Coordination of Federal Water Research: Legislative Issues

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April 22, 2009

Congressional Research Service
7-5700
www.crs.gov
R40538

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

H.R. 1145, the National Water Research and Development Initiative Act of 2009, would formally establish a federal interagency committee to coordinate federal water research. Federal water research currently averages roughly $700 million annually.

The proposed interagency committee, with input from an advisory committee, would develop a four-year plan for priority federal research topics, then require the President to annually report to Congress on progress in achieving the plan's research outcomes. A version of the committee, the Subcommittee on Water Availability and Quality (SWAQ), which was not created by statute, has been operating since 2003 within the White House Office of Science and Technology Policy (OSTP) as part of the National Science and Technology Council (NSTC). The bill also would establish a National Water Initiative Coordination Office that would function as a clearinghouse for technical and programmatic information, support the interagency committee, and disseminate the findings and recommendations of the interagency committee.

As reported, H.R. 1145 would not increase the authorized funding levels for performing federal research activities. Instead, it is focused on improving coordination in the establishment of agency research agendas, increasing the transparency of water research budgeting, and reporting on progress toward research outcomes specified in the bill.

While the benefits of a coordinated research program include avoiding duplication and having a more focused research strategy, a concern is that, if enacted, the bill may result in a shift in research funding away from some current research topics. Specifically, some stakeholders may be concerned that, unless additional funds are made available for water research, the focus on technology and water supply in H.R. 1145 may move research funds away from water quality and research supporting agencies' regulatory roles. During the House Science Committee markup, research outcomes for the plan were added that address water quality topics. It also is uncertain whether additional transparency and information alone (without increased funding) would result in significant changes to the status quo.

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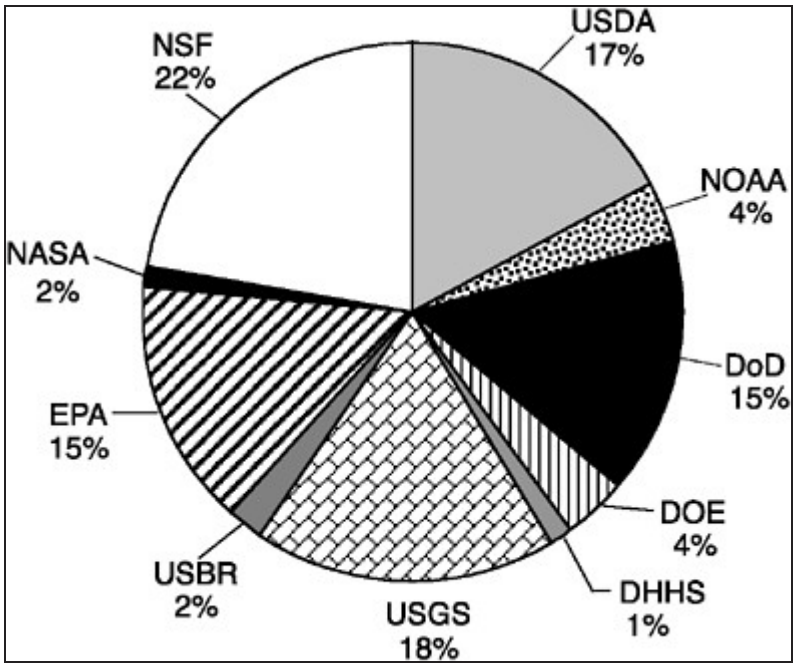
Federal Water Research: A Primer

More than 20 federal entities conduct water-related research and development and collect and disseminate water information and data. Whether coordination of federally funded water research would produce greater benefits for the nation is the policy question at the center of H.R. 1145, the National Water Research and Development Initiative Act of 2009.

According to a 2004 report by the National Research Council, *Confronting the Nation's Water Problems: The Role of Research*, real levels of total federal spending on water research have remained constant at $700 million annually (in 2000 dollars) since the mid-1970s.[1] The report notes, however, that water research funding has not paralleled the growth in federal budget outlays or in gross domestic product. Also, the topical balance of the federal research portfolio has shifted to a greater focus on water quality and away from research on water supply augmentation and conservation and social science topics (e.g., water demand, water law, and institutional topics).

