Participatory Science and Managing for External Data

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Participatory Science

Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions

In developing their CWA 303(d) lists, states, territories, and authorized tribes are required to assemble and evaluate all existing and readily available data and information, including for waters for which water quality problems have been reported members of the public; or academic institutions. These organizations and groups should be actively solicited for research they may be conducting or reporting.

Work proactively with community groups, universities, and other entities to help make sure their data and information will be usable.

EPA supports reasonable approaches to ensuring that data and information used to make listing decisions are of appropriate quality.

Participatory science is an essential way for community members to contribute to and be invested in water quality management decisions in their community.

EPA recognizes that support for participatory science may occur in stages and over time given the capacity and resources of states, territories, and authorized tribes, as long as it is consistent with existing requirements.

In 2022, EPA published Using Participatory Science at EPA: Vision and Principles to guide EPA on use of participatory science in its programs. EPA seeks to increase the use of such data and information in assessment and listing decisions.

More resources to support participatory science can be found on EPA's participatory science website including a quality assurance toolkit and EPA's Vision for Participatory Science.

Additional Considerations for Participatory Science

Decrease Barriers to Submitting Data and Information

Ideas for facilitating the submission of data and information from participatory science efforts include but are not limited to the following:

- Work proactively with participatory science programs to expand participation within communities that are predominantly of color, indigenous, linguistically isolated, and low-income to help increase water quality data in these communities where needed.
- Organizations already working in the community may be best suited to help coordinate these efforts with the support of the CWA Section 303(d) Program (e.g., faith-based institutions, youth groups, etc.).
- Build an understanding of the monitoring and assessment process and awareness of the opportunity to submit data and information.
- Put the data call in plain language and include languages that are prevalent in communities with environmental justice concerns in your state, territory, or authorized tribe.
- Provide an estimate for when the data call will open so people can plan accordingly. Share the data call with communities with environmental justice concerns including instructions for how to submit data and information.
- Decrease the burden on the individual or entity submitting data as much as possible.

Decrease Barriers to Using Participatory Science Data and Information

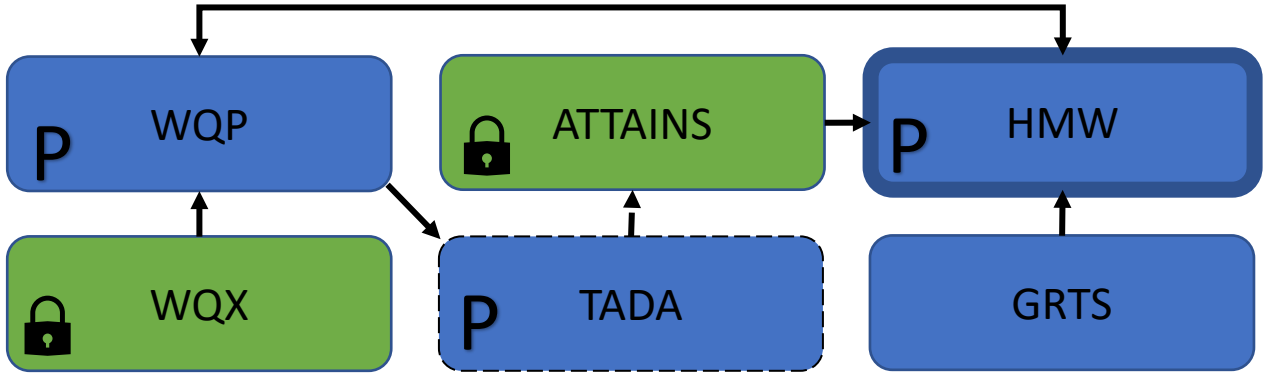
Approaches for enabling the use of participatory science data and information include but are not limited to the following:

- Establish clear guidelines for the quality-control of data and information, and communicate these guidelines in the public call for data.
- Develop quality assurance and quality control (QA/QC) measures that enable all scientifically sound data to be assessed
- Provide in list submissions a scientific, technical rationale for any decision to not use data/information that does not align with state QA/QC procedures.
- Identify what data and information was used for listing decisions and explain why such data and information was used to increase transparency.
- Work proactively with community groups, universities, and other entities to help make sure their data and information will be usable.
- Ensure that water quality testimonial information and photographs submitted from communities are evaluated, and used, unless a scientific, technical rationale not to do so is provided. More information on QA/QC procedures for this type of information can be found in the 2014 IR memo (see pages 12-13 regarding testimonials and photographs).

