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ALASKA WATER RESOURCES ACT OF 2005

OCTOBER 27, 2005.—Ordered to be printed

Mr. DOMENICI, from the Committee on Energy and Natural Resources, submitted the following

R E P O R T

[To accompany S. 1338]

The Committee on Energy and Natural Resources, to which was referred the bill (S. 1338) to require the Secretary of the Interior, acting through the Bureau of Reclamation and the United States Geological Survey, to conduct a study on groundwater resources in the State of Alaska, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill, as amended, do pass.

The amendment is as follows:

On page 2, lines 12 through 14, strike "in the Municipality of Anchorage and the Matanuska-Susitna Borough" and insert "and in the Municipality of Anchorage, the Matanuska-Susitna Borough, the city of Fairbanks, and the Fairbanks Northstar Borough".

PURPOSE OF THE MEASURE

The purpose of S. 1338 is to require the Secretary of the Interior, acting through the Bureau of Reclamation and the United States Geological Survey, to conduct a study on groundwater resources in the State of Alaska, and a survey of water treatment needs and potential technologies.

BACKGROUND AND NEED

Alaska has more than 3 million lakes, of which only 100 or so are larger than 10 square miles. The State also has more than 12,000 rivers, including 10 major ones (Yukon, Porcupine, Koyukuk, Kuskokwim, Tanana, Innoko, Colville, Noatak, Kobuk and Birch Creek), along with thousands of streams, creeks and

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ponds. Combined, these water bodies comprise approximately one-third of all the fresh water found in the United States.

From early spring with the ice breakup, to fall with its heavy rains, Alaskans are subject to substantial flood threats. For example, the Yukon, which originates in western Canada, runs 1,400 miles and discharges from 25,000 cubic feet of water per second in early spring to more than 600,000 cubic feet per second in May during the spring thaw. Despite these flood threats, Alaska has fewer than 100 stream gauging stations operated by the U.S. Geological Survey (USGS)—less than 10 percent of the stream flow information available to other States. Alaska averages one working gauge for each 10,000 square miles. In contrast, States in the Pacific Northwest average one gauge for each 365 square miles. To equal the Pacific Northwest, Alaska would require over 1,600 total gauge sites.

Alaska also has the Nation's least modern and undeveloped potable water distribution system. Water for rural Alaska towns comes mostly from surface water sources—which are prone to freezing, resulting in both supply and storage problems. Such surface water sources are also vulnerable to water-borne contaminants, including wildlife fecal matter, human waste from inadequate or nonexistent sewage treatment facilities, and natural mineral deposits (natural arsenic levels in mineralized zone creeks frequently exceed Environmental Protection Agency standards). Other areas, such as the densely populated "Railbelt," rely on groundwater sources. However, there is limited knowledge of the nature and extent of the aquifers that support those critical groundwater supplies, a problem exacerbated by extensive permafrost.

According to the Alaska Department of Environmental Conservation, the State has about 16,000 homes in 71 Native villages that are not served by piped water or enclosed water haul systems. There are still 55 villages in Alaska where up to 29 percent of the residents are not served by sanitary water systems, with more than 60 percent of residents not being served in 16 villages.

In order to plan effectively for these locations, better information as to the availability and extent of the water supply is needed, along with an analysis of new technologies that could be used for water system installations, including possible desalination for some island and coastal communities. The studies authorized by S. 1338 will help Alaska to plan and design water systems and transportation infrastructure and better prepare for floods and summer wildfires.

LEGISLATIVE HISTORY

S. 1338 was introduced by Senator Murkowski on June 29, 2005 and referred to the Committee on Energy and Natural Resources. The Water and Power Subcommittee held a hearing on S. 1338 on July 12, 2005. At the business meeting on September 28, 2005, the Committee on Energy and Natural Resources ordered S. 1338 favorably reported, with an amendment.

COMMITTEE RECOMMENDATION

The Committee on Energy and Natural Resources, in open business session on September 28, 2005, by unanimous vote of a

quorum present, recommends that the Senate pass S. 1338, if amended as described herein.

COMMITTEE AMENDMENT

An amendment was adopted to include the city of Fairbanks and the Fairbanks Northstar Borough in the study.

SECTION-BY-SECTION ANALYSIS

Section 1 sets forth the short title.

Section 2 sets forth definitions.

Section 3 (a) directs the Secretary of the Interior, acting through the Commissioner of Reclamation and the Director of the USGS to conduct water studies in the State of Alaska. These studies include a survey of accessible water supplies, including aquifers, on the Kenai Peninsula, in the Municipality of Anchorage, the Matanuska-Susitna Borough, the city of Fairbanks, and the Fairbanks Northstar Borough; a survey of water treatment needs and technologies, including desalination treatment; and a review of the need for enhancement of the National Streamflow Information Program administered by the USGS as it relates to critical water needs such as infrastructure risk to State transportation, flood forecasting, resource extraction, and fire management.

Subsection (b) directs the Secretary of the Interior to report the results of these studies to the Senate Committee on Energy and Natural Resources and the House Resources Committee within two years of the Act's enactment.

Section 4 authorizes such sums as may be necessary to carry out the Act.

COST AND BUDGETARY CONSIDERATIONS

The following estimate of costs of this measure has been provided by the Congressional Budget Office.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

S. 1338—Alaska Water Resources Act of 2005

S. 1338 would direct the Secretary of the Interior to conduct a study of water resources in five areas of Alaska. The study, to be completed within two years of the bill's enactment, would include a survey of accessible water supplies and water treatment needs. Based on the cost of similar studies, CBO estimates that carrying out the proposed study would cost the department about $8 million over the next two years, assuming appropriation of the necessary amounts. Enacting S. 1338 would not affect direct spending or revenues.

S. 1338 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act and would impose no costs on state, local, or tribal governments.

The CBO staff contact for this estimate is Deborah Reis. This estimate was approved by Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation

of the regulatory impact which would be incurred in carrying out S. 1338.

The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of S. 1338, as ordered reported.

EXECUTIVE COMMUNICATIONS

The testimony provided by the Department of the Interior at the Subcommittee hearing on S. 1338 follows:

STATEMENT OF LESLIE HOLLAND-BARTELS, UNITED STATES GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

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 2006 budget to implement the legislation, and any future funding would have to compete with other priority projects for funds.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law are made by the bill S. 1338, as ordered reported.

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