

10/15/04 Revised Draft
WRIA 13 Watershed Plan
Bill Format Revisions from 9/04 Version

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DRAFT WRIA 13 WATERSHED PLAN SUMMARY OF ACTION RECOMMENDATIONS

<i>RECOMMENDATION</i>	<i>LEAD & PARTICIPANTS</i>
RECOMMENDATIONS APPLYING TO ALL ELEMENTS (Chapter 2)	
1. Encourage strong support from the community and from local leadership in achieving “water for fish and water for people”	
2. Be strategic in using limited resources to address water resource management needs now and in the future	
3. Provide stakeholder oversight of Watershed Plan implementation	
4. Identify lead responsibility at the regional level for overseeing implementation of the WRIA Plan	
WATER QUANTITY ELEMENT RECOMMENDATIONS (Chapter 3)	
CONSERVATION RECOMMENDATIONS	
C1. Design a regional conservation framework linking instream flow protection with water for our growing communities.	Expanding water systems, tribes, state agencies, major irrigators, UTC
C2. Maximize feasible use of Reclaimed Water given best science and current state laws	
2a. Track and respond to emerging research on reclaimed water issues (ex. endocrine disrupters)	LOTT Wastewater Alliance
2b. Create a conceptual map of the regional purple pipe trunk line	Cities and LOTT
2c. Cities should define reclaimed water use “zones” including incentive programs	Cities
2d. Request State financial support for purple pipeline systems.	Ecology/DOH and Legislature

RECOMMENDATION	LEAD & PARTICIPANTS
2e. Excessively stringent State standards should be revised, such as the separation requirement for purple pipe from other pipelines.	Ecology/DOH
2f. Use of reclaimed water for water right mitigation or credit should be supported by Ecology and State Department of Health	Ecology/DOH
C3. Request that DOH consider requiring meters and reporting for all new public water systems serving seven or more residences	Lead: DOH Participant: Thurston Co
C4. Ensure that Public Water System Conservation Plans are consistent with WRIA Watershed Plan objectives.	Lead: DOH. Participants: Water Systems, watershed committees, tribes, local governments
C5. Design and implement a water supply management framework for independent irrigation and industrial water users within WRIA 13	
5a. The Legislature should revise statutes to address “use it or lose it” problems, through balancing increased requirements for conservation with improved certainty for water rights	Legislature
5b. Ensure compliance with conditions of water right and development permit approval for independent water suppliers	Ecology Southwest Water Resources Program (SW WR), local governments
5c. Improve agricultural water use efficiency, especially within Long-Term Agriculture Areas	Ecology, TCD, others
WATER RIGHTS MANAGEMENT RECOMMENDATIONS	
WR 1. Seek funding through Ecology to complete mapping of all WRIA 13 rights and claims.	Ecology, Thurston County
WR 2. Pursue removal of unused water rights and non-qualifying claim registrations from Ecology records in WRIA 13.	Ecology SW WR, potential “water master” task
WR 3. Pursue effective oversight of water right statutes and permit conditions	
3a. The County and local jurisdictions should encourage efforts of Ecology to obtain funding to enforce existing statutes and permit conditions relating to water rights	Ecology SW WR, potential “water master” task

RECOMMENDATION	LEAD & PARTICIPANTS
3b. Provide funding assistance where metering devices are required as a condition of water rights	Ecology SW WR, potential “water master” task
WR 4. Manage “exempt” wells through consistent implementation of the WRIA 13 Instream Flow Rule.	Lead: Ecology SW WR. Participating: Thurston County
WR 5. Support the “Nisqually Aquifer” Regional Water Supply recommendations in the WRIA 11 Watershed Plan.	Lead: WRIA 11 implementation group
WR 6. Request that Ecology adopt Instream Flow Mitigation Guidance for water right applicants, regulators and other interested parties	Ecology
WR 7. Revitalize the “Reservation of Public Water Supply for Thurston Co.” (WAC 173-591)	
7a. Update WAC 173-591	Ecology
7b. Use the Reservation to track water allocations.	Ecology SW WR
WR 8. Explore the potential of innovative mechanisms such as a Water Master to implement WRIA 13 Plan water right recommendations.	Local interests and Ecology
WR 9. Following initial WRIA Plan implementation, DOE and affected Tribes should evaluate the value and feasibility of a Water Right General Adjudication	DOE, tribes, other parties
WR 10. Support efforts of the Legislature and Ecology to improve the timeliness of the Adjudication process	Legislature, Ecology
EXISTING RIGHTS RECOMMENDATIONS	
ER 1. Protect water rights associated with designated Long-Term Agriculture Areas	
1a. Preclude permanent transfers that would remove water rights from Long-Term Agriculture Areas	Ecology SW WR and Conservancy Board
1b. Protect water rights in Long-Term Agriculture Areas from relinquishment	Ecology, possibly Legislature
ER 2. Utilize a water trust to preserve water for agricultural purposes.	Lead not yet defined

RECOMMENDATION	LEAD & PARTICIPANTS
ER 3. Request that Ecology remove the requirement for a formal water right change when shifting from one agricultural activity to another.	Ecology, possibly Legislature
ER 4. Improve Management of Urban Growth Area water rights.	
4a. When a proposed water right transfer would shift UGA rights to Rural areas, Ecology and the WCB should retain sufficient rights with the original Place of Use to support urban levels of development.	Ecology SW WR and Conservancy Board
4b. Expanding UGA water utilities should adopt policies to acquire existing water rights when extending water service.	Cities and expanding privately owned Public Water Systems
4c. Ecology should define clear, efficient administrative procedures to support consolidation of rights acquired by expanding urban water systems.	Ecology
4d. Drilling of new private wells within UGAs should only be allowed in locations that cannot be served by an existing water system.	Coordinated Water System Plan update: Thurston County lead, larger water utilities and DOH participants. Ordinance updates: Cities
4e. When public water is extended to a property with an existing individual well, the well should be decommissioned to help protect aquifer water quality in these urbanizing areas.	City water systems: City ordinance revision Non-gov't systems: Implementation may require legislation or CWSP
INSTREAM FLOW RECOMMENDATIONS	
ISF 1. Implement the "exemption" provisions of the WRIA 13 Instream Resource Protection Program WAC 173-513.	
1a. Ecology should develop a proposed joint agreement with Thurston County to effectively implement WAC 173-513-070(2)	Lead: Ecology SW WR Participant: Thurston Co
1b. Thurston County and DOH should complete water system mapping and improve data links.	Thurston Co and DOH SW Drinking Water
1c. Limit well drilling in UGAs to only those locations what cannot be served by an existing system.	(See Existing Rights Recommendation 4(c))

RECOMMENDATION	LEAD & PARTICIPANTS
1d. Establish a “water bank” to mitigate impacts from small wells on instream flows.	(See ISF Recommendation 3.)
ISF 2. Update Instream Resource Protection Program WAC 173-513 to remove outdated provisions and incorporate WRIA 13 Plan recommendations	Ecology
ISF 3. Develop a “water bank” to help address streamflow protection and restoration.	Lead not yet defined. (See Existing Rights Recommendation 2.)
GROUNDWATER PROTECTION RECOMMENDATIONS	
GW 1. Sustain long-term monitoring of aquifer levels and quality through the WRIA, to improve understanding of water resources, track trends and identify problems.	
1a. Develop regional aquifer monitoring objectives and an action plan	Lead to be determined
1b. Identify funding to sustain region-wide groundwater data collection and analysis.	To be determined
1c. During development review, encourage installation of monitoring wells in locations identified by regional aquifer monitoring plans, WRIA Plans or to address a specific identified problem.	County and cities
1d. Encourage independent water suppliers to participate in the regional aquifer monitoring effort.	Privately owned community water systems and individual wells
1e. Seek funding to install permanent County-owned monitoring wells in the upper and lower Deschutes.	County lead
GW 2. Adopt land use protections for all approved Wellhead Protection Areas.	County and cities via Critical Area Ordinance updates.
WATER QUALITY ELEMENT RECOMMENDATIONS (Chapter 4)	
WRIA-WIDE WATER QUALITY RECOMMENDATIONS	
1. Jurisdictions should systematically implement and enforce existing regulations to protect water quality.	County and cities
2. Support implementation of the adopted and upcoming water quality action plans for WRIA 13 watersheds and water bodies.	Thurston County, cities, other entities identified in various plans

RECOMMENDATION	LEAD & PARTICIPANTS
3. Design and implement an aggressive, innovative water quality outreach strategy for our region.	Local governments, tribes, non-governmental groups, shellfish industry.
4. Pursue financial incentives and acquisition programs where needed to protect the most water quality-sensitive lands	Lead to be determined
5. Enhance city and county Stormwater programs to reduce impacts to water quality	Cities and county
HENDERSON INLET AND NISQUALLY REACH SUB BASIN RECOMMENDATIONS	
Hend 1. Support Shellfish Protection District (SPD) efforts to correct bacterial contamination of Henderson & Nisqually Reach shellfish growing areas	Thurston County lead, SPD Stakeholder Group
Hend 2. Support Ecology TMDL programs for Henderson Inlet and Nisqually Reach to address dissolved oxygen, temperature and other aquatic habitat impairments	Ecology lead. County, cities, TCD participants
Hend 3. Investigate the implications of nitrate loading and other pollutants to shallow groundwater (Qvr) in urban areas such as Tanglewilde, and pursue remedial action	
3a. Investigate the long-term implications of nitrate loading to the shallow aquifer in areas with urban-density development on septic systems.	County lead, City of Lacey, LOTT
3b. Develop clear city and County policies regarding conversion of urban area on-site systems to public sewer.	Cities and county
3c. Pursue funding for needed remedial action.	Lead and sources not yet defined
Hend 4. Supplement existing water quality monitoring to address emerging issues.	Thurston County, Lacey, Olympia, SPD Stakeholder Group
ELD INLET RECOMMENDATIONS	
Eld 1. Prevent further degradation of the marine water quality in Eld Inlet by addressing all impairment-creating pollution sources.	
1a. Proceed with implementing the risk-based on-site system O&M program recommended in the adopted <u>Cooper Point Wastewater Facilities Plan (1999)</u>	Thurston County

RECOMMENDATION	LEAD & PARTICIPANTS
Eld 2. Protect McLane Creek aquatic habitat from water quality impairments through the DOE TMDL process and local Basin Planning	
2a. Engage in the 2003-2005 TMDL process for McLane Creek Fecal Coliform	Ecology lead. County, cities, tribe, TCD participants
2b. A basin plan is needed to address the impact that changes in land use/land cover may have on stream flow.	Thurston County and Squaxin Island Tribe
BUDD/DESCHUTES RECOMMENDATIONS	
Budd 1. Support Ecology TMDL process to correct aquatic habitat pollutant impairments in freshwater and marine waters	Ecology lead. Local governments, tribes, L:OTT, others participants.
HABITAT ELEMENT RECOMMENDATIONS (Chapter 5)	
Habitat 1. Identify and implement priority actions in the “Salmon Habitat Protection and Restoration Plan for WRIA 13” (July 2004) and other salmon habitat strategies for the South Sound region.	County, cities, other entities identified in habitat plans.
Habitat 2. Minimize habitat degradation from land use activities through enforcing local Critical Area, Shoreline and other habitat-oriented regulations.	
2a. Each local government should adopt an enforcement plan for environmental regulations and identify funding to implement the plan.	County and cities
2b. Provide funding for education and outreach.	County and cities
Habitat 3. Initiate a long-term broad based program to provide permanent protection of sensitive habitat areas in WRIA 13 watersheds.	Squaxin Island Tribe, Capitol Land Trust, TCD, state and local governments, Friends of the Deschutes, watershed landowners.
Habitat 4. Support the Deschutes estuary restoration feasibility study	Capitol Lake Adaptive Management Plan Committee (CLAMP)
Habitat 5. Manage stormwater to reduce impacts to stream habitat	County and cities

RECOMMENDATION	LEAD & PARTICIPANTS
Habitat 6. Use watershed level assessments as input to land use management decisions that are necessary to protect critical areas.	
6a. Identify watersheds where significant disruptions in natural hydrology are predicted under full development under land use plans.	County and city stormwater programs
6b. Design land use management strategies to avoid and minimize these disruptions, such as shifting development out of sensitive watersheds and development standards.	County and cities
Habitat 7. Fill important data gaps regarding stream and nearshore habitat.	
7a. Provide comprehensive stream corridor and near-shore assessments where these have not been performed.	Tribal and state resource agencies, colleges (co-op student projects with agency biologist lead)
7b. Extend annual spawner surveys to all significant streams and all significant species.	WDFW, local government, trained volunteers

CHAPTER 1: PLANNING BACKGROUND

INTRODUCTION

A cool drink on a hot day. A refreshing swim in a lake. An early-morning fishing trip with family. The watering of lawns and the raising of crops. The productivity of our businesses and industries. In these and so many other commonplace activities here in Thurston County, water makes it work. How we choose to manage this important resource affects our community and the environment – now and in the future.

This report presents a plan for managing water resources in a defined area of Thurston County known as WRIA 13. This “Water Resource Inventory Area” encompasses 270 square miles in central Thurston County. It includes the Deschutes River watershed and other smaller watersheds draining to Eld, Budd, and Henderson Inlets. The planning area stretches from the McLane Creek watershed on the west to the Nisqually Reach drainage on the east.

The key challenge facing WRIA 13 is how to balance the water-needs of a growing region with the imperative to preserve adequate stream flows in rivers and streams.

The demands for water in WRIA 13 are great: Virtually the entire city limits of Olympia, Lacey, Tumwater and Rainier are within WRIA 13, as well as the cities’ Urban Growth Areas. The water in WRIA 13 is tapped for a diverse mix of land uses, including high-density urban areas, rural residential communities, agricultural lands and commercial areas.

