

**ACWI Workgroup on USGS Monitoring Challenges in a Shrinking Budget Environment  
Teleconference  
13 May 2013**

**Attendees:**

Peter Evans, ICWP	Judy Campbell Bird, ACWI-NLC	Chris Reimer, NGWA
Wendy Norton, USGS	Dave Carlton, ASFPM	John Wells, ACWI-SWRR
Mike Norris, USGS	Bob Schreiber, ASCE	Dwane Young, EPA
Mike Yurewicz, USGS	Mary Musick, GWPC	Steve Heiskary, NALMS
Pixie Hamilton, USGS	Tony Willardson, WSWC	Bill Lukas, DOI
Eric Evenson, USGS	Ben Pratt, SRBC	
Doug McLaughlin, NCASI	Darrell Osterhoudt, ASDWA	

**Action Items:**

- ACTION: Pixie Hamilton will provide some words regarding our discussion on "uncertainty."
- ACTION: Eric Evenson will write up a list of "guiding principles," as discussed, and he strongly encourages the workgroup to think about (and add) more to the list that he provides.

**Introductions and Agenda Review**

- Peter Evans acted as chair for this session and reviewed the agenda to start the meeting, along with plans for future meetings.
- There will be a meeting (not on our original schedule) Monday, May 20, at 1:00 p.m. Eastern Time.

**Revision/Acceptance of Notes from May 6 Meeting**

- Minutes from last meeting were accepted/approved.

**Proposed Guiding Principles for Selecting and Evaluating Recommendations**

- Proposed approach and Schedule – Eric Evenson
- "Getting your head wrapped around the whole water mission area" is a pretty big task. But we can prioritize items based on products and information that we want/need. Rather than saying what's least important to us, we can say what's **most** important and really needs to be preserved.
- We need to keep a complete water cycle approach as we look at the budget. We can't just prioritize streamgages and streamflow information; we need to understand the whole cycle in order to maintain a balanced program. There is a whole suite of programs within USGS that contribute to the balanced view of our water resources – water use, ET, soil moisture, water quality, groundwater levels – and this whole suite must be preserved in order to get the full picture.

- A top priority is to maintain and extend all the existing time series information that we already have (streamgauge, water quality, groundwater, ET, water use). In this context, long-term data sets are even more important.
- We do quite a bit of assessment-related work in the USGS, and some of these activities could be delayed if necessary, without lasting harm to the program.
- The USGS research programs support our science mission – both applied research and basic research make up a large portion of the USGS water portfolio. This workgroup may want to consider: What is the mixture of applied research and basic research that ought to be maintained within the USGS water mission area?
- Observation, understanding, prediction, and delivery of information are all critical steps if a program is to be credible. This workgroup may want to consider: What is the preferred balance among these four areas?
- All these principles mentioned above have already been applied to the USGS Water Census, to assist in determining highest priority activities. This helps in deciding what can be cut (when cuts are required) without causing lasting damage to the program.
- Another principle of USGS water programs is to look at water conditions at different scales – national, State, regional, local.
- Yet another principle could be the need to reduce uncertainty; that has been a major discussion point for this workgroup, so it's obviously a matter that we need to pay attention to also.
- In summary – this workgroup can provide a list of "guiding principles" and ask USGS to tell us what would be the impact of making funding decisions in a way that follows those guiding principles.
- *Question:* In the four areas that you organized your thoughts around in the water science strategy, which area does research fall into? *Answer:* All four areas (observation, understanding, prediction, info delivery).
- *Question:* You mentioned that a top priority might be to preserve and extend our time series data; do you have some suggestions for whether preservation or extension is more important? *Answer:* You'll get a different answer to this, depending on who within USGS you ask.
- *Comment:* Add "uncertainty" discussion to the parking lot. (ACTION: [Pixie Hamilton will provide some words for this.](#))
- *Question:* I understand that the strategic directions document makes the assumption that there are no budget constraints. Can you help us understand how that document is used on the ground during the budget process (for example, deciding how to deal with across-the-board or other types of reductions)? *Answer:* The strategic directions document was indeed written with the assumption that we have no budget constraints, and it proposes billions in additional science work; it does **not** make recommendations for areas to reduce. The plan was to give the strategic directions document to the individual program coordinators, who would come up with the implementation plans; these implementation plans are, in effect, the budget proposal for the coming year. If programs are to be reduced, then heads of those programs are (preferably) involved in decisions about reductions that need to be made in existing work, in order to provide resources for new work.

