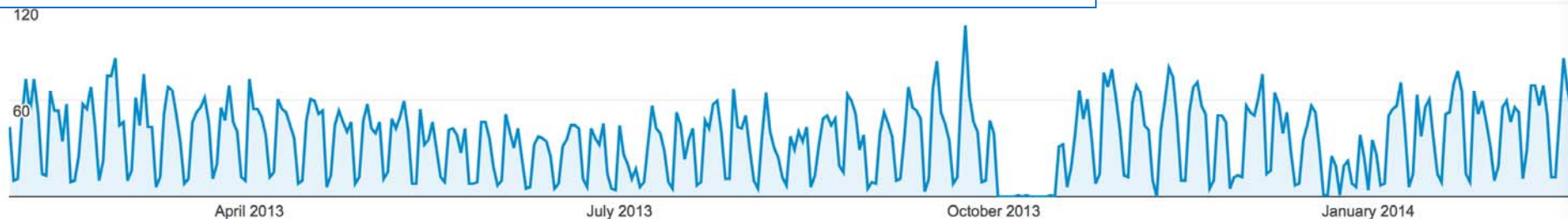
- With the support of the National Water Quality Monitoring Council (**NWQMC**), the Water Quality Portal (**WQP**) integrates publicly available water-quality data from the USGS National Water Information System (**NWIS**) and the EPA STOrage and RETrieval (**STORET**) Data Warehouse.



# Early Success of the WQP

- WQP launched in April 2012
  - 50-100 visits per weekday
  - Over 10,000 unique Visitors
  - As many as 3000 downloads per day from **web services**
  - Recently added USDA Agricultural Research Service

