

SOUTHEASTERN COASTAL STATES CWP COOPERATORS' ROUNDTABLE 2007

HELD MARCH 28-29, 2007

IN CONJUNCTION WITH THE GEORGIA WATER RESOURCES CONFERENCE
UGA CAMPUS IN ATHENS, GA
MEETING SUMMARY

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Summary: In conjunction with the 2007 meeting of the Georgia Water Resources Conference, the Interstate Council on Water Policy (ICWP) and the US Geological Survey (USGS) held the first regional Cooperative Water Program (CWP) Cooperator's Roundtable on the University of Georgia campus in Athens, GA on March 29. This was the first in a series of regional stakeholder meetings designed to present an overview of the USGS streamgaging and water science programs and to create a constructive opportunity for stakeholders to help guide those programs. The meeting included presentations by USGS staff on the purposes, history and capabilities of the CWP and some of the current challenges facing it; presentation materials are accessible on the internet at www.icwp.org. Several Cooperator representatives described the scientific contribution that the CWP data collection and interpretive investigations and the benefits they bring to local water management. The meeting concluded with a discussion of ideas for strengthening the CWP and addressing the emerging water management issues.

WEDNESDAY, MARCH 28, CWP COOPERATORS' RECEPTION

The UGA College of Forestry has a beautiful facility known as Flinchum's Phoenix, where we enjoyed an evening reception. Sue Lowry, who chairs the ICWP, welcomed everyone, described the program agenda, thanked our sponsors for the evening and introduced the USGS Director, Mark Myers, and his Associate Director for Water, Bob Hirsch. Bob also extended a welcome to all the participants and introduced Eugene Hayes, who is Director of the USGS Hydrologic Instrumentation Facility (HIF).

Eugene described the facilities located in the Stennis Space Center in Mississippi and the role they serve in research and testing equipment used by USGS and many Cooperators. The HIF is equipped to conduct extended duration testing under extreme temperature and humidity conditions in order to assure that equipment used in the CWP (and many other programs) has the capability to provide many years of reliable service. They also serve as a source of emergency replacement equipment, which proved especially valuable in the Katrina/Rita aftermath to collect data after many stations were damaged or lost. The HIF also serves USGS as a procurement center, enabling the agency to constrain program cost by negotiating volume discounts on many types of equipment.

The sponsors for the evening reception were:



CWP COOPERATORS' REGIONAL ROUNDTABLE

THURSDAY, MARCH 29

Welcome and Program Overview: Peter Evans, Director of the Interstate Council on Water Policy, welcomed the approximately 50 participants and thanked the University of Georgia and USGS for co-sponsoring this meeting. He drew attention to the contents of the [meeting book](#), including the 2007 Cooperative Water Program (CWP) guidance, recommendations from previous Cooperator Roundtable meetings and from the CWP Review Task Force. Peter described the program for the day, thanking the three corporate sponsors for their assistance with the luncheon and reception, emphasizing the value of the break-out sessions at the end of the day.

Ward Staubitz, National Coordinator of the USGS Cooperative Water Program introduced Ed Martin, Director of the USGS Water Science Center in Georgia, Eric Strom, Director of the Water Science Center in South Carolina, and Jerad Bales, who was recently promoted to be Director of the Water Science Center in North Carolina. Each of the three Directors took a few minutes to introduce their key staff members and the Cooperators from their states before we launched into the substantive program

Historical Background and Significance of the USGS Streamgaging Network: Bob Hirsch described the long history of the Cooperative Water Program (CWP), dating back into the late 19th Century and its specific funding designation within the USGS budget starting in the 1920s. Today, there are about 1400 Cooperators, nationwide, who participate directly with USGS in support of one or more stations or investigations. He also highlighted several reasons why the CWP is especially important to the USGS:

- the CWP partnership with other water agencies provides over ½ of all the funding available to USGS for streamgaging programs at the national level (in the Carolinas and Georgia, the combined budget for hydrologic data collection is about \$15.2M, approximately \$4M of which is federal funds appropriated to the USGS);
- the collaboration with the CWP Cooperators in data collection and interpretive investigations provides the opportunity to anticipate future water resource management issues and opportunities and the data, science and models that will be needed by resource managers and policy makers;
- the Cooperators' expertise and professionalism motivates USGS to sustain high levels of cost efficiency and relevance to water management challenges.

