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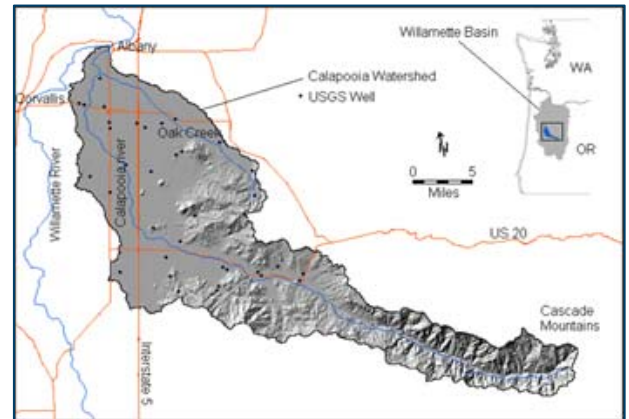
Using a Basin-Scale Flow Model to Identify and Map Ground Water Dependency of Ecosystem Services on the Calapooia Watershed, Oregon

Background and Purpose

The objectives of this proposed research are to build and calibrate a numerical model of ground water flow that can be coupled to existing or planned models of surface water flow, as well as to ecosystem services. Ecosystem services of interest include drinking water supply, nitrate attenuation, irrigation supply, maintenance of wetlands, and aquatic habitat. The component flux results of this ground water flow model will improve the overall hydrologic characterization of the basin.

Research Objectives

- Develop a conceptual model of the basin using a combination of spatially explicit information from a variety of data sources; to be implemented using a stochastic simulation framework
- Construct and calibrate a ground water flow model to reveal how ground water-dependent ecosystem services may be accounted for in a decision-support predictive framework



The prediction component of this research will address several questions related to ground water dependency of ecosystem services. The prediction aspects will formulate ecological response functions with continuous forcing variables. When this is not possible, a variety of model scenarios associated with specific management decisions may be used to generate a corresponding variety of ecological responses.

Progress to Date

Preliminary data compilation has begun and a Quality Assurance Project Plan is being prepared.

Principal Investigator

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Collaborator

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