



## **POSITION STATEMENT: WATER DATA & SCIENCE**

### **ICWP RECOMMENDS:**

1. That the federal government should continue and enhance its role in the maintenance and collection of water data from long-term streamgaging, ground water and water quality monitoring stations, including enhanced access to water data from federal and non-federal sources through development of a water data “portal.”
2. That decisions regarding the maintenance and extension of monitoring networks should be evaluated from a watershed (or hydrologic region) perspective with the needs of future decision makers and “integrated water resource management” in mind as priorities are set and partners are engaged to get the greatest advantage from limited program resources.
3. That the federal agencies and interstate water organizations should engage their water data “customers” more directly and more consistently in water science program decisions, especially those concerning use of cost-shared funds.
4. That federal funding for the National Streamflow Information Program (NSIP), Cooperative Water Program (CWP), National Integrated Drought Information System (NIDIS), and Integrated Earth Observation System should be enhanced.
5. That descriptive (simulation) and predictive (forecast) models linking surface and ground water quantity and quality should be improved to support quicker and more accurate decisions in managing the conjunctive use of these sources.
6. That the science needed to characterize the relationships between ecosystems and their water requirements should be should be given greater priority.
7. That recognition of in-kind contributions in collaborative efforts to expand USGS water data collection network should be more fully developed while assuring that the quality, consistency and accessibility of the resulting data will continue to meet appropriate national standards.
8. That the hydrogeologic and geochemical characteristics of aquifers containing brackish and saline ground-water resources, where they could provide fresh water through desalination, should be investigated.
9. That the interagency Advisory Committee on Water Information (ACWI) should continue to pursue more effective coordination of water data programs.

### **BACKGROUND**

Data and scientific methods and models are essential for describing, understanding and managing our water resources, elements of the hydrologic system and the many water-dependent resources and opportunities that our communities depend upon.

A reliable, quantitative understanding of our water resources has proven necessary over the past 200 years, but it is increasingly essential as our growing population and businesses and our shifting land uses place more pressure on critical systems with smaller margins for error.

We depend on reliable and consistent water data in many decisions by many federal, state, tribal, and local government agencies, and by many businesses, landowners, public interest organizations and individuals. Water data are needed routinely for many essential decisions, including the:

- forecasting flood and drought conditions and issuing emergency advisories;
- designing bridges, dams and other infrastructure;
- identifying flood risk areas for the protection of lives and property and to reduce disaster relief expenses;
- estimating future water needs and availability for agricultural, municipal, and industrial uses;
- managing hydropower, water supply, environmental<sup>1</sup> and navigation releases from reservoirs; and
- planning recreation and water quality protection.

Quantifying the natural variability of precipitation, snow accumulation, ground water recharge and streamflow, as well as the changes we are inducing, is critical to water resource management and community planning. It is not uncommon for our disaster relief spending for flood emergencies to exceed \$250M annually. Drought impacts are equally significant, even if they are more difficult to quantify. Regardless, these disaster impacts clearly justify substantial increases in our collection and analysis of water data. Without reliable and consistent water data, our health, safety, property, businesses and many elements of our natural environment are at greater risk.

The gaps in our water monitoring networks threaten future decision makers with greater uncertainty. For example, in locating the boundaries of flood-prone areas so that we can protect our homes, businesses and other assets, we use stream and rainfall data with maps and hydraulic models to mark the 100-year floodplain boundaries. If we want to be confident that we are locating those boundaries correctly, we need many more years of reliable stream flow data. As we build and improve bridges, dams, homes, water treatment plants, and habitat restoration projects near waterways, we need better data from more sources on a long-term basis.

The Advisory Committee on Water Information (ACWI) organized by the US Department of the Interior to enlist experts from many local, state and federal agencies and from universities, consulting firms and public interest organizations, has documented startling gaps in our water monitoring systems. Significant gaps in existing monitoring networks hinder our understanding of surface water and groundwater resources and of the coastal interface between rivers and estuaries and between estuaries and ocean are even greater.