Bob described the role the CWP serves in building national water databases, supplying data from over 15,000 sites throughout the country, and making them accessible through the National Water Information System (NWIS) and its internet site (which responds to approximately 1 million requests for data every day). These data support many interpretive studies and models by other public agencies and private companies, as well as the USGS, for reservoir design and operations, aquifer characterization, conjunctive use of surface and ground water, protection against saltwater intrusion, flood frequency analysis, habitat restoration, protection of water quality and many other purposes.

When Cooperators turn to the USGS for help, they have access to the water discipline experts, of course, but also to experts in sedimentology, biology, geology and analytical techniques. The USGS Hydrologic Instrumentation Facility (in Stennis, Mississippi) also supports the CWP, where new techniques and equipment for measuring streamflow, groundwater movement, water quality, etc, are subjected to extensive testing under a wide variety of circumstances before the equipment is put to use in the field.

Bob also described several disturbing trends associated with the very tight federal budget for the CWP during the past several years. The USGS staff has been shrinking nationwide, as funding has not kept pace with salary increases. As an example, the national research program has experienced the retirement of 18 full-time staff since 2005 without the budget to hire replacement staff. The loss of streamgages with long records (>30 years) is pushing up toward 150/year again, after getting a little extra funding in the first years of this decade.

The Interior Department was able to help the CWP this year, within the flexibility afforded by the “continuing resolutions” adopted by Congress *en lieu* of an FY-07 appropriations bill; the CWP received an additional \$1.5M and the National Streamflow Information Program (NSIP, a subset of about 3,100 gages that serve specific national purposes within the larger set of 7,400 stations nationwide) received an additional \$2.8M. However, the President’s budget request for next year (FY-08) would cut CWP funding (from about \$64M this year to about \$62M, plus the impact of further cost-of-living adjustments to salary) and shift an equivalent amount of additional funding to the NSIP.

Overview – CWP from the National Perspective: Ward’s [presentation](#) illustrated how, at the national level, the CWP developed over the past 112 years around the presumption of a 50/50 cost share between USGS and the Cooperators, representing a shared commitment to monitor the highest priority sites. The network of more than 7,400 streamgages, 2,500 water quality stations, 10,700 ground water stations and about 750 ongoing scientific investigations provide a cornerstone in the shared commitment to inform state and local water resource management with the best science available. Hydrologic investigations undertaken within the CWP are expanding our understanding and ability to predict a wide variety of hydrologic conditions, including:

- Ground water availability
- Salt water intrusion;
- Aquifer storage and recovery;
- Flood frequency;
- Contaminant distribution and transport;
- Eutrophication of lakes and reservoirs; and
- Effects of land use on water quality and quantity.

In 2005, USGS streamgaging efforts were supported by \$121M from the following sources:

- federal funds appropriated for the CWP (\$23M);
- federal funds appropriated for the NSIP (\$13.8M);
- federal funds appropriated to other agencies, including the Corps, BOR and BLM (\$26.2M); and
- state, tribal and local agency funds (\$57.8M).

The CWP is designed and operated to be responsive to local and regional needs and decisions about program priorities and schedules are dispersed among the individual Water Science Centers. Annual program guidance provided by Ward to the Water Science Center Directors has been very consistent over the past years and a copy was included in the [meeting book](#).

Ward also described the results of two recent stakeholder reviews organized through the federal Advisory Committee on Water Information (“ACWI”) and USGS responses to their task force recommendations, which are maintained on the ACWI website (<http://acwi.gov/streams/index.html>). Ward also reviewed the recommendations from earlier Cooperator Roundtable meetings in March 2005 and January 2006. Producing more timely reports, reducing program cost, restoring the 50:50 cost-share and increasing opportunities for Cooperator participation are among the recommendations that USGS is working to implement.

The National Streamflow Information Program (NSIP): a National Overview. Mike Norris, National Coordinator for the NSIP described the origins and design of this [program](#) and its funding. In 1998, the Congress recognized concerns within the water community over the sustainability of the USGS streamgaging program, noting a steady loss of stations with long-term records over the past decade (over 900 stations with a record of 30 years or longer). Reflecting the increasing number of growing communities and the diversity of water needs across the 50 states, effective long-term water resource management and the protection against future floods and droughts have become essential to the protection of our homes, businesses and communities. This is as obvious now among the eastern states as it is among western states and many Members of Congress have been alert to the resulting risk for many years.

