

Subcommittee on Spatial Water Data

Meeting Details:

Date/Time: April 24, 2015 1:00 - 3:00 PM Eastern Time

Location: Teleconference only (administered from USGS Headquarters, 12201 Sunrise Valley Drive, Reston, VA 20192)

Conference Line: (760) 569-6000 Code 1063271#

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When it is time to attend the meeting, please visit this link:

<https://usgs.webex.com/usgs/j.php?MTID=m9d6f264cf4268301448e8625ad8ea6a8>

Meeting number: 716 325 658

Shared document space:

<https://drive.google.com/open?id=0B877MDsx9pIFTmpocGE1d0M4TVE&authuser=0>

Agenda

All Times Eastern Time Zone

- 1:00 - 1:10 Introductions for new attendees
- 1:10 - 1:20 Demo of Esri water-related open data services (Steve Kopp)
- 1:20 - 1:50 Data Quality discussion (Stuart Hamilton and Sara Larsen)
- 1:50 - 2:10 Help us build a storyline (Angela Adams & Emily Read)
- 2:10 - 2:50 Work Group Reports
- 2:50 - 2:55 New Issues
- 2:55 - 3:00 Membership roster; Adjourn

Attendees:

New (did not attend 8/28/14 or later meeting)

Stu Hamilton (Aquatic Informatics)

Martin Seul

Returning (attended 8/28/14 or later meeting)

Ed Clark, NOAA, edward.clark@noaa.gov

Marie Peppler, USGS, mpeppler@usgs.gov

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Rob Dollison, USGS, rdollison@usgs.gov
David Blodgett, USGS, dblodgett@usgs.gov
Steve Kopp, Esri, skopp@esri.com

1:10 - 1:20 Demo of Esri water-related open data services

Short demo by Esri of water-related services they offer - 10 min

- A collection of links showing Esri's work in leveraging U.S. Government water data
- Esri has been building web services (map, feature, image, analysis, and download) around U.S. Government water data for a few years. A few examples links are below. If you see things here and want to know how it was done, please ask. We are happy to share layer files and python scripts with you.
- *Note: some of these services require an ArcGIS Online organizational account login, which you can get from your ArcGIS administrator. If you work for someone that uses ArcGIS, you have accounts available to you.*
- **In the [Living Atlas](#)**
 - [World Hydro Basemap](#) (USGS, WWF)
 - [World Hydro Overlay](#) (USGS, WWF)
 - [USA Wetlands](#) (US Fish & Wildlife)
 - [USA FEMA Flood Zones](#) (FEMA)
 - [USA Polluted Waters](#) (EPA)
 - [source Water Pollution](#) (EPA)
 - [USA National Hydrography Dataset](#) (USGS)
 - [USA Evapotranspiration](#) (USGS)
 - [USA Mean Rainfall](#) (USGS)
 - [USA Aquifers](#) (USGS)
 - [Live Stream Gauges](#) (USGS, Army Corps, NOAA)

- [USDOC NOAA Weather Stations](#) (NOAA, NWS)
- [USA Precipitation Forecast](#) (NOAA, NWS)
- [Soils main page](#)
- [SSURGO Soils Downloader \(USDA\)](#)
- [World Precipitation Change Scenarios](#) (NCAR)
- [World Monthly Snow Pack](#) (NASA)
- [World Monthly Soil Moisture](#) (NASA)
- [World Monthly Evapotranspiration](#) (NASA)
- [Data download tool for ArcGIS Desktop](#)
- **Data Coming Soon**
 - USA National Hydrography Dataset Version 2.1 Flattened (USGS)
 - USA National Hydrography Dataset – High Resolution (USGS)
 - USA Watershed Boundary Dataset – Hydrologic Units 6, 8, 10, 12 (USGS)
 - World Monthly Runoff (NASA)
 - World Monthly Precipitation (NASA)
 - USA Drought Tracker – (USDA, NOAA)
 - USA Flood Map (NOAA, NWS)
 - World Hydrology Basemap – (USGS, WWF)
- **Web Applications**
 - [Global stream discharge app](#) (USGS, BOM, others)
 - [Water Insights app](#) (USGS)
 - [Watershed Explorer app](#) (USGS, EPA, WWF)

These [analysis services](#) are available in the [app](#) above, in the [ArcGIS Online Analytics](#) user interface, in [ArcGIS Desktop](#), in [Web AppBuilder](#), and as [REST](#).