Fish and other wildlife also depend on the water in WRIA 13. Its streams and rivers are home to chum and coho salmon, steelhead and cutthroat trout. Although the water in WRIA 13 is bountiful – it’s not infinite. In the drier summer months, rivers and streams are fed from ground water that seeps into river channels. The more water we draw from the ground for human purposes; the less ground water is available to feed rivers and streams.

The Washington State Department of Ecology has already closed all streams and lakes in WRIA 13 for further “consumptive appropriation” – meaning that no new water withdrawals (water rights) are allowed if those withdrawals would cause a loss in critical stream flows.¹ At the same time, human demand for water is expected to grow significantly. WRIA 13 is slated for a tremendous amount of growth under the local Growth Management Act. The population in WRIA 13 is expected to increase from fewer than 150,000 in 2002 to nearly 225,000 in 2025.² At “full build out” under current

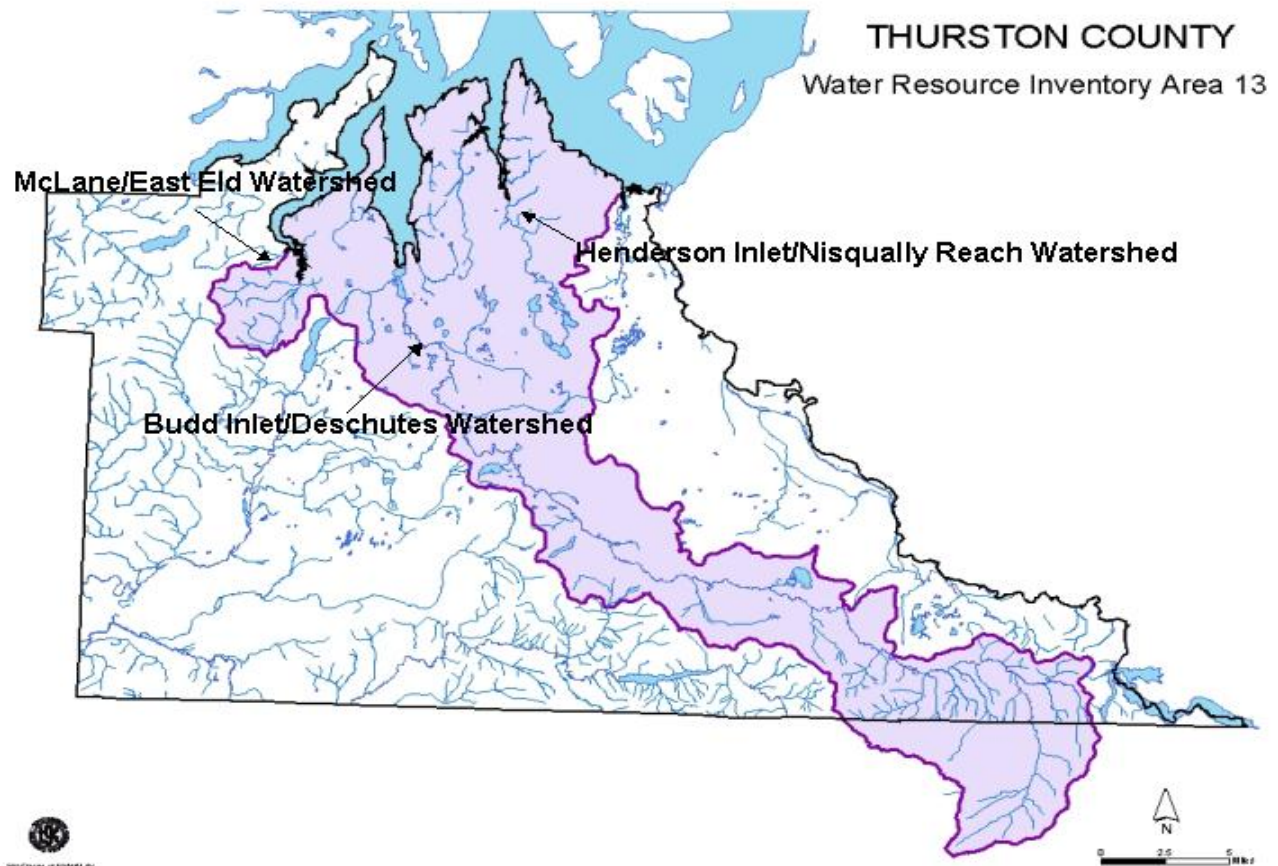
¹ Instream Resources Protection Program (IRPP) for WRIA 13, WAC 173-513 (1980)

² “Population and Employment Forecast Final Report”, 10/99, Thurston Regional Planning Council

land use plans, population in the planning area is estimated at 300,000 – roughly double the current population.

The challenge, then, is to manage water wisely so that WRIA 13 can meet human needs for water while protecting stream flows necessary for salmon and critical habitat. This plan provides a framework to meet that important challenge.

Figure 1 – Water Resource Inventory Area 13



Basic facts:

- Watershed area: 270 square miles
- Streams: 183 total stream miles in Deschutes watershed; additional 73 miles in numerous smaller streams. Streams used by salmon = 116 linear miles.
- Lakes: 2,059 surface acres in 22 named lakes. Volume = 25,500 acre feet (roughly equal to total annual groundwater pumping from within WRIA 13).
- Aquifers: Abundant groundwater is contained in aquifers within glacial deposits. Total depth of glacial deposits ranges from 100-200 feet near Lake Lawrence to over 1,800 feet near Johnson Point.
- Population: Current population of 150,000 could double in the coming decades, assuming “full build out” under current land use plans.

- Water use: Total estimated groundwater use is 22,000 acre feet/year. City water utilities provide over ½ the water supplied in the planning area.

This chapter covers the following subjects:

Planning background -

- ❑ Legal Basis for Planning
- ❑ Process for Developing the Watershed Plan
- ❑ Planning Committee members
- ❑ Plan Mission and Objectives
- ❑ Organization of Plan Chapters, and
- ❑ Technical reports prepared for the project.

WRIA Plan Implementation recommendations are provided as identified by the Watershed Planning Committee. These are overarching recommendations that apply to the entire Plan and will significantly influence success in implementing recommendations for the three elements addressed in the Plan – Quantity, Quality and Habitat.

PLANNING BACKGROUND

Legal Basis For Planning

In 1998, the Washington State Legislature approved the Watershed Management Act (Chapter 90.82 RCW) to provide a framework for citizens, interest groups, and government organizations to work toward resolving water-resource issues in each of the state's Water Resource Inventory Areas (WRIAs).

The goal of the Watershed Management Act is to manage water resources from the “ground up” – in other words, to have local governments and citizens provide plans for managing water since they know their own regions best.

A WRIA is a watershed planning area defined by the state Department of Ecology. Washington State is divided into 62 distinct WRIAs. The WRIA boundaries are broadly drawn along natural watershed boundaries. Some WRIAs

Finding from RCW 90.82.010

“The legislature finds that the local development of watershed plans for managing water resources and for protecting existing water rights is vital to both state and local interests. The local development of these plans serves vital local interests by placing it in the hands of people who have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long-term management of the resources. The development of such plans serves the state's vital interests by ensuring that the state's water resources are used wisely, by protecting existing water rights, by protecting instream flows for fish, and by providing for the economic well-being of the state's citizenry and communities. Therefore, the legislature believes it necessary for units of local government throughout the state to engage in the orderly development of these watershed plans.”

consist of a single, major watershed, while other encompass several smaller watersheds.

RCW 90.82 defines the process and scope of WRIA-wide watershed planning. This planning process allows local policy makers and the state Department of Ecology to tailor water resource management activities according to the unique land uses, habitat, and geology of the area. Other statutes providing a legal framework for water resource management recommendations included in the draft WRIA 13 Plan include:

- ◆ The State Water Code, RCW 90.03, the purpose of which is the management of the state's water resources, including "diversionary uses" and "protect(ing) natural values and rights". This statute contains many detailed provisions regarding water right issuance and management.
- ◆ RCW 90.22 regarding minimum instream flows and water levels to protect beneficial uses. This is the legal basis for the WRIA 13 Instream Resource Protection Program (WAC 173-513).
- ◆ RCW 90.44 Groundwater Management, which in 1945 established the requirement for water right permits for wells (except those under the specified "exempt well" threshold.) This statute also provides for basis for regional groundwater management plans, such as the Northern Thurston County Groundwater Management Plan;
- ◆ RCW 90.54, the Water Resources Act of 1971, which provides for the management of the state's water resources to meet community and environmental needs.
- ◆ RCW 36.70A, Growth Management Act, has broad goals and specific planning requirements linked to water management. Goals of the Act include:
 - o "Encourage development in urban areas where adequate public facilities and services can be provided in an efficient manner",
 - o "Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries", and
 - o "Protect the environment and enhance...the availability of water."The statute also requires a finding of "water availability" prior to building permit issuance.
- ◆ RCW 70.116, Water System Coordination Act, which provides for planning to address regional issues of water sources and supply;
- ◆ RCW 70.05 Sanitary Code, which provides the basis for public health protection in approval of proposed water systems; and
- ◆ RCW 18.104 pertaining to approval of well drilling. Includes provisions for limiting well construction where needed for groundwater management, and for Ecology delegation of review to local governments.

“

Process For Developing The Watershed Plan

The Watershed Management Act (RCW 90.82) offers funding for those areas that wish to undertake planning, and specifies ground rules for use of the funding. The Department of Ecology has awarded grant funding for watershed planning in WRIA 13 to Thurston County, which is lead agency for this project.

The Watershed Planning Act calls for four distinct “phases” of planning. Activities in WRIA 13 during these four phases is summarized below:

- Phase 1 “Organizing” - Thurston County (lead agency for the project) coordinated work by local governments, the Squaxin Island Tribe and State agencies (represented by the Department of Ecology) to initiate the WRIA 13 Watershed Planning project. Lewis County declined participation due to the small area included in their jurisdiction, with the understanding that the Weyerhaeuser Company (owner of virtually all WRIA 13 land within Lewis County) would be invited to participate.³

A “Memorandum of Agreement: Watershed Planning Initiation – Deschutes WRIA 13” was crafted through extensive discussion with tribal and other governmental representatives. The Memorandum of Agreement process began with the first meetings of the initiating governments in November 1998, with final signatures obtained in February 2000.

During Phase I, a policy-setting “Watershed Planning Committee” was formed. As required in RCW 90.82, the committee included both governmental and non-governmental representatives from a broad spectrum of interests within the planning area. The Committee held its initial meeting in February 1999.

In addition, a Technical Committee began meeting in February 2000 to provide advice to project staff and to the Planning Committee. This committee included staff from city, county, tribal and state governments and a consulting hydrologist from a local consulting firm. Experts in specific fields were involved to address specific technical issues.

- Phase 2 “Assessment” – The Technical and Watershed Planning committees considered a host of issues affecting water resource management. Existing information was compiled into technical reports and PowerPoint presentations to the Planning Committee. A special field study documented groundwater/streamflow interaction in the Deschutes River during low-flow

³ See letter from Lewis County Commissioners dated October 28, 1998. The Board’s desire to opt out was confirmed in letter dated May 12, 2004. This letter was requested to ensure full compliance with the “opt out” procedures added to RCW 90.82.130 in the 2003 Legislature.

conditions. Water rights in the planning area were mapped into a modern GIS layer. A “target flow” study and hydrologic model were produced for Woodland Creek, evaluating changes in streamflow between 1950 and 2000. Documents produced by the project are outlined later in this chapter.

- Phase 3 “Plan” – RCW 90.82 specifies that all Watershed Plans must address the core element of water quantity management. The associated issues of water quality and habitat are optional Plan elements under RCW 90.82. The initiating governments determined that all three elements should be included in the WRIA 13 Plan.

The WRIA 13 Watershed Planning Committee was tasked with developing the recommended Watershed Plan during 2003 - 2004. The Committee carefully considered existing programs and earlier studies to identify the most significant issues for action to improve water resource management.

Committee approval of the recommended Plan requires consensus of all governmental representatives and at least majority support from non-governmental representatives, as specified in RCW 90.82. If the recommended Plan does not receive the required support, the WRIA planning process ends. If the Planning Committee approves a recommended Plan, it goes to the County Commissioners for final action. The statute further specifies that the County Commissioners may only accept, reject or return the Plan to the planning committee for further work, but cannot modify it on their own.

- Phase 4 “Implementation” - If a Plan is approved by the Planning Committee and the County Commissioners, local sponsors can request continued partial grant funding from Ecology to support design of an implementation strategy. RCW 90.82 requires that a WRIA Implementation Plan must include milestones, responsibilities and funding mechanisms. The statute also requires that operators of water systems with unused (“inchoate”) water rights be included in planning to meet future water needs, as part of the WRIA Implementation Plan.

WRIA 13 Watershed Planning Committee

The following interests and representatives participated on the Planning Committee.