In November 1998, the USGS reported to Congress that the streamgaging networks across the nation were losing the ability to meet longstanding goals for the scientific information to support intelligent water resource management and preparation for floods and droughts. The long-term reliance on cooperative funding from both federal and non-federal sources began to appear somewhat unreliable for several essential national purposes. The shared funding decisions within the CWP were contributing to a disproportionate loss of gaging stations with long periods of record. As a result, Mike explained that the USGS proposed in 1999 that a new strategic component, the National Streamflow Information Program (NSIP), and Congress authorized it in 2001.

At the core of NSIP, monitoring stations are selected and operated as a permanent “backbone” of streamgages to fulfill five national goals:

- **Interstate and International Waters** – Implementation and compliance with interstate compacts, court decrees, and international treaties depends upon long-term, accurate, and unbiased streamgaging at state and international boundaries and other key locations;
- **Streamflow Forecasts** - Flood forecasting by the National Weather Service requires extensive, real-time stage and discharge data across the country;
- **River Basin Outflows** - Resource managers across the nation need a reliable means to account for the contribution that each of the 350 major river basins makes to the flow and quality of the next downstream river, lake, or estuary;
- **Sentinel Watersheds** – Assessing the status and trends of the nation’s waters, as they vary in response to changes in climate, land use, and water use requires careful measurement of the baseline conditions in approximately 800 watersheds that are relatively unaffected by flow regulation or diversion and typify major ecoregions and river basins; and
- **Water Quality** – The national effort to assess and protect the quality of our water resources depends upon maintenance of three subsets of USGS monitoring stations: one that covers the largest rivers; the second for intermediate-sized rivers; and the third for small, pristine watersheds.

Of the 7,449 active gages operated by USGS within the CWP and NSIP, 3,096 meet one or more of those five national needs. Federal funds appropriated for the NSIP are sufficient in 2005 to provide full support for 272 stations and partial support for another 206 stations, as illustrated in the map included on page 20 of the [meeting book](#); the remaining 2,618 NSIP gages are supported with a combination of Cooperator and USGS funds). Of those 7,449 active gages over 200 are currently at risk of discontinuation, adding to the set of more than 1000 gages discontinued since 2000 shown on page 21 of the meeting book. There are eight Georgia gages on the “threatened list” now (none in either North Carolina or South Carolina) and, from a national perspective, the Missouri River Basin faces the greatest challenge due cutbacks in funding by the Corps of Engineers and Bureau of Indian Affairs.

The Status of the Water Resources Monitoring Network in GA, NC & SC. Within the context of these national programs, Brian McCallum, Assistant Director for Data Programs in the Georgia Water Science Center described the [gaging networks in the Carolinas and Georgia](#) with help from Eric Strom, Director of the South Carolina Water Science Center, and Jerad Bales, Director of the North Carolina Water Science Center.

Brian first described the regional CWP/NSIP network in terms of the long-term measurement of streamflow, ground water levels, water quality and water uses using maps and tables of comparison to illustrate the types and distribution of stations in each of the three states.

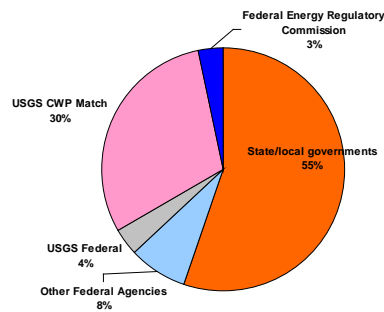
Data-Collection Characteristics (2006)

Type	NC	SC	GA	
Continuous Streamgages	269	150	240	Measuring streamflow, stage and lake levels
Continuous Well Monitor	60	15	185	Measuring groundwater levels
Continuous Water Quality	26	43	36	Measuring conductivity, temperature, pH, DO, turbidity, Chlorophyll
Continuous GW (real-time)	60(47)	15(13)	185(24)	

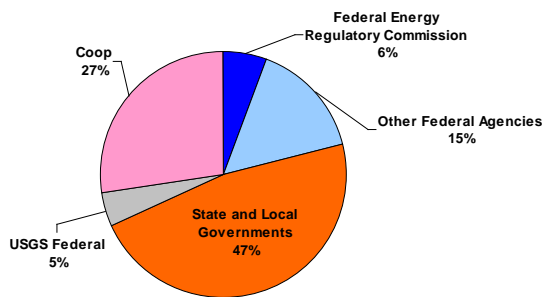
Another representation of the three state programs is seen in the following pie charts indicating the relative funding contribution from various sources.