- *Question:* How do the Water Science Centers (WSCs) interact with the budget decisions?  
*Answer:* The WSCs participate through a couple of paths: (1) someone from a WSC is brought in to work on a particular budget proposal (for example, someone coming in to help write the ecological flows component of a new initiative), and (2) the water science field team in each Region (includes sw, gw, qw specialists) interact daily with WSC staff on the proposals they're writing, the reimbursable work they're doing, etc., and then this water science field team brings its proposals to water Headquarters senior staff and program coordinators.
- *Question:* I agree that drafting some guiding principles is a valuable exercise for us, but it doesn't get us all the way to where we need to be. I have a question about why you need to have research in all four areas (observation, understanding, prediction, info delivery), instead of just one of them? *Answer:* There is a feedback loop that occurs between the observational science, the assessment level and research level of activity, and the use of that information in predictions; this feedback loop leads to better observation in the future, improved ways of observing, and many other benefits. If you don't have that feedback loop, then over time the science will weaken and stagnate and suffer loss of relevance into the future. *Question:* Doesn't IWRS provide that feedback loop mechanism? *Comment:* This idea will be worked in to the set of guiding principles that Eric Evenson is going to provide.
- *Comment:* With respect to reducing uncertainty, ultimately, reduction in uncertainty leads to reduction in risk. We need to remember this, when we talk about reducing uncertainty.

#### **Proposed Outline for Report to ACWI and Assistant Secretary Castle**

- Review and revise outline – Peter Evans – Peter reviewed the draft outline
- *Question:* Per Anne Castle's letter, should we incorporate the list in her letter into our response document and address each of her bullets? *Answer:* Those are not actually Anne's bullets; they are USGS points (though she did sign the letter), so I don't think we should feel compelled to structure our recommendations into those categories, particularly since there are some areas in her letter that we have not yet been able to address.
- *Comment:* I suggest that we pick up on the notion of developing a list of guiding principles and identify those principles in our recommendations document.
- *Comment:* How about looking at the list of guiding principles that Eric is developing and using it in place of the essential set of functions that is already in the report outline? *ACTION:* Eric is glad to write this up but strongly encourages the workgroup to think about (and add) more to the list that Eric provides.
- *Comment:* It definitely will be helpful for USGS to get this workgroup's perspective on what you see as USGS guiding principles. You might even want to list them in priority order or put an asterisk by those that are most important to you.
- *Comment:* I'm not sure that the guiding principles alone will get us to where we need to be, but it's a great place to start. We're going to have more work to do after we have that list of principles. We can identify what we think is important, and that might be helpful; but because we collectively represent a very broad constituency, with widely varying needs, we might be in a position where we (collectively) want USGS to "continue doing everything."

- *Comment:* How will we know whether the application of our guiding principles will be enough to meet the budget challenges? What if it's not specific enough or in-depth enough? Do we need to come up with proposed budget reductions?
- *Comment:* We need to make sure that we don't just give Anne a list of the same principles that USGS is already using, because that would be telling Anne "go back to USGS and use the process that's already in place." *Comment:* If we tell Anne that we agree with what USGS thinks, it would not be the first time that has occurred. But we need to be sure that our report *is* independent and also *is perceived* as independent.

#### Review of Ideas Provided from the Workgroup

- Alternative "missions" that USGS budget could support – John Wells
- Review of "List of Ideas" (continue where May 6 meeting left off) – Peter Evans
  - Which ideas do we select for discussion with USGS?
  - Which ideas do we combine or leave in the "parking lot"?
- It's easy to whittle away a little here, a little there, and lose sight of the whole. Do we want the role that USGS plays today be the same in the future? Or does the potential of one sequestration after another change the way we need to think about our financial situation? Under section 2c of the report outline, we may want to pose the options: we can have USGS that's the centerpiece of national water science, or we can have USGS as a partner and coordinator, or we can have USGS as a technician who does work for others. We need to be clear about saying that this may be the first in a series of cuts over the long term, and there is a need for an enhanced USGS. Ultimately we must answer the question: What does USGS need to be, as we look down the road?
- This discussion is a natural outgrowth of the guiding principles we will present.
- *Comment:* Whatever you produce, it's important to produce it in the context of the USGS water mission area. As soon as we begin to talk about land, hazards, minerals, etc., we're wandering into areas where USGS staff hasn't had a chance to weigh in and educate this workgroup about.
- Are people comfortable with this approach, beginning by developing guiding principles? Yes, everyone on the phone seems to agree.
- Additional comments and suggestions discussed during the meeting are incorporated into the following pages: (1) a draft list of ideas that was presented and discussed during both the May 6 and May 13 meetings, and (2) a draft outline of the workgroup's report.

