Introduction to the Rathdrum Prairie CAMP

Materials for the RP CAMP Advisory Committee

December 18, 2009

http://www.idwr.idaho.gov/waterboard/WaterPlanning/CAMP/RP_CAMP/RathdrumCAMP.htm

Comprehensive Aquifer Management Planning (CAMP)

Background

The 2008 Legislature approved House Bill 428 and House Bill 644 establishing the Statewide Comprehensive Aquifer Planning and Management Program (42-1779) and the Aquifer Planning and Management Fund (42-1780).

The Aquifer Planning and Management Program is designed to provide the Idaho Water Resource Board and the Idaho Department of Water Resources with the necessary information to develop plans for managing ground and surface water resources into the future. The program has two phases:

1. A technical component to characterize the surface and ground water resources of each basin, and
2. A planning component that will integrate the technical knowledge with an assessment of current and projected future water uses and constraints

This program will culminate with the development of long-range plans for conjunctively managing the water resources of each basin which integrates hydrologic realities with the social needs.

The water management plans will be designed to address water supply and demand issues looking out 50 years into the future. The program is intended to investigate strategies and develop plans which will lead to sustainable water supplies and optimum use of the water resources.

Rathdrum Prairie Comprehensive Aquifer Management Planning

Introduction

The Idaho Water Resource Board has been tasked with developing the Rathdrum Prairie (RP) Comprehensive Management Plan (CAMP). The objective of the Plan will be to address water supply and demand needs over the next 50 years. The specific goals of the RP CAMP are to:

- Provide reliable sources of water, projecting 50 years in to the future
- Develop strategies to avoid conflicts over water resources related to conjunctive management of surface and ground water
- Prioritize future state investments in water

Hydrologic Background for the Rathdrum Prairie

Spokane Valley-Rathdrum Prairie Hydrologic Project

The Spokane Valley-Rathdrum Prairie Hydrologic Project was initiated to develop a better understanding of water resources in the Spokane Valley-Rathdrum Prairie and to evaluate changes in regional and local ground water conditions and their interaction with surface water.

Introduction

The Spokane Valley-Rathdrum Prairie (SVRP) aquifer supplies water to over 400,000 residents in Spokane County, Washington, and Kootenai County, Idaho. The area includes the rapidly growing cities of Spokane, Washington and Coeur d'Alene and Post Falls, Idaho. The aquifer consists of thick deposits of coarse sediment, and was designated a "Sole Source Aquifer" by the Environmental Protection Agency in 1978 in response to local concerns about aquifer vulnerability to water quality degradation. Urban growth and increasing ground-water withdrawals and surface- water appropriations have raised concerns about water availability in the SVRP aquifer and declining streamflows in the Spokane and Little Spokane Rivers which may periodically receive water from the aquifer.

Water management of the SVRP aquifer occurs at federal, state, and local levels. The states of Washington and Idaho have primary responsibility for water allocation and water quality, however, local governments are increasingly being called upon to consider water supply and quality implications in land use planning. The potential influence of the SVRP aquifer on surface- water flows and quality further complicate aquifer management.

In order to deal with these issues, regional chambers of commerce and others prepared appropriations requests for Congress, which were granted in part in late 2003, with the appropriation of $500,000 to the U.S. Geological Survey (USGS) in consultation with the states of Washington and Idaho to accomplish the project to provide the tools that the states needed to address the hydrologic issues at hand for management purposes.

Purpose and Objectives

The purpose of this project is to provide a scientific foundation for management of the SVRP aquifer. The study will culminate in the development of a numerical ground-water model that Washington.

Specific objectives include the following:

1. Aquifer Characterization - Delineate the extent and thickness of the SVRP aquifer, determine aquifer boundary conditions, and document the spatial distribution of aquifer hydraulic properties.
2. Hydrologic Data Collection - Measure ground-water levels and streamflows, and quantify recharge rates to the aquifer from precipitation and evapotranspiration losses.
3. Water Use - Quantify the spatial and temporal distribution of aquifer and river withdrawals for municipal, commercial, industrial, domestic, and irrigation usage.
4. Water Quality - Define current ground and surface water quality characteristics.