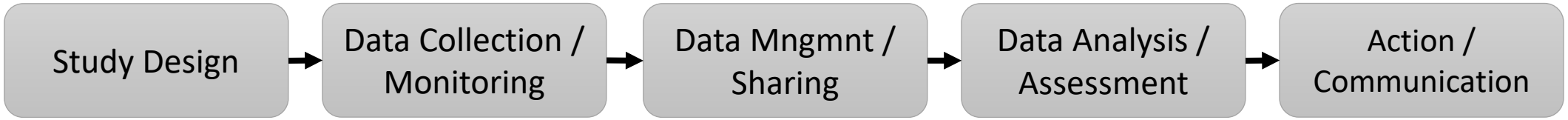
Additional information 2024 IR memo regarding data quality, quantity, and representativeness considerations for making CWA Section 303(d) listing decisions is available in previous IR memoranda, including the 2006 IR memo.

Lifecycle of Data and Clean Water Act Data Systems

Online CWA Data Systems



Lifecycle of Data



Managing External Data

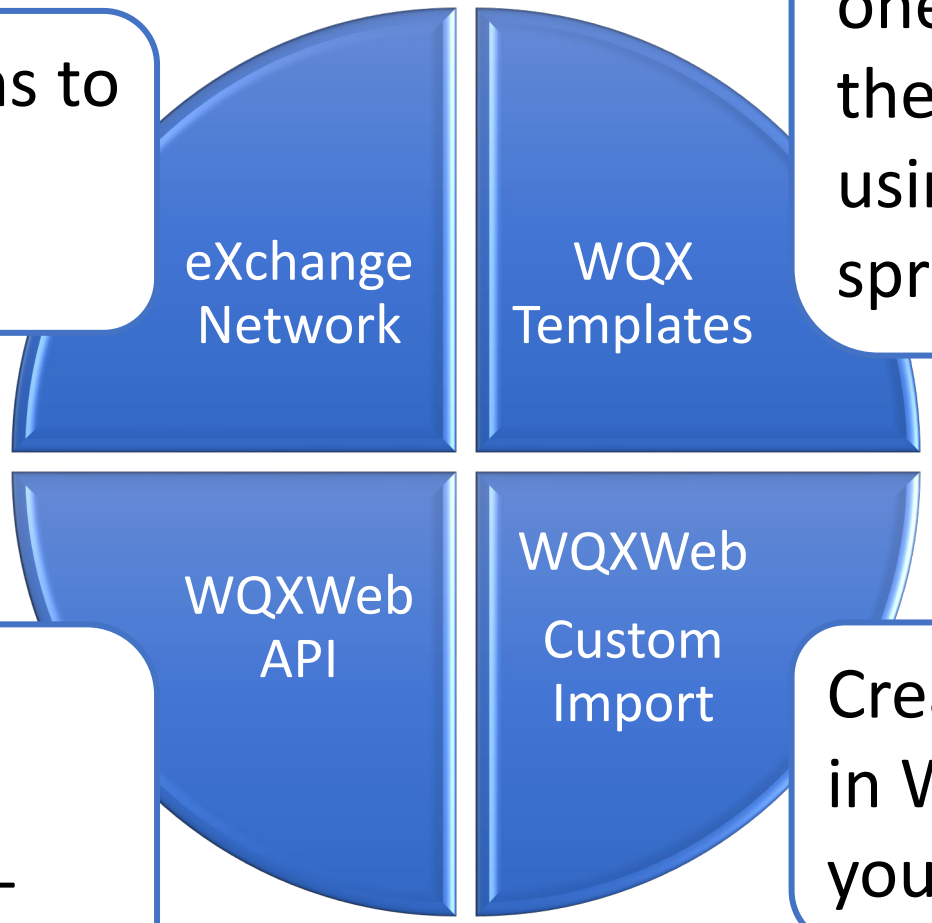
- Scenario: Multiple data providers in your state/region want to provide you with data for potential use in your programs. The data may need to be uploaded to WQX as part of Sec 106 req.