Interest	Representative (earlier representatives in parenthesis)
<i>Non-Governmental Committee Members – Active at conclusion of Planning process</i>	
Aquaculture	Diane Cooper, Taylor United/Pacific Coast Oyster Growers Association
Forestry	Julie Keogh (Bill Johnson), Weyerhaeuser

Development	Doug DeForest, Olympia Master Builders
Realtors	Nick Adams, Hodges Realty (Beckie Stephens, ReMax)
Water Supplier: Non-Gov't	Jerry Petersen, WA Water Service Co Kevin O'Neil, Alternate
Fishery Groups	Paul Sparks. Trout Unlimited (Larry McCallum)
Henderson Watershed Council	Steve Langer
Eld Watershed Council	Ed O'Brien
Deschutes resident	Mike Pettit
<i>Former Non-Governmental Representatives – Resigned prior to project conclusion</i>	
Agriculture	Rick Nelson, Cattlemen's Association
Environmental Group	Peggy Bruton, Sierra Club Sasquatch Group
Industrial Water User	Bobby Johnson, Miller Brewery
Business	Mike Massoth, Lacey/Thurston Co Chamber/Commerce
Governmental Representatives	
Thurston County (Lead Agency)	Cathy Wolfe, Committee Co-Chair (Judy Wilson) Dick Blinn, Alternate
Squaxin Island Tribe	Andy Whitener Jeff Dickison, Alternate
City of Olympia	Matthew Green (TJ Johnson) Lynda Ring-Erickson, Alternate
City of Lacey	Virgil Clarkson, Committee Co-Chair Lisa Dennis-Perez, Alternate
City of Tumwater	Jerry Murphy (Chris Parsons) Kathy Callison, Alternate
City of Rainier	Dennis McVey
Thurston PUD #1	Bud Kerr
Thurston Conservation District	Mike Kuttel (Kris VanGorkum, Kim Toal)
State of Washington	Steve Craig, Department Of Ecology

WRIA 13 Watershed Plan Mission And Objectives

The Watershed Planning Committee adopted the following Mission and Objectives for the WRIA 13 Watershed Plan:

Mission:

The **mission** of the WRIA 13 Watershed Plan is to ***create a long-range water resource management framework to protect aquatic habitat and provide water for vital community needs.***

Objectives:

- 1) Protect and enhance water-related fish and wildlife habitat, particularly through prudent management of in-stream flows to protect salmon and other stream resources. Recognition of Squaxin Island Tribe interests in resource management is a key element of this objective.
- 2) Provide access to groundwater supplies which are essential for growth of the region including the communities of Rainier, Tumwater, Olympia and Lacey and privately owned water systems. Balance improved predictability and timing of water rights processing with protection of water for habitat.
- 3) Protect and enhance water quality.
- 4) Ensure credibility of the watershed planning process with key interests, including the Department of Ecology, Squaxin Island Tribe, the municipalities and county, and environmental, timber, agriculture and development interests.”

Organization Of Watershed Plan Chapters

The remaining sections of the Watershed Plan include:

Chapter 2 – Recommendations Applying to All Elements

This chapter covers recommendations from the Planning Committee regarding WRIA 13 Plan implementation. These recommendations apply to the Plan as a whole and are applicable to all Elements.

Chapter 3 – Water Quantity

This chapter covers:

- ❑ Introduction and Guiding Principles.
- ❑ Water Quantity Findings. This section identifies key issues pertaining to Conservation and Water Use Efficiency, Water Rights and Instream Flow.
- ❑ Action Recommendations for:
 - o Conservation and Water Use Efficiency actions are proposed to maximize the benefit from wells and direct withdrawals from streams. Use of the emerging new source from reclaimed water is emphasized. The overall intent is to meet needs of our communities while minimizing impact to instream flow.

- o Water Rights management issues include data management, water right permit compliance, and public interest statements regarding changes to existing water rights.
- o Instream Flow proposals include update of the 1980 Ecology Instream Flow Rule for WRIA 13, including implementation of the “exemption” provision in the Rule for small rural wells.
- o Groundwater Protection recommendations identify the need for improved data collection and analysis, along with protecting our vital groundwater supplies.

Chapter 4 – Water Quality

This chapter contains:

- Introduction/Background
- Water Quality Findings. This section identifies key issues regarding water quality impairments of marine waters, streams and groundwater.
- Recommendations – Area-wide and basin-specific recommendations on water quality issues

Chapter 5 – Habitat

This chapter addresses:

- Introduction – As required by the Watershed Planning Act, the Planning Committee acknowledges the leading role of the WRIA 13 Lead Entity (Thurston Conservation District) under the Salmon Recovery Act (HB 2496).
- Habitat Protection and Restoration Findings
- Habitat Element Recommendations – These recommendations are intended to supplement plans and strategies developed through the WRIA 13 Salmon Habitat Recovery program.

Technical Reports Prepared For The WRIA 13 Watershed Plan Project

Several technical reports were prepared to support the WRIA 13 Watershed Plan project. In addition to compilations of existing information, three “Level 2” studies were conducted to address priority gaps in data and analysis.

Level 1 Assessment

A “Phase 2 Level 1 Assessment” was compiled in May 2002. This included:

- “Overview of Existing Water Resource Policies and Data Available”: Synopsis of existing plans and reports, along with a summary table of existing water quality data

by year and by waterbody. Existing reports include the 1995 Department of Ecology Draft Initial Watershed Assessment, Water Resources inventory Area 13 Deschutes River Watershed (Open File Technical Report 95-10.) This report dealt almost exclusively only with the Deschutes River portion of WRIA 13.

- WRIA 13 “White Papers”: A series of six “white papers” were prepared on key water resource topics at the beginning of the Phase 2 assessment process. These focused on basic conditions and the questions of what we know and don’t know regarding key water resource topics.
- WRIA 13 Initial Assessment: Henderson Inlet Watershed (2001): This report was prepared due to absence of a comprehensive assessment of existing information on streams, lakes, and groundwater in this important WRIA 13 watershed.

Technical Studies

Three “Phase 2 Level 2” technical studies were been undertaken in support of the WRIA 13 Planning process. These were funded by Watershed Planning grants from the Department of Ecology:

- “2001 Deschutes River Groundwater Inflow Study Final Report”, February 2002: Thurston County Environmental Health investigated Deschutes River groundwater/streamflow interaction in the summer of 2001. Reaches of the river that “gain” or “lose” to groundwater were identified through intensive field investigation. This report is available at [Deschutes River Groundwater Inflow Study Final Report](#).
- “WRIA 13 Water Rights Mapping and Assessment Project”, September 2002: Water rights within WRIA 13 were mapped from Ecology microfiche records into a modern GIS layer. During the mapping process, existing land use was compared to the “Purpose” assigned to water rights, to provide an initial assessment of actual use versus potentially outdated water right documents. The water rights mapping will provide a platform for future water rights research and actions to improve water right management within the planning area.
- “WRIA 13 In-Stream Flow Recommendations – Woodland Creek Target Flow”, October 2001: An existing hydrologic (streamflow) model of Woodland Creek was updated by a consultant to include a 1950’s model, including land cover derived from 1950’s aerial photos. The updated HSPF model was used to assess impacts on streamflow from past development in the watershed. There was indication of increased high flows due to watershed development between 1950 and 2000. Preferred flows for fish were identified and compared to existing stream flow. The feasibility of adopting a “target” flow for the creek was assessed, to supplement the existing “closure” under the WRIA 13 Instream Flow Rule. The project technical committee did not recommend adoption of a formal “target flow”.

WRIA 13 Assessment

Topics in the Assessment include groundwater, surface water hydrology, water quality and water rights. Existing water resource management plans and monitoring data sources are summarized, to help ensure that the Watershed Plan and future resource management efforts fully utilize the extensive framework of existing plans and data.

[Assessment Chapter 1 - Introduction](#)

[Assessment Chapter 2 - Existing Plans, Programs & Data](#)

[Assessment Chapter 3 - Land Use Current & Future](#)

[Assessment Chapter 4 - Geology and Groundwater](#)

[Assessment Chapter 5 - Surface Water](#)

Assessment Chapter 6 – Water Quality

Assessment Chapter 7 – Water Rights

Copies of these reports are available at www.co.thurston.wa.us/www or from Tom Clingman of Water and Waste Management at (360) 754-3355 extension 6809.

CHAPTER 2: RECOMMENDATIONS APPLYING TO ALL PLAN ELEMENTS

RECOMMENDATIONS APPLYING TO ALL ELEMENTS OF THE PLAN

The WRIA 13 Watershed Planning Committee identified several overarching issues regarding Plan implementation. The following issues and action programs apply to all elements of the Draft Plan.

Functions and Roles in WRIA Plan Implementation

Implementing WRIA Plan recommendations to improve water resource management will involve multiple distinct functions, including:

- Advocacy for balanced water management to meet both environmental and community needs for water
- Public education and involvement in Plan implementation
- Endorsement from regional leaders and organizations
- Consensus building
- Legal authority to implement
- Funding for oversight and for specific recommendation actions
- Stakeholder oversight
- Periodic assessment of progress and adjustment of action programs and implementation priorities

Overarching Recommendations

The following recommendations are vital to achieving improved water resource management as envisioned in the WRIA 13 Plan Mission: ***Create a long-range water resource management framework to protect aquatic habitat and provide water for vital community needs.*** These Implementation Recommendations apply to the Plan as a whole, and are essential to implementing the recommendations contained in the three Plan elements of Water Quantity, Water Quality and Habitat.

The WRIA 13 Plan Implementation Recommendations are:

1. **Encourage strong support from the community and from local leadership in achieving "water for fish and water for people"**

Our communities face many difficult decisions and choices in working toward protection of our watersheds while providing vital water for our communities. Leadership from local elected officials, tribes, non-governmental groups, and water users will be essential to success. The residents of WRIA 13 are encouraged to participate in the public process as local decision-makers implement WRIA 13 watershed planning strategies. Citizens are also encouraged to demonstrate their

support for watershed protection by **1)** testifying at public hearings, **2)** volunteering, and **3)** supporting local funding initiatives that sustain long-term protection efforts.

2. Recognize that implementation of all recommendations is dependent on availability of funding. Be strategic in using limited resources to address water resource management needs now and in the future

The commitment of state and local agencies to implementing the recommendations in this Plan are dependent on availability of funds and staff. There is much more that could be done than we can feasibly attempt with our funds and time. Our action programs need to address the most vital needs first and achieve optimal effect with limited resources. For example, we need to avoid spending money exclusively on projects in the populated downstream watershed areas, when the most valuable aquatic resources may be upstream or in more rural watersheds. On-going monitoring and evaluation of success is essential, to provide a basis for future action program revision and adaptation.

Recommended actions:

Periodically refine and reprioritize water resource action measures to achieve the intent of the WRIA 13 Watershed Plan, incorporating the following criteria and principles:

- a) Protect the least affected waters as a first priority and then address more impaired waters.
- b) Use best available science in designing and revising action programs
- c) Recognize the legal responsibilities of various government agencies. This includes responsibilities of various agencies to protect water quality and protect habitat, and Ecology responsibility to implement water right statutes.
- d) Recognize the interconnection between water quality issues, habitat issues and water quantity problems.
- e) Accept that our current understanding may not provide for complete solutions. Implement the best actions as they are identified and evaluate our results.
- f) Institute performance measures that allow monitoring and evaluation of water resource management activities.

3. Provide stakeholder oversight of Watershed Plan implementation

Private and public agency stakeholders should pursue issues of mutual interest in Watershed Plan implementation. A coalition of interests could provide vital oversight of Plan implementation, including periodic assessment of progress and adjustment of action programs and action priorities.

Recommended action:

Investigate the feasibility of an on-going citizen/government watershed stakeholders group to oversee on-going implementation of the WRA 13 Plan.

4. Identify lead responsibility at the regional level for overseeing implementation of the WRIA Plan

A region-wide lead local agency is needed to provide oversight of WRIA Plan implementation. This agency needs to be identified in coordination with the State.

Several different types of regional authorities are available under existing enabling statutes. We should consider these legal authorities and past achievements across the state in region-level programs to improve water resource management. One notable example is the creation of METRO in King County and the agency's critical role in accomplishing the remarkable cleanup of Lake Washington.

In our area, the broadest regional entity is the Thurston Regional Planning Council. The Council's potential role in funding and accomplishing oversight of WRIA Plan implementation should be carefully explored.

We must acknowledge the challenge of multiple WRIA plans affecting a single jurisdiction. Thurston County includes parts of four different WRIAs. The cities in WRIA 13 include incorporated area or water resource interests in multiple WRIAs. Southwest Region staff at the Department of Ecology will be faced with multiple WRIA plans. Watershed committees and Ecology should consider means to provide consistent Plan implementation across the region.

Recommended action:

The initiating governments, Department of Ecology (as the State lead agency for Watershed Planning) and other stakeholders should examine opportunities for the most appropriate regional lead agency to oversee WRIA Plan implementation. Regional lead designation should be accompanied with a funding program from State and local sources to sustain the implementation coordination program.

CHAPTER 3: WATER QUANTITY

INTRODUCTION

Water quantity is the one required element of watershed planning under RCW 90.82. The WRIA 13 Watershed Plan recommends several actions to improve water quantity management. One set of recommendations support conservation as the preferred source for additional supply. Several recommendations target improved effectiveness of water right management as a means to achieve resource goals.. When new water rights are necessary to accommodate our growing communities, a mitigation framework is recommended to ensure protection of instream flow. And actions are recommended to improve protection of instream flow.

In total, the various Water Quantity recommendations are intended to help achieve the WRIA 13 Mission: *“Create a long-range water resource management framework to protect aquatic habitat and provide water for vital community needs.”*

The Water Quantity chapter includes:

- Introduction to the issues and identification of the Guiding Principles for this chapter.
- Water Quantity “Key Findings” describes the core issues that drive the recommended action measures. Information is provided on statutes, current conditions, opportunities and challenges to improving water quantity management in WRIA 13.
- Action Recommendations are provided in three interrelated topic areas:
 - o Section 1: Conservation and Water Use Efficiency – Recommendations include Regional Conservation Framework, Reclaimed Water, Metering and Water System Plan Consistency
 - o Section 2: Water Rights – Recommendations address the following subject areas: Water Right Data Management, WAC Implementation, Exempt Wells Management, Water Right Changes, and Mitigation of Instream Flow Impacts
 - o Section 3: Instream Flow – Recommendations include: Implementation of Exemption Provision, Update of Rule Language and Monitoring Wells.