#### Plans for Next Meetings

The next meeting is planned for Monday, May 20, for 2 hours beginning at 1:00 p.m. Eastern Time.

In the next couple of days, we will see a draft of guiding principles from Eric Evenson. Then we might want to have one meeting "offline" – without USGS staff. This would be the May 20 meeting. USGS participants agreed to this idea.



## Advisory Committee on Water Information Workgroup Concerning the “Shrinking Budget” Predicament

### Development of Recommendations to Assure Strong Water Data & Science in a Constrained/Shrinking Budget

### *List of Ideas*

#### Internal Review by ACWI Workgroup Members For Use in Developing a Draft Report to the ACWI in June-July 2013

April 29, 2013 Draft

This is not the report we intend to submit, it's still just a start –not by any means a comprehensive set of ideas yet! The black text proposes an outline for organizing the Workgroup ideas for a draft report. The blue text presents suggestions provided by Workgroup participants so far. Some of these ideas will undoubtedly be dropped, based upon feedback from the USGS and our own evaluations, and some will

#### I) Introduction

##### a. Federal Role in Water Resource Science

- Articulate as many of the “federal responsibilities” as possible; for example:
  - treaties, compacts and trust responsibilities;
  - federal regulatory standards;
  - science needed to support federally funded programs (e.g., Water SMART planning grants & Title XVI projects; FWS consultations and recovery plans under ESA; USFS, BLM & NPS water resource protection);
- Also, articulate the national advantages that come from federal agency leadership in water science, for example:
  - flood forecasting for interstate watersheds;
  - intergovernmental negotiation;
  - enhanced value of the data collected by OFAs, states, etc;
  - increasing complexity of coping with floods, droughts, sea level rise, WQS, endangered species, recreation flows, etc)
  - innovation opportunity created by federal scientists working directly with water managers to anticipate new decision support needs;
  - [add something on economic development]

**Comment [wen1]:** Title XVI does include groundwater recharge projects, as discussed during the meeting

**Comment [wen2]:** Redundant? May need to delete this word.

**Comment [wen3]:** Need to acknowledge that we have to preserve the methods development that is needed in development of decision support tools.

- Add something about States that are cooperating with USGS and relying on USGS to do virtually all of their monitoring. This model works well for some States but not for all.
  - May want to include something in Introduction about eliminating duplication/overlap.
  - Need to get the word out to everybody about the good things that result from USGS monitoring efforts.
- b. Sufficient Science to Inform All Other Federally Funded Programs & Projects
- o Develop guidance for balancing the investment in monitoring & assessment with the more attractive/compelling investments in projects & programs; provide options for **dealing with uncertainty** in water resource management decisions; if funds are limited and more data isn't affordable, help us understand & evaluate the wisest alternatives
- c. Other ideas?

**Comment [wen4]:** Do we want to recommend something that would be useful, not only in the short term, but also in the future?

## II) 3 Monitoring Networks

### a. General

- i. USGS already provides **standards and training for data collection**. If they promoted those standards and training more assertively, along with a stronger role for other agencies, organizations and monitoring councils as the basis for others to collect more data themselves, could we offset the loss of (say 10%?) USGS data collection with greater collaborative effort?
- ii. Encourage WSCs to collaborate (among themselves? with others?) on monitoring site maintenance responsibilities to reduce travel time and expenses.
- iii. What about a recommendation in the report that the WSCs convene a meeting (meetings) with the state agencies responsible for surface water and groundwater quality and level monitoring and prepare report(s) back to Anne on who is doing what, what the joint priorities are, where there are commonalities, potentials to increase efficiencies or back-up help in case of budget cuts. \*
- iv. Use the Government Accountability Office report as a starting point to understand federal water monitoring and look for gaps and opportunities for collaboration within the federal community as a complement to the above idea for leveraging state-federal efforts. As a gross generalization the GAO report finds a lot of disparate water quality monitoring (some of this may be offset now with STORET-NWIS connection), several nationwide stream flow monitoring efforts (ARS, ACOE, NOAA, USGS) and no nationwide groundwater level monitoring.

