



Advisory Committee on Water Information – 2017 Annual Meeting January 17-18, 2018

Location: USGS National Center Auditorium, 12201 Sunrise Valley Drive, Reston, Virginia

All presentation slides from the meeting are available here: <https://acwi.gov/acwi-minutes/acwi2017/>

Welcome and opening remarks (Don Cline)

Don welcomed everyone to the meeting and gave a brief overview of the information to be covered during the meeting. He noted that we will be working on ACWI membership renewals, and this may be a slightly different process from in the past.

Don updated ACWI on the recent WMA reorganization. The USGS budget has declined in buying power over the past 10 years, and it has become difficult to do the work we have. In the past decade, our workforce has decreased by 20-23%. We need to become more efficient and get as much out of the budget as we can. WMA must reevaluate priorities and come up with new activities to try and turn our budget around. Both budget and organizational reorganizations have taken place. Traditionally, we were organized around 3 disciplines, however, water is multidisciplinary. To modernize our organizational structure, we have reorganized around core functions of what we do. This tidies up duplicative work across offices and lets us focus on our core mission more tightly.

ACWI helps us focus on our mission and lets us know what is needed from us. In general, times are interesting. Don looks forward to what Subcommittees have to report.

Tim Petty is the new Secretary for Water and Science as of last week. He will speak on Tuesday morning.

Introductions were made around the table and over the phone.

Status report from the Subcommittee on Ground Water (SOGW)

Speakers were Bill Cunningham, Darryl Pope (USGS), Candice Hopkins (USGS), John LaFave (MBMG), Janie Hopkins (TX Water Development Board), Kevin Donegan (CA Department of Water Resources), Sharon Kroening (MN Pollution Control Agency), Lauren Schapker (National Ground Water Association)

Bill acknowledged those who have contributed to and support SOGW activities and gave a general overview of the SOGW's membership and what the SOGW is about. Originally, the sole initial task was to create a National Ground Water Monitoring Network (NGWMN). The network is supposed to be a long-term groundwater quantity and quality monitoring framework which serves as a tool to assist in assessing quantity as it is constrained by quality. The NGWN is not a repository.

Why do we need the network?

- Trend tracking, impacts identification, analysis and assessment, planning and management, patchwork quilt – data provider differences, fill data gaps, transboundary issues – a way forward on addressing these issues across States.

Overview of the network:

- It has been a long, but worthwhile process establishing the NGWMN. Prior attempts were leveraged, “GW vacuum”
- Portal updates continue in 2017-2018
- Funding is driven by NGOs. Feds are the “glue”
- Data providers are the owners of the data; as changes are made to data, those changes are reflected in the NGWN.
- NGWMN operations are managed by USGS with oversight by the NGWMN program board and USGS.

Progress since last meeting (Daryll Pope)

- Cooperative Agreements Status –
 - 2017 – 19 proposals received and reviewed by the Program Board (10 are also data providers)
 - Funded 5 new data providers (CO, IA, DNR, NM, WY)
 - Ongoing support to 13 agencies
 - Summary of work at cida.usgs.gov/ngwmn/cooperativeagreements.jsp
- 2018 program announcement
 - 26 proposals, 7 are for new data providers
 - The Program Board is meeting next week to review the proposals
 - Anticipate projects starting in April
- New data provider meeting
 - Met in Nashville in Dec. 2017
 - USGS staff working with new data providers also participated
 - Current data providers from Montana and Utah attended to share experiences
 - Held in conjunction with the NGWA Groundwater Summit.
- Growth of Network
 - Steady growth since 2015 - 6 new data providers
- Candice Hopkins – Data Portal activities
 - The NGWMN data portal allows access to specific sites for selected water levels or water quality vs water quality portal which is a warehouse of data.
 - New features of the portal
 - Data provider pages – information about providers
 - It is important to have data of known quality!
 - Well registry bulk load (easier for providers)
 - Deletes from well registry now allowed
 - Water levels web service usage tracking
 - Water level statistics (similar to WaterWatch)
 - *Enhancements* (2018)
 - Display missing fields
 - Search engine optimization (allow more people to access data)
 - Improve cache performance
 - Dual attribution of sites (ensure agencies get credit for collecting data)
- Data Provider Remarks
 - Texas Water Development Board (TWDB) (Janie Hopkins) – Pilot study – Participation demonstrated the importance of internal data collection, standardized operating procedures, and promotion of our presence in a national network to our Legislators. Participation led to revision of TWDB water-level measuring manual, creation of first web services at the TWDB, and incorporation of lithology data into TWDB groundwater database.
 - Utah Geological Survey (UGS) (Janae Wallace) – 100 water quality sites; Prior sampling data was augmented by new sites, expanded our network and facilitated development of a UGS data portal with financial support of lab analysis by EPA Region 8. UGS is non-regulatory – this has allowed them to continue monitoring.

- Colorado Division of Water Resources (Kevin Donegan) – Administer water rights in CO and collect and disseminate data to public; 2000 wells measured once per year in CO. As a new provider, we will focus on High Plains and Colorado Plateau aquifer wells. These are important because they span State lines. We have already seen benefits in that we hired an employee. We are excited about filling data gaps and building relationships with USGS and neighboring States. We are excited to use what we learn and apply it to other aquifers in the State and move toward water quality sites in the future.
- Montana Groundwater Assessment (John LaFave) – Montana has a long history with the network as it was a pilot State and contributed to the framework documentation. We were able to use data to set up impounds due to severe drought this past summer. Montana has a very active drought advisory committee. The committee used data from the network to show what regions might be most impacted. The drought, a terrestrial, surface-level drought, came on the heels of a good snowpack year and impacted shallow groundwater systems.
- Minnesota Pollution Control Agency (MPCA) (Sharon Kroening) – MPCA is a State regulatory agency which protects State waters from non-agricultural contamination. MPCA operates a groundwater network of about 270 wells that are sampled annually. We have been a provider since pilot studies began; providing data from bedrock aquifers. We are now working to provide data from sand and gravel aquifers and carbonate aquifers. Benefits include collaboration with USGS and States. Working with the USGS has helped ensure we look at data practices, provides a great forum to connect with other States, and has increased visibility for Minnesota ("Land of 10,000 Lakes").
- New Activities (Lauren Schapker) – A brainstorming session was held to survey members of SOGW in order to prioritize focus areas.
 - Topics that will be discussed on upcoming calls groundwater usage/quantity, groundwater/surface-water interaction, data preservation, regional issues, transboundary themes, integrated modeling and monitoring, innovative monitoring techniques, and more
 - Next steps – SOGW ranked preferences independently
 - Monthly calls to flesh out topics
 - Come to ACWI once future directions are selected
- *Question (Beck):* I didn't see any mention of Tribal nations being involved. Have any of them been approached? *Answer:* The issue of Tribes has come up, and Tribes are able to participate, but they are not currently able to participate in the annual call for proposals (due to the language for the NGWMN authorizing language, which we're in the process of trying to get fixed).
- *Question (Hunsicker):* What process do you use to bring in States that aren't currently involved? *Answer:* Without funding they are able to participate any time by approaching any SOGW member. For funding, we have a formal annual call for proposals that is issued through the Federal Register, early September – December.
- *Question (Vicory):* What prompted the previous question was the map that had big areas with no data points. With respect to the process for getting States involved, can ACWI members help with advertising to get additional participation? *Answer:* Yes, SOGW would love for ACWI members to help spread the word of this program and publicize the need for State participation. Participation is completely voluntary, so States need to be willing to come to the table and share their data; they may be able to get some funding through the process, though they need to realize that resources are limited.
- *Comment (McLaughlin):* The State-specific examples are great, but it would be nice to see these examples in greater detail. As quantitatively as possible, how are users able to improve their process through participation? This would help elevate the value of the process and transboundary issues, and would help sell the NGWMN to other States. *Response:* Charge to SOGW to better document the benefits of participations; perhaps doing this through the SOGW web.
- *Question:* How do you enforce standards? *Answer:* There are broadly stated standards in the framework document. Primary requirement is that each data provider must have established standards and that they share what those standards are; this ensures that all the data are of known quality.