RCW 90.03.005 (excerpt) State water policy - - Reduction of wasteful practices.

“It is the policy of the state to promote the use of the public waters in a fashion which provides for obtaining **maximum net benefits** arising from both diversionary uses of the state's public waters and the retention of waters within streams and lakes in sufficient quantity and quality to protect instream and natural values and rights”...

“Based on the tenet of water law which **precludes wasteful practices in the exercise of rights to the use of waters**, the department of ecology shall reduce these practices to the maximum extent practicable, taking into account sound principles of water management, the benefits and costs of improved water use efficiency, and the most effective use of public and private funds, and, when appropriate, to work to that end in concert with the agencies of the United States and other public and private entities.” (Emphasis added.)

Guiding Principles

The following should guide water quantity management in WRIA 13:

1. We should protect instream resources while providing essential water for our communities.
 2. All water users should strive to meet their needs through the most efficient use of our common water resources.
 3. Source development should emphasize conservation and “recycling” of legitimate existing water rights to meet new needs, in preference to utilizing previously unused “inchoate” rights or requesting new rights.
 4. When new water rights are necessary we should protect instream flow by first, avoiding impact where feasible; then minimizing impact to the extent practical; and finally mitigating unavoidable impacts to instream flow.
 5. Water rights should be managed to the extent feasible, to achieve the State vision of balanced use of water rights. Existing statutes, rules and permit conditions relating to water management should be consistently implemented. Where Ecology needs assistance from local governments or other parties to achieve implementation, the Department should define these needs and request assistance.
 6. The WRIA 13 Water Quantity element must in no way be construed as defining or quantifying Tribal treaty or legal rights to water. The focus of this Plan is solely on the State-managed water right system.
-

WATER QUANTITY FINDINGS FOR WRIA 13

This section of the Water Quantity Chapter describes water use, existing regulations and challenges to viable water resource management. These Findings underpin the Water Quantity Recommendations contained in the WRIA 13 Watershed Plan. Findings are discussed in the same three categories used for the Recommendations:

1. Conservation and Water Use Efficiency;
2. Water Rights Management; and
3. Instream Flow.

CONSERVATION & WATER USE EFFICIENCY FINDINGS

Conservation and efficient use of water are core principles in Washington water resource statutes. Under RCW 90.82, watershed plans must include a WRIA-specific examination of opportunities for maximizing use of existing water resources. Legislatures have declared the need for efficiency and conservation for nearly 100 years. Actual implementation of water efficiency has often fallen short of legislative objectives. Watershed planning under RCW 90.82 is an opportunity to re-examine WRIA-specific opportunities for water use efficiency and conservation actions.

Conservation and Water Use Efficiency Findings for WRIA 13 address:

- o Types of water users and their legal requirements for conservation;
- o Policy linkages between water conservation and protecting instream flow;
- o Opportunities for conservation and efficiency in our region.

The following Findings support the action recommendations of the WRIA 13 Watershed Plan Quantity Chapter:

1. There is a wide range of water use in WRIA 13, with city utilities the largest water providers.

Types of water providers: The first step in examining opportunities for conservation is to review the types of water providers and the categories of water use within WRIA 13. As shown on Table 1, Group A Public Water Systems provide $\frac{3}{4}$ of total water in WRIA 13. These systems serve 15 or more residences or a defined number of “transient” users such as campgrounds, restaurants and correctional facilities. As discussed below, several legal and procedural distinctions

⁴ This is Table 1 from the Key Findings report on water quantity issues. See this report for further information on water use and water users in WRIA 13.

apply to this category of water providers. A wide range of other water users is also identified.

TABLE 1: ESTIMATED ACTUAL GROUNDWATER USE IN 2002 - WRIA 13

Types of Water Users	# of Systems	Population Served		GPCD		GPD	Gal Yr	Ac Ft/Yr	Percent of Use
GROUP A WATER SYSTEMS									
Gov't Residential Customers on Sewer	4	82,700	(1)	80	(3)	6,616,000	2,414,840,000	7,410	31%
Gov't Residential Customers on Septic	5	31,300	(2)	85	(4)	2,660,500	971,082,500	2,980	13%
Gov't Commercial/Industrial/Public	18				(5)	4,235,989	1,546,135,985	4,740	20%
Large Private Utilities (> 100 customers)	9	10,370	(6)	85		881,450	321,729,250	990	4%
Small Private Utilities	41	3,570		100	(9)	357,000	130,305,000	400	2%
Large Community Systems (>100 customers)	4	2,800		85		238,000	86,870,000	270	1%
Smaller community/private Group A	54	3,500		100		350,000	127,750,000	390	2%
Subtotal "municipal" (Group A)	135	134,240				15,338,939	5,598,712,735	17,180	73%
OTHER WATER USERS									
Group B	319	3,300		100		330,000	120,450,000	370	2%
Individual Wells	4,500	12,000	(8)	100		1,200,000	438,000,000	1,340	6%
Brewery	1		(7)					2,100	9%
Private golf courses	4	800		acres	(10)	2,607,000	391,021,200	1,200	5%
Yelm Highway turf farms/nurseries	4	680			(10)	2,172,000	325,851,000	1,000	4%
Other Comm/Ind/Gov't Wells	23				(11)	3,194		130	1%
Irrigators (not included in other categories)	57				(11)			300	1%
TOTALS	5,043	151,020				21,651,133	6,874,034,935	23,620	100%

The estimates reflect best available information on actual use. They do not represent quantities associated with water rights. Sources utilized:

(1) "Water Use and Wastewater Flow Statistics, LOTT System and LOTT Partners", 2002, LOTT Wastewater Alliance, Table 4

(2) Same source, Wksht 3 total population receiving water service minus Wksht 4 sewer population.

(3) Planning figure derived from population served & total water use LOTT statistics; see also Lacey WS Plan page 7-6: Annual per capital for residential only = 78.5.

(4) Non-sewer/sewer variation from LOTT conservation program tables update indicated 5 gpcd savings, 8/03.

(5) LOTT statistics report, Wksht 5 used for volume. DOH SADIE identifies several small gov't non-residential systems; assumed to have small volume.

(6) Non-city service populations from DOH SADIE water system data. See "Water System Population Served by Ownership and Class, WRIA 13 - 2003", project staff.

(7) Non-municipal commercial, irrigation and other uses from update of USGS water use inventory.

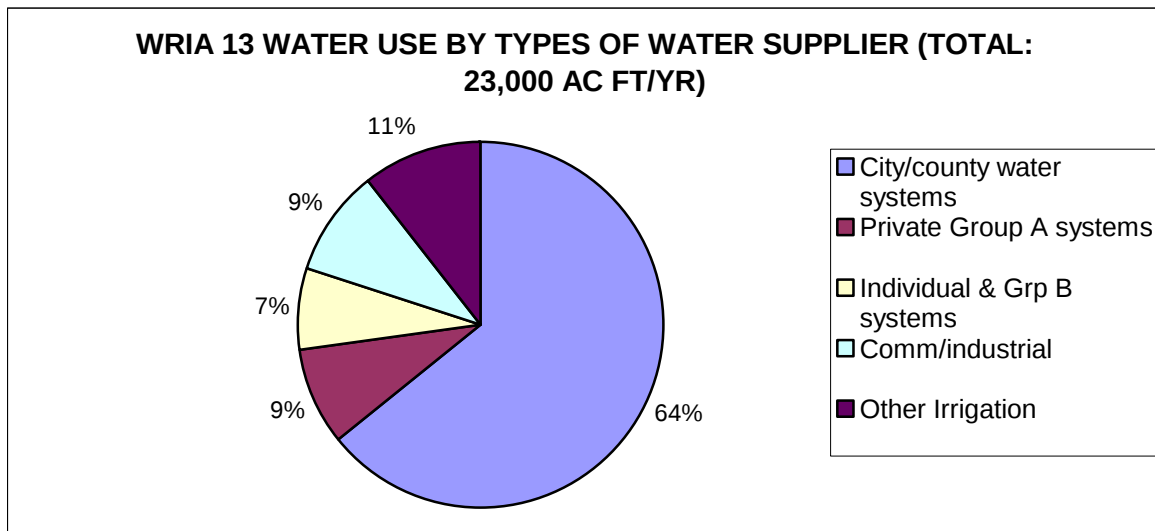
(8) Estimated population minus Group A and Group B customers. Exempt wells will include most Group B.

(9) 100 gpcd used for systems assumed to be non-metered. Value used by USGS in water use inventory. Reflects higher usage anticipated without tiered rates.

(10) Golf course & Yelm Highway irrigated ag est. irrigated acreage. Assumes 1.5 ac ft/yr consistent with USGS inventory. Irrigation use at 150 days/year

(11) Update of USGS Table B3; excludes wells included in other categories.

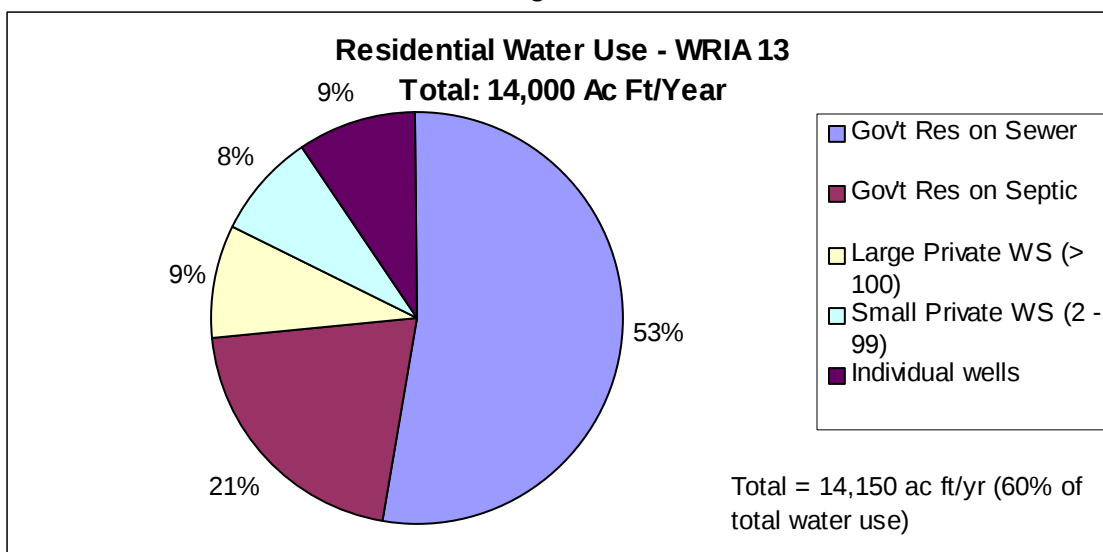
Figure 1



Types of water use: The following section examines two important (but overlapping) categories of water use. These are: 1.) Residential customers (volumes in this category include irrigation of household landscaping); and 2.) Irrigation uses.

- Residential customers:** Residential use - including both in-house use and residential landscape irrigation - accounts for about 60% of total water use in the WRIA. Nearly $\frac{3}{4}$ of residential water is supplied by city water systems. Provision of the remaining 30% is divided roughly equally between three categories of suppliers: 1.) A handful of large (100+ service connections) private water systems regulated by the Utilities and Transportation Commission; 2.) Nearly 100 small privately owned water systems (2 – 99 connections); and 3.) Approximately 3,500 individual single-family wells.

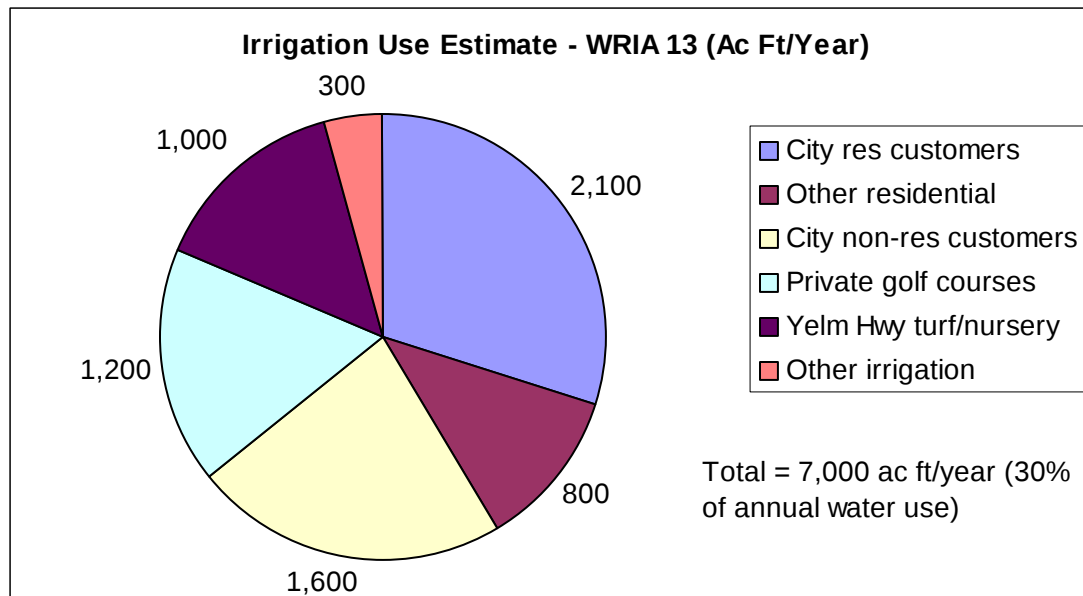
Figure 2



Irrigation water use: About 30% of total annual water use in WRIA 13 is for irrigation of crops, grass and landscape. To provide a holistic picture of irrigation use, the following chart includes estimated irrigation by households as well as large-scale irrigators. The significant impact of household irrigation on water use in the region is illustrated below: Residential irrigation (combining city and non-city customers) is about 40% of total irrigation water use in WRIA 13. Irrigation is of course much more significant during summer, when average residential water use increases by 35 – 50%. Irrigation is a particularly significant factor during peak use periods, when water demand in city water systems can double or triple over average volumes.