**Comment [wen5]:** Perhaps the States that can afford to do their own monitoring should do so, thereby freeing up USGS funds for those areas of the country that can NOT afford to do their own monitoring.

- v. What about a report on **technology options** as, I believe, Bob Schreiber suggested.
- b. Surface Water Monitoring Network
- o **Redesign the NSIP** for the “real (budget constrained) world” to anchor cost-share network (and others) and meet same 5 national goals (including the infrastructure and the related science but not the interpretive applications)
  - o Are there **collaboration and efficiency opportunities** with ARS, ACOE and NOAA, (agencies that also indicate in the GAO report that they have nationwide stream flow monitoring networks)? Should the group suggest that a report be developed by USGS staff to Anne on preliminary discussions about stream gage coordination among these federal agencies and what potential opportunities, including cost savings, or hurdles there may be. \*
  - o Develop & maintain a clear **monitoring network design description** –people won’t support what they can’t explain; include network maps & implementation progress assessment in an annual update? Without a unifying design concept, it appears that USGS operates disparate networks and it is more difficult to know if we are making the most strategic investment of the available resources
  - o Is there a better way to **select monitoring locations**? **State monitoring councils** – could they coordinate/prioritize multi-party investments in monitoring more effectively? Shouldn’t the GIS-based NSIP site selection study be repeated with current measurement and modeling/estimation technology in mind? Does the PA network optimization study proposal offer a useful approach?
  - o Is there a more effective way to organize the **surface water and water quality monitoring** responsibilities/staffing? Is there a more efficient allocation of the OSW, CWP, NSIP and surface water quality monitoring program responsibilities?
  - o Are there **new technologies** that should be accelerated to reduce cost and maintain the quality of our water science for decision making? Remote sensing? Advanced computing techniques at petaflop speeds?
- c. Groundwater Monitoring Network
- o Should the group recommend that the Groundwater Resources Program and the National Water Quality Assessment Program develop a joint report to Anne on groundwater quality monitoring, building off of the concepts in the updated national groundwater monitoring framework document (currently under development) on **monitoring parameters and frequency** as well as specialized studies? \*
  - o ? [See ideas above under Surface Water Network]
- d. Water Quality Monitoring
- o See Groundwater Monitoring Network idea

**Comment [wen6]:** Need to mention the improvements that have already been in the data management QA arena, through the use of new work processes and new technology. Continuing on this path is already a high priority for USGS (and this group could learn more about it by talking to Robert Mason).

**Comment [wen7]:** Are there Federal agencies that you have agreements with for maintaining and servicing USGS streamgages? Yes; Robert Mason needs to confirm this, but we think Bureau of Reclamation operates some of our gages in the West.

Are there major programs/agencies that have NOT been leveraged yet? Probably not; a large proportion of our monitoring funding already comes from other Federal agencies. But in terms of nutrients, there might be a potential for this (perhaps Bill Wilber can answer this question).

The biggest untapped source of new partnerships is probably the recreation community. USGS staff are already looking at this as a possibility.

Another option in addition to NOAA/NWS and NRCS (Snowtel sites), there may be other chances for collaboration on gage maintenance if we pair up with organizations that have snowpack gages.

What about EPA (NPDES Program monitoring) collaboration? Clean Water Act (TMDLs etc) is a huge driver, and EPA is a key player along with the States. How does EPA’s work in this area dovetail with USGS monitoring? This might only be a source of collaboration in those States where NPDES has NOT been delegated to the State and EPA is doing the monitoring themselves.

NOAA’s National Estuaries Program is also a major driver in many parts of the country and could provide a partnership opportunity.

**Comment [wen8]:** Not all States have monitoring councils – we may need to list another alternative here. Also, this point isn’t very clear in terms of how it would save money; we may need to offer a concrete example – for example, better coordination can help eliminate the need for multiple trips to a site.

USGS offices are already closely aligned with local stakeholders and are “plugged in” to local needs, in addition to being bound by Federal priorities and interests.