Figure 1. Distribution of FY2000 Federal Water Research Funding Across Agencies



Source: NRC, 2004, p. 8.

While other legislation addresses changing specific water research programs and activities at individual agencies, H.R. 1145 would require coordination of the federal water research that is spread across more than 20 federal entities. H.R. 1145 would formally establish a federal interagency committee to coordinate federal water research. The interagency committee, with input from an advisory committee, would develop a four-year plan for priority federal research topics, and the President would annually report to Congress on progress on the plan. The bill also would establish a National Water Initiative Coordination Office that would function as a

[1] The report is available at http://www.nap.edu/books/0309092582/html/.

clearinghouse for technical and programmatic information, support the interagency committee, and disseminate the findings and recommendations of the interagency committee. The bill would essentially codify the Subcommittee on Water Availability and Quality (SWAQ), which was not created by statute, that has been operating since 2003. For more information on SWAQ, which is located within the White House Office of Science and Technology Policy (OSTP), see the later section of this report on "Water Research Coordination and Strategy."

Primary Federal Entities Involved in Federal Water Research

Data and Information

As the primary federal science agency for water-resource information, the U.S. Geological Survey (USGS) monitors the quantity and quality of water in rivers and aquifers, assesses the sources and fate of contaminants in aquatic systems, develops tools to improve the application of hydrologic information, and disseminates products of its efforts to the public. The National Weather Service in the Department of Commerce and the Natural Resource Conservation Service in the U.S. Department of Agriculture (USDA) combine their data with USGS data to forecast water supplies and floods. Many other federal agencies collect water data and conduct monitoring in support of their own missions and projects. For example, as part of its reservoir operations in support of its navigation and flood damage reduction missions in many basins, the U.S. Army Corps of Engineers (Corps) in the Department of Defense collects runoff data and monitors water quality and other environmental health parameters in order to comply with federal environmental statutes.

Research and Development

For water quantity technology research and development activities, programs of the Department of the Interior's Bureau of Reclamation support much of the federal desalination and water reuse research, while the Corps performs more infrastructure and engineering research. The Department of Energy and its labs conduct research that also has water applications, such as innovative desalination and membrane technologies. Water quantity management and control research is also conducted by USDA agencies, and smaller amounts through the National Science Foundation (NSF), USGS, and National Oceanic and Atmospheric Administration (NOAA).

The U.S Environmental Protection Agency (EPA), agencies in the USDA, and the USGS conduct much of the federal research related to water quality. The National Science Foundation (NSF) and the USGS through its Water Resource Research Institutes in each state support a wide array of technical water quality, quantity, and social science research. Because of the integrative nature of ecosystem restoration research, many federal agencies support it, including Reclamation, the Corps, USGS, EPA, USDA agencies, and the NSF.

NRC Report Supported a Shift in Federal Water Research Portfolio

According to the aforementioned 2004 NRC report, funding for "water supply augmentation and conservation" research and "water quantity management and control" research by federal

agencies totaled, respectively, $14.5 million and $45.6 million in FY2000. In the past, the federal government has invested more in these areas; most notably, in the late 1960s, federal research in water supply augmentation, particularly research on desalination, was funded annually at approximately $120 million (in 2000 dollars). While water supply research declined over time, other research areas have increased in prominence; for example, federal research funding for water quality management and protection totaled $191.2 million in FY2000. According to the 2004 NRC report, "the topical balance of the federal water resources research portfolio has changed ... such that the present balance appears to be inconsistent with current national priorities." The report continues:

> Research on social science topics such as water demand, water law, and other institutional topics, as well as on water supply augmentation and conservation, now garners a significantly smaller proportion of total water research funding than it did 30 years ago.... [I]t becomes clear that significant new investment must be made in water use and institutional research topics if the national water agenda is to be addressed adequately. (p. 9)