Estimates for large-scale irrigation use are very approximate, as there is very little data available. Most irrigation was estimated from aerial photos, with estimated number of actively irrigated acres multiplied by a typical use factor (generally 2 feet of irrigation per year).

Figure 3



2. Statutes intended to ensure efficient use of water have not been consistently implemented.

Efficiency and avoiding waste have been core elements of Washington water law since the 1917 Water Code. Provisions in statute and case law include:

- Ecology is required to reduce wasteful practices in the exercise of water rights “to the maximum extent practicable”. (90.55.005).⁵

⁵ **RCW 90.03.005 State water policy -- Cooperation with other agencies -- Reduction of wasteful practices.**

It is the policy of the state to promote the use of the public waters in a fashion which provides for

- No groundwater withdrawn shall be wasted without economical beneficial use (90.44.110)
- Water that is no longer needed by a user is “relinquished” back to the “pool”, to be available for other uses including instream flow. With several exceptions, water rights may be subject to *relinquishment* due to five years of non-use. Water rights may also be lost due to abandonment, due to non-use and intent to abandon.
- Increased water use efficiency is a potential source of water to be considered in state and local water resource planning. Efficiency programs should mix regulation and incentives. State programs to improve water use efficiency should focus on areas where water is over appropriated (90.54.180).
- The mandate to avoid wasteful use of allocated water is not static but dynamic, based on changing conditions regarding need for water. The concept of “beneficial use” includes the principle that use must be “reasonable and economical use of water in view of other present and future demands upon the source and supply.”⁶

In reality, Ecology has provided very little oversight of water use or Water Code compliance in WRIA 13. Users have not been required to meter or report water withdrawal, even when specifically stipulated as a condition of water right approval or required by statute. There has been no on-going administration of water right records to remove outdated records or reduce allocated volumes to reflect actual use.

One group of water users has been subject to on-going oversight by the State Department of Health: Expanding Group A Public Water Systems (see Finding # 4 below.)

obtaining maximum net benefits arising from both diversionary uses of the state's public waters and the retention of waters within streams and lakes in sufficient quantity and quality to protect instream and natural values and rights. Consistent with this policy, the state supports economically feasible and environmentally sound development of physical facilities through the concerted efforts of the state with the United States, public corporations, Indian tribes, or other public or private entities. Further, based on the tenet of water law which precludes wasteful practices in the exercise of rights to the use of waters, the department of ecology shall reduce these practices to the maximum extent practicable, taking into account sound principles of water management, the benefits and costs of improved water use efficiency, and the most effective use of public and private funds, and, when appropriate, to work to that end in concert with the agencies of the United States and other public and private entities.

⁶ *In re Marshall Lake* cited in An Introduction to Washington Water Law, Office of Attorney General, January 2000, page III: 15.

Table 2: Existing Oversight Of Water Providers

Water provider	Water rights (Ecology)	Water System Plan 6-yr Update (DOH) Includes demand/ source planning and conservation element	UTC regulation of expenditures and rates (WUTC)	ISF Rule (Ecology)	CWSP and other local policies (County)
“Municipal” water utilities: Basically “Group A Community” Public Water Systems (15+ connections).	Yes. Protected from Relinquishment. Can use rights throughout service area.	Expanding systems and new systems: Yes.	Government-owned: No. City council sets rates. Community-owned with <100 services: No. Homeowner’s group sets rates.	Yes.	CWSP: Utilities have responsible to serve w/in designated service area. GMA/local agreements: Cities are primary water provider w/in UGA. County policy favors service to new Rural development from existing water systems.
		Systems >1000 connections must also include: 1. Conservation before using inchoate rights. 2. Reclaimed water opportunities evaluate			
		Non-expanding systems: No updates required if system declares to DOH they are “non-expanding”.	Investor-Owned Utilities: Yes. Community-systems with >100 connections or rates >\$429/year: Yes.		
Small community systems <15 homes (Group B Systems)	< 5,000 gpd: No water right required. County allows up to ~12 homes on exempt well.	New Group B system must have simplified Plan for initial approval. Since 1995, requires conservation element (no standards from DOH).		Yes.	Per Attorney General opinion and case law, County reviews entire “development” in determining 5,000 gpd calculation.
	>5,000 gpd: Needs right.	No WSP update required for Group B in general.			
Individual wells	No.	No.	No.	Exempt (1)	
Agriculture Industrial/ Commercial	GW and surface rights with variety of “Purpose”.	No.	No.	Yes.	

(1) Individual wells are exempt from Instream Flow Rule if no alternative supply is available. If cumulative effect on instream flow is a problem, can be restricted to in-house use only.

3. Protecting instream flow is an important underlying objective for conservation in WRIA 13.

Some water uses have greater direct influence on instream flow than others. A region-wide approach could help provide an alternate water source or encourage conservation by these high-impact water users, providing direct benefit to instream flow

In WRIA 13, the greatest potential conflict among water users is ***protecting instream flows versus serving out-of stream water needs***. Unlike other regions, groundwater withdrawals have not resulted in any discernable large-scale reduction in aquifer levels that would create widespread conflict with shallower wells.⁷ We do not have extensive surface water withdrawals with conflicts between “junior” and “senior” surface water right holders – circumstances common in Eastern Washington. However, we do have long-standing policy objectives to protect instream flows while supplying water for out-of-stream users. An important target for conservation in our WRIA should be protecting instream flow.

All conservation is not equal regarding influence on instream flow. A single water user or cluster of water users may have a relatively large impact on summer flows for a specific stream. In WRIA 13, the three cities are the dominant water service providers but withdraw water from deeper aquifers at the lower end of the watershed; thus, the city utilities may have a relatively small direct impact on instream flow. Other water suppliers may utilize direct surface water withdrawals and shallow wells near streams. Direct surface withdrawals by irrigators and shallow near-shore wells used by small community and individual wells may use a relatively small volume of water, but have a greater direct impact on stream flow. These water users may lack incentives or financial capacity to pursue conservation.

A region-wide approach to conservation may have potential to focus water use efficiency efforts on protecting instream flow. Such a framework could identify the most streamflow-sensitive uses of water, and then help develop alternate water sources or conservation measures for these uses.

However, a key missing ingredient is Ecology implementation of conservation and efficiency requirements for all water users. Any region-wide approach will be undercut by lack of Ecology action, such as failure to implement the “exempt well” limitations adopted in the WRIA 13 Instream Resources Protection Program WAC. At this time, only municipal public water systems have a procedural requirement to identify a conservation program.

⁷ See Ground Water Monitoring Report, May 2002 included in Thurston County Water Resources Monitoring Report 199-2001 Water Year. Three decades of water level data were analyzed from one monitoring well, along with 7 years of data from a network of wells. When normalized for rainfall, no obvious trends were observed.

4. Public water systems are subject to special requirements for conservation and are provided special protection from water right relinquishment.

Larger expanding Public Water Systems (whether government or privately-owned) are required to provide State agencies with an updated Water System Plan every 6 years. Over 60% of water in WRIA 13 is supplied by systems that routinely update their Water System Plans.

Water System Plans document past water use, project future demand, and identify actions including cost-effective provisions for water use efficiency (RCW 43.20.230). Conservation guidance from the Department of Health identifies required conservation program elements matched to the size of the utility but does not set specific targets for conservation.⁸

The new Water System Plans for Lacey and Olympia include a conservation target of 1% annual reduction in per-capita water use through the 20-year planning period to 2022. Tumwater includes conservation efforts in its new Water System Plan but has not defined a conservation target. Over time, conservation savings by the city utilities can be significant. For Lacey, achieving efficiency goals through conservation and use of reclaimed water is projected to save over 4 million gallons per day and postpone the need to add three new 1,500 gpm wells.

In 2003, major changes in Washington water law related to public water systems were adopted in HB 1338 (the “Muni Bill”). Key provisions of the new statute include:

- **Protection against relinquishment:** “Municipal” water rights have long been exempt from relinquishment.⁹ HB 1338 extended “municipal purpose” exemption from water right relinquishment to **all** Group A Public Water Systems, whether government or private. (Group A systems serve 15 or more residential customers or 25 or more employees or customers). All Group A water systems are now classed as having “municipal purpose” water rights that they can “grow into” over an extended period of time.

The newly-redefined “municipal purpose” systems account for about 75% of total water use in WRIA 13. HB 1338 extended the “municipal” definition to 123 privately owned water systems in WRIA 13, serving about 20,000 people. This action was intended to remove a significant legal cloud over the water rights of these systems.¹⁰ However, expanding the “municipal” definition may have

⁸ “Municipal Water Conservation Analysis and Recommendations”, 12/98. WA Department of Health.

⁹ Legally, water rights are valid only as long as they are still needed for the specific purpose for which they were granted. With some exceptions, the State Water Code stipulates that water rights which are no longer needed are “relinquished” back into the Ecology-managed “pool.”

¹⁰ A common Ecology practice in the past created significant confusion regarding water rights for non-governmental public water systems. Water rights start as a *permit* allowing the user to put water to a

implications for instream flow, due to greater pumping from existing sources and possible transfers of “extra” water rights not needed by these systems. Especially unclear is Legislative intent relating to water rights for non-expanding privately owned Group A public water systems.¹¹

- **Ability to use water rights for customers throughout service area:** Many water rights acquired by a city or large private water utility originally served a limited area or a specific number of customers. HB 1338 removes the restrictions created by outdated “Place of Use” and “Purpose of Use” descriptions in water right applications and permits.¹² Now, the utility’s Water System Plan defines “place” and “purpose” for municipal water rights.
- **Ability to re-allocate conserved water:** HB 1338 allows “municipal” water systems to utilize existing water rights to maximize service to current and future customers, by protecting conserved quantities from relinquishment.
- **Expanded conservation requirements:** DOH is directed to establish new procedural requirements for water use efficiency by December 31, 2005. Conservation planning requirements are extended to non-expanding “municipal purpose” Group A water systems (roughly 10% of total WRIA 13 water use.) Water systems must be in compliance with conservation requirements to obtain the “Place of Use” flexibility provided in the new statute.

For water systems with 1,000 or more customers, additional new requirements include:

- o A stipulation that cost-effective conservation be maximized to meet new needs prior to utilizing additional unused (inchoate) water rights; and
- o Requirement to consider cost-effective use of reclaimed water where it will be available during the time horizon for the water system plan.

specific use at a designated site; after the use is established, a *certificate* is issued. For several decades, Ecology commonly issued a water right certificate on the “pumps and pipes” basis – if the water user had the constructed *capacity* to use the water, the certificate was issued, regardless of whether the water had been *actually* used. Court cases put the valid quantities of privately owned water systems in legal limbo. The Supreme Court in *Theodoratus* held that the non-used (inchoate) portion of “pipes and pumps” certificates was not valid. But this approach created significant problems where an intended use had not yet fully built out. The Legislature addressed this problem in 2003 HB 1338, by extending the long-standing protection of “Municipal” water rights against relinquishment to all Group A Public Water systems – regardless of ownership type.

¹¹ See WRIA 13 Assessment Chapter 7 Water Rights for further discussion.

¹² There are remaining issues relating to whether a given “municipal” right has an unused quantity if the entire purpose within the original place of use has been met. For example: A water right was issued for a 20-lot subdivision and the subdivision is fully built out. But the original maximum annual volume of the water right has never been needed. Is there a quantity that could be moved to a different place of use? This is discussed in the Assessment chapter on water rights.

5. For some water users, the “use it or lose it” provisions of state law may be an impediment to conservation

All water right holders outside the new “municipal” definition may face a conflict between conservation (reducing the water needed to accomplish a certain task) and relinquishment of water rights (the loss of water rights that results from non-use.) Uses not protected from relinquishment include irrigation and commercial/industrial uses served by a non-municipal water system.

In WRIA 13, these account for roughly 25% of total annual water use. Potential impact on instream flow is relatively large for some of these non-municipal uses, such as surface water diversions for irrigation.

From one perspective, the “use it or lose it” provisions of the current relinquishment statute may be viewed as a significant disincentive to water use efficiency. Investment in conservation may result in a diminishment of non-municipal water right volumes. An alternate view is that updating water use facilities and techniques are simply part of the water right holder’s responsibility to avoid waste while making beneficial use of water.

Non-municipal water users are not provided the same protection from relinquishment that the Legislature recently extended to all Group A Public Water Systems. However, these non-municipal water users are also not subject to the expanded requirements for conservation planning included in the 2003 HB 1338.

6. Effective conservation will need to balance resource protection with economic use of water

Cost-effectiveness is a primary issue for conservation by all types of water users. For public water systems, water use efficiency must be balanced with the responsibility to provide reliable, affordable water to their customers. This balancing is described in HB 1338:

“It is the intent of the legislature that the department (DOH) establish water use efficiency requirements designed to ensure efficient use of water while maintaining water system financial viability, improving affordability of supplies, and enhancing system reliability.”

As did past legislation regarding conservation, the new law emphasizes *flexibility* for each system:

“Each water system defines cost-effective measures to achieve a system’s water conservation objectives.... (DOH) requirements shall allow the municipal supplier to select and schedule implementation of the best methods for achieving its conservation objectives.”