WQP First Approach	Facilitated Upload	Publish Under Central	Publish on behalf of…
External data providers may need support uploading to WQX on their own	Central Org provides a systematized dataset/template to Partners. Cust IC and guidance can be provided. Partner self publishes	Central Org publishes rec'd external data under its primary account. Will want to take advantage of several doc fields, reg unique methods, etc. **Activity Conducting Organization(s)**	Central Org publishes directly to Partner Orgs' WQX accounts. Requires permissions from WQX Helpdesk Most work for Central Org

WQX Submission Options

For Database Admins to self-publish a WQX XML file via a node

Manually reformat a one-time dataset to the WQX standard using Excel spreadsheet templates



For Developers/ Advanced Users to build modern client-side solutions

Create a custom import in WQXWeb to read your on-going datasets

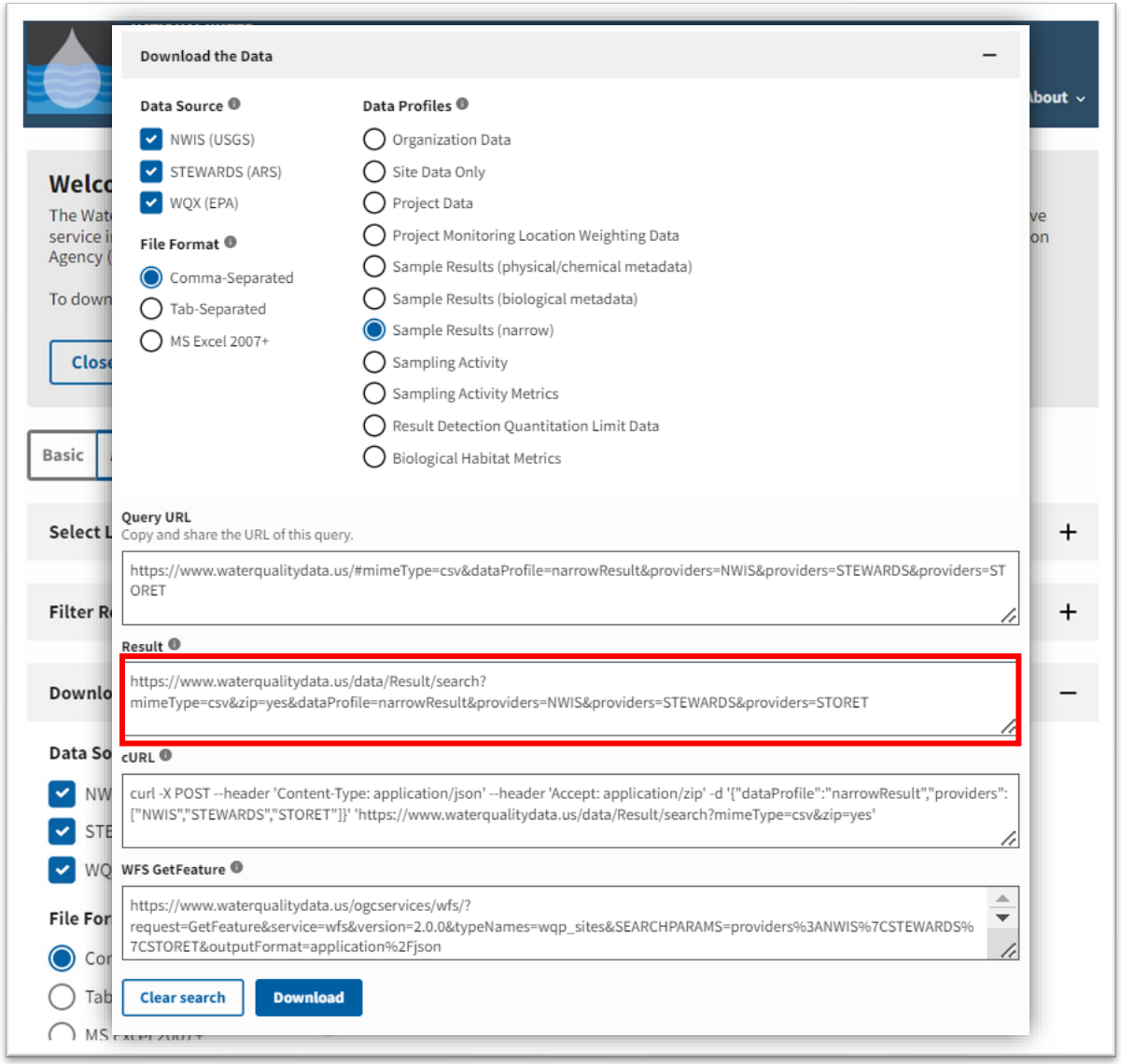
Many-to-one Project IDs and Alt Location IDs