- *Question (Heineman):* Is the data available in NWIS? *Answer:* NWIS is a contributor to NGWMN as a Federal data provider.
- *Question (Berry):* I have a question about drops in aquifers in the Potomac basin. Is there data from the WaterSmart initiative getting at how big aquifers are and when do we hit a crisis? Has there been follow-up work on the North Atlantic coastal plain? *Answer:* Locally, yes. The USGS has produced a principal aquifer study from the Virginia border to Long Island addressing the issue described. Those studies are a point in time, and the NGWMN would continue and build upon that. The information could then be used to make forecasts.
- *Question (Kernan):* I am glad to hear that statistics will be pulled in from WaterWatch. I encourage you to look at water level trends for the future and the impact on infrastructure. Also, in the future, it would be good to look at groundwater trends relative to quality. *Response:* We appreciate statistics and will add this to the list.
- Applications with NGWMN will help initiate dialogue with partners.
- *Comment (Schreiber):* Thanks to ACWI and member orgs and USGS for everything they've done to facilitate NGWMN. We couldn't be more pleased with the progress we've made since we began the NGWMN effort. There is still a lot of work to do. I just wanted to raise a couple of quick points:
 - Not only has there been significant collaboration within the U.S., but there has also been collaboration with Canada. There has even been collaboration in Brazil and other places across the world. Anyone can participate. This is an important part of the network.
 - I'm glad the ACWI folks have a chance at this meeting to interact with NGWA. I would encourage you to talk with Lauren Schapker and other NGWA people attending the meeting.
- *Question (Freedman):* Is there a future vision for a national assessment? How did NGWMN start? *Answer:* I have no commentary on the original question. A report by the Heinz Center was one of the drivers (it said we can't assess groundwater conditions across the country because the USGS network doesn't have complete coverage of the Nation, since it is conducted through the Cooperative Water Program, which is a cost-sharing program between USGS and the States, and not all States chose to participate in the groundwater monitoring aspect of this partnership). This is one of the reasons we started NGWMN, to have partnerships that would allow USGS *and others* (such as States) to measure groundwater levels.

National Water Quality Monitoring Council (NWQMC)

Speakers were Gary Rowe (USGS) and Jim Kreft (USGS)

Question to Lauren and Bill – Gary asked about water quality? How did it not make the cut in brainstorming sessions? Are you passing this on to the Council? Response: Water quality is part of many topics. We will make sure it's fleshed out in further discussions.

Gary acknowledged those who support and participate in Council activities and workgroups.

- Overview of the Council's history and goals
- Review of the framework through demonstration of framework wheel graphic
- Review of membership – 35 members; broad membership; 10 State reps (rotational); Feds, States, Tribes, professional orgs, regional/interstate, academia are represented
 - The Council has existing vacancies
- Products: [National Monitoring Network \(NMN\)](#), [Water Quality Portal](#), [NEMI](#), [Volunteer Monitoring activities](#), [National Network of Reference Watersheds](#), [Newsletter](#), [Webinars](#), [Fact Sheets](#), and more

The Council does a lot of outreach and education, for example, we host 10-12 webinars each year for purposes of education and information sharing.

National Monitoring Conference

- Held every 2 years and showcases diverse water-quality issues such as HABS, citizen science, groundwater monitoring, nutrient loading, assessment of long-term trends in water quality and their causes, data sharing, communicating science to managers/public, and more
- Attracts mix of Federal, State, local, academic, industry, and volunteer monitoring
- Attendance is typically ~700-800 people
- Workshops, posters, short courses, interactive demos of portals, websites, apps, equipment; network opportunities, vendors

Status of 11th National Monitoring Conference

- Originally scheduled for Spring 2018 (now Spring 2019)
- Anticipate lower attendance due to Federal travel and budget constraints; may reduce State and volunteer monitoring community participation (estimate 400-500)
- Evaluating changes to conference format to attract different audience
 - Reduce technical sessions
 - Increase training opportunities (especially for young water quality professionals)
- Locations under consideration
 - Primary candidate – Denver, CO (strong local Federal presence)
 - KS and Albuquerque

Review of work groups and teams and their objectives

Methods and Data Comparability Board accomplishments–

- NEMI in its 16th year with 1500 physical, chemical, biological methods and sampling protocols
- Illustrated [field deployment guide](#) for rivers and streams
- 2017 progress
 - Worked with WIS – focus of the team is inventorying and comparing biological assessment protocols with initial focus on metadata issues between EPA and USGS database

Sensors

- Collaborate on EPA sensor challenge
- Prepared summary report on results of USS workshop

2018 plans

- Restart methods comparison work on invertebrate methods with the goal of updating descriptions in NEMI

Sensors – focus on developing training webinars – first how to on 1/10/2018 (over 270 attendees); looking at uncertainty in continuous sensor measurements

The [Water Quality Portal](#) is a standalone web service that allows users to easily download USGS, EPA, and USDA water quality data from a single website.

- Not a database; retrieves from over 400 local, State, and Federal databases
- Includes water quality data only
- Does not include climatic, hydrologic, or water-use data
- Data must be organized and formatted using the WQX template
- Implementing Water Quality Portal 5-year strategic plan finalized in 2017

Jim Kreft updated ACWI on the Water Quality Portal

- Portal usage graph
- 650 super users (250+ times/year)
- Webservices driven
- Serve over 20 billion rows of data a year and 14 billion from downloads
- Built using responsive design

Strategic plan update

- Improvements to infrastructure
- Extension of EPA data load to more components
- Ensuring NWIS modernization aligns with portal

Data quantity and quality

- EPA team doing significant outreach and training
- 347 million result records
- Upstream/downstream query is important and possible; working with stakeholders to develop a summarization service
- EPA is developing a data analysis tool; peer-reviewed paper; draft communication plan

Using the portal, you can now answer questions in minutes that previously took days or weeks.

- Over 70 publications cite the Water Quality Portal
- Water Quality Portal is becoming a source for national level reports

Question (McLaughlin): How much more room for growth is there? *Answer:* There is still quite a bit of room for growth.