From an instream flow protection standpoint, a disadvantage with flexible guidelines is lack of assurance regarding investment in conservation and water use efficiency. How can we be assured that those utilizing our common water resources are maximizing efficient use of water? At the State level, flexibility in DOH conservation guidance may be necessary given the wide range of water system and water source conditions across the State.

7. Metering and reporting are important but neglected Ecology water use management tools.

Tracking water use is fundamental to avoiding waste and ensuring prudent use of the State's water resources. Many water rights include a condition requiring metering and reporting to Ecology or having data available upon Ecology request. In addition, the Legislature stipulated that metering should be conducted for all withdrawals that could significantly affect salmon resources through diverting instream flow.¹³

In WRIA 13, at least ½ of water rights (by volume) appear to be required to meter, as illustrated on Table 2 below. Metering requirements apply to significant quantities of both groundwater and surface water rights. For cities and large private utilities, some sources may have metering requirements while others do not. It may be most efficient for these larger water systems to simply report data for all wells.

Table 3: Water Rights Required to Meter

	Approximate % Required to Meter)
Groundwater Rights: Metering required by permit conditions	40% (of acre feet)
Other City-owned Groundwater rights	20% (of acre feet)
Surface Rights: Meter required by statute	60+% of cfs (if applied to rights over 1 cfs) 100% cfs (if "salmonid stock is depressed")

¹³ [RCW 90.03.360](#)

Controlling works and measuring devices -- Metering of diversions -- Impact on fish stock.

(2) Where water diversions are from waters in which the salmonid stock status is depressed or critical, as determined by the department of fish and wildlife, or where the volume of water being diverted exceeds one cubic foot per second, the department shall require metering or measurement by other approved methods as a condition for all new and previously existing water rights or claims. The department shall attempt to integrate the requirements of this subsection into its existing compliance workload priorities, but shall prioritize the requirements of this subsection ahead of the existing compliance workload where a delay may cause the decline of wild salmonids. The department shall notify the department of fish and wildlife of the status of fish screens associated with these diversions.

Despite requirements placed on specific water rights and statutory requirements, Ecology historically did not implement metering and reporting in most areas, including WRIA 13. Due to a lawsuit settlement, Ecology has initiated reporting for 16 “salmon-critical” basins, beginning with the largest water users. These initial basins do not include WRIA 13.

As part of the “metering lawsuit” outcome, Ecology has refined their metering requirements and established a statewide metering data management system. Implementing this system in WRIA 13 could be one measure toward ensuring prudent use of water and improving understanding of water use in our region.

8. The LOTT Sewage Capacity Conservation Program has provided significant water conservation benefits to the city utilities.

A remarkable conservation investment program has been funded by the LOTT Wastewater Alliance and implemented by the city water utilities. Over \$2 million has been invested in conservation by LOTT, including giving away over 12,000 low-flow toilets and rebates for nearly 2,000 low-flow washing machines. Commercial and industrial retrofit cost-sharing has included ice machine replacement at several restaurants, toilet and shower retrofits at St. Martin’s College and the County Fairgrounds, and a major water-reduction effort with St. Peter’s Hospital.

The cost of new wastewater treatment capacity is used to define cost-effective LOTT conservation investment. Calculated sewage treatment capacity cost for LOTT is over \$12 per gallon – several times the cost-effectiveness threshold for water system capacity conservation investments.

Over the past 6 years, LOTT has accomplished a reduction of nearly 5% in sewage flows per sewered customer. LOTT-funded conservation is saving 370,000 gallons per day – enough for over 2,000 homes. In LOTT’s view, much of the potential wastewater conservation in the residential arena has been accomplished. LOTT’s focus is now on the more complex arena of commercial/industrial customer conservation investment.

9. Rates are a vital tool for encouraging conservation, especially during peak use periods.

Reducing *peak* water demand is a particular focus of water system conservation. Tiered rates – a lower rate for base levels of water use and higher rates for more intense levels of use – and other rate structure provisions can reduce non-essential water uses by rewarding conservation. Much of the “low hanging fruit” to reduce base water use has been achieved through the LOTT conservation program (such as the toilet give-away.) However, summer irrigation use is not addressed by LOTT; this seasonal use creates significant water demand.

In order to implement use-based rate structures, water must be metered. However, about 15% of residences in the planning area are believed to still lack meters. Roughly

10% of residences are served by small Group B public water systems (<15 customers) or by individual wells: with a handful of exceptions, these water users do not have meters and lack tiered rates to encourage conservation. Community-owned water systems commonly utilize flat rates, which do not reward conservation. They are generally also exempt from the new conservation requirements of HB 1338.

10. LOTT's Reclaimed Water Program is an exceptional long-range opportunity to conserve groundwater supplies.

Over the coming decades, the LOTT Reclaimed Water program will offer a significant potential water efficiency opportunity for our region. Reclaimed water is a "new source" of water outside the water rights regulation realm. Over the coming several decades, about 15 mgd of reclaimed water capacity is planned by the LOTT consortium. Anticipated phases of construction are shown in the table below.¹⁴

**Table 4
LOTT RECLAIMED WATER PROGRAM**

Location	Target Date	Initial Capacity	Design Capacity
Budd Inlet WWTP	Jan. 2004	1 mgd	3 mgd
Hawks Prairie Satellite	2006	1 mgd	5 mgd
Airport/West Satellite	2014	1 mgd	5 mgd
Chambers Prairie Satellite	2016	1 mgd	5 mgd
TOTAL RECLAMATION		4 mgd	18 mgd
Budd Inlet Plant Capacity (Current)		17 mgd average 15 mgd dry weather flows	

Opportunities for use: Three basic uses of reclaimed water should be considered as components of water efficiency and conservation:

- Direct use: Reclaimed water can substitute for potable supply for a wide range of uses, including toilet flushing, industrial processes and irrigation. While our irrigation season is relatively brief, meeting peak demands to serve irrigation places a significant stress on city water utility water source and storage capacity – and occurs during periods when in-stream flow is of concern.
- Return to ground or surface water: Reclaimed water can also be returned to the groundwater or surface water, partially offsetting the original withdrawal.
- Mitigation water: Reclaimed water could be used to mitigate the instream flow impacts of a proposed well. In this concept, one unit of reclaimed water

¹⁴ LOTT Wastewater Resource Management Plan, August 1998.

could mitigate multiple units of groundwater where instream flow impact is indirect and relatively small. Thus, a utility could make a greater investment in reclaimed water as mitigation (leveraging a multiple to one benefit) compared to direct use replacement water (one to one benefit).

Significant challenges facing the use of reclaimed water in our region include.

- Purple pipe system: An entirely new reclaimed water pipe network is necessary. This will be very expensive to install – and is a poor fit with existing utility funding mechanisms. If our State is truly interested in effective reuse of reclaimed water, we may need State funding support to get the initial pipeline network in place. And we do not have a region-wide “master plan” map of where we will ultimately want purple pipe in the ground. Lack of this “roadmap” thwarts opportunity to get purple pipe installed during major public road projects or private construction projects.
- Commercial/industrial building codes: New structures must be built with the appropriate plumbing in order to utilize reclaimed water for non-potable purposes such as toilet flushing. Local codes have not been updated to include these requirements where reclaimed water will be available.
- State requirements for pipeline separation: Current state purple pipe standards require a 10-foot separation from both sewer and water pipes. This is very expensive requirement without substantial justification from a public health standpoint and is a significant cost obstacle to use of reclaimed water.
- Ecology guidance on using reclaimed water: Ecology has no guidance regarding use of reclaimed water to mitigate instream flow impacts from proposed new wells. Without this, it will be very difficult for utilities to design proposals to preserve or improve instream flow as part of development of a proposed new groundwater source. Another example: Aquifer recharge is one of the most economically feasible uses of reclaimed water, but Ecology has no guidance related to either obtaining a “credit” for recharging the aquifer or obtaining approval for subsequent “recovery” of infiltrated water.
- Reclaimed water arrangements with independent irrigators: Some of the largest irrigators in our planning area – including all golf courses except Tumwater Valley - do not purchase water from the city utilities. Financial incentives to use reclaimed water will need to be created. Ecology and the Thurston County Water Conservancy Board would likely be asked to support arrangements to transfer the potable water supply from these wells to city use on a temporary or permanent basis.
- At this time, each of the three cities relies almost entirely on wells in or adjacent to their particular jurisdiction (with the significant exception of Olympia’s McAllister Springs). In the future, a *regional* approach using interties between water systems may be needed to match least-impact potable sources and opportunities to substitute reclaimed water, with demand for additional water supplies.

WATER RIGHTS FINDINGS FOR WRIA 13

The following key findings drive the recommended action measures.

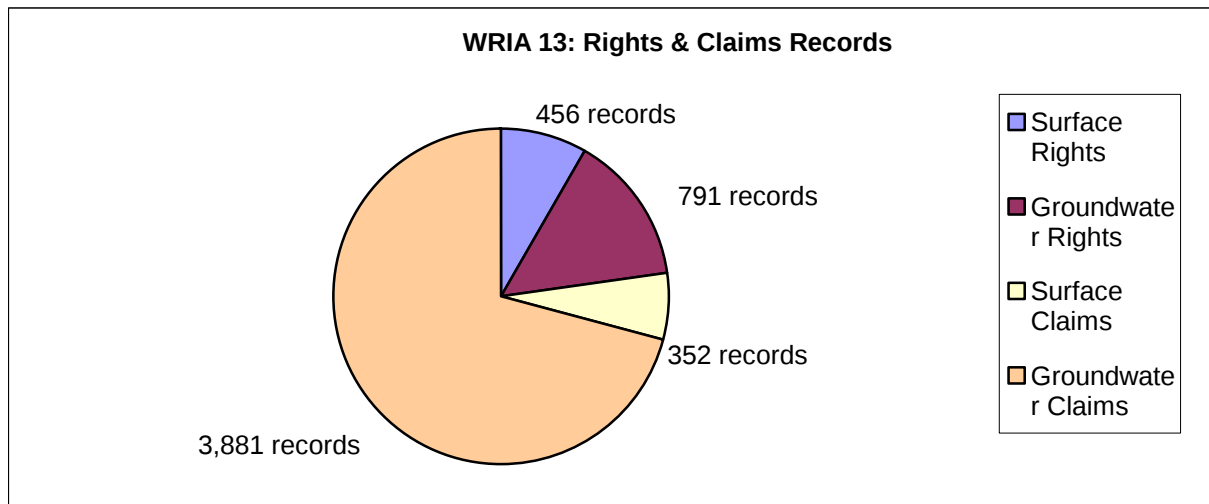
- o Water rights are fundamental to water resource planning. The Watershed Planning Act (RCW 90.82) specifically requires assessment of water rights data as part of watershed plans. Further, the Legislature intends that Watershed Plans be a principle guide for Ecology to determine “public interest” regarding water right proposals and other actions.
- o Water rights are key to water management. However, Ecology has not adequately implemented: statutes, rules or conditions of approval for specific water rights.
- o The legal status of many water allocations is uncertain. In the case of claims, only General Adjudication through Superior Court can resolve legal status.
- o The Watershed Plan is intended by the Legislature to define “public interest” regarding water resources. Local public interest issues include harmonizing water rights management with land use policies related to Long Term Agriculture Areas and Urban Growth Areas.
- o “Inchoate” (unused) water rights held by public water systems are a potential supply for future needs. However, HB 1338 (the “Muni Bill”) raises important unresolved issues regarding instream flow protection and non-expanding water systems.
- o Additional water rights will ultimately be needed even with conservation and “recycling” of existing allocations. *Mitigating* any potential instream flow impact of future proposed wells is critical.
- o The “exemption” provision of the Instream Flow Rule (WAC 173-513) accommodates rural single-family wells while protecting critical instream flow. However, Ecology has failed to implement this WAC.

Detailed findings regarding water rights and exempt withdrawals are provided below. Additional information on water rights, such as what they were issued for and when; quantity and number of rights by sub-basin; and comparison to actual water use and to streamflow, is provided in the Watershed Assessment chapter on Water Rights.

1. **Of the 5,500 water rights and claims records in WRIA 13, groundwater claims are the most numerous.**

The largest numbers of records are *claims* to groundwater. However, most claims appear to be for small quantities of water.

Figure 4



Viewed by *annual volume*, groundwater rights are the most significant segment of the Ecology records for WRIA 13.