- Project IDs are really useful for retrieving specific subsets of your data
- Any record can have multiple Project IDs associated with it
- Monitoring Orgs can even use the same Project IDs to be able call datasets together from multipole partners
- Alt Location IDs also allow you to supply a 2nd Alt ID used for the site

Water Quality Portal

Operated under An Interagency Cooperative agreement (USGS & EPA)

- Serves data from USGS, EPA, USDA, NPS in a standard WQX format
- # WQP: Data from >1,600 organizations
- # WQP: >425m records from >1m sites
- Serves data of All Water Types
- Includes a Graphical User Interface (GUI) & Web Services
- One of Our Integrated Systems (IOW HUB)
- DATA ServiceS can directly power analytics like those in HMW
- Growing Number of internal/external Tools built on top of this Primary data source



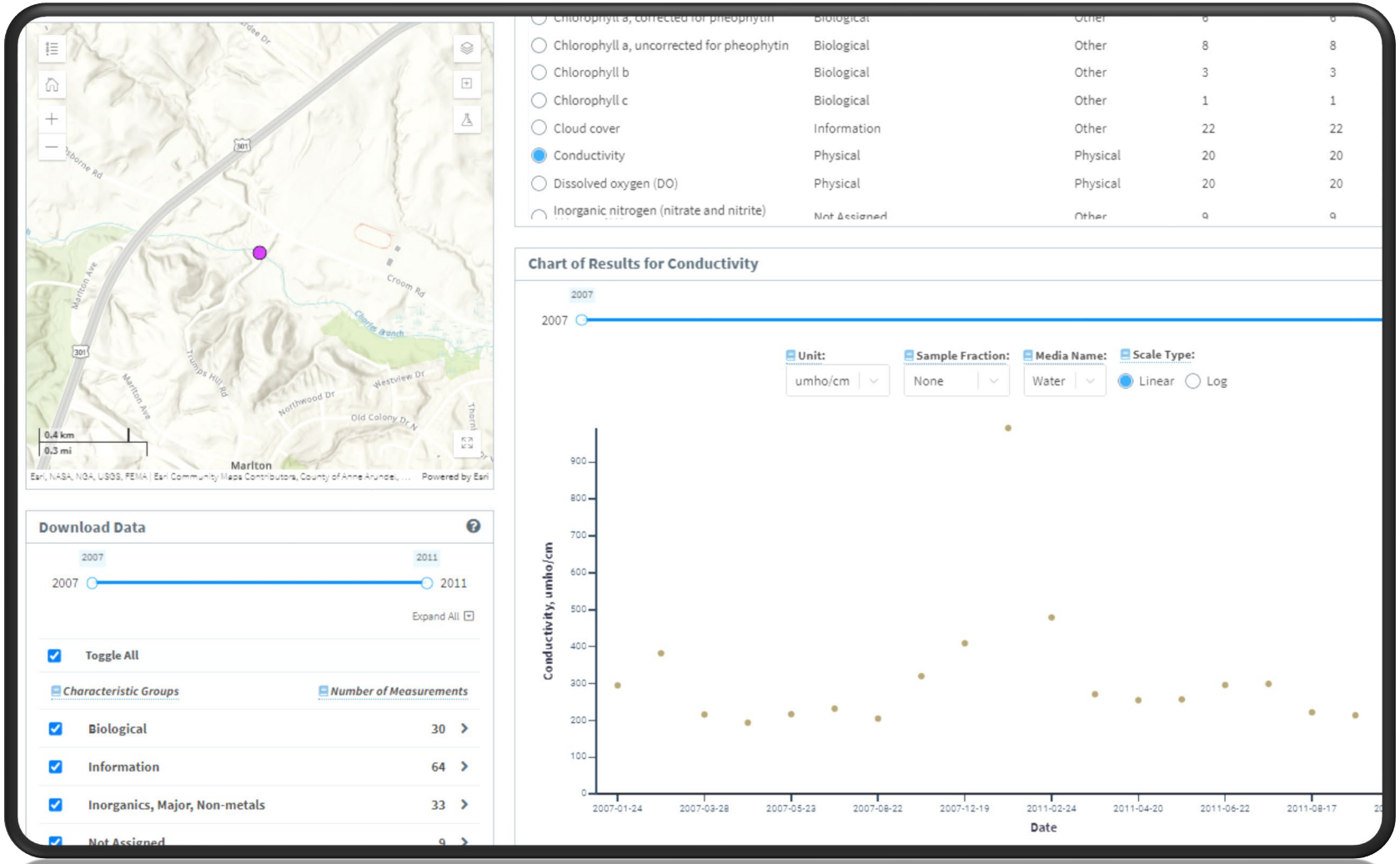
How’s My Waterway

Serving Public Information

Powered by open data and web services

Accesses, interprets, and displays data from over a dozen sources

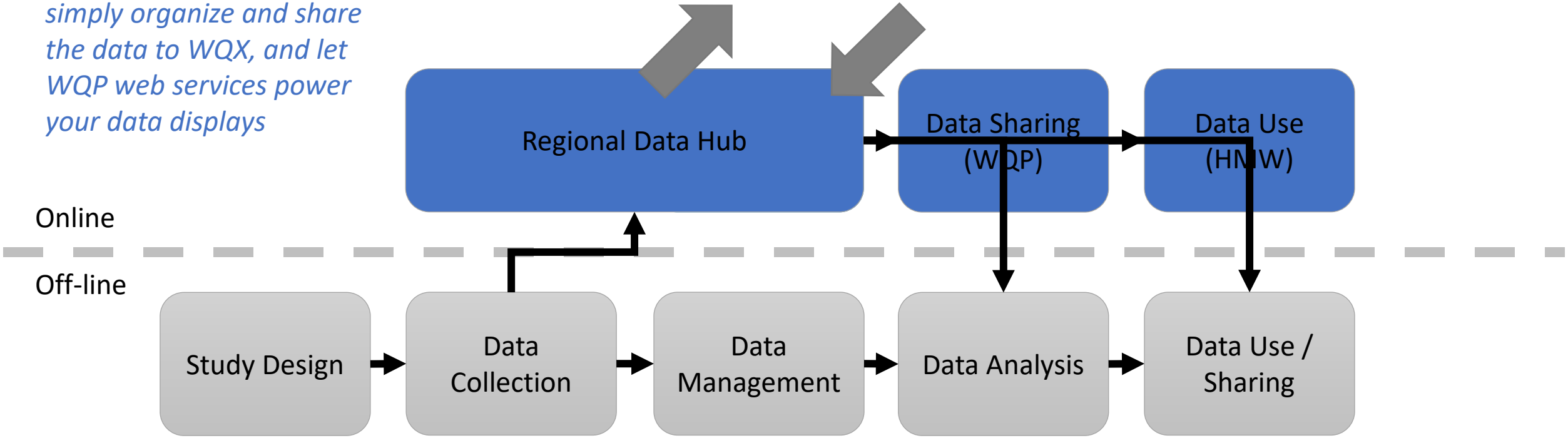
Including ATTAINS, and the WQP among many others



WQX Strategies for Regional Adoption

How can partnerships, technology, and the internet help us solve these challenges?

Doesn't require a database, simply organize and share the data to WQX, and let WQP web services power your data displays