- ? [See ideas above under Surface Water Network]
- e. Network Support Infrastructure
  - ?
- f. Quality Assurance
  - g. In a constrained budget environment, there could be a trade-off between the size of the monitoring networks and the **level-of-effort going into quality assurance**. What would the consequences be if USGS reduced the “calibration frequency” by 20-30% (more where the history shows less variation, less where the history shows greater variation)? Could this be assessed in terms of the precision of the resulting measurements and the implication for various types of decisions?
  - h. If **methods development** does not explicitly consider cost, should the group recommend that lowering costs be recognized as a consideration in this work? \*
- Data Management
  - One option for enhancing the efficiency of maintaining and improving the quality of information used in water resources decisions would be to **integrate comparable data sets** from multiple organizations. USGS and others have already made considerable efforts in this area. One example is the development of the Water Quality Exchange (WQX) and the Water Quality Portal, a cooperative effort of USGS, EPA, and ACWI’s National Water Quality Monitoring Council, to simplify access to water information from around the US contained in the USGS NWIS and the EPA STORET data warehouse. STORET is also currently used by state agencies, though its use has been inconsistent. ACWI could propose giving higher priority on encouraging and facilitating full use of, or integration with, these data systems by states and other federal organizations. In addition, the use of metadata standards developed by ACWI’s Methods and Data Comparability Board could be encouraged to help maximize the use of available data sets.
  - Would the **portal concept** tested by the national groundwater monitoring network be another data management option? Here the original data providers maintain their own data and based on the search relevant data is pulled. Would this have more appeal to non-federal entities? Some of the metadata issues can be massaged by the portal operation to overcome some issues, e.g. the naming of fields being inconsistent. Minimum field practices are set and minimum data elements are identified.
  - Should the group recommend the USGS Wisconsin staff or other appropriate USGS staff prepare a report to Anne on the benefits (including cost efficiencies,

**Comment [wen9]:** USGS and EPA are collaborating to talk with States that don't use WQX, to convince them to enter their ambient WQ data into WQX so it can be shared.

**Comment [wen10]:** A national portal is an ideal role for USGS to play, but providing a portal is only half the battle --- you also have to make sure that all the States have the resources (financial and human) to participate. Meta data also is extremely important when you are providing diverse data through a portal, and requiring the inclusion of meta data may be a bar to some States participating.

potential for encouraging collaboration, appropriate circumstances for use of each) of the **USGS-EPA model** and the **NGWMN portal model**? \*

- i. Other?
  - o ?

### III) "Related Science"

- a. General
  - o ?
- b. Watershed Budgets [\[national program – not cost-shared\]](#)
  - o Is there a way that the Water Census can take pressure off of the streamgage network? Other monitoring networks?
  - o Would it make sense for USGS to invest in the data and science needed, but leave the actual budget development to state and local agencies, watershed organizations and others?
- c. Ecological Use Estimation [\[national program – not cost-shared\]](#)
  - o ?
- d. Human Use Estimation [\[national program – not cost-shared\]](#)
  - o ?
- e. Flow Estimates for Ungaged Locations [\[national program – not cost-shared\]](#)
  - o ?
- f. Major Aquifer Studies [\[national program – not cost-shared\]](#)
  - o ?
- g. Water Quality Assessment [\[national program – not cost-shared\]](#)
  - o ?
- h. Interpretive Studies with Cooperators
  - o In light of short-term budget reductions, **defer new interpretive studies** (reduce new starts by 50%?)
- i. Research & Methods Development [\[national program – not cost-shared\]](#)
  - o ?
- j. Other?
  - o **Science appreciation** –to what extent must we invest in USGS science applications in order to generate sufficient funding for the monitoring necessary to support those applications and the uses of all other stakeholders?

**Comment [wen11]:** How do we jump into this section, absent a more refined list of guiding principles? Maybe we want to come back to this AFTER we have developed those principles.

Also, it's hard to figure out where this section fits under the draft report outline. Perhaps under 3c and 3d?

Some of the activities listed here under related Science are relatively specific, and others (interpretive studies with cooperators) are *very* broad. It might be wise to think about the programmatic size of each item under this section.

**REMEMBER:** This is just an attempt to organize people's suggestions to date. This isn't necessarily the way we would arrange the "Related Science" portion of our recommendations.

Peter will work with Pixie to refine/clarify this list. And if we don't have concrete ideas for some of the categories listed here, then we'll probably drop them.

**Comment [wen12]:** Bear in mind that these studies fall under the same categories listed above (b through e). So we're sort of mixing apples and oranges.