- Bridge the gaps between future water needs and supply

The RP aquifer is a vital regional resource shared by the states of Idaho and Washington. The Board recognizes the regional nature of the ground and surface water resources in the Spokane Valley-Rathdrum Prairie aquifer. Technical studies in this planning process will incorporate and refine information gained during the recent Spokane Rathdrum-Rathdrum Prairie (SVRP) Hydrologic Project. The planning process will undertake studies to estimate future water needs and identify tools to meet those needs.

Public involvement is a vital part of the process. The Board has determined that the most effective way to engage the public is through the use of a representative advisory committee. The Advisory Committee will be designed to represent the broad range of interests and concerns in the Rathdrum Prairie Aquifer region.

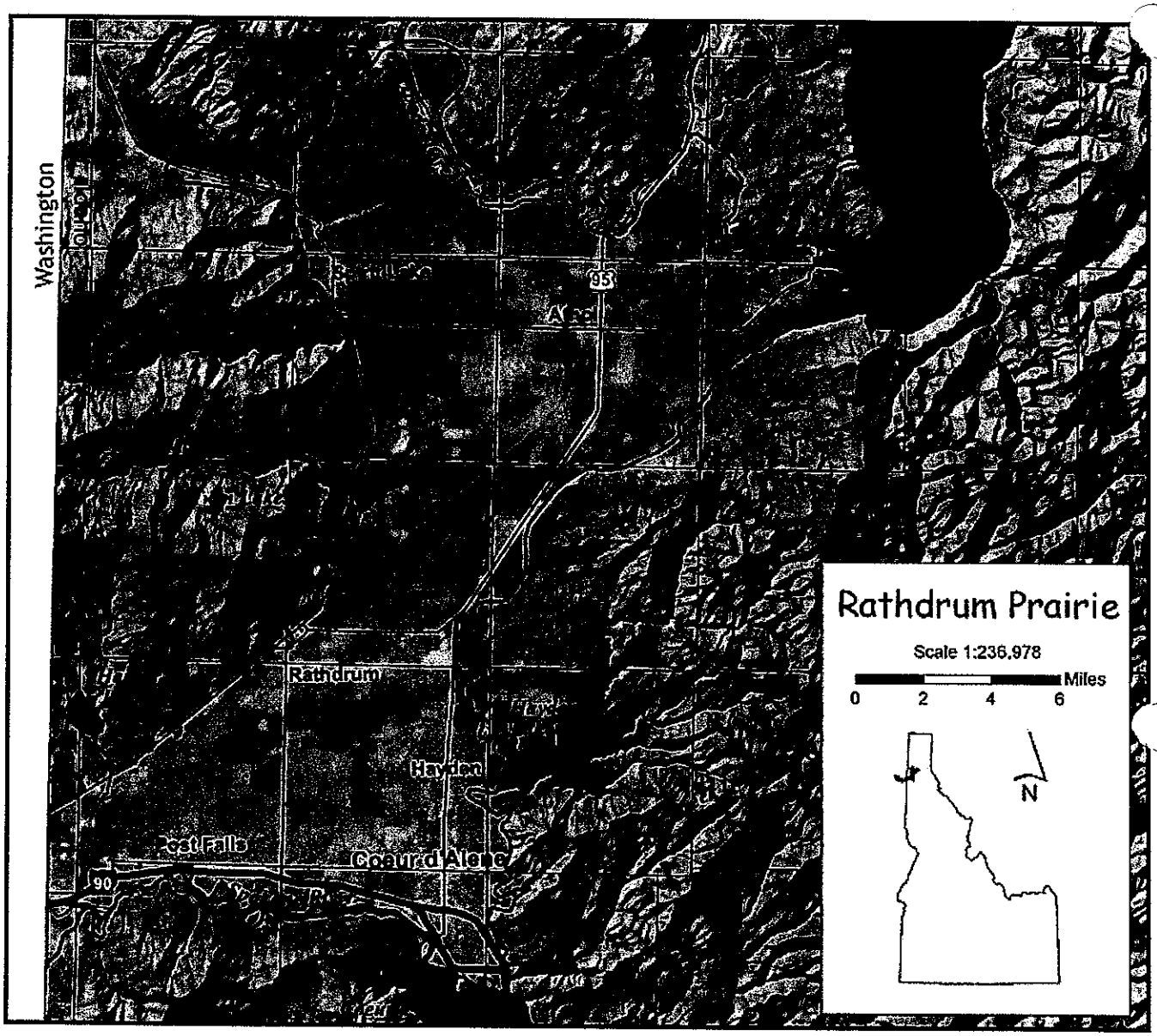
Rathdrum Prairie Comprehensive Aquifer Management Plan

Scope

Within the context of long-range planning, the Board will undertake studies looking at what may influence water supply and demand during the 50 year planning time horizon. A study of climate change impacts will be conducted as part of the CAMP and results will be incorporated into strategies for adapting to change. Future demands for water resources, such as population changes and social needs, will also be studied to help determine the scale of strategies which may need to be developed.