The North Carolina Water Science Center had a budget for hydrologic data collection of about \$4.5M for 2007 and has experienced a slow but steady loss of about 10 long-term gages since 1990. Coastal measurement of stream flows and ground water quality has increased considerably.

North Carolina Funding Sources Hydrologic Data Collection 2007



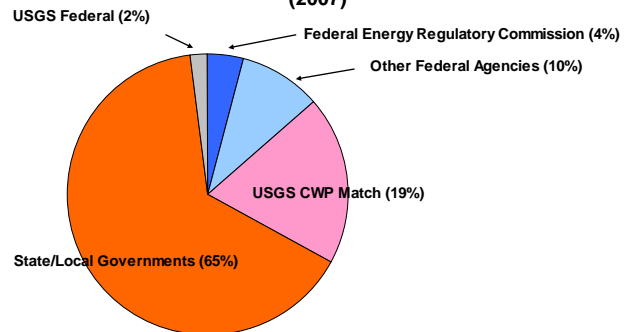
South Carolina Funding Sources Hydrologic Data Collection 2007 (Total Dollars)



In South Carolina, the Water Science Center has a budget of about \$2.9M for hydrologic data collection in 2007 and they have suffered a substantial loss of more than 20 long-record gages since 2000. The measurement of ground water quality around Charleston has been a priority, as has the continuous measurement of surface water quality statewide.

The total budget for hydrologic data collection in Georgia's Water Science Center is \$7.8M for 2007. Their streamgaging program has doubled in the past 7 years, with growth concentrated around the Atlanta Metro Area. They have been able to continue all their long-record gages since about 1990.

Georgia Funding Sources Hydrologic Data Collection (2007)



As far as “emerging issues,” the three Water Science Centers offered the following lists:

North Carolina

- Coastal monitoring
- Flood monitoring
- Hurricane response
- Interbasin Transfer
- FERC relicensing (ISF needs)
- Water use assessment

South Carolina

- Coastal streamgaging & WQ
- Saltwater intrusion
- Flood monitoring
- Urban hydrology

Georgia

- Urban hydrology
- Coastal streamgaging & WQ
- Saltwater intrusion
- Flood monitoring
- Hurricane surge monitoring
- Water use
- Interbasin transfers

Brian concluded with a set of slides providing a fascinating glimpse into the new sampling technologies and procedures USGS is beginning to deploy in their effort to record more and better quality data and then

process and present it more efficiently. Each of the Water Science Centers is maintaining an innovative set of website pages with information suited to various interests, such as estuarine monitoring, water supply, urban stormwater management, low-flow and flood frequency assessment. He closed by showing us their new “Real Time Streamflow” capability for cell phone and Blackberry access!

Before taking a luncheon break, we had an interesting conversation about the limited funding appropriated to the CWP in recent years and the limited opportunities within USGS and the Interior Department for changing that, especially in light of other budget priorities and policies.

During the luncheon break, Dr. Carol Couch, Director of the Environmental Protection Division, Georgia Department of Natural Resources, provided a very interesting presentation about regional growth and the increasing need to expand and refine our scientific understanding of the hydrologic systems we depend on as our communities and economy grows.

CWP Interpretive Studies (Hazards, Water Availability & Water Quality)

After lunch we reviewed three presentations highlighting aspects of the interpretive investigations conducted by the Water Science Centers in collaboration with several of their Cooperators. The first presentation was coordinated by Dr. Straud Armstrong, who was standing in for Dr. Bud Badr (Chief Hydrologist for the SC Department of Natural Resources). Toby Feaster (USGS Hydrologist, SC Water Science Center) presented an [overview](#) of a *Regional Approach to Estimates of Flood Frequency in Georgia, South Carolina and North Carolina* with assistance from Wayne Corley (Hydraulic Design Manager, SC Department of Transportation) using data from all three states. Flood-frequency estimates are based on statistical models, which include uncertainty. That uncertainty is due to time-sampling error and model error.

The “regional methods” enhanced through this investigation provide a better ability to estimate flood magnitudes and frequencies at such ungaged sites. Georgia, South Carolina, and North Carolina are involved in a this influential investigation that is likely to improve flood-estimating techniques used across the US; they will be included in an update to Bulletin 17B, which was last revised in 1982. This important work is greatly enhanced by cooperation between the USGS and the Cooperators.