1:20 - 1:50 Data Quality/Reporting Stu Hamilton and Sara Larsen

([Presentation from Stu Hamilton](#))

Sara Larsen has asked Stuart Hamilton to join us and talk about Data Quality. Here are some ideas for questions to discuss:

1. Should OWDI enforce a data quality reporting structure?
 2. If so, what are the requirements for data providers?
 3. Are there any other metrics we could use to evaluate data quality?
- Communication of quality is essential for the in-filling of data sets with information of other networks of varying provenance.
 - Interagency data quality assurance - for data used within the use cases:
 - CUAHSI approach? mother of all databases: “we’ll take your data as long as meets minimum standard”
 - federation: in custody of data provider - has diverse provenance, will be aggregated using open standards (e.g., data.gov)
 - single standard for everyone: doesn’t make sense; unaffordable
 - data of diverse provenance makes sense - data collected for different purposes will have different standards (ref: fitness for purpose slide - grey text, left side of slide: Source, Processing status, Statistic code, Quality, Range, Qualifier, Method)

- consider the original purpose data was collected when determining whether can be put to another/related-unrelated use - may need additional work done on the datasets
- Data of documented quality... may be easiest for the geospatial component, but increases in complexity for more nuanced datasets (quality etc.).
- Can the other components of ACWI help develop the metadata standards for quantifying quality over various information sets?
- Can this be captured within existing standards, or are new standards necessary?

Open Discussion

Dave Blodgett: Purpose is most important metadata element

Dwane Young: Should always have data of documented quality. FGDC metadata standard defines data quality quite well. OWDI could help to define metadata needs. Could spin off to other ACWI committees, e.g. NWQMC.

Ed: Does WATERML 2 have adequate metadata for defining uncertainty?

Dave Briar: WATERML 2 had capability to describe, but need work on the ontologies (name space) to determine the quality, and how to quantify the quality.

Stu: Each source can define how they qualify data based on what is locally meaningful.

Ed: Let's think about this and come back to this next month and talk about what actions we need to take address data quality. Do we need a working group, or do we work with other ACWI committees? FGDC is very concerned that we document and publish what we're doing with regard to data quality.

1:50 - 2:10 Help us build a storyline (Angela Adams)

Let's talk about building a "storyline".

"Storyline" can be a theme to connect disparate datasets, to tell a story or make a point. The storyline drives brainstorming on visualizations and selection of datasets to support the theme.

Tapestry storytelling/visualization conference:

<http://www.tapestryconference.com/event>

ArcGIS story maps webpage: <http://storymaps.arcgis.com/en/articles/what-is-a-story-map/>

Consider reaching out to folks: If you're a decision maker - policy group - what story would you want to tell?

ESRI builds story maps - they have a group, many in DC; events on the calendar; customer relationships; many built by customers. e.g., NOAA-NWS has a story map CA water. Ed Clark will look for the link.

Example from SoCal NWS

Is group aware of “Visualizing Nutrients Challenge”?

<https://www.innocentive.com/ar/challenge/9933113>

Nutrient pollution affects more than 100,000 miles of rivers and streams, close to 2.5 million acres of lakes, reservoirs, and ponds, and more than 800 square miles of bays and estuaries in the United States. Harmful algal blooms (HABs) and hypoxia are examples of negative impacts of excess nutrient runoff that can impact human health, ecosystems, fisheries, and tourism. The USGS, U.S. EPA, and Blue Legacy International challenge Solvers to utilize open government data sources to create compelling, innovative, and comprehensible visualizations that inform individuals and communities on nutrient pollution and inspire them to take action.

... the top 10 visualizations, including the First Place Award and People’s Choice Award winners, will have the opportunity to be promoted on the Federal interagency [Open Water Data Initiative](#) website

