

Statement of Robert M. Hirsch
Associate Director for Water
United States Geological Survey
U.S. Department of the Interior

Before the
Subcommittee on Water and Power
House Committee on Resources

on

S. 1338, " Alaska Water Resources Act of 2005"

March 8, 2006

Mr. Chairman and Members of the Subcommittee, I am Dr. Robert M. Hirsch, Associate Director for Water for the U.S. Geological Survey. I thank you for the opportunity to provide the views of the Department of the Interior (Department) on S. 1338, the "Alaska Water Resources Act of 2005."

The Department agrees that the goals of the bill are commendable and the needs that could be addressed are real; however, we have concerns with this bill, including the availability of funding for the work proposed in the context of overall funding for the Administration's priorities.

S. 1338, The " Alaska Water Resources Act of 2005"

S. 1338 directs the Secretary of the Interior, acting through the Bureau of Reclamation (BOR) and the Director of the U. S. Geological Survey, to conduct a study on ground-water resources in the State of Alaska. The role identified for the Department in this bill is consistent with BOR and USGS's leadership role in monitoring and assessing ground-water resources.

The bill requires a study that includes a survey of accessible water supplies (including aquifers on the Kenai Peninsula, in the municipality of Anchorage and the Matanuska-Susitna Borough), and a review of the need for enhancement of the streamflow information collected by the USGS in Alaska relating to critical water needs.

The USGS has a long history of conducting ground-water assessments on both a local and regional scale. In the 1950s and 1960s studies were conducted across the Nation to provide a basic understanding of geohydrologic conditions at a county-level scale and, in the 1980s, 25 regional aquifer systems were studied in detail. However, Alaska was not covered in these studies. As a result, basic geohydrologic information is needed in Alaska so that specific resource management questions can be addressed. Congress directed the USGS in their fiscal year 2002 appropriation to "...prepare a report to describe the scope and magnitude of the efforts needed to provide periodic assessments of the status and trends in the availability and use of freshwater resources." That report, USGS Circular 1223, states that ground-water levels should be based on repeated observations at relatively large numbers of observation wells in a wide range of representative hydrogeologic environments, and we continue to work toward that goal.

Many Alaska citizens depend on good quality ground water for domestic consumption and other uses. However, reliable assessments of ground-water availability and quality are limited for expanding population areas such as the Municipality of Anchorage, the Kenai Peninsula Borough, Fairbanks-North Star Borough, and the Matanuska-Susitna Borough. In many of these areas, individual wells supply homes and businesses with drinking water, and wastewater is disposed of through onsite septic systems. As populations and development activities on the surrounding landscape increase in these areas, additional consumption and demand on these aquifers is coupled with an increased risk of ground-water contamination. Specific knowledge of the aquifer properties will support proper planning to protect the ground water from potential contamination and to ensure there is an adequate supply and recharge needed for both domestic and industry related consumption.

For example, recent observations have been made of elevated nitrate concentrations in drinking water in parts of the Municipality of Anchorage and the Fairbanks-North Star Borough. Arsenic concentrations in some shallow aquifers in the Fairbanks-North Star and Kenai Peninsula Boroughs exceed the new EPA maximum contaminant level standards. The information collected under this legislation would allow for the determination of sources of water to these wells, and for the identification of geochemical conditions that may contribute to these elevated concentrations and provide a basis for mitigation.

Ground water is also important to sustaining streamflow during times of low precipitation and surface runoff. Alaska's world-renowned salmon fisheries are economically important to the State and to local communities. Salmon that spawn in streams throughout the State incubate eggs in the streambed gravels where infiltrating ground water sustains eggs during dry periods. Activities that disrupt the interaction between ground water and streams may have adverse effects on these fisheries. For example, increased withdrawals of ground water may lower water tables sufficiently that the connection to the streambed is lost. A lowered ground-water table in Juneau through natural geologic processes is likely responsible for the dewatering of some small streams that formerly supported significant runs of salmon. Current information on the interaction between ground water and streams is lacking for important salmon spawning areas in the Kenai Peninsula and Matanuska-Susitna Boroughs.

Moreover, Alaska has abundant energy resources, including oil, natural gas, coal, and coalbed methane, the development of which may require the use or disposal of large amounts of ground water. Recent interest in the development of coalbed methane in the Matanuska-Susitna and Kenai Peninsula Boroughs highlights the need for detailed knowledge about ground-water resources. Resource managers need to understand the connections among aquifers to assess consequences of large scale dewatering of the coal aquifers. The USGS has conducted detailed studies related to development of coalbed methane in Wyoming and Montana, but not yet in Alaska.