1. Study Design Elements

- State supported participatory monitoring program
- Site identification / coordination
- Model QAPPs
- SOP manual
- Grant funding
- Data Tiering

Data doesn't just accidentally manage itself

MISSOURI STREAM TEAM
VOLUNTEER WATER QUALITY MONITORING PROGRAM
Standard Operating Procedure

Related Topics: Managing the Quality of Environmental Information

CONTACT US

Quality Assurance Project Plan Development Tool

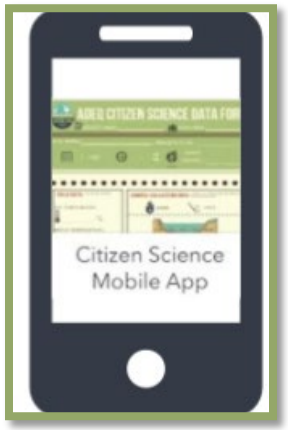
This tool contains information designed to assist in developing a Quality Assurance (QA) Project Plan that meets EPA requirements for projects that involve surface or groundwater monitoring and/or the collection and analysis of water samples. The structure of the tool is intended to step one through the thought process of planning a project, as well as to provide a framework for documenting the plan. The tool is divided into modules as follows:

Benefits:

- Data Quality / Elements established up-front
- Gets everyone on the same page
- Saves resources avoiding replication of efforts

2. Collection in the Field

- Data Sheets
- Monitoring Data Applications
- Sample processing
- Offer trainings in the methods you want deployed



Electronic Monitoring Forms Now Available!