WIS overview

- Training series project (with C&O)
- Worked with WQP team to complete “Getting started with the Water Quality Portal” fact sheet, and prepare fact sheet on WQP web services
- Formed team to develop metrics for evaluating progress of Council relative to functions assigned in Council Terms of Reference and report out on the evaluation in 2018
- Formed Water Quality Standards (WQS) team that will:
 - – prepare fact sheet on how WQS’s are developed and
 - – Investigate feasibility of inventorying existing WQS’s continued to add
- biological protocols to NEMI and updated operating software
- Formed Increasing Data Submission team focused on:
 - – increasing data submission to the WQP that will identify strategies for submitting volunteer monitoring data to the WQP and
 - – identifying sources of new WQ data not yet in the WQP

NNRW – 2018 plans

- Continue to add candidate watershed: add Forest Service Priority watersheds and EPA lake watersheds)
- Develop a revised Hydrologic Disturbance Metric
- Incorporate National Atmospheric Deposition Program Total Deposition data into the website
- Develop R analytical tools to compile and interpret water quality data in reference watersheds

- Revise the Core Watersheds webpage to include a more definitive set of National Core Reference Watersheds based on updated criteria

Volunteer Monitoring workgroup – Previously a subgroup of C&O

- Promote use of citizen science data

Collaboration & Outreach workgroup – tasked with building partnerships

- State/regional councils - ~20
- Review ongoing activities [slide](#) – 300 regular subscribers to YouTube channel; newsletter (9000 subscribed), develop briefing materials to take to meetings, webinars with substantial attendance

Challenges for the Council

- Of particular importance is budget constraints and their impacts
- Keeping pace with advances in monitoring technology
- *Question (Beck):* Can you provide networking opportunities at NMC, to connect new people in the science with the "old guard"? Perhaps consider a "reunion" of sorts; where they may serve as mentors. This might be a unique thing to do for the conference that may make those folks want to come. *Answer:* Yes, we do try to do that, but we could probably do it more formally or better.
- *Question:* Are storm water data included in the water quality portal data? *Answer:* No there's not much storm water data in there. *Comment:* There's a storm water database that should maybe be connected.

Roundtable – Representative and/or alternates for each ACWI member organization had an opportunity to update ACWI members on activities at their home organization.

ASDWA (Kernan) – We have an initiative to collaborate with EPA and States to update States' databases. States will report data to a common database where they can access a single source. Aligning data sources will improve access to drinking water data. Working with States to form a polyfloral algal substances work group. A letter was sent to director Fitzgerald with recommendations to EPA and CDC on issues that need to be addressed with contamination of groundwater and surface water. Copies of the letter are available.

AWRA (Zhang) – AWRA annual conference will be in Baltimore, MD. We encourage engagement. Our Tysons Corner event was well attended. Specialty conference on groundwater is coming in July (Dallas, TX). AWRA teamed up with NOAA on a special issue conference for the National Water Model.

NACP (Hunsicker) – Planners across the country rely on data. The streamgaging program is important for local government. We rely on cooperatively funded gages. We would like to reinstate gaging stations closed due to lack of funding, and want the streamgaging program to stay and become more robust. Sea level rise is an important issue affecting coastal issues but it is not easy to predict or to predict its effects on infrastructure. Federal efforts are instrumental to local governments when deciding on how high to raise bridges or deal with existing infrastructure. Coastal counties in FL, TX, LA, VA, and Manhattan will need to look at this issue. Sea level rise has a quiet effect on shallow aquifers along the coast that provide drinking water or serve as a barrier to intrusion. Sea level rise results in increased salinity. ACWI's efforts through USGS and the Council can provide real-time information to help planners plan and guide their local governments.

NALMS (Heiskary) – This is my last meeting (tenure up), but we will get a new member. NALMS 37th annual meeting will be held in Denver this fall. Staff is familiar with the meeting and can help ensure a good meeting if Denver is selected as location. Within NALMS, we've had lake managers' certification to ensure those folks have adequate training and experience. Our folks that work with that program may be able to be of use in helping to

train / mentor young professionals. NALMS has taken over the annual Secchi monitoring (initiated by Bob Carlson years ago). Looking ahead, our next symposium will be in Cincinnati, OH.

WEF (Vicory) – The board of WEF has recognized that overall resources flowing into water research has been diminishing. Budgets are decreasing for the research that needs to be done. We are working to develop a position paper and strategy to try and reduce the situation. Development of the paper is in progress. Trying to come up with a figure on how much is going into water research has been hard to define.

WEF (Freedman) – WEF has always been an advocate for research. There were plans to cut Great Lakes Restoration Initiative. With opposition, this was defeated. National Green Infrastructure Program – water quality professionals – ensure green infrastructure is properly defined. Comment period - USEPA study – study nutrient removal treatment technologies.

Limnotech (Freedman) – [EnviroDIY](#), funded by NSF – purpose is to promote the wide use of data from open sources. Anyone can build it, and it is designed to be freely disseminated (easy of use, low cost, and non-proprietary). Another initiative – [Monitor / Model my watershed](#). 3rd item – buoys – system of 40 buoys in the Great Lakes area – maintained by GL. Easy maintenance. There are monitoring tools on the buoys. Link to the public as well. Recreational communities are using them. Great Lakes Observing – designed to collect all of the data from the Lakes. The cost of monitoring is dropping, and this is a great source of reliable data. Open source code platform that can handle a diverse range of data.

NHWC (Curtis) – We have a broad charter. The NHWC pays attention to flash floods, riverine floods, tsunamis, and more. Riverine and flash flooding is the predominant interest of our current membership. Work hard to manage radio spectrum to keep wolves at bay (limited resource) – work to keep frequencies open to responders, work hard to communicate, working to help ensure proper funding to agencies. One large initiative has to do with how data are communicated – technology to transmit data.

ASCE (Heineman) – [Reference talking points](#)

NCASI (McLaughlin) – We are funded almost entirely by forestry operations – work with academic foresters and the Forest Service. There are forest product industry operations all over the country. This presents an opportunity/need for information on surface water conditions that affect surface water on a specific basis in appropriate areas. We want to get a better idea of factors operating at a watershed level and bring resources together into a better tool. Improvement over the past 10 years has been an increase in the availability and understanding of watershed level data and the quality of that data. We are also getting more into biological effects and the comparison to water quality benchmarks and reference systems. The work of ACWI and its subgroups has been remarkable. Greater availability of models will be increasingly important moving forward.

LWV (Beck) – Watershed Literacy is important. How many people know their Hydrologic Unit Codes (HUCS)? We campaign for watershed literacy. Last year, I presented a plan to take that and put it on the road. The League applied for grants. In Wisconsin, they came up with money and cooperation with a board in the Great Lakes. We provided Fact Sheets to 4 watersheds in Wisconsin. We need to build literacy capacity. We have added safe drinking water – it's on everyone's radar now - in the news (Flint issue). The idea was embraced by a couple of foundations, and we received money to move forward. People don't understand the watershed concept or where their water is. This is about information. At meetings like ACWI, there is an abundance of information on how to be a good steward, but we need to do a better job of getting that information out. Judy asked about subcommittees. Wendy responded that anyone can join a subcommittee at any time.