### IV) USGS Budget for the Water Discipline

- a. General
  - o Reorganize the **USGS budget request "line items"** to coincide with the presentation outline that USGS proposed for these deliberations
- b. Monitoring

- What are the best partnership opportunities that could help maintain or enhance the existing networks? Funding from the **private sector**? Funding from **regulatory** agencies (i.e., build monitoring requirements into the permits)?
- c. Related Science
  - ?
- d. Grant Programs
  - Cut grant programs (i.e., reduce the federal investment in other agencies and academic capacity) before cutting USGS capability directly?
  - Reduce grants to state agencies and other water data providers except where the recipient can leverage funds substantially, help achieve greater efficiencies and fill data gaps?
  - Water Resource Research Institute funding for research? Should this be looked at for potential leveraging or as a potential target for cuts (typically, the Administration proposes to cut and Congress sustains funding)?
  - Water SMART grants?
  - Mapping grants?
- e. New Initiatives
  - Water SMART Watershed Budgets? Investigations to advance river science? Regional Geographic studies?
  - National Groundwater Monitoring Network?
  - NAWQA?
  - LANDSAT?
- f. Funding Sources
  - **Insurance Industry** –they are highly vulnerable to climate change and our responses; these are largely unquantified risks they are trying to insure. Evan Mills writes in December’s Science magazine that the average annual worldwide cost of weather catastrophes has doubled each decade since the 1980s, and that the insurance companies are investing in the data, models computing capacity and human talent to quantify, price and communicate climate risk. Is there a partnership opportunity here; who could lead/maintain this partnership? Is DHS/FEMA a good source of info? Please consider adding the idea that **DHS/FEMA could provide some key information toward demonstrating the \$ benefits of having USGS water data** – based on the very strong linkage between the:
    - data for sufficient model-accuracy and the setting of (and collecting of) flood insurance premiums, AND
    - improved ability to predict impacts toward the setting/collection of insurance premiums.

- **“Follow the money”** –leverage the ‘drivers’ causing spending of money on projects, programs, etc – especially programs involving licensing, permitting, and any type of regulatory approval.
  - Brainstorm with collaboration-minded representatives from **private industry**, consultancy, and utilities– especially if the sessions operate in a listen-to-them mode, and then deliberate with an open mind; may be more long-term than short-term, because of the lead-times involved, but short-term possibilities may be revealed. Following sectors should be considered for a greater degree of leveraging – partly because of the money involved in each of them, and also because of them generally being representative of the “regulated community” as opposed to being part of the “regulatory government” sector. *USGS Strategic Direction 2012-22* demonstrates good collaboration and leveraging exists already; can be enhanced, and perhaps dramatically, by focusing efforts on the following sectors:
    - Energy;
    - Agriculture;
    - Defense;
    - Health;
    - Utilities (water/wastewater; solid waste)
    - Other??
  - State **monitoring councils** might also be able to identify new funding sources and recommend more strategic investment of the available resources (\$ and FTEs)
- g. Other?
- **Personnel Resources**– Significant need for mitigating attrition and reversing the effects of hiring restrictions and/or lowered budgets. Links up many stakeholders, toward getting more young persons interested in and committed to careers in water science and engineering, as well as planning, policy, legal/regulatory, and similar careers.
- V) Overall Approach to the Recommendations**
- If, based on the six reports provided to Anne (see starred items above), USGS staff is not able to recommend a path forward that maintains or, in some cases, moves toward nationwide monitoring of stream flow, groundwater levels and water quality at a funding level 5% below current amounts, then USGS staff should recommend specific reductions to interpretative reports and/or localized cooperative projects to account for the needed 5% reduction.
- VI) Future ACWI Consideration**
- these nations may be worth checking in terms of their experiences, including lessons-learned (e.g. “privatization didn’t work and here’s why”), and possible cost-benefit devts, as well as suggestions for persuading national governments and/or partners/stakeholders to “up the ante” for data-collection:

- EU/EC member States – especially Germany, Austria, the UK, Ireland, the Netherlands, and Poland.
- New Zealand.
- South Korea.
- India.
- Brazil.
- South Africa.

**Additional thoughts submitted after the May 6 meeting by a workgroup member:**

We should use the introduction to boldly lay out three overriding potential directions for USGS as the fundamental choice our leaders will need to make when they consider the USGS budget. This will frame the decision as one of significance and not merely a question of whittling here or there. While we should craft them carefully, my “straw man” directions would be something like:

1. Recognizing USGS as THE national center for the collection and interpretation of water and land based science information
2. USGS as the federal water science partner and advisor (This is intended to be something like the status quo.)
3. USGS as the enabler of sound water science data collection and interpretation.