Texas Stream Team has launched electronic monitoring form
which allows monitoring data to be inputted directly in the fi
necessary! Learn more >>

Texas Stream Team

EXAMPLE FORM

GEORGIA ADOPT-A-STREAM: Chemical Form

To be conducted every month

SITE INFORMATION

Group Name: Chattahoochee Hills Creek Keepers
Group ID: G-1214 Site ID: S-1214
Stream Name: Little Bear Creek
Monitor(s): Mary and Matt Mayfly
Number of Participants: 2

Event Date: 05/11/2020 (MMDDYYYY)
Time Sample Collected: 02:30 pm (HHMM am/pm)
Time Spent Sampling: 30 (Min)
Total Time Spent Traveling *(optional)*: 30 (Min)
Furthest Distance Traveled *(optional)*: 12 (Miles)

WEATHER

Present conditions (check all that apply)

- [ ] Heavy Rain
- [ ] Steady Rain
- [ ] Intermittent Rain
- [ ] Overcast
- [ ] Partly Cloudy
- [x] Clear/Sunny

Amount of rain, if known?

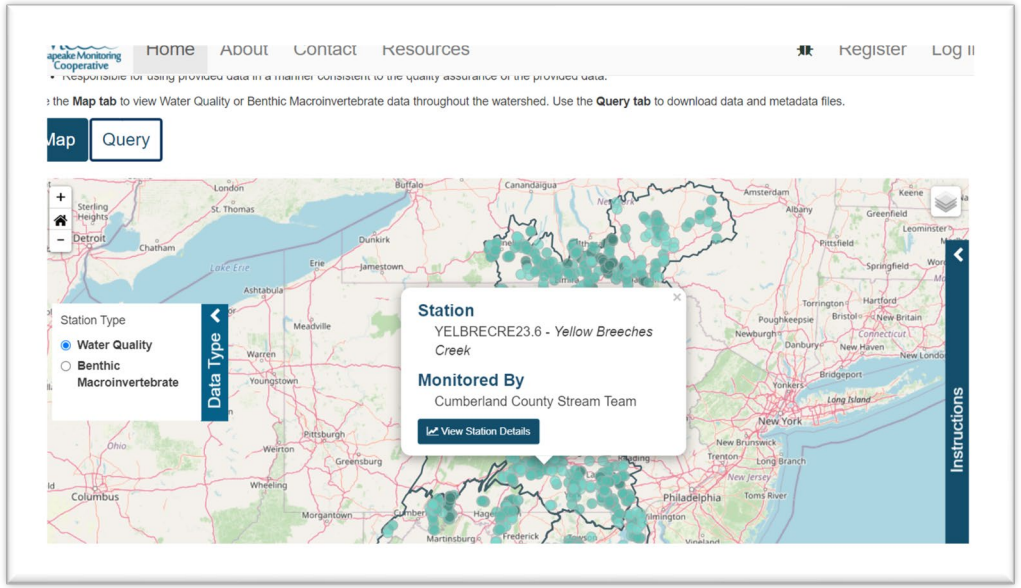
Amount in Inches : 0.5
In Last Hours/Days: 3
*Refer to *wunderground.com* for rainfall data

Flow/Water Level: *(check all that apply)*

- [ ] Dry
- [ ] Stagnant/Still
- [ ] Low
- [x] Normal
- [ ] High
- [ ] Flow (over banks)

3. Data Management

- Data Management Templates
- Training/User Guides
- Distributed databases
- Online data hub / management service
- Carry the electronic submissions forward