NOAA (Graziano) – NOAA manages the National Water Center in Tuscaloosa. Tom spoke about the summer institute program. In year one, we demonstrated the ability to simultaneously model the network for stream reaches. In August 2016, we implemented high-end computing – National Water Model – effort led by NOAA. In year 2, we focused on flood inundation maps and better communication. In year 3, we continued work with flood inundation mapping. This summer, the focus will be on incorporation of the shallow ground water model capability in the National Water Model. USGS, USACE, and others will be participating. Developing plans to develop the water

model to address critical challenges we face. NOAA still operates tried and true efforts like forecasts (3500 locations). We are generating analyses and forecasts based on water budget.

NOAA water initiative 5-year plan. December 2018 – make the framework more modular in nature – this will be a springboard to collaboration with the USGS. Enable folks to work on the evolution of components of the modules. We are continuing to work with USGS and others on this. The central activity of the Office of Prediction is to transform our prediction capabilities.

EPRI (Goldstein) – EPRI is a 4013c organization doing environmental research. The electric power sector is in a stage of rapid transition due to more and more renewables. We are developing new transmission systems. Historically, our research has been coal-based. We are transitioning to align ourselves with the electric power sector. We are now looking at research from an asset perspective. This is a gradual transition. Protected species is a rapidly growing area of interest as well (especially with update of transmission lines); endangered species (with intakes). Increased focus on conservation research. Interest also in environmental DNA – use to protect species. The big issue – still water related – is the impact on intakes at thermoelectric power plants. Bob is planning to retire in April after 50 years as a research scientist. He and EPRI and have derived great value from interacting with ACWI. Bob praised the USGS for its management of ACWI and for its research. USGS is one of the finest environmental research organizations globally.

AWWA (Prelewicz) – AWWA is actively seeking to expand the One Water concept. AWWA is advocating for source water protection through reauthorization of the Farm Bill. We are also advocating for stronger funding for conservation programs. Encourage State conservationists to work with drinking water providers to identify priority areas in States. Dedicating 10% of funding to programs that help protect drinking water. Over the next 3 years, different utilities will have schedules for monitoring unregulated areas. Data will be categorized by location of utilities. This poses challenges because the utilities are unregulated, but show up on consumer reports. AWWA is always interested in finding ways to partner with other organizations.

NACWA (Pletl) – NACWA is an advocacy group for storm and wastewater activities. NACWA is working with nutrients – impacts on aquatic life, recent interest in cyanotoxins, HABs, and their causes. Support broad-based monitoring for nutrients from non-point sources. NACWA is working to get a handle on whether our management actions are actually working. Are we having the impact we want for the money we're investing? It is crucial to be able to target funds and spend them in the right places.

Total dissolved solids – There are a lot of issues, and it is expensive to treat any water source for dissolved solids. We are not sure what we should be controlling instream, and we need to know this. We are looking at a more matrix-like approach.

ASFMP (Brown) – It has been a busy year for floods, and the Flood Insurance Program is set to expire. The continuing resolution has carried it further, but if the government shuts down, there will be no flood insurance. It won't renew, and people will not be able to get a policy if they are buying in a floodplain. Focus is on re-upping the program. In terms of the budget, we are working on a disaster recovery act. Flood risk management repeal – getting something put back in place.

Spending time on training resources – webinars (50-1000 people) – there is an interest on how to do flood management. Trying to expand training opportunities, and we are in the process of hiring a training manager.

Flood science center – applied research focused on promoting education to mitigate current and future flood losses and protect resources without making things worse.

We have a range of projects going such as a subdivision guide on how to build a floodplain, sea level rise project, and climate adaptation considerations. Refer to floodsciencecenter.org to see projects.

Digital library – cataloging flood library

NGWA (Langseth) – NGWA is focused on groundwater. We have sections for engineers, scientists, and more. Much of the work we do with ACWI was covered in the first presentation. NGWA actively supports SOGW. Working on standards of practice – about to emerge – 3 on groundwater modeling, fluorinated compounds, 4 related to well construction and operation. Advocacy efforts are highlighted by annual fly-in to DC. Past areas of focus have been rural water infrastructure and source water protection. NGWA advocates for funding for the NGWMN. We are always open to collaboration with other organizations – refer to NGWA for current collaborative efforts. We are now working with the American Forestry Association regarding the impacts of forest destruction on groundwater issues.

GWPC (Lee) – GWPC is an organization of State managers, groundwater protection program. GWPC does groundwater monitoring in States, wastewater injection, hazardous waste, and more. Its mission is to protect groundwater. GWPC is an advocate for source water protection. Water information is important. We are supportive of ACWI's work. We help States develop data management systems for oil and gas. This is important recently because conventional oil and gas regulations require sampling of groundwater supplies. They need a place to store and use that information. Our annual forum will be held in New Orleans in September.

EPA (Connors) – I am impressed by the variety of expertise and diversity in ACWI's membership. EPA has new political leadership – David Ross (sworn in last week). He has a lot of water background and experience in 2 States. We look forward to working with him and his interests – nutrients are of particular interest. EPA is excited to continue collaboration on the Portal. We are focused on open source tools. We have a new initiative – [E-Enterprise for the Environment](#) – and consider it to be our transformative strategy to bring us into the 21st century. We are working closely with State and tribal partners. Figuring out who your customers are is often the first challenge. We are working with States on how we communicate that information. Advanced monitoring is a focus area – nutrient water sensor challenge (began in 2014) – incentivize to develop low cost sensors. Looking to launch the second phase in February and put it into action. E-Enterprise is the impetus for continuous monitoring. We hope to look at lessons learned. We are looking at the [Aspen Institute Internet of Water](#) report – establishment of data hubs – and are thinking about how we can take the E-Enterprise for the Environment approach and look at collaborating with Federal partners and stakeholders. We are looking at intelligent water – long-term strategies – how do we continue to leverage and synergize. In a world with an overwhelming quantity of data, how can we utilize it with our responsibilities? How can we better articulate how we use the information in all of these different formats? We hope to continue engaging with partners and ACWI. This is a powerful opportunity to use our knowledge of these entities and build on the work that has already been done. Nonpoint source issue is important. We are working in partnership with USDA to better leverage small funding with USDA funding for this effort. We will be evaluating our successes to determine where we can better invest the limited resources we get.

The power of information and availability of it is a unique point in time at which we find ourselves. We want to engage how we can better leverage our opportunity.