Experts from across the nation and from many disciplines are designing plans to fill these gaps in our monitoring networks and to begin collecting the data that our communities will need in making intelligent decisions about flood protection, drought response, contaminated water supplies, and fisheries. The same data are needed to make choices about protecting wilderness and endangered species and to support agriculture, waterfowl, power generation, wetlands, and navigable waterways. The ACWI and agency experts have studied and agreed on plans for strengthening our water data and science programs.

## **POLICY CONSIDERATIONS**

While these ACWI initiatives are pointed in the right direction, progress is too slow and the prospect for implementing their recommendations during the coming years of very tight budgets appears to be very limited.

As population and economic growth drive up demand, competition for water intensifies and the need for more precise information becomes much more significant. Water in the US is becoming a marketed

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<sup>1</sup> Including fisheries management, wetlands restoration and endangered species conservation.

resource in many ways at every scale and we already confront the need in business and public policy decisions for new scientific capabilities to anticipate and avoid adverse consequences.

Giving due consideration to the quantities of water needed for the maintenance and enhancement of natural systems (such as instream flows, wetlands and estuary protection) has become a major challenge for water managers at every level of responsibility across the country. Unfortunately, our understanding of these systems (including their resiliency and the quantity, quality and timing of water required to sustain the health of these interrelated communities and features) is limited and varies greatly by region. Until these ecosystem needs are better understood in quantitative terms, the associated uncertainty will complicate and delay many public and private decisions; the economic, political and social cost will be substantial while our communities and ecosystems will lack the appropriate level of protection.

To identify and anticipate the many hazards that threaten communities, an efficient data collection and interpretation capability must be readily available to and usable by scientists, emergency managers, first responders, citizens and policy makers. Developing and improving our water monitoring networks (including water quality and groundwater) is essential to provide pertinent, comprehensive and timely information for intelligent planning, public support and deliberate action. Water officials from 39 states identified expansion of the number of federal data collection points as the most useful federal action that would help them meet their water management challenges<sup>2</sup>. Timely and well-informed decisions in marketplace, utility and governmental circumstances require that the collection and delivery of water data (including remote sensing and onsite monitoring of water quality, surface and groundwater resources) must be improved.

The Cooperative Water Program has served for over 110 years as a federal/non-federal partnership. Historically, the CWP was funded through 50/50 cost-share agreements. Today, however, the USGS is struggling to support even 30% of the Program cost. CWP Cooperators have increased their contributions to help meet both the need for more data and the cost of inflation, but these financial burdens are unsustainable for many state and local agencies and districts. Between 2001 and 2007, more than 780 streamgaging stations were discontinued (many with over 30 years of continuous operation) and more than 225 stations in 33 states are currently at risk due to the lack of adequate funds. The FY-2008 appropriation of \$62.8 million for the Cooperative Water Program was not sufficient to reverse the continuing erosion of federal support or to match even ½ of the \$163M contributed by the Cooperators.

In 1998, concern about long-term reliability of streamgaging in the US led the Congress to authorize the National Streamflow Information Program (NSIP). Unlike the Cooperative Water Program, the NSIP is supposed to be funded entirely with federal appropriations. In 2008, there are approximately 4,725 stations in the plan for this network but only 3,244 (69%) were active and funded by the USGS. Another \$100 million will be needed to achieve the intended function of the NSIP. Full funding for the NSIP would reverse the loss of long-term gages and provide essential information for analysis of climate change, forecasting floods and droughts, managing interstate water supplies, and fulfilling federal treaty, compact and Native American trust responsibilities.

Unfortunately, the funding for these USGS data collection, analysis and interpretation programs is eroding to the point that the quantity and quality of the basic data is threatened, with significant adverse consequences to a growing number of American communities and businesses. Years of neglect in federal funding threatens the availability of critical data that are needed to inform many complex public- and private-sector decisions.

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<sup>2</sup> GAO report “Freshwater Supply –States’ Views of How Federal Agencies Could Help Them Meet the Challenges of Expected Shortages, July 2003.

**EFFECTIVE DATE:** This position was reviewed by the ICWP Legislation & Policy Committee and ICWP Board of Directors and adopted by the Membership on October 29, 2008. It will continue in effect until December 2009 unless revised or archived at an earlier time by the Board of Directors or by the Membership.

This position statement was initially proposed by the ICWP Legislation & Policy Committee and adopted by the ICWP Board of Directors on February 7, 2007.