Infrastructure expansion is also necessary to support expanding populations. Gravel used in construction material may be available locally, but removal of gravels may alter ground-water flow patterns in shallow aquifers. Gravel extraction and its potential effect on ground water has been a focus of attention for citizens in the Municipality of Anchorage, in the Homer/Anchor Point area of the Kenai Peninsula Borough, and in the Fairbanks-North Star Borough. Shallow gravel deposits are often the aquifers that provide drinking water for individual residents and small communities, yet little information exists on the extent of these aquifers or alternative water supplies.

Other types of resource extraction, such as development of world-class mineral deposits are ongoing or planned in Alaska. Newly discovered deposits, such as the Pebble gold-copper project near Iliamna, Alaska, are in areas where minimal information exists on water resources. The Pebble gold-copper project is in the headwaters of salmon and trout fisheries important to subsistence users. An assessment of water resources that results in predictive models describing interactions between ground water and surface water will allow developers and regulators to evaluate alternative designs for development and operation of the project. The USGS has extensive experience in conducting detailed studies of hydrologic and water-quality conditions on such a scale. The National Water-Quality Assessment (NAWQA) Program has provided valuable information on major river basins and aquifer system in the Nation. One NAWQA study area was located in Alaska and included the Municipality of Anchorage and parts of the Kenai Peninsula and Matanuska-Susitna Boroughs.

S. 1338 also requests "a review of the need for enhancement of the streamflow information collected by the USGS in Alaska relating to critical water needs." The USGS's program review process focuses on program relevancy, quality, and performance.

The USGS has a program in place that can assist in developing data for this task. National Streamflow Information Program (NSIP) is currently operating 18 gages to provide surface-water information. In 2004, 6.4 million acres of land, an area about the size of New Hampshire, were consumed by fire. While the four streamgages operated by the USGS within the burn area provided critical information, local land managers realized that they lacked sufficient credible stream data to assess watershed effects of fire on hydrologic response and recovery. This information will also assist in protecting life and property from flooding events caused, for example, by outburst floods on glacier-dammed lakes, and would allow the National Weather Service to do river and flood forecasting statewide with an appropriate level of certainty.

The USGS in Alaska also works closely with a broad spectrum of partners, including other Federal agencies, State and local agencies, and Alaska Native villages. Over

\$1.2 million dollars in Federal cost share funds were used to partner with State and local agencies in jointly funding critical hydrologic information for their specific agency needs in 2005. For example, the USGS has a long-term relationship with most of these partners such as the Alaska Department of Transportation and Public Facilities, Alaska Department of Fish and Game, and the Kenai Peninsula Borough. We expect these relationships to continue.

Finally, also within the Department, the U.S. Bureau of Reclamation's Science and Technology Program finds solutions to complex water management challenges through research and development of state-of-the-art technology.

Reclamation operates a network of automated hydrologic and meteorologic monitoring stations located throughout the Pacific Northwest. This network and its associated communications and computer systems are collectively called

Hydromet. Remote data collection platforms transmit water and environmental data via radio and satellite to provide cost-effective, near-real-time water management capability.

The expertise of these two Departmental bureaus is highly relevant to the tasks contemplated by the legislation. However, the Department is concerned with the funding requirements that accompany S. 1338. We note that there are no funds in the Department's FY 2007 budget to implement the legislation, and any future funding would have to compete with other priority projects for funds.

Conclusion

In conclusion, Alaska is a State experiencing significant changes in its water patterns both in quantity and timing of flow, challenging both Alaska Native and State and Federal agency management efforts. Such water changes can and do affect infrastructure stability (e.g., road bridge scour), fishery productivity, and accelerated river erosion and flood patterns.

Establishing a viable and reliable core of federally funded streamgages and enhanced funding to support ground-water research, monitoring and assessment would allow the public and resource managers to make science-based decisions on allocation of water for the competing interests. We also support a process for evaluating the options for those Alaska Native villages that are most subject to a risk of flood damage. However, funding for the activities in S.1338 would remain subject to available resources within the Administration's priorities.

Thank you, Mr. Chairman, for the opportunity to present this testimony. I will be pleased to answer questions you and other Members of the Subcommittee may have.