Global Water Strategy and the Interagency Water Working Group (IWWG)

- Speaker: Kristine Smith
- Federal Government engagement on water internationally
- IWWG is the primary venue to discuss and coordinate international water policy within the Federal Government.
- Chaired by State Department and provides a venue for Federal agencies to consult on water-related foreign policy goals and water-related issues.
- Global Water Strategy (GWS) was released to public in November 2017.
- IWWG meets monthly (it has been meeting for about 15 years).
- The GWS started in the IWWG, and the impetus was the Water for the World Act of 2014. Strategy envisions a water-secure world where people and nations have the water they need to be healthy, prosperous, and resilient.
- *Question:* How does this work with treaties and other agreements that we have with other countries, particularly Canada and Mexico? *Answer:* State Department is the lead foreign policy agent for U.S. Government, so they lead negotiations with other nations; we have members who represent the Mexico Desk and Canada Desk at State, who regularly attend the IWWG. But primarily the countries the GWS focuses on are in Africa and other regions not directly adjacent to the U.S.
- *Question:* Is the GWS effectively a foreign aid program where we offer expertise and money to other countries? *Answer:* Sort of yes, but State Department would provide the best answer on that. Our focus has been making work more collaborative and cohesive, and making sure we're focused on the priority areas that have been identified. So it's more like a vision document than a development program.
- *Question:* Here in ACWI we've been talking about data/info. There are lots of tools out there that could be used in your efforts. Is there any effort to link those tools to the work you're doing today? *Answer:* Yes, we've looked at tools, and the strategy is meant to be collaborative, so sharing of data, information, and tools is an important component.
- *Question:* It's a very high level document and sounds great; but what about the action plans on the ground? Is there any intent to sit down at the table and ask people "what are we going to *do* with this strategy?" Will there be subsequent documents that "put some meat" on the plan? *Answer:* Yes, definitely. The next steps will be focused on monitoring and implementation; close to World Water Day in March there will be an event that will get us moving in that direction.
- *Question:* Why was the Air Force the only Defense unit listed in the presentation slides as an IWWG member? *Answer:* The list in the slides is not exhaustive. The Air Force is just the most active current participant from the Defense Department.

Subcommittee on Sedimentation (SOS)

Speaker: Eddy Langendoen

- History and organization of SOS, members, recent leadership changes, etc. Chair is Eddy Langendoen (Agricultural Research Service) and Vice chair is Jon Remus (U.S. Army Corps of Engineers).
- **Action item for ACWI:** Position Paper that was mentioned during the February 2017 conference call of ACWI has since been through COE legal review and it's now ready for ACWI to approve it, if they agree with its contents. ACWI members will receive a copy of the 2-page paper after the meeting, and about a week later we will vote via email to decide whether ACWI approves the paper.
- Workgroup on Reservoir Sustainability: deals with reservoir concerns – 90,000 dams in the U.S., most of them built 50-75 years ago, in response to the Flood Control Act of the 1940s. Most of these dams have a design life of 50 years, so they are already at or beyond the end of their lives. The risk of failure is a problem, and so is the reduction in storage capacity of the reservoirs behind the dams, since they have silted up.

- Technical Webinars are being given on January 18, February 22, March 22, April 26, and May 24 on Reservoir Sedimentation Management
- Reservoir Sedimentation Databases: RESSED is the old version and RSI is the new one, which is a collaborative effort with the Bureau of Reclamation (BOR).
- Work Group on Dam Removal Analysis Guidelines for Sediment: 72 dams were removed in 2016, for a total of 1,384 dams removed across the Nation thus far. We need to know how to evacuate the stored sediments when these dams are removed. This working group has written guidelines for that process, which were just approved last month by the ACWI Subcommittee on Sedimentation. This includes a 10-step decision framework to help managers and scientists determine the level of assessment needed.
- Other work groups are concerned with issues of stream integrity: changes in land use and land management have adversely affected streams in this country, and many of those changes occurred 200 years ago. There's a lot of legacy sediment stored in or near our streams, and EPA classifies sediment as the #2 contaminant in our waters, after pathogens.
 - National Stream Morphology Data Exchange Work Group: development of national common reporting standards and a strategy for exchanging consistent stream morphology observations
 - Work Group on Environment and Infrastructure: produce a white paper to describe how to make infrastructure more resilient to changing river conditions and compatible with the environment with respect to sediment. BOR, NRCS, Forest Service collaborated on the paper (Managing Infrastructure in the Stream Environment).
 - Work Group on Climate and Sediment: supports the efforts of other SOS workgroups and the full SOS, especially as those efforts touch on issues such as extreme hydrologic events and other issues related to climate change and how it may affect stream morphology.
- SEDHYD: last conference was April 2015 (it was the 10th FISC and the 5th Fed Interagency Hydrologic Modeling Conference). Next SEDHYD is targeted for June 24-28, 2019. This is the biggest sediment-related conference anywhere in the world.
- *Question:* I have a little concern that could be addressed if there was a statement that there's always an exception to the rule; the situation of how toxic sedimentation can be varies across the country, and it's a much bigger problem in some places than in others. In some cases, dam removal might not be a good idea because it could adversely affect invasive species. *Answer:* The dam removal guidelines include consideration of toxicity and other issues like the ones you have raised. *Answer:* It's worth double checking to make sure we're looking at impacts on invasive species like Asian Carp, etc.
- *Question:* Regarding climate change and sediment, what are the main climate drivers that affect sediment transport? *Answer:* We're looking at mean increases (annual runoff) in sediment loads, changes in channel morphology, how extreme events (like Superstorm Sandy or extreme droughts) increase risk of flood or fire (which change sediment loading).
- *Question:* Would you be willing to try to characterize the State of model predictions in terms of the ability to factor in things like climate change or land use change and their effect on the sustainability of a reservoir? Or is it too early in the game to be modeling those things? *Answer:* At ARS, we model those things already, but I don't know how good or poor the models are. But in general, land use changes can be as important to sedimentation as changes in climate. It's not easy to predict what practices individual farmers will adopt, for example, so the level of uncertainty is pretty high. We're moving toward trying to quantify uncertainty – moving from deterministic to probabilistic approaches.

Adjourn Day One

Day 2 – Thursday, January 18, 2017

Subcommittee on Hydrology (SOH)

Speakers: Siamak Esfandiary, LySanias Broyles (U.S. Army Corps of Engineers), Tom Nicholson (Nuclear Regulatory Commission), Robert Mason (USGS), Doug Yeskis (USGS)

Siamak gave an overview of the purpose of the SOH. Meetings are held quarterly. Work happens in workgroups. Produce products such as B17C. He reviewed the membership listing and noted that members are not only Federal. The SOH is a diverse group. Workgroups – Hydrologic Frequency Analysis Work Group (HFAWG), Extreme Storm Events Work Group (ESEWG), Hydrologic Modeling Work Group (HMWG), Satellite Telemetry Interagency Work Group (STIWG), and the Streamflow Information Collaborative (SIC)

STIWG – LySanias Broyles (USACE)

- Last met November 17, 2017
- New GOES-E satellite operational (December 17, 2017) – higher resolution and more accurate forecasts, HRIT (replacing LRIT), proposed new HRIT file format = more statistics and reduce overhead
- GOES-S to launch March 1, 2018, to replace GOES-W
- Migration from DOMSAT downlink to L/HRIT (service ends 2019)
 - Most agencies purchasing L/HRIT
- CS2 transition – utilize bandwidth savings for new channels to meet user requirements
 - DCS has reached capacity
- Standardize Open DCS software
- Looking forward to 2-way DCP's (cost savings to be able to change parameters remotely)

DCS Preservation Subcommittee – remain engaged in efforts to preserve the DCS 1675-1695 MHz allocation. Amend STIWG DCS reliance and preservation whitepaper and keep as a living document, engage agency interdepartmental radio advisory committee (IRAC) members. Pursue opportunities to educate the public about GOES DCS.

