



CLEAN, FLOWING WATERS FOR WASHINGTON

The Center for
Environmental Law & Policy

SCIENCE INFRASTRUCTURE ESSENTIALS FOR WATER RESOURCE MANAGEMENT

A Proposal to Address Climate Impacts to Washington's Rivers & Aquifers

THE PROBLEM: Climate models for Washington project that temperatures are increasing and, as a consequence, natural water supplies will change. Warmer temperatures mean less winter snowpack, earlier spring runoff and hotter summers. This in turn means that rivers and aquifers may flow at different rates and suffer seasonal depletions along with reductions in water quality, aquatic habitat and other instream uses. Less water may be available for human consumption as well. Faced with this potential, will we be able to rationally and equitably allocate water to both protect natural resources and provide for human use? It is essential to have accurate information concerning water resources that will support fair policies to allocate water to environmental and human uses. To date, we do not have that information

THE PROPOSAL: *Science Infrastructure Essentials for Water Resource Management* is a legislative and funding proposal to develop a core dataset that provides a basic understanding of the hydrologic character and use of our state's water resources. This proposal recommends ground and surface water data gathering, water usage monitoring, hydrogeologic interpretation and mathematical modeling. The systematic collection and management of data and the development of conceptual and analytical/numerical models are needed to establish effective policies and fairly regulate water use. Such an approach will garner greater public confidence in water resource policy decisions that are based on a transparent, comprehensive dataset. Models may also be useful to anticipate and analyze the effects of future population growth and development in conjunction with managing potential decline in water quality and loss of fish and wildlife habitat.

Three datasets are essential to effective water resource management in a changing future: surface streamflow, groundwater monitoring, and water usage metering. Washington state's acquisition of this data is in various phases of development and implementation at this time. Development of systematic and comprehensive data sets will require increased funding to develop programs that will be responsive and effective.

➤ **Streamflow Gaging**

- The U.S. Geological Survey and the State of Washington currently maintain stream gages on rivers around the state; USGS maintains a real-time, web-accessible database for streamflow. Stream gaging provides essential flood and water supply information, a means to monitor for compliance with instream flow requirements, and the data to determine how to allocate between industrial, municipal and irrigation water uses. The efficacy of the current gaging system must be evaluated given climate projections, particularly those gages scheduled for retirement due to lack of funding. Efforts should be coordinated with local watershed planning units that request increased gaging on their rivers.
- *Science Infrastructure Essentials* recommends that the state conduct a gap analysis of gaging needs in view of climate change projections. Additional funding will be required to expand and support an effective stream gaging program and ensure consistent and publicly accessible stream flow data.

➤ **Ground Water Monitoring.**

- Washington State has no consistent program to monitor groundwater quantity, collect data on groundwater levels and trends, and provide this information for public use. Over 60% of Washington's population currently relies on groundwater. Population is expected to increase by another million by the end of the decade, thus increasing groundwater consumption. With increased water consumption groundwater levels and quality may decline – depleting instream flows, degrading freshwater aquatic habitat, and increasing the likelihood of seawater intrusion in coastal aquifers.
- *Science Infrastructure Essentials* recommends the Department of Ecology develop a comprehensive groundwater monitoring and assessment program phasing in implementation by prioritizing basins based on cumulative stressors. Establishment of a monitoring network, and coordination among agencies and watershed planning groups is necessary to comprehend changes in the resource, develop policy to prevent or mitigate impacts, and develop a consistent and publicly accessible database to increase public awareness and support.
- A more detailed proposal for the Groundwater Monitoring Assessment Act of 2008 is attached to this document.

➤ **Metering Water Usage.**

- Conservation of water requires accurate knowledge of water use. The metering of water consumption is a critical tool for managing water supplies, assuring compliance with legal requirements, and ensuring effective mitigation and conservation efforts. Ecology currently requires some water users to meter and report usage data. However, the requirement is primarily focused on salmon critical basins and the Columbia River mainstem. The program is not applied statewide .
- *Science Infrastructure Essentials* recommends expanding the requirement to meter and report water usage to all water users. Funding will be necessary to install electronic meters, and develop an efficient and publicly accessible data information system.

THE BENEFITS: Systematic, long-term water monitoring and metering programs will identify trends in water resource availability and usage. This information will allow the development of more accurate conceptual models needed to generate effective water resource policy. Further, it will provide accountability for results of water and habitat management actions and provide the data upon which an adaptive management framework can be structured. This in turn will lead to improved programs to reduce water waste and improve water use efficiencies, and to protect the availability of water for human consumption and for instream flows necessary to support aquatic and riparian habitat and wildlife.

TIMING: The data necessary to assess the impact of climate variability, population growth and water consumption on ground and surface water levels and quantities takes years to decades to collect. Hence it is imperative that implementation of the recommendations in the *Science Infrastructure Essentials for Water Resource Management* proposal commence immediately with basins that are currently experiencing stress from water shortages and loss of fish and wildlife habitat, moving to phase in evaluation water resources in the balance of the state.



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More information can also be found at our website: www.celp.org. The Center for Environmental Law & Policy is a public interest organization dedicated to promoting sustainable and equitable use of the freshwater resources of western Washington and the Columbia River watershed.