Number of Visits to Portal per Day Feb 2013-Feb 2014





# Quick Background on REST API

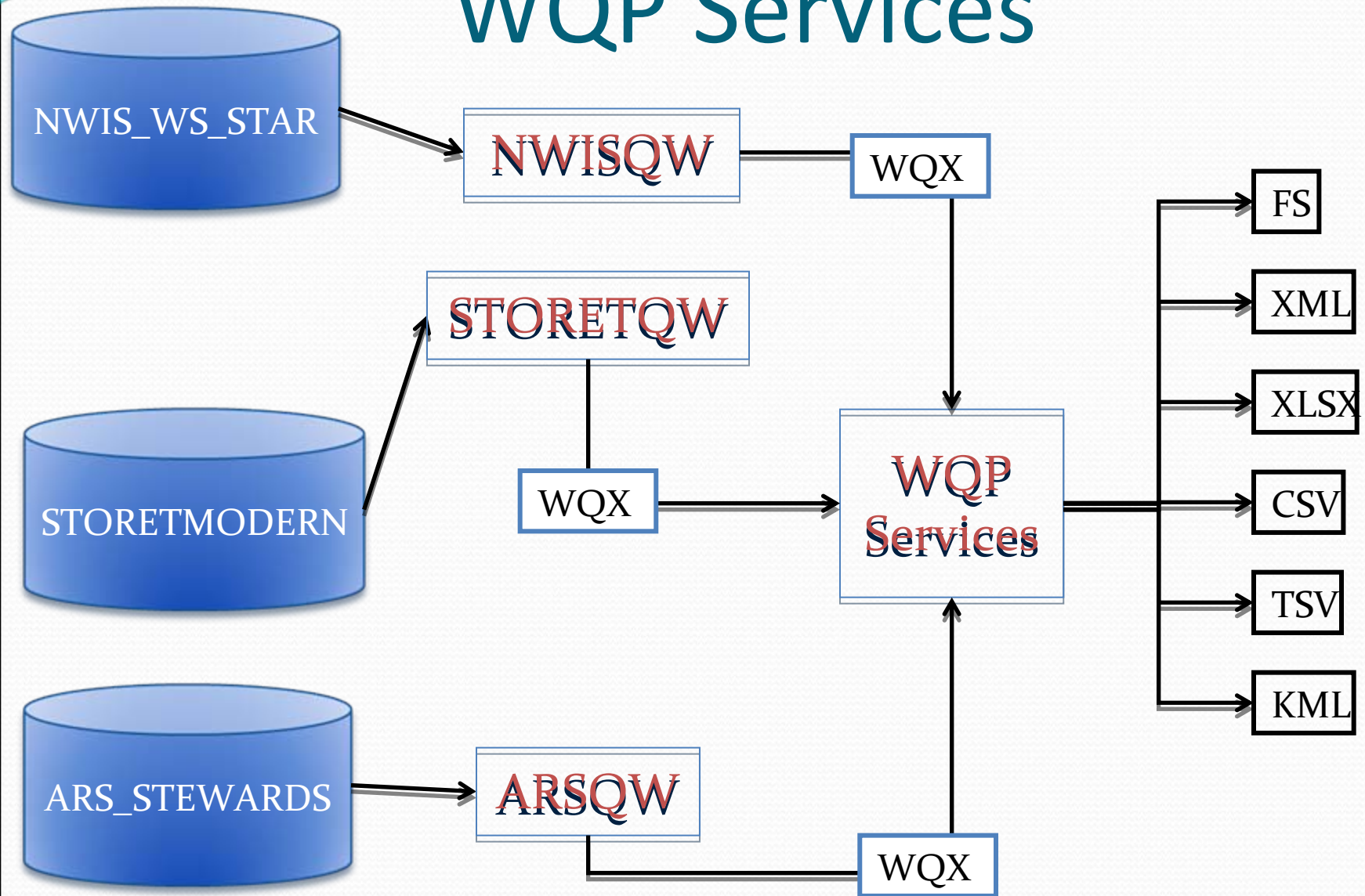
- What are REST API?
  - REpresentational State Transfer (REST) Application Program Interface (API)
  - Tool to define computer-computer interactions
  - Uses standard HTTP protocols (GET, POST, DELETE, etc) instead of custom
- Where are REST API commonly used?
  - Across the internet
  - Almost all website APIs are REST based (Twitter, etc)
- Why are REST API popular?
  - Standard
  - Flexible
  - Low barrier to entry
- How are REST API used?
  - Responses and status codes are the same as for any website
  - Ability to place a service call using a URL into any browser and get a response back

# Use of REST API in Developing the WQP

- Development features of REST API
  - Decouples database from web service
  - Reduces the overhead for adding new features
  - Relieves the need to build as many tools and instead promotes more user documentation
  - Allows for Agile and loosely coupled expansion of services and tools
  - **Allows others to build their own tools using standard libraries**
- Example
  - Map service pulls from WQP Web Service and transforms WQX data to the map



# WQP Services





# Benefits of WQP Web Services

- Fairly low entry and use requirements
  - Part of REST utility is by using URL
- Provides an easy way to access data and bypass the WQP form interface
- Easy to follow set-up instructions in Web Service User Guide
- Increases ability of others to call data for analysis
- No throttling or restriction of data access

# WQP and EN v2.0

- Increase the amount of data available in the WQP
  - Participation in the Portal is through WQX
- Increase the outreach on the utility of WQP Services
  - Data are available and publically accessible for use
- Support the Exchange Network 2.0 vision
  - Promote data formatting to better enable sharing, improve discovery and increase data value
- Identify untapped opportunities
  - Mobile devices, GIS applications, additional data types



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# WQP

## Water Quality Portal

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC).

### DOWNLOAD DATA

Download water-quality data in Excel, CSV, TSV, and KML formats.

### HOW TO USE THE WQP

User Guide  
Web Services Guide  
FAQs  
Upload Data

### NATIONAL RESULTS COVERAGE

Water-quality data in your state.

### ABOUT THE WQP

What is the WQP?  
Contributing organizations  
Other Water Quality Portals  
Contact us



<http://www.waterqualitydata.us>