Once these role choices are clearly delineated, we can present ACWI with three sets of budget recommendations consistent with each scenario. For example, under the first potential role, we might suggest that the USGS budget not be cut at all, but instead be delegated various responsibilities from other federal agencies that monitor or contract for the monitoring of water resources. (I'm thinking of the Dutch model here.) Under the third scenario, for example, we would place greater emphasis on USGS defining standards and practices for monitoring site selection, evaluating the use of technology, QA/QC, etc. and letting others do the actual monitoring (i.e., show cuts or transfers from these areas). While we might not think we can go too far with the first scenario, it would be useful, I think, to put it out there for consideration.

## DRAFT OUTLINE OF OUR REPORT

MAY 10, 2013

Here is a rough draft outline for the report that we should start drafting for the ACWI and for Assistant Secretary Castle. It is deliberately general, at this point, since there are many potential ideas to include and many ACWI members who care about the recommendations we are planning together.

1. We have been asked to provide advice and recommendations to Interior and USGS for the delay new initiatives or the reduction of current efforts with minimum adverse impacts to USGS Mission and to the many other public and private programs, projects, policies and plans (synopsis of Nov6 letter)
  - a. Scope and timeframe of the request
  - b. Short synopsis of our meeting presentations, discussions, participation
  
2. Federal responsibility and national benefit that warrant federal funding
  - a. **Federal responsibility** is based on many factors, including
    - i. treaties, compacts and trust responsibilities;
    - ii. federal regulatory standards;
    - iii. science needed to support federally funded programs (e.g., Water SMART planning grants & Title XVI projects; FWS consultations and recovery plans under ESA; USFS, BLM & NPS water resource protection);
  
  - b. **National benefits** result from federal agency leadership in many initiatives that cannot efficiently be accomplished at regional or local levels, including:
    - i. flood forecasting for interstate watersheds;
    - ii. intergovernmental negotiation;
    - iii. enhanced value of the data collected by OFAs, states, etc;
    - iv. increasing complexity of coping with floods, droughts, sea level rise, WQS, endangered species, recreation flows, etc)
    - v. innovation opportunity created by federal scientists working directly with water managers to anticipate new decision support needs;
  
  - c. Potential consequences of alternative “shrinking budget” strategies that the ACWI Workgroup has considered:
    - i. Incorporation and assumption of responsibility for water science functions that are currently assigned to other federal agencies;
    - ii. Promote effective standards for data collection and interpretation by other agencies and reduce USGS efforts to collect and interpret that data;

- iii. Increase cost-share requirements for other agencies' participation in monitoring and interpretive

- 3. There is an essential set of **functions that USGS Water must serve** in order to fulfill the federal responsibilities and maximize the national benefits (in concert with the many state, tribal, interstate and local agencies, universities, consulting firms, NGOs, and other experts in the national water community)
  - a. Data collection (3 networks), management and quality control;
  - b. Data delivery, accessibility;
  - c. Interpretive studies and models needed to understand the hydrologic cycle, related risks and opportunities;
  - d. Interpretive studies and models needed to predict future conditions for planning and design purposes; and
  - e. Basic research
  - f. [Financial assistance to universities and other leaders in water science](#)
  
- 4. These are **the recommendations** we developed for presentation to the full ACWI at the next meeting
  - a. Achievable within the FY-2015 planning horizon:
    - 1. Monitoring, data management and quality control
    - 2. Data delivery
    - 3. Interpretive studies and models to understand hydrologic systems
    - 4. Predictive studies and models to inform planning and policy decisions
    - 5. R&D (basic and applied)
  - b. Beneficial for the longer-term
    - i. Assume "shrinking budget" is only a 3-5year dilemma
      - 1. Monitoring, data management and quality control
      - 2. Data delivery
      - 3. Interpretive studies and models to understand hydrologic systems
      - 4. Predictive studies and models to inform planning and policy decisions
      - 5. R&D (basic and applied)
    - ii. Assuming the "shrinking budget" is a long-term dilemma
      - 1. Monitoring, data management and quality control
      - 2. Data delivery
      - 3. Interpretive studies and models to understand hydrologic systems
      - 4. Predictive studies and models to inform planning and policy decisions
      - 5. R&D (basic and applied)