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Improving Decision-Making in Oregon's Water Resources

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B. Abstract

By 2025, Oregon's population is projected to grow twenty-eight percent, adding nearly one million people to the state. As population expands, changes in demographic variables such as income, age structure and employment will influence the nature of future water use in Oregon, expanding claims for water in industrial, municipal and recreational sectors. Independent of population growth, increased claims for in-stream water needs, associated with the implementation of state and federal environmental laws, will further heighten competition for limited supplies. Without strategies to anticipate and address competing water demands, Oregon's water management stakeholders run the risk of allocating financial, technical, and legal resources inefficiently. Without successful strategies, conflicts over water resources, such as the ongoing Klamath Basin situation, are likely to become more frequent and stalwart as the state's population grows.

Information accessibility is the most critical component of appropriate resource allocation, to better understanding long term balance of supply and demand and the prevention of conflict. Action needs to be taken to adapt available data from multiple sources to create datasets that will help facilitate informed and sustainable water management decisions. We propose to compile several sets of data pertinent to understanding demand for water in Oregon into a consistent, basin scale format for analysis purposes. We will make refinements to existing data from various sources to compose the following categories of data:

- Hydrologic data: Past and current trends in water supply and demand, consisting of three indices: 1) a drought index, 2) a water quality index, and 3) a water allocation index.
- Demographic data: Population structure, income, and employment within hydrologic basins. Each of these variables influences the magnitude of water use in urban and rural communities, but is normally summarized for political units, rather than within basins.
- Hydropolitical data: Interactions of conflict and cooperation over water resources, summarized by basin. News reports, legal proceedings, and stakeholder agreements chronicling key water issues in the state allow for historical insights in past trends in conflict and cooperation among different water use sectors and management entities.

These data will be made available in tabular and GIS shapefile format on the web. Maps and reports summarizing water availability, demographic, and water conflict trends will also be web-accessible via Oregon State University's Transboundary Freshwater Dispute Database: **http://www.transboundarywaters.orst.edu**; and from links on the webpages of the Oregon Water Resources Department; and Portland State University's Population Resource Center.

This project would be done in partnership with Oregon State University, Portland State University and the Oregon Water Resources Department, and will train two graduate students in database and GIS skills. For the period of February 15, 2004 through August 15, 2004, we are seeking a $15,000 grant from the United States Geological Survey, through the Center for Water and Environmental Sustainability, to cover student salaries, project coordination, supplies, data compilation, and the construction of a final report summarizing major trends in the geography of Oregon's water from hydrologic, demographic, and conflict perspectives. This project will serve as a critical step to supporting proactive, interdisciplinary, and informed decision-making about water resources in Oregon.