H.R. 1145 lists research outcomes for the proposed four-year plan to target. As reported by the House Science Committee (H.Rept. 111-76), the bill lists 14 research outcomes. These encompass data and evaluation goals (e.g., a water census, use assessment, regional assessment, rural assessment, energy-water assessment); classes of technologies (e.g., water monitoring, treatment and efficiency to increase supplies, information technologies); science improvements (e.g., hydrologic prediction, ecosystem services and needs); and social sciences analyses and conflict resolution development. In trying to achieve the research outcomes listed in H.R. 1145, implementation of the plan that the bill envisions could be seen as limiting agencies' discretion in how to prioritize research funding in their mission areas and reducing the agencies' flexibility to respond to evolving research needs. Whether or not reduced discretion is desirable depends on stakeholders' perspectives and opinions on the current makeup of the federal research portfolio. Groups that support the existing level of research on topics not addressed in the research outcomes in H.R. 1145 may be concerned that if additional water research funds are not forthcoming, then enactment and implementation of H.R. 1145 may reduce research on these topics. A counter-argument is that by establishing priorities for the federal water research portfolio, limited federal funds would be focused on achieving broader national priorities.

Water Research Coordination and Strategy

In addition to supporting a shift in the federal water research portfolio, the NRC report stated:

> Coordination of the water resources research enterprise is needed to make deliberative judgments about the allocation of funds and scope of research, to minimize duplication where appropriate, to present Congress and the public with a coherent strategy for federal investment, and to facilitate the large-scale multiagency research efforts... (p. 11)

Starting in 2003, the Subcommittee on Water Availability and Quality revived a dormant role of coordinating water research for the National Science and Technology Council (NSTC).[2] SWAQ began operating within the Office of Science and Technology Policy (OSTP) as a forum for

[2] The NSTC was established by Executive Order 12882 on November 23, 1993. This Cabinet-level council is the principal means within the executive branch to coordinate science and technology policy across the diverse entities that make up the federal research and development enterprise.

federal agencies to share information on their respective research and data programs. (See the **Appendix** for the membership of SWAQ.) H.R. 1145 would codify SWAQ into a formal interagency committee, with an OSTP chair.

A September 2007 report by SWAQ, *A Strategy for Federal Science and Technology to Support Water Availability and Quality in the United States*,[3] stated:

> Given the importance of sound water management to the Nation's well-being, it is appropriate for the Federal government to play a significant role in providing information to all on the status of water resources and to provide the needed research and technology that can be used by all to make informed water management decisions. (p. 7)

H.R. 1145 attempts to coordinate federal water research in order for the federal government to more effectively perform the role described in the SWAQ report.

While the NRC stated the benefits of a coordinated research program, a concern is that the increased focus on the outcomes identified in the bill might result in a shift away from other research areas that are central in the roles of some agencies. For example, much of the EPA's research is in support of its regulatory role; that is, it has performed little treatment technology research and development in recent years. Some stakeholders may be concerned that, unless additional funds are made available for water research, enactment of H.R. 1145 may result in a shift in research funding away from regulatory-focused research, toward more technology research and development. The broadening of the desired outcomes in H.R. 1145 during House Science Committee markup to include water quality provisions reflects that concern and also interest in furthering water quality research.

H.R. 1145 would not increase the authorized funding levels for federal research activities. Instead, it is focused on improving coordination in setting agency research agendas, increasing transparency in water research budgeting, and reporting on progress toward the research outcomes specified in the bill. Some stakeholders may question whether additional transparency and information alone (without increased funding) would result in significant changes to the status quo.

[3] The report is available at http://www.ostp.gov/galleries/NSTC/Fed%20ST%20Strategy%20for%20Water%209-07%20FINAL.pdf.

Appendix. SWAQ Membership

Membership in SWAQ has represented the following departments, agencies, and offices:

Department of Agriculture
Agricultural Research Service
Cooperative State Research, Education, and Extension Service
Economic Research Service
Forest Service
Natural Resources Conservation Service

Department of Commerce
National Oceanic and Atmospheric Administration, Office of Atmospheric Research
National Oceanic and Atmospheric Administration, National Weather Service

Department of Defense
U.S. Army Corps of Engineers

Department of the Interior
Bureau of Reclamation
Fish and Wildlife Service
National Park Service
U.S. Geological Survey

Department of Energy
Office of Energy Efficiency and Renewable Energy
Office of Science

Department of State

Environmental Protection Agency
Office of Research and Development
Office of Water

National Aeronautics and Space Administration

National Science Foundation

Tennessee Valley Authority

Executive Office of the President
Office of Management and Budget
Office of Science and Technology Policy

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