The Board has hired Collaborative Processes® to provide professional facilitation services and to assist in the public participation process. General guidelines for the RP CAMP are:

1. The process will be open and public
2. Plan will be comprehensive but have sideboards
3. Plan framework could include interim measures that may be implemented before a comprehensive plan is final
4. Plan should address
    a. Aquifer Management Goals
    b. Specific strategies and tools to meet long-term planning and management goals
    c. Funding mechanisms for implementation of management alternatives
5. Context for the plan framework
    a. Legal constraints and precedents
    b. Technical/modeling tools
    c. Existing studies and plans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5. Ground-Water Surface-Water Interactions - Delineate gaining and losing reaches of the Spokane and Little Spokane Rivers, and quantify the seasonal exchange of ground and surface water. Quantify losses from lakes that are in hydraulic connection with the aquifer.
6. Numerical Model - Construct a numerical model representing the current understanding of aquifer flow characteristics. Calibrate the model to steady-state and transient hydraulic conditions on the basis of current and historical data using automated parameter estimation methods that enable quantification of parameter uncertainty.
7. Model Application - Use the numerical model to (a) analyze aquifer inflows and outflows, (b) analyze alternative flow characteristic conceptualizations, (c) simulate responses to unit aquifer withdrawals, (d) simulate aggregate effects of future increased aquifer withdrawals, and (e) evaluate selected aquifer management scenarios.
8. Public Involvement - Convey information about regional water resources and knowledge gained from the study to federal, state and local decision-makers, the professional community, and the general public through published reports and public meetings.

Publication and data can be found at
http://www.idwr.idaho.gov/WaterInformation/projects/svrp/Publications/Publications_Data.htm

The Spokane Valley-Rathdrum Prairie Aquifer Atlas (2004)

Report can be found at:
http://www.deq.state.id.us/water/data_reports/ground_water/rathdrum_prairie_aquifer_atlas.cfm

The Spokane Valley-Rathdrum Prairie Aquifer Atlas: 2004 Update

The Spokane Valley-Rathdrum Prairie Aquifer Atlas: 2004 Update (Entire Report)
(DEQ Publication, 2004: pdf 14.4 mb, 28 pages)

The document also has been divided into 27 sections for quicker downloading:

Front Cover	(pdf 611 kb, 1 page)
Contents	(pdf 248 kb, 1 page)
Introduction	(pdf 417 kb, 1 page)
Historic Aquifer	(pdf 541 kb, 1 page)
Aquifer Timeline	(pdf 557 kb, 1 page)
Aquifer from Space	(pdf 800 kb, 1 page)
Digital Mapping	(pdf 613 kb, 1 page)
Geography	(pdf 663 kb, 1 page)
Aquifer Region	(pdf 640 kb, 1 page)
Ice Age	(pdf 442 kb, 1 page)
Ice Age Floods	(pdf 496 kb, 1 page)
Geology	(pdf 760 kb, 1 page)
Geologic Map	(pdf 870 kb, 1 page)
Hydrologic Cycle	(pdf 750 kb, 1 page)
Aquifer Cycle	(pdf 900 kb, 1 page)
Aquifer-River Interchange	(pdf 783 kb, 1 page)
Groundwater & Recharge	(pdf 673 kb, 1 page)
Exploring the Aquifer	(pdf 340 kb, 1 page)
Aquifer Computer Models	(pdf 657 kb, 1 page)
Nitrate Concentrations	(pdf 521 kb, 1 page)
Regional Trends	(pdf 276 kb, 1 page)
Aquifer Issues	(pdf 793 kb, 1 page)
Protecting the Aquifer	(pdf 824 kb, 1 page)
Aquifer Tour	(pdf 583 kb, 1 page)
Glossary & Definitions	(pdf 1.5 mb, 2 pages)
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