Figure 5

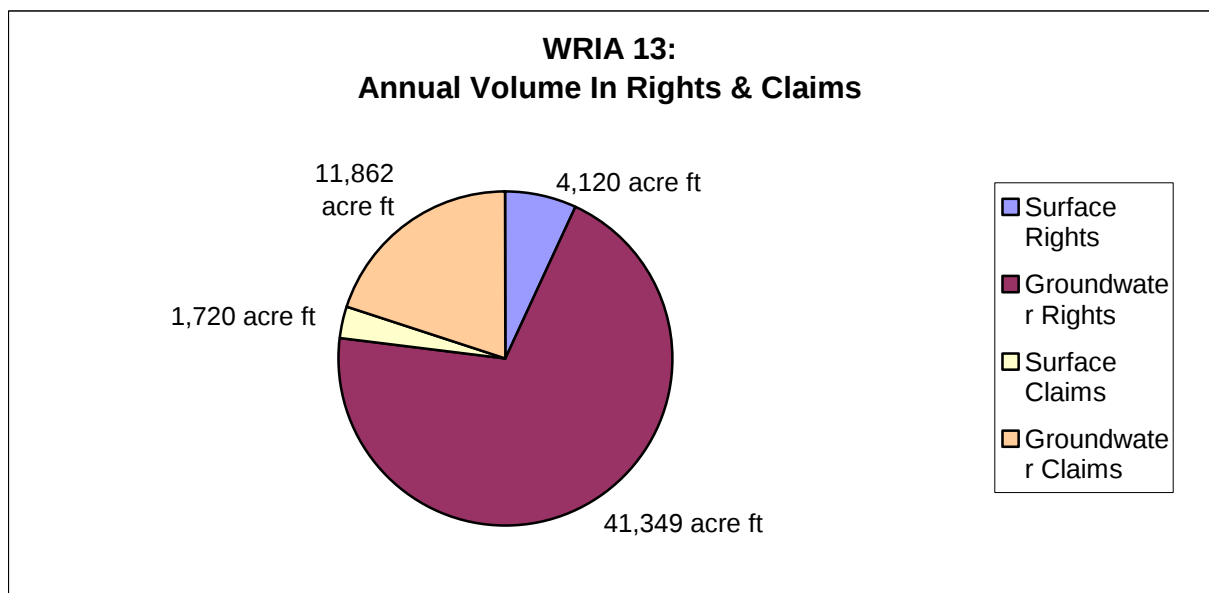
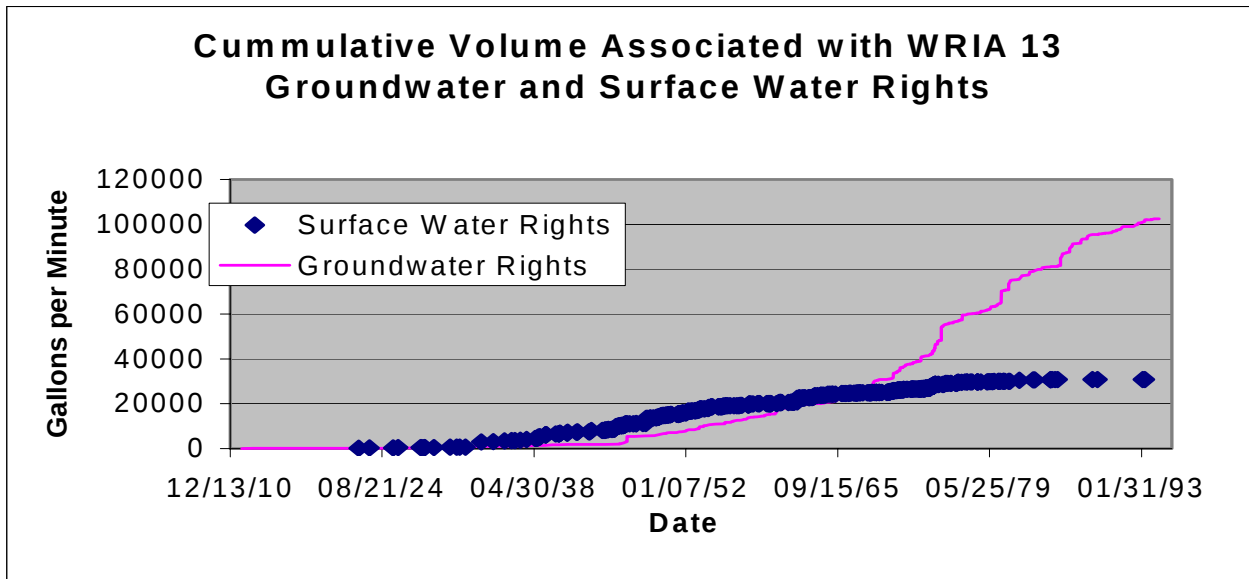


Figure 6



The volume of water associated with surface and groundwater rights has grown over time. The State of Washington began issuing water rights in 1917 for surface water diversions. In 1945, the State began requiring water rights for groundwater withdrawals. (The exception is individual and small group wells less than 5,000 gallons per day.) In the 1960's – at about the time that surface right issuance tailed off – there was a significant increase in groundwater rights issuance. Groundwater rights volumes increased significantly in the 1970's and 1980's.

2. **The greatest *volume* is associated with groundwater rights.**

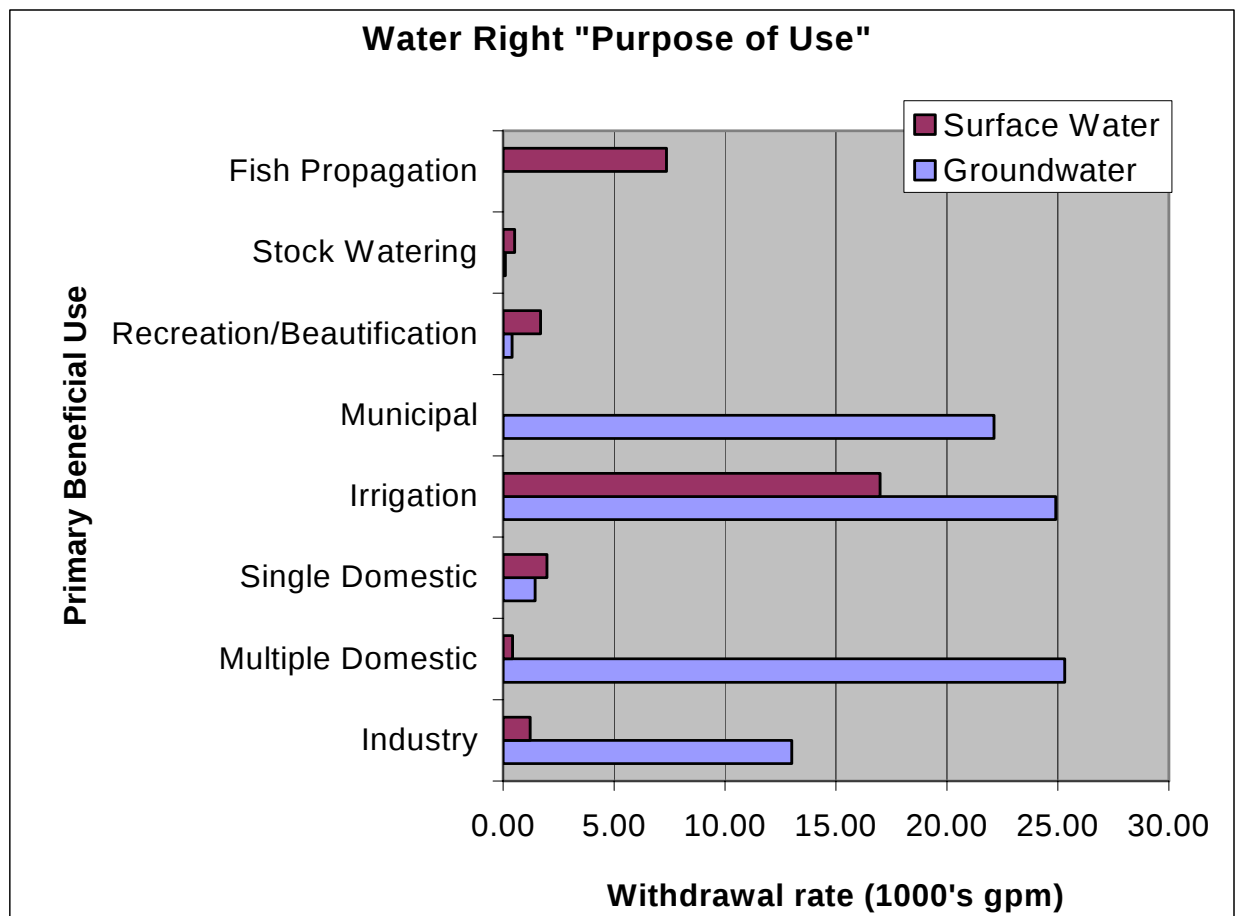
Surface water rights total a significant portion of typical low flow for some streams. Total volume associated with surface rights to the Deschutes and Woodland Creek equal about ½ of lowest stream flow.

- The regulatory scheme for issuing surface water rights dates from 1917; the State began issuing groundwater rights in 1945. Claims were submitted to Ecology during certain claims periods asserting surface or groundwater use prior to these dates. Validity of claims can only be decided by court action.

3. **“Purpose of Use” allocations are greatest for Municipal, Group Domestic and Irrigation.**

Water rights are issued for particular “purpose of use”. As shown in the chart below, surface water rights were predominately issued for Irrigation and Fish Propagation uses. Groundwater rights were issued to serve Multiple Domestic, Municipal, Irrigation and Industrial uses. (“Multiple Domestic” was in some cases the coded use in rights issued to municipal water systems. Also, many rights were issued with multiple approved uses.)

Figure 7



4. Examining water rights data provides an extreme “worst case” view of potential water use.

The total water right volume assumes that all rights are fully valid, and that they are all used simultaneously to the maximum extent allowed. Rights are issued for the *maximum* instantaneous and annual withdrawal allowed, which is often significantly greater than normal use. Details on the Purpose of Use and Place of Use for WRIA 13 water rights, and comparison of total rights volumes to flows of various streams in the planning area, is provided in the Water Rights chapter of the Watershed Assessment.¹⁵

5. Water rights are key to water management. However, Ecology has not adequately implemented statutes, rules or conditions of approval.

Water rights management is key to water quantity management. In many cases, Ecology stipulated conditions of approval for water rights. Ecology also adopted water resource Administrative Codes for the region to protect instream resources. Statutes direct that allocated water be used efficiently and returned to the “pool” when no longer put to beneficial use. However, the failure of Ecology to implement statutes, rules and permit conditions poses a serious impediment to viable water resource management. Recent actions by the Legislature, particularly HB 1338 (the “Muni Bill”) were intended to improve certainty for a group of water right holders but have raised additional issues that need to be addressed.

Specific problems with Ecology administration of water rights that water management in our region include:

- *Failure to implement conditions of water right approval.* Ecology placed conditions on many permits, such as metering water use and curtailing surface water withdrawal during specified low-flow conditions. However, Ecology has not provided oversight to ensure conformance with these conditions. If implemented, these conditions would significantly improve water resource management in WRIA 13.
- *Absence of update to remove outdated records.* Initial research indicates that nearly half of surface water rights (by volume) appear to be out of use; properties associated with the 478 original surface water rights has been

¹⁵ The Assessment chapter addresses the following questions:

- What are the uses and limitations of the existing Ecology water rights data?
- What is the history of WRIA13 water rights: When were they issued, for what purposes and within which watershed?
- What is the theoretical potential impact of approved water withdrawals on streamflow and lake levels?
- How does water rights volume compare with actual current use?
- Are there opportunities to improve water rights data, as a tool in future water resource management?

divided into approximately 5,168 parcels. Relinquishment of unneeded water back to the “pool” is fundamental to the water code – but has not been implemented in WRIA 13.¹⁶ As a result, the Ecology water right records are full of “junk” records that are indistinguishable from fully valid rights.

- *Poor implementation of the water right-related WACs* that Ecology adopted for our region. Two Rules adopted by Ecology are the WRIA 13 Instream Resource Protection Program, WAC 173-513; and the Reservation of Water Future Public Water Supply for Thurston County, WAC 173-591-010.¹⁷ As a pair, these have potential to help meet our twin objectives of protecting streamflow and meeting out-of-stream needs. They include both general policies and specific mechanisms to address thorny management issues like “exempt” wells. But weak, selective implementation by Ecology severely undercuts the usefulness of these State-adopted Administrative rules.

6. The legal status of many water allocations is uncertain.

- Claims can only be substantiated through court action, in the form of an adjudication. There has been no adjudication in WRIA 13. The Legislature is considering means to streamline this complex process.¹⁸
- Water rights can be “lost” due to relinquishment. Water law requires continued “beneficial use” of water rights. The legal concept is that when water is no longer needed for the original purpose, it goes back into the “pool” of available water to meet instream and out-of-stream needs. With several important exemptions, water that goes unused for 5 years is relinquished under current statute.
- Some vital water needs in WRIA 13 are potentially threatened with relinquishment. These include Long-Term Agriculture Areas. One state statute – the Growth Management Act – requires counties to designate and reserve lands having long-term agricultural potential. A different statute – the State Water Code – uses a short 5-year threshold to define “non-use” – much too brief to match the long-term public interest objectives of the GMA.

7. The Watershed Plan is intended by the Legislature to help define the “public interest” regarding water rights and other water resource issues.

The Legislature expressly directed that Ecology use watershed plans to help define “public interest” in reviewing water right applications and other actions. 2003 legislation (HB 1336) stipulates:

¹⁶ See RCW 90.14.130. Also discussed in Assessment Water Quality chapter.

¹⁷ See WAC 173-513 (Instream Flow Rule) and WAC 173-591 (Reservation.) These are also discussed in Technical Report.

¹⁸ See “A Report to WA State Legislature December 2003 from Water Disputes Task Force.”

“The department (Ecology) shall use the plan as the **framework for making future water resource decisions** for the planned watershed or watersheds. Additionally, the department shall rely upon the plan as a primary consideration in **determining the public interest** related to such decisions.” (RCW 90.82.130(4) in part)

8. Changes and transfers of unneeded valid water rights can help meet new needs for water.

“Recycling” of existing allocations to meet new needs is supported by the Legislature, including legislation enabling water conservancy boards and the “two lines” bill allowing change applications to be processed ahead of new water right applications. Thurston County established a Water Conservancy Board to help provide timely and thorough response to proposed water right changes.

9. In some cases transfers of water could potentially threaten vital water supplies for designated Agricultural and Growth areas.

Agricultural Lands: The Thurston County Comprehensive Plan identifies agriculture lands of “long-term commercial significance”, as required by the State Growth Management Act. These lands were zoned Long-Term Agriculture. The Comprehensive Plan recognizes the need to protect “an affordable land base, soil fertility, and **ground and surface water quality and quantity**, in order to maintain and enhance resource opportunities for existing and future generations” regarding agricultural production in Thurston County (Natural Resource Lands page 3-3.)