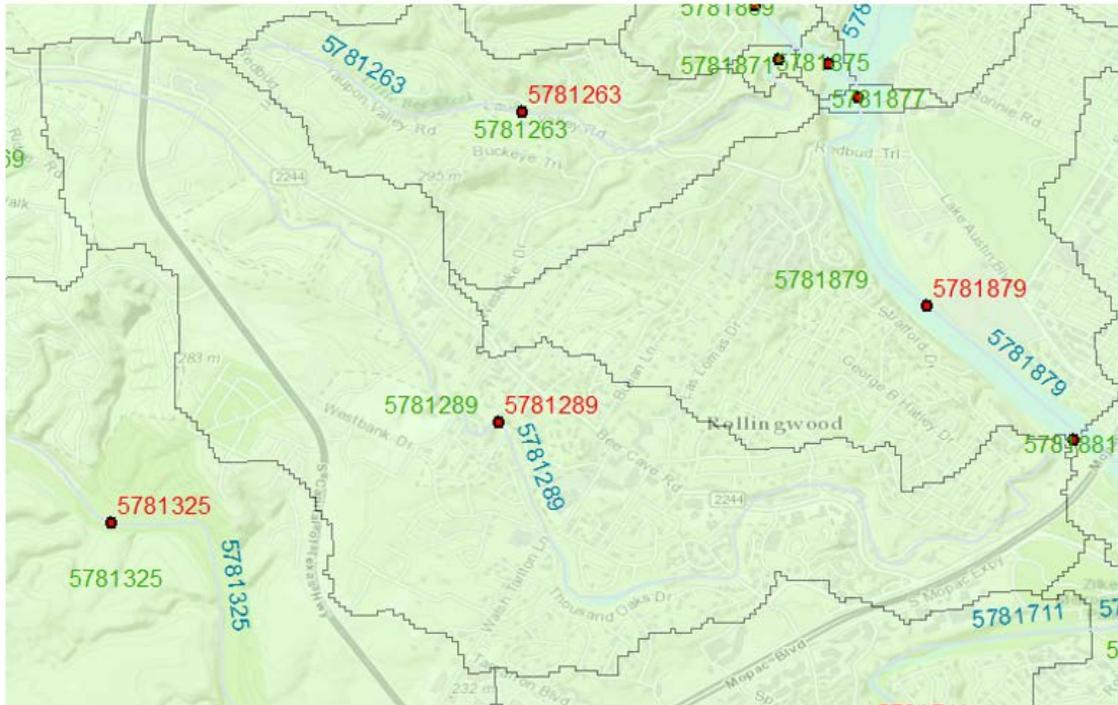
2:10 - 2:50 Working Group Reports

NFIE Work Group

- Check on integrity of connecting the flows computed in the NFIE with the NHDPlus stream reaches that they apply to. Blue number is the NHDPlus stream reach COMID; Green number is NHDPlus Catchment FeatureID, Red number is the COMID of a point at the center of the stream reach at which we’ve attributed the flow computed from the NFIE-Hydro streamflow model for this reach. We need to check that this same coincidence between the COMID values for the blue lines and the red points exists for all NHDFlowlines for which we’ve computed flows. Example contributed by David Maidment.

Eanes Creek, Rollingwood

Catchment, Stream, Flow 5781289



Drought Work Group

- Mockups of drought visualization being prepared to lay out initial concepts.
- Discussion with the software developers held in mid April to identify potential technology, graphic design, datasets, contributions and timelines.
- Meeting to be arranged w/drought use case team to review initial mock-ups and get feedback.
- Tech paper to be included in an issues of the *Journal of AWRA*.

Spill Response Work Group

Comments provided by Bill Samuels via email.

Spill Response Work Group - meeting held on April 23, 2015

- **Presentation on " Drinking Water Maps " by Rachel Carlson, EPA Office of Ground Water and Drinking Water**
Internet-based geographic information systems (GIS) tool for drinking water source water protection and assessment. While Drinking Water MAPS is currently a tool for EPA use, the EPA Office of Ground Water and Drinking Water is working to provide availability of Drinking Water MAPS to State

agencies, drinking water utilities, source water collaboratives, watershed groups, and others. Drinking Water MAPS will include a nationwide mapping tool, a customizable source water protection planning tool, and suite of data exchange services to help assess safe drinking water. State/Utility and Public versions of Drinking Water MAPS are anticipated to be available in mid-2015.

- **Presentation on "Preparing Data Management Systems for the Next Environmental Disaster" by Amy Merton, NOAA**

In the wake of the Deepwater Horizon (DWH) oil spill, a flood of information and new research has highlighted the need for improved coordination of data management for environmental applications (Figure 1). It is common for multiple entities (NGOs, academic institutions, responsible parties, Federal and State agencies) to collect data that vary significantly in quality, collection methods, access, and other factors that affect use by others. These differences result in limitations for use of the data including comparing results or making inferences. Environmental Disasters Data Management (EDDM) project seeks to foster communication between collectors, managers, and users of data within the scientific and research communities, industry, NGOs, and government agencies, with a goal to identify and establish best practices for orderly collection, storage, and retrieval.

- **Presentation on "EPA Region 5 Response Team and Ohio Mapping Project - Emergency Response Flexviewer " by Jon Gulch, EPA**

The Region 5 Regional Response Team (RRT) is comprised of members from State and Federal agencies committed to working efficiently to minimize the adverse effects of oil and chemical incidents that affect safety, human health and the environment. The RRT is co-chaired by the U.S. Coast Guard Ninth District and U.S. EPA Region V. The RRT acts as a regional planning and coordination body for preparedness and response actions. In the case of discharged oil and/or hazardous materials, the chair for the RRT is the member of the agency providing the Federal On-Scene Coordinator (FOSC). Preparedness activities are carried out in conjunction with appropriate State Emergency Response Committees, Area Committees, Local Emergency Planning Committees and Tribal Councils.

