

Sensors Activities Report Out

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OUTLINE

- Update on current activities
 - Joint publication on water sensors
 - Sensors data strategy
 - Data sharing experiments in select watersheds
- Discussion of the role of the NWQMC in these activities
 - Adoption of data standards
 - Finalizing sensor metadata standards
 - Other activities?

Publication on Water Sensors

- ▶ Evaluation of the state of technology of sensors, and an evaluation of the costs and benefits of using sensors
- ▶ Will particularly focus on nutrients, and the role sensors can play in improving our understanding of nutrients in the environment
- ▶ Will outline a road map for how the Federal government can help facilitate access to and broader use of sensors
- ▶ Co-authored by several Federal agencies (USGS, EPA, USACE, NOAA, and USDA have been invited to participate)
- ▶ Expected to be published in 2015

Discussion

- ▶ What would the NWQMC like to see from such a publication?
- ▶ One of the questions we're trying to answer with this publication is 'Why Now?'. What has changed that would allow monitoring network to be successful?

Sensors Data Strategy

- Sensors workgroup has formed a subgroup to develop a sensors data sharing strategy
- Strategy will guide the development of software components that will enable partners to share sensor data in a common format (similar to what has already been done sample data and the Water Quality Portal)
- Strategy will also evaluate existing data standards and identify additional data standardization needs

Sensors Data Strategy: Questions

- ▶ The workgroup has held two calls, and is seeking to answer the following types of questions:
 - ▶ How do you define continuous data?
 - ▶ What are your applications for continuous data?
 - ▶ What problems are better answered with continuous data?
 - ▶ What is driving your use of continuous data?
 - ▶ What equipment is being used/are you using to collect continuous data?
 - ▶ How is the data being shared and with whom?
 - ▶ What ancillary data do you collect to support the QA of your continuous data?
 - ▶ How is data quality assured and documented?

Additional Work in Support of the Strategy

- ▶ EPA has a contractor that is performing additional work to help define the strategy:
 - ▶ Conducting research of current approaches (i.e. USGS stream gages, NOAA IOOS, state and tribal efforts)
 - ▶ Conducting on-site interviews with sensor experts
 - ▶ Tasked with compiling all the information from the workgroup and drafting the strategy
- ▶ Strategy is expected to be completed by late Summer 2015

Discussion

- ▶ Would the NWQMC have an interest in 'adopting' a data standard, and what kind of message would this send?
- ▶ How else could we promote the adoption of data standards by the sensor and data logger manufactures?
- ▶ What questions are we not asking that we should be asking?

Data Sharing Experiments in Select Watersheds

- ▶ EPA is scoping the costs and benefits of setting up a sensor data sharing network
- ▶ This effort is part of EPA's E-Enterprise initiative which seeks to use technology to improve how EPA, the states, and tribes conduct business (improved monitoring is a key component of E-Enterprise)
- ▶ The cost/benefit evaluation will be complete in March 2015
- ▶ The E-Enterprise Leadership Committee (EELC) (with participants from EPA and the states) will make a decision based on the evaluation to pursue this activity

Experiments: Next Steps

- ▶ If the EELC decides to move forward, EPA would work with partners to establish a number of experimental watersheds to set-up a sensor data sharing network
- ▶ The approach would test the concepts developed in the sensor data sharing strategy
- ▶ The experiments would be broader than water quality sensors. They will focus on water quantity sensors
- ▶ The number of experimental watersheds will depend upon the amount of funding available
- ▶ This effort would begin in 2016; however, the EELC will be looking for some 'early wins' in 2015

Discussion

- ▶ If we wanted to have some 'early wins' in 2015, what could those be?
 - ▶ One gap that we've identified is the need for a sensor metadata standard. This work was started by the NWQMC and is almost complete, would some additional resources help to finalize this?
- ▶ What role would the NWQMC want to play in the watershed experiments?
- ▶ How do we use these experiments to guide the larger goal of establishing a broader sensor network?
- ▶ How do we make sure that this effort stays in sync with the Open Water Data Initiative?

Other Needs to Consider

- ▶ This effort is more than just a federal initiative
 - ▶ Needs state, tribal, local, academia, and private sector participation
- ▶ We should consider the adoption of open standards at all levels (SOS, WaterML 2)
- ▶ Demonstrate that the communication and exchange of data can work (leverage OWDI)
- ▶ Set-up a cloud space and develop a plan for maintaining it
- ▶ We need to think about visualization, and how we make the data meaningful
- ▶ This effort should be bigger than just water quality data

Additional Discussion/Questions

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