Open DCS Standardization Subcommittee – Open DCS is software used by STIWG agencies to collect, decode, validate, transform, and disseminate data from deployed Data Collection Platforms (DCPs); primarily via GOES DCS. Interagency agreements (hoping to have agreements in place by summer); have proposed that US Army Corps of Engineers be the steward of the software.

2018 annual joint meeting of TWG/STIWG is scheduled for March 2018.

- *Comment:* NHWC really appreciates your work concerning radio spectrum because that's very important.
- *Comment (McLaughlin)* – I wonder if there is a way in which you can plug advancements and challenges you are working on into a set of larger scale issues to show how your advancements are helping to improve the big picture?

Extreme Storm Event Workgroup (ESEWG) (Tom Nicholson) – Tom gave an overview of the purpose and goals of the ESEWG. The group focuses on precipitation caused by extreme storm events. Necessary funding requirements have been determined so that HMR reports can be updated.

We held a workshop to define needed extreme precipitation products at NOAA, Silver Spring, MD. The report is posted online.

The proposal writing team put together a document to identify the needs. A draft proposal will be presented to the entire ESEWG in February 2018. It will be submitted to SOH for approval and then on to ACWI.

Purpose of the group – We need to update NOAA Hydrometeorological Reports (HMRs) using recent extreme storm data – in particular, HMRs 49, 51, 52, 55A.

Complete extension of NOAA Atlas 14 to cover the remaining 5 northwest States, develop an enhanced suite of products for the U.S. while simultaneously using improved methodology capable of accounting for the nonstationary climate – Complete and update NOAA Atlas 14. NOAA Atlas 14 is widely used. They are in dire need of a budget.

FERC has a need to update PMP estimates – how do we review these estimates? We are sharing with FERC how we are using these.

U.S. extreme precipitation database is being developed with NWS and USACE. We want other agencies to be able to use the data.

Next meeting – February 28, 2018

- *Question:* How are watershed boundaries defined for the NOAA 14 Atlas? 12-digit hydrologic unit codes or catchments aggregated to true/full watersheds? *Answer:* They're not currently defined, except by State boundaries.
- *Comment:* On the riverine side of flooding, we keep running into extreme events where people say "I didn't know the waters could get that high." We get tunnel vision around the 100-year flood, but there's a huge amount of residual risk. I'd like to see us come to grips with the question of how large flooding can get. *Response:* The 100-year flood has somehow become a safety standard, but it was never intended to be that. The discussions should be risk-centric rather than hazard-centric. FEMA is trying to do that, but I don't know how long it will take them to change their paradigm. FEMA has an advisory council as well, and they're working on the topic of "residual risk," though there is not yet a concrete definition for this term.
- *Comment (Heineman):* Extreme storms are very abnormal storms that are site specific. They do not have a normal frequency. Atlas 14 is a very good product although I'd like to point out that the report dealing with New England is 3 years behind. We also need some guidance attached to it. HMRs are good, but the terminology is not clear – misinterpret what is being said. We are now moving towards a risk informed approach. You need to worry about how you communicate with the public. How do we do this so the public understands? *Response:* Funding is a major issue in getting things finished. We have been thinking about what kind of guidance is needed.

Hydrologic Frequency Analysis Work Group (HFAWG) (Robert Mason for Wil Thomas)

- Very active on high and low flow frequency analysis
 - Procedures to update b17b
- Overview of HFAWG and B17B
- B17C was recently endorsed for agency use – folks are in favor of moving forward; include use of historical information
- We are setting ourselves up to do more with climate change, but B17C does not specifically mention it.
The report went through extensive review and is considered “highly influential science.” A communication plan was prepared.
 - Public comments posted on SOH
 - Layout hoping to be completed in next month or so
 - Will be published as a USGS report
- Workgroup has aspirational goals for doing more w/ 17C

Subcommittee on Hydrology Participation in Revising Bulletin 17C

Bulletin 17C is being published as a USGS Techniques and Methods manual. Three independent colleague reviewers reviewed the document as part of the USGS peer review [process](#). The Subcommittee on Hydrology also sought public review comments during a 45-day period during 2016, to improve the clarity and content of Bulletin 17C.

- *Question (Curtis):* I understand that Bulletin 17C doesn't address climate change; however, there are parts of the country with natural variability that goes up and down a LOT over time, and there needs to be recognition of this. *Answer:* Yes, and the workgroup will address that.
- *Question:* So if people have a question about how 17C compares to 17B, will there be a reference to help people compare the two? *Answer:* Yes, we have done a comparison and are waiting for it to be approved prior to release.

Streamflow Information Collaborative (SIC) (Yeskis)

The SIC has an approved charter. Address how we work with other agencies/groups. Goals are described in the charter which was approved by ACWI last year. We have been holding monthly teleconferences.

New acting Groundwater Streamflow Information Program (GWSIP) Coordinator is Mike Woodside

- Streamflow Information Collective has been approved as a sub-group and is underway. The goals are described in the charter that was approved by ACWI last year. We've been holding monthly teleconferences.

Remarks by Tim Petty, Assistant Secretary for Water and Science, Department of the Interior

I am newly seated as the Assistant Secretary for Water and Science. It has been a privilege to work with Don Cline. He has an incredible mind and is very creative. I have seen the great cooperative work at the National Water Center. The work the ACWI does is critical, and the input you contribute is valuable.

Subcommittee on Spatial Water Data (SSWD)

Co-chairs Al Rea, USGS and Ed Clark, NWS

- Progress on the Open Water Data Initiative

Speaker: Al Rea

- Stu Hamilton from Aquatic Informatics came up with an idea that's really interesting: potential value of data is related to the data times the quality of the data, to an exponential power of how much that data is shared. That got me thinking: why does sharing make the data so much more valuable? It's like nuclear power – there's a chain reaction that occurs, as with a viral video online.
- Idea ... Data ... Information sharing ... Knowledge
- We need much more info sharing to spread the knowledge further. We're working on this on two fronts: discoverability and interoperability.
- Open Water Data Initiative – Open Water Web: water data catalog, water data as a service, enriching water data, building a community for water data/tools
- Initial OWDI use cases: National Flood Interoperability Experiment, Drought Decision Support System, Spill Response Tool
- System approach to water information (see slide 11) – National Hydrography Infrastructure (interface, services, application programming interface, directories, framework)
- NHDPlus High Resolution status – public release of Beta products began in April 2017 (see slide 14: "NHDPlus High Resolution Availability")
- Network Linked Data Index (NLDI) – status update
- Water Quality Data Discovery (Water Quality Portal)