Technology Work Group

No report this month.

Water Use Data Work Group

On our last webinar the water use data workgroup received a presentation from Zach Clement from the Department of Energy on some of the water use data that they have developed for different applications and reports. He presented a graphic sankey diagram of both energy generated and water used by many different sectors/activities. His presentation is in our workgroup folder. He also added to our catalog of water use datasets. The workgroup also took a look at a visual interface

for presenting the information we've compiled so far and discussed using other tools. The group will be reviewing another format for presenting water use dataset information compiled on our next call. We will also had questions about State-generated water use data on the east coast, and will be reaching out to a couple of agencies to find out more about eastern State data. Sara drafted our 1-pager for the workgroup (under review) and will give that back to Al and Wendy soon. Question about site-specific water use: Western States Water Council helping states to develop ways to share data on water use.

NHDPlus Framework Data Work Group (NFIE #1+2+3+4)

Tommy Dewald (lead), Al Rea, Karen Hanson, Kevin McNinch, Cindy McKay, Brad Cooper, Barb Rosenbaum, Steve Kopp, Caitlin Scopel

Initial web services have been implemented using the seamless flattened (denormalized) NHDPlus file geodatabase that was delivered in March. These initial service implementations are intended to promote discussion around potential changes to the data set and/or service to support OWDI requirements. We are listing new OWDI services in a Google Sheet [here](#) for now. Ultimately we'll need to build a more sophisticated data catalog, but for now the above sheet will contain links to services as we build them. Anyone is welcome to start testing them, and to provide feedback. Your comments on these services can be entered on the appropriate worksheet tab of the following Google sheet:

<https://docs.google.com/spreadsheets/d/1VB1UuV2MBE1fCm5Ny8ldqWpl--MR8j0lubIGyJ70xel/edit#gid=0>

OGC services - Dave Blodgett (USGS)

GeoServer NHDPlus Services Documentation Starting here:

<https://drive.google.com/drive/u/0/#folders/0B877MDsx9pIFTmpocGE1d0M4TVE/0B877MDsx9pIFNXdORncxVnRzRFU>

ESRI ArcGIS Server services – T.Dewald (EPA), P.Rana (EPA), B.Cooper (EPA contractor)

1. An ArcGIS Server service @ http://ec2-54-163-241-137.compute-1.amazonaws.com/arcgis/rest/services/NHDPlus_Flattened/MapServer
2. An ArcGIS Online (AGOL) map consuming the service is available @ <http://arcg.is/1lbndXJ>
3. An Esri Leaflet map consuming the service is available @ <http://codepen.io/pauldzy/pen/emoxyL>

We're still kicking the tires on these and plan to reach out to the use case workgroups for additional feedback.

D. Maidment comment: NFIE needs to be able determine which of the gages have active WATERML services. Al Rea answers: The "Active" field in the gage data service identifies which gages are considered "active" by USGS. This was updated in March 2015. The services are here:

Esri Feature	https://www.sciencebase.gov/catalog/item/55142da7e4b032384276ca09
Esri dynamic map	https://www.sciencebase.gov/catalog/item/551312f1e4b02e76d75c08bb
Esri tiled cache	https://www.sciencebase.gov/catalog/item/55131014e4b02e76d75c07aa

USGS Gages, Dams, and NWS Forecast Points (NFIE #6+7+8)

No report this month.

NOTE TO ALL WORKGROUPS: we need to bring the SSWD official website (<http://acwi.gov/spatial/>) up to date, so each workgroup should prepare an informal 1-page statement of what your workgroup does, who is a member, etc. Send that information to Wendy Norton (wenorton@usgs.gov) and we'll upload it onto the website. Only two of the eight groups have provided material thus far: Drought Use Case and Spill Response Use Case.

Also, I'd like to make a slide of all the logos of organizations participating in SSWD/OWDI (official members only or all participants? Maybe both, grouped?). Please put a snapshot of your organization's logo in [this document](#). If you're unsure whether you're an official member, here's the list of people who have provided a statement saying that they want to be official members: Camille Touton, Michael Eberle, Rick Hooper, Chris Mickle, Adam Carpenter, Sara Larsen, Pat Lambert, Jeff Davis, Lauren Schapker, Emily Read, Brenna Mefford, Al Rea, Ed Clark, Thomas Dabolt, Wendy Norton. All others are participating on an informal basis but can become official members any time by sending an email to wenorton@usgs.gov, stating that they wish to participate and which organization they're representing.

<http://acwi.gov/spatial/owdi/> provides a good overview.