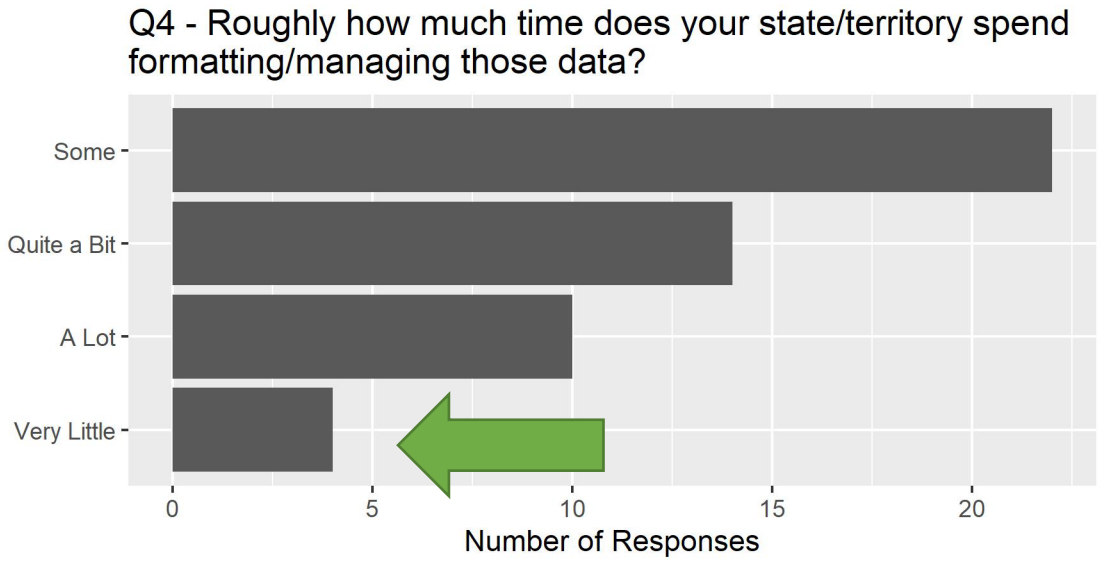


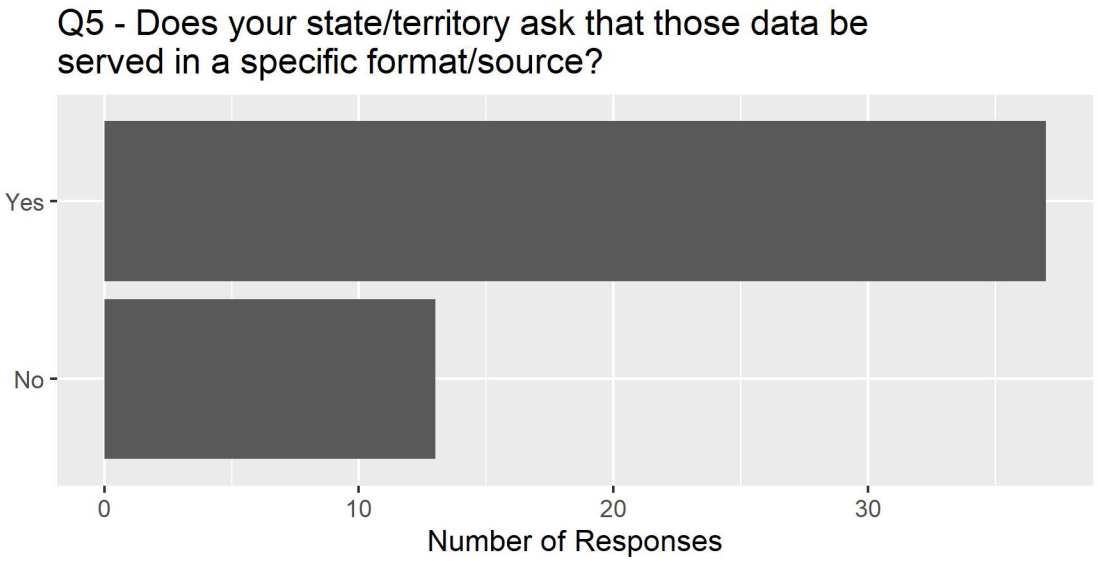
Support for DM upfront is a win:win for data producers and future users

4/5. Data Use / Re-use

Re-Use of external data is a strong motivation for sharing

- Data visualization dashboards (HMW, WikiWatershed, etc.)
- Use of data from the WQP in CWA assessments / modeling
- *Data calls – Templates help, prior DM support inc. qual/quant of data





6. Data Sharing

- Publish to WQX on behalf of other programs
- Develop and release an import config to match DM templates or your data call template
- Support an online data hub
- Connect to training resources

Did you know EPA offers 1-on-1 assistance and contractor support?!