- Jim Kreft (jkreft@usgs.gov) is the NLDI contact while Dave Blodgett is detailed to the National Water Center.
- Summary of NLDI current capabilities (Water Quality Portal, EPA's WATERS GeoViewer)
- Possible new use case for SSWD in the coming year: inland bathymetric data
- *Question:* This is a very exciting effort, but I'm a little vague on the various pieces and how they fit together. Where is the central group that coordinates all this? Is there a hierarchy or some sort?
Answer: That coordination function is currently falling to SSWD, which is a group of people who are volunteering their time; it's a grass-roots, bottom-up effort, and SSWD is providing a forum for the people who are working on the various pieces to talk to each other. There are about 27 different Federal agencies that have some sort of water information in their mission, and it's very difficult to coordinate all that. SSWD provides a good forum for people to talk, but that has its limits.
- *Comment:* One element that is important to mention is that this is a major opportunity for ACWI itself. If we can provide input to the various subcommittees about what the needs are. So it's important for all of us, as ACWI members, to remain engaged and aware of what the needs are.
Response: Getting some guidance from ACWI to the SSWD would be great.
- *Question:* How can we encourage States and localities to upload data into this framework you have been talking about? Are there any incentives?
Answer: If we can make it powerful and useful as a way to organize and discover data, it will be to the benefit of States and localities to participate. We don't have money to give people, to get them to participate; but we can make the tools effective and useful, and that will bring people on board. The water community is already pretty cohesive, and they do participate a lot when there's an incentive; the functionality is a good incentive.
- *Comment:* At the outset you outlined the need for progress on this, but if you really lit a fire under this and programmatically encouraged communities to use NHD and started to get as much water data as possible into a framework, what do you envision ultimately this looks like?
Response: The vision is that we would eventually center around these network-based search tools, people would be able to link any/all data that makes sense to link to the stream network. People would link and share the data without having a centralized data warehouse. That way, the people sharing data would benefit from all the other data that is shared within the community. This would eliminate duplication of effort. I think we're headed in that direction, and with the NLDI geospatial framework we're building, we have the building blocks of a dynamic, integrated system that will grow from the ground up. But it will take some concerted effort and resources to develop that system that people can plug their data into.
- *Question:* Could block chain methods or that type of technology be used?
Answer: I don't know the answer to that. We haven't had any discussion of block chain technologies. My impression is that block chain is useful for encryption and security; our aim here is keep things open and interoperable as much as possible, so block chain might not have an application, but it's probably something we should look at.
- *Comment:* This is a great effort. But at the same time there's a lot of confusion among the public (like the 100-year flood discussion earlier this morning). It would be good to have a show to take on the road, to educate people about this. Maybe the National Monitoring Conference or some other venue could help in this effort.
Response: Yes, we haven't taken this show on the road because we're not ready yet; we don't have all the pieces in place yet, to be able to demonstrate how the framework can be used. We're also missing the confidence that we'll be able to scale this system up as we get more and more data into it. It takes money to run servers, even in the cloud. Lots of agencies are involved in this effort and see benefit in it, but trying to get it all put together to support a common infrastructure is still a challenge.
- *Comment:* This is a technology advancement that is really going to change the game for water information, and it's something we've been talking about for a long time. This isn't something that an ACWI group can bring to maturity. At some point there will have to be agency support for this. This is something that ACWI should be thinking about, so that at next year's meeting we can discuss a set of recommendations for ACWI that can be used to help final implementation of this effort.

- *Comment:* I'm struck by the possibility that ACWI has been missing an important subcommittee that we may want to consider forming: a subcommittee that focuses on the movement of data to information. That's something that all the subcommittees work on, but ACWI could benefit from a more coordinated effort. The new subcommittee could work with all the other subcommittees to bring all the needs and expertise together.
- *Comment:* It sounds like an integration piece. It's kind of a value realization subcommittee: how do you take this effort the last mile?
- *Comment:* I would encourage you to continue down the road of the specific use cases because completing those use cases will give you the tools to communicate why this is important and why it should go on and why it should be elevated. The use cases are really important in getting people to realize the full value of the OWDI concept.
- *Comment:* The NWQMC C&O workgroup might be a good template for a group to get the word out regarding this effort.
- *Comment:* EPA is excited about this effort and is now investing heavily in the next generation of technology. We would love not to wait until next year to decide how to proceed within ACWI. It's all about making sure the users of the information are involved. We need to make sure what we're building is responsive to all stakeholders.

Sustainable Water Resources Roundtable (SWRR)

Speakers: David Berry (SSWD facilitator), Tim Smith (USGS-Ret.)

- SWRR is set up differently from the other ACWI sub-groups. We're a national collaboration with no fixed membership. Mission and vision are general, depending on demand at the time. If someone wants to build a set of water indicators (CEQ, EPA, others), then we go to work on that task.
- What do you mean by "sustainability"? We're in an economic system, which is a subset of a social system, which is a subset of a biophysical environment. We all know that without water, we have no life.
- Demonstration of how we speak to the non-technical public about water availability, quality, and sustainability issues. Speak in lay terms. Don't show off your technical jargon and expertise. Recognize that sustainability is not a political issue; it's about the survival of humankind.
- Application of the indicator framework: California Water Plan – Blueprint for Integrated Water Management and Sustainability.
- We've had lots of connection with DOD and the way they frame sustainability. One of the Army's major strategy elements is "assist host nations with water resources sustainability." The Army Net Zero initiative addresses sustainability issues, with a focus on energy, water, waste.
- Tim Smith shared information about his own website that focuses on sustainability issues worldwide: <https://sites.google.com/site/sustainablewaterresources/> – this is a great site for news about sustainability.
- Next steps for SWRR: continue outreach (includes updating website), assist agencies in developing programs and in describing the need for programs to collect information and manage water
- *Question:* What are SWRR's longer term plans after next Monday's meeting in D.C.? *Answer:* It will probably be April in the San Francisco Bay Area, and the focus will be the California water issues and the work of the CA Department of Water Resources. After that, we'll have another meeting in the D.C. area because we generally alternate between D.C. and out-of-town locations.

Continued discussion of the [Open Water Data Initiative](#)

Since the ACWI Member Roundtable was completed on Day 1 of the meeting, ACWI used this time slot on the agenda to resume discussion about Open Water Data Initiative issues and the possibility of having a new ACWI sub-group to deal with this topic.