Next, we were briefed by Dr. James Kennedy (State Geologist in the Environmental Protection Division, Georgia DNR) and John Clarke (Assistant Director for USGS Hydrologic Investigations & Research Program in the Georgia Water Science Center) on the *Coastal Sound Science Initiative* (CSSI), an [investigation](#) of saltwater intrusion in the coastal regions of South Carolina and Georgia.

Dr. Kennedy noted that rapid population growth in coastal Georgia, increased tourism, and sustained industrial activity have adversely affected coastal Georgia’s water resources. The Georgia Environmental Protection Division (GaEPD) capped permitted withdrawal from the Upper Floridian aquifer and has developed a program of scientific studies to support development of a final water-management strategy. In support of this investigation, the USGS is working with GaEPD on a comprehensive program to evaluate ground-water flow, saltwater contamination, and alternate sources of ground water in the coastal area of Georgia and adjacent parts of South Carolina and Florida. Dr. Kennedy described the USGS’s ability to coordinate ground-water data collection across state boundaries and conduct sophisticated computer simulations as essential to the success of this program.

The final presentation describing the *Triangle Area Water Supply Monitoring program* was made by Ed Holland, Planning Director, Orange Water & Sewer Authority, Carrboro, NC and Jerad Bales, Director, USGS North Carolina Water Science Center. Mr. Holland described 19 year history of this regional water supply monitoring project that includes the participation of the USGS and numerous local governments in a six-county area of Central North Carolina. Over the years, the USGS has investigated the occurrence of synthetic organic compounds in the water column and bed sediments, nutrient and sediment loads and trends, and occurrence of disinfection by-products, microbial pathogens, and pharmaceutical and personal care products. Mr Holland noted that the key strengths of the association with USGS in this monitoring

program have been the long-term consistency of data collection methods, the quality assurance of data provided by USGS, and the availability of current and historic data in the USGS data base.

Facilitated Break-Out Group Discussion of Opportunities & Priorities: Peter Evans divided the participants into two groups for a facilitated exploration of opportunities that both the USGS and the Cooperators might choose to improve the CWP. The two groups met for about half an hour, one lead by Peter and the other by Sue Lowry (ICWP's Chair and Administrator of the Interstate Streams Division in the Wyoming State Engineers' Office) to respond to two questions and then prioritize the results. Those questions and the combined results are [attached](#).

Sue Lowry facilitated a brief summary and discussion of the highest-ranked suggestions from the two break-out groups.

Recommendations for USGS consideration were:

1. Improve outreach to local government, enhance USGS awareness of local issues and become a recognized participant in problem solving;
2. Projects should be designed with more frequent "results" (e.g., reports, other deliverables), especially for long-term projects;
3. Optimize the entire gaging network. Provide to local cooperators the background information so that they understand the decisions made by USGS when locating NSIP gages. Better coordination between the two programs as the local level is desirable. But having both programs is good so that some trade-offs can be made between the programs on specific gages.
4. Enhance fact sheets describing investigation results in understandable terms, focus on informing the public;
5. Anticipate next-steps and implications (e.g., for information needs, permitting, budget and other decisions) earlier in the project for future program and budget planning (e.g., design-build contracting);
6. Promote this regional approach in having discussions with the cooperators.

Recommendations for CWP Cooperators' consideration were:

1. Cooperators can do more to promote education/funding with Congress and the Administration. Also, look beyond the present set of supporters (e.g., to the National Association of County Officials, since in the southeast, water issues are very important and many county commissioners are very knowledgeable and would be willing to work on water issues when they are in DC or talking with their congressional contacts.
2. Develop a better understanding of the CWP role, managers, decision cycles, resources, etc and the scope of USGS capabilities.
3. Cooperators and the USGS need to work together to be more creative in financing streamgaging. New opportunities for in-kind services should be explored.
4. Remember to invite USGS to more of the meetings where water issues are explored so they have better awareness and can contribute to the consideration of information needs and potential solutions. Cooperators can be of help in the information transfer working with USGS. Many cooperators participate in organizations beyond those with which USGS might typically participate. Cooperators should keep in mind opportunities to reach difference audiences with outreach on water resources research results.

Before the meeting adjourned, Bob Hirsch, Ward Staubitz and the Water Science Center Directors expressed their appreciation for the time and energy that the Cooperators and USGS staff put into the presentations, the discussion and recommendations.

The meeting materials, including the presentation slides, are available to anyone who is interested from the USGS Water Science Centers or the Interstate Council on Water Policy.

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