- As we mentioned this morning, we have some challenges in implementing the OWDI, since all the people involved are volunteers who have full-time day jobs. We need a more solid base if we're going to move this initiative forward past the planning phase.
- *McLaughlin*: Some ACWI groups are ongoing, and others have a finite lifespan. It's worth giving serious consideration to a subcommittee that would focus on information development and would have a specific charge to work with all the other ACWI subcommittees to ensure that there are stories developed for the new capabilities that some of the current efforts are generating and also to help identify gaps in existing information. The activities Al Rea briefed us on this morning is highly relevant, but so is the work that the other subcommittees are doing, and someone needs to pull together information about all the work being done by all the subcommittees.
- *Heiskary*: We need to be able to address who the audience is for the OWDI. I was lost with a lot of the information given to us this morning, until we got to the discussion of the use cases. Those use cases illustrate specific examples of information needs that people will care about. So it's important to identify specifically who the audience is. The effort cannot strive to be "everything to everybody."
- *Vicory*: This challenge is something that has to be done across the hinterlands, not at a central location. How do we get non-participating States and localities to participate? Is the problem that these geographic areas aren't aware of the power and capability of the tools that are being developed? Most of the States have a USGS office, and those locations can serve as hubs to get the message out: visits with non-Federal partners, presentations at conferences, etc. So we have both a tremendous challenge and a tremendous opportunity here.
- *Beck*: Since we know that one way forward is to do a case study, I can offer a case study that I have done, educating people about watershed issues. We need outreach to the lay-person and to partner organizations. I would be glad to talk to people in more detail about general public education, the way LWV has done. I would be glad to serve on an ACWI subcommittee to deal with this issue.
- *Prelewicz*: Bringing it back to economic growth/loss is a key way to make people pay attention to this. We need to not only educate, but also to advise. Perhaps we need a statement that endorses the need to fund this initiative.
- *McLaughlin*: There is an expertise in Federal, State, other organizations that we can tap into, though ACWI has not traditionally tapped into this expertise: the communicators and technical writers can really help spread the message we want to spread.
- In identifying potential customers/audiences, we need to think of drivers: regulatory drivers in particular would cover all the States. Does ACWA have representation on ACWI? [Answer, they used to be a member when they were called ASIWPCA, and now that they have reorganized and renamed themselves they're ready to rejoin us.]
- *Langseth*: I would love to see acceleration and better funding of the kind of efforts we heard about in the OWDI. For me as a private sector consultant, those tools are exciting to think about. But I'm confused about the purpose of this subcommittee we're talking about. Would their charter be to put together an economic case for the development of these tools? What would they be tasked with?
- *Connors*: There are so many data producers and so many ways you can use that information, it can get overwhelming quickly. Most of us aren't very comfortable talking about data standards, interoperability, and the other basic building blocks of "the big tent of water." We all need the best data, and that data needs to be curated. For me, what would be helpful from this committee is an articulation of the use value and how it would support the efforts of the stakeholders; that would be more useful than a statement that says "we need more funding." We need a group with a diversity of perspectives, and that could be lost at the subcommittee level.

- *Langseth*: I don't take issue with anything you said; I'm just trying to figure out what this subcommittee would do. Would they survey all the water professionals in the world to find out what they're doing and what they need? I'm being facetious, but this could be a huge task.
- *Heineman*: It's a question of what data people value? FAA gathers most rainfall data for NOAA because they need it to fly the planes. If we stopped collecting rainfall data, people would notice quickly because all the planes would be grounded. If we stopped gathering streamflow data, how long would it take people to notice? We need to make sure people value the information all the time, not just on the one day a year they might need the data.
- *Heineman*: We're the Advisory Committee on Water **Information**. Now we're talking about **knowledge**. Maybe there should be an ACWI subcommittee on education.
- *Curtis*: I want to push back on the notion that if we stopped gathering information today, nobody would notice. I work with a wide variety of data users, and there's a large user base out there who would notice in a hurry and make a big stink about it (in some parts of the country, at least).
- *Curtis*: The broader user base you can design a system for, the more support you'll have for that system, and the more use you'll get out of it.
- *Cline*: What I've been hearing is this:
 - One is the role of ACWI. It's not a funding generation committee, it's an advisory committee. We can take recommendations/advice and try to turn them into funding.
 - The second piece is related to the role of ACWI – what is the main committee, and what are the subcommittees for? If there is one thing that's within the charge of ACWI that is not represented on the subcommittees, it's that ACWI advises on dissemination of water information to improve quality and accessibility. So the notion of a subcommittee that looks at that issue would be appropriate; whereas, a subcommittee that's trying to generate a funding stream is not.
 - OWDI is a nascent water enterprise. It's going to get much bigger and more complex as time goes on. The way Al Rea explained things this morning, all of us can become the case studies. Because we have generic tools like html, we can all write a web page. We want similar generic tools for water data, but the effort is not quite ready for prime time yet, especially since they've lost some key workers in the past year. Getting to a point where we have this tool that enables any of us in any sector to put our data onto the "internet of water" and then anyone can write a program that can allow people to easily retrieve that data is powerful. Then the case study piece becomes this: any one can go back to their native sector with a statement of "I can do my job faster or more efficiently, using this tool."
- *Kernen*: Obviously OWDI is a great thing. But we're in a world of shrinking resources, so any investment in these tools will come at the expense of something else. We need to understand that each time we start something new, we'll have to decide what we're going to do less of.
- *Beck*: We have a big box of tools that people can use, but what we need is guidance to help people figure out which tool they need to use, to solve their specific challenges.
- *Curtis*: Is there a way we can tie this effort to the currency of job creation?
- *McLaughlin*: To move things forward, we need a specific charge to a specific subcommittee toward a well-defined goal.
- If there were to be a recommendation, what might it look like?
 - One might be for the agencies to specifically consider how to involve their communication expertise to help describe and clarify the benefits of the various subcommittees, including the OWDI. Or to describe things like "why is Bulletin 17C better than 17B was?"
 - It might be a good idea to look at some of the problems we've been discussing and do a match-up: to say, here's the problem and there's the work we're doing to try to solve that problem (describe Gold King Mine, for example). So this is a communications issue.
 - Ask staff members who have worked on OWDI what it would take to bring the OWDI into full-fledged reality: costs, timeframe, diversion of resources from other efforts, etc.
- This is one area where ACWI is uniquely positioned to **do** something. The work of the subcommittees is good, but it falls short of the programmatic "last mile." It's hard to do things quickly with a bunch of

volunteers. On the ACWI side, we need a statement of what we want and why we want it. And because the Aspen Institute has taken a big leap in this area, we need to talk to them.

- We're not going to reach conclusions today, but a couple of months down the road, we should reconvene via WebEx or teleconference, perhaps along with the Aspen Institute, to flesh out this notion more.

Public Comment Period – Since this meeting is open to the public, per the Federal Advisory Committee Act, this time is reserved for citizens to comment on ACWI activities and issues, or to ask questions related to water information issues that affect their communities.

- No public comments were submitted.

Review Action Items and Final Wrap-up

Summary of action items:

- **Subcommittee on Sedimentation Position Paper** that was mentioned during the February 2017 conference call of ACWI. It has since been through COE legal review and it's now ready for ACWI to approve it, if they agree with the paper's contents. ACWI members will receive a copy of the 2-page paper after the meeting, and about a week later we will vote via email to decide whether ACWI approves the paper.
- **Be on the lookout for a communication from Wendy about membership renewals.** All ACWI memberships expire this year, and we will be contacting you to get the information needed for vetting your renewal. Also, some ACWI member organizations need to designate a new representative and alternate, due to retirement of the current rep and/or alternate.
- A couple of months down the road, we should reconvene via WebEx or teleconference, perhaps along with the Aspen Institute, to flesh out the notion of **supporting OWDI** some more.

Adjourn