The Comp Plan also recognizes adaptability as key to agricultural success in Thurston County. Availability of water is essential to agriculture. Ecology allocated 2 acre-feet of water per acre almost universally for Irrigation water rights in WRIA 13. This is still a good benchmark for water use to grow water-intensive crops such as turf or nursery stock. These crops have increased in importance in our area in recent years. However, many Long-Term Agriculture zoned areas are not currently in high-water use crops. The existing “use it or lose it” relinquishment statute is a threat to protecting adequate water rights for these Long-Term Agriculture areas.

In the absence of a clear policy framework, Ecology and the Conservancy Board have little guidance regarding the public interest in retaining water rights with agricultural lands that have been designated for Long-Term Agriculture.

UGAs: Water is vital to meeting the needs of our growing communities. A host of legislation, including 2003 HB 1338, prioritizes use of existing water right allocations to meet future needs. Transferring existing water rights from within the Urban Growth Area to outlying areas is contradictory to the Growth Management Act and to the Reservation of Future Public Water Supply for Thurston County WAC 173-591.

A clear statement of public interest on this topic is required. Water rights have been transferred from the UGA to non-UGA development by action of the Water Conservancy Board and Ecology.

10. Recent legislation improved certainty for “inchoate” (unused) public water system rights – but left some important issues unresolved.

Recent legislation (HB 1388, the “Muni Bill”) attempted to improve certainty of water rights for expanding public water systems. All water rights held by government or private Group A Public Water Systems are now classed as “municipal purpose” water rights, which are exempt from relinquishment.

However, HB 1338 created unresolved issues including:

- Whether non-expanding water systems can legally have “extra” water volumes available for transfer,
- Whether transfer of municipal water rights to non-municipal purposes should be allowed, and
- How to achieve objectives for protecting instream flow while allowing expanding systems to employ their “inchoate” rights.

11. Additional water rights will ultimately be needed even with conservation and “recycling” of existing allocations, especially to provide potable supply.

Current WRIA 13 population of 144,000 is projected to grow to 223,000 by 2025. The long-range “full build out” population estimate for the planning area is 300,000 – twice the current population.

Long-range population projections for the WRIA are a key Plan element. Projections for the various jurisdictions in WRIA 13 are summarized on Table 5. “Capacity” projections are based on 2000 TRPC Buildable Lands data. At “capacity” development, WRIA 13 population would more than double - from the current population of fewer than 150,000 to nearly 300,000 at full capacity. For comparison purposes, the TRPC 2025 population projections are also shown. 2025 projections for the area in WRIA 13 total about 250,000. Nearly all land use and utility planning in the region utilizes the official “2025” forecast issued by TRPC in 1998.

For purposes of long-range WRIA planning, the “full-capacity” projection of 300,000 is proposed to be utilized – reflecting the extraordinary scope of the WRIA planning compared to capital facility plans and other planning normally conducted by local governments.

Table 5 – Long Range Population Projections for WRIA 13

	"Capacity" Update from 2002 "Developable Lands" Report"						2025 WRIA 13 Projecti on (TRPC, 1999)
	2000		Capacity (Households)		Household	Population	
	Dwelling Units	Populati on	Additional Capacity	Total Capacity	Size 2000 Census	At Total Capacity	
Jurisdiction							
Lacey	12,794	30,194	8,369	21,163	2.36	49,945	45,436
Lacey UGA	8,206	18,956	12,252	20,458	2.31	47,258	33,725
Lacey UGA	21,000	49,150	20,621	41,621		97,203	79,161
Olympia	19,692	42,535	12,819	32,511	2.16	70,224	56,955
Olympia UGA	3,804	8,331	8,666	12,470	2.19	27,309	22,047
Olympia UGA	23,496	50,865	21,485	44,981		97,533	79,002
Rainier	506	1,371	585	1,091	2.71	2,957	2,007
Rainier UGA	69	123	38	107	1.78	190	186
Rainier UGA	575	1,494	623	1,198		3,147	2,193
Tumwater	5,800	12,470	5,090	10,890	2.15	23,414	19,146
Tumwater UGA	1,227	2,896	5,918	7,145	2.36	16,862	7,171
Tumwater UGA	7,027	15,366	11,008	18,035		40,276	26,317
Subtotal UGAs	52,098	116,875	53,737	105,835		238,158	186,673
Unincorp. Rural	10,211	27,263	10,317	20,528	2.67	54,810	36,335
Total WRIA 13: Dwelling Units	62,309		64,054	126,363			
Total WRIA 13:	62,309	144,138				292,968	223,008

Long-range population projection utilized for WRIA 13 planning: **300,000**.¹⁹

12. *Mitigating potential impact of future proposed wells is critical to achieving the WRIA 13 mission: Protect aquatic habitat and provide water for vital community needs.*

Over much of our area, highly productive and interrelated aquifers appear to have some degree of "hydraulic continuity" with streams and lakes. WAC 173-513 prohibits "further consumptive appropriations" of surface waters. Ecology may not approve a water right that may have any impact on surface waters in a closed basin unless the decision can be justified based on the "overriding consideration of the public interest". This standard is identified in RCW 90.54 (The Water Resources Act of 1971) and is not well defined. Thus, Ecology cannot approve a water right with even a small degree of anticipated impact to stream flow or lake level.

¹⁹ See Assessment Chapter 3, "Land Use current and future."

Mitigation programs should *avoid* and *minimize* impacts to the extent feasible; and then provide *compensatory mitigation* for unavoidable instream flow impacts. A number of water right mitigation techniques have been utilized in various Ecology Regions around the state.²⁰ However, there is no comprehensive guidance from Ecology for applicants, permit staff or other interested parties regarding mitigation of water right impacts. In addition, the Southwest Regional Office of Water Resources has been very cautious in terms of approving mitigation strategies.

13. Exempt wells are a significant water use in Rural portions of the WRIA

“Exempt” wells (not required to obtain a water right) are a significant water use in “rural” WRIA 13. Exempt wells are estimated to serve about 15,000 residents (roughly ½ of the existing “rural” residents) through individual wells and small Group B water systems. The remainder of rural residents are served by several Group A Public Water Systems (15 services and over).

Total WRIA 13 exempt well withdrawal is estimated at 1,700 acre feet/year, which is about 12% of total residential use and about 7% of total groundwater withdrawal.²¹ However, as exempt wells are generally located in the shallowest adequate aquifer, exempt wells may have a higher potential to impact streamflow through continuity (“capture of surface water by wells”) than the deeper municipal and privately-owned Group A water system wells.

In the Deschutes watershed, exempt wells are a significant percent of current and future residential water use. As shown below, exempt wells serve over 40% of existing development outside the UGAs in both the upper and lower Deschutes.

Under full development at “Rural” zoning, there could be a four-fold increase in “exempt” wells in the upper Deschutes and nearly double in the lower Deschutes. Highly significant: Roughly half the *additional* development can occur through utilizing *existing* vacant lots that are at or under 10 acres (not dividable at 1 Unit 5 Acres zoning.)

Table 6 Exempt Well Water Use: Deschutes Watershed						
Current Rural Development Water Service			Potential Future Rural Res. Water Demand			Total
Group A Public Water Systems	Exempt Wells (Ind. & Grp B)	Sub-Total Current Use	Existing Vacant Lots	Additional Potential Lots	Sub-Total Future Use	Full Build Out Potential Use
625 ac ft/yr	500 ac ft/yr	1,125 ac ft/yr	500 ac ft/yr	600 ac ft/yr	1,100 ac ft/yr	2,225 ac ft/yr

²⁰ See Mitigation Measures Used in Water Right Permitting, April 2003, WA Ecology Water Resources Program.

²¹ See Table 1.

Some of the water provided through exempt wells is “capturing” groundwater that would have flowed into streams during the summer period. The impact on instream flow from exempt wells may be reduced through secondary recharge (water that returns to the groundwater after being used). In our region, USGS groundwater modeling used secondary recharge factors of 87% for on-site septic systems and 57% for irrigation, based on the best available data.²²

14. “Exempt wells” mean different things for the *water rights statute* versus *WRIA 13 Instream Flow rule*.

Small individual and group wells are essential to supply water for rural residences, since most rural areas are not served by an existing expanding water system. However, there is concern that in aggregate exempt wells can have as much instream flow impact as a single large well. In fact, smaller wells are often located in upper aquifers where instream flow impact may be greater than deeper community-supply wells.

A fairly broad set of wells is exempt from obtaining a *water right permit* from Ecology. The State Water Code exempts individual and small group residential wells and for small industrial use wells up to 5,000 gallons per day from obtaining water right permits.

A significantly narrower set of wells is exempt from *instream flow protection measures* by WAC 173-513, the Instream Resource Protection Program for WRIA 13. The WAC exempts only single-family wells – and requires use of an existing water source where one is available. This provision requires consideration of protecting critical stream flow while recognizing the need for adequate water supply for rural residences. However, Ecology has failed to implement this WAC. This failure threatens instream flow protection in upstream areas of our watersheds. Ecology failure to implement the Rule could also create legal uncertainty for wells installed without clear conformance to WAC 173-513.

ISF Exempt vs. Water Right Exempt	
<i>Exempt from ISF Rule review per WAC 173-513-070</i> • Single Domestic • Stock Watering (not feedlots)	Exempt from obtaining a water right per RCW 90.44.050 (limited to 5,000 gpd): • Single Domestic • Group Domestic • Stock Watering • Industrial

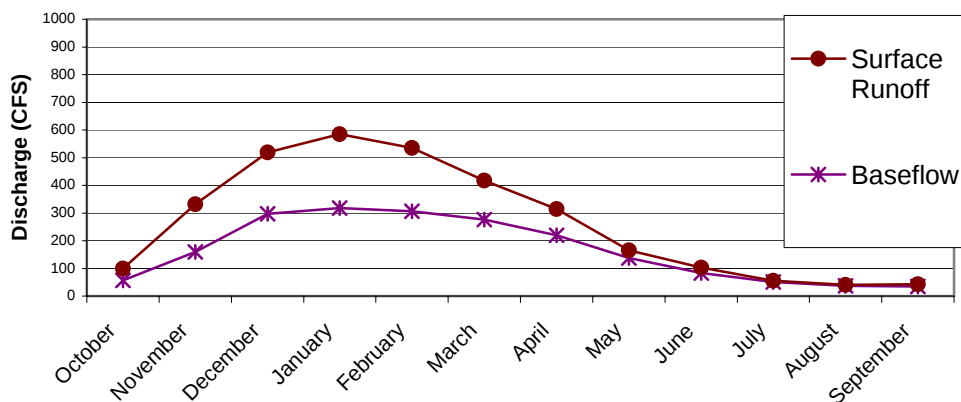
²² See Table B1 in Conceptual Model and Numeric Simulation of the Ground-Water-Flow system in the Unconsolidated Sediments of Thurston County, Water Resources Investigations Report 99-4165.

INSTREAM FLOW FINDINGS FOR WRIA 13

1. WRIA 13 streams are entirely dependent on groundwater input for summer flows. There is no “extra” summer stream flow to allocate.

Summer flows: In summer, flows in the Deschutes and other area streams are essentially 100% “baseflow” supplied by groundwater. There is no “extra” water during low flow conditions to allocate for out-of-stream uses.

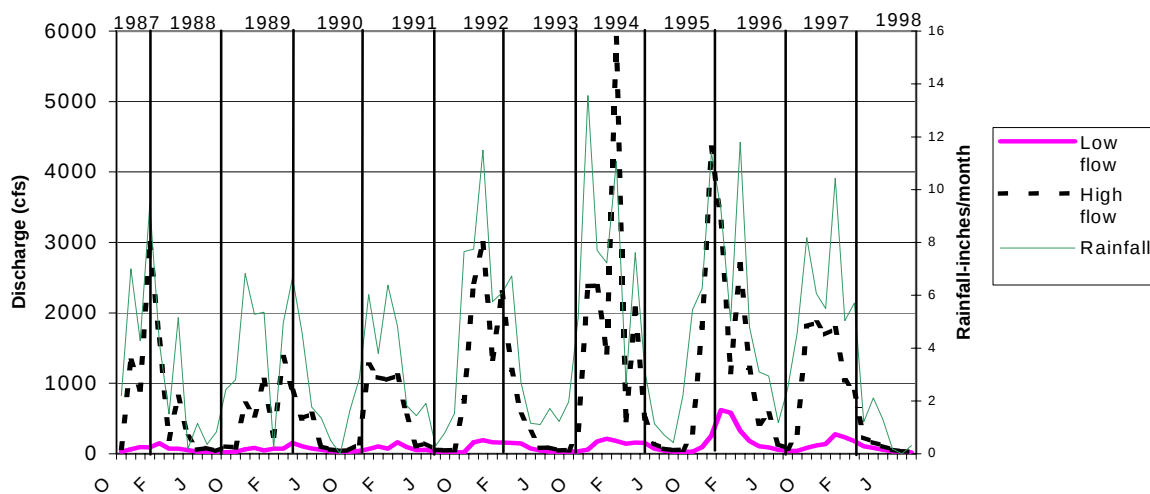
Figure 8: Rainier Station, Deschutes River: Monthly Mean Baseflow & Surface Runoff



Source: Estimated Baseflow Characteristics of Selected WA Rivers, Ecology 1999

Winter flow patterns: Even in winter, baseflow is a major component of stream flow. After rainfall-driven periods of high flow, our streams return rapidly to winter base flow levels. For the Deschutes at Rainier, storm-driven high flows of 2,000 to 4,000 cubic feet per second return to winter base flows of 200 to 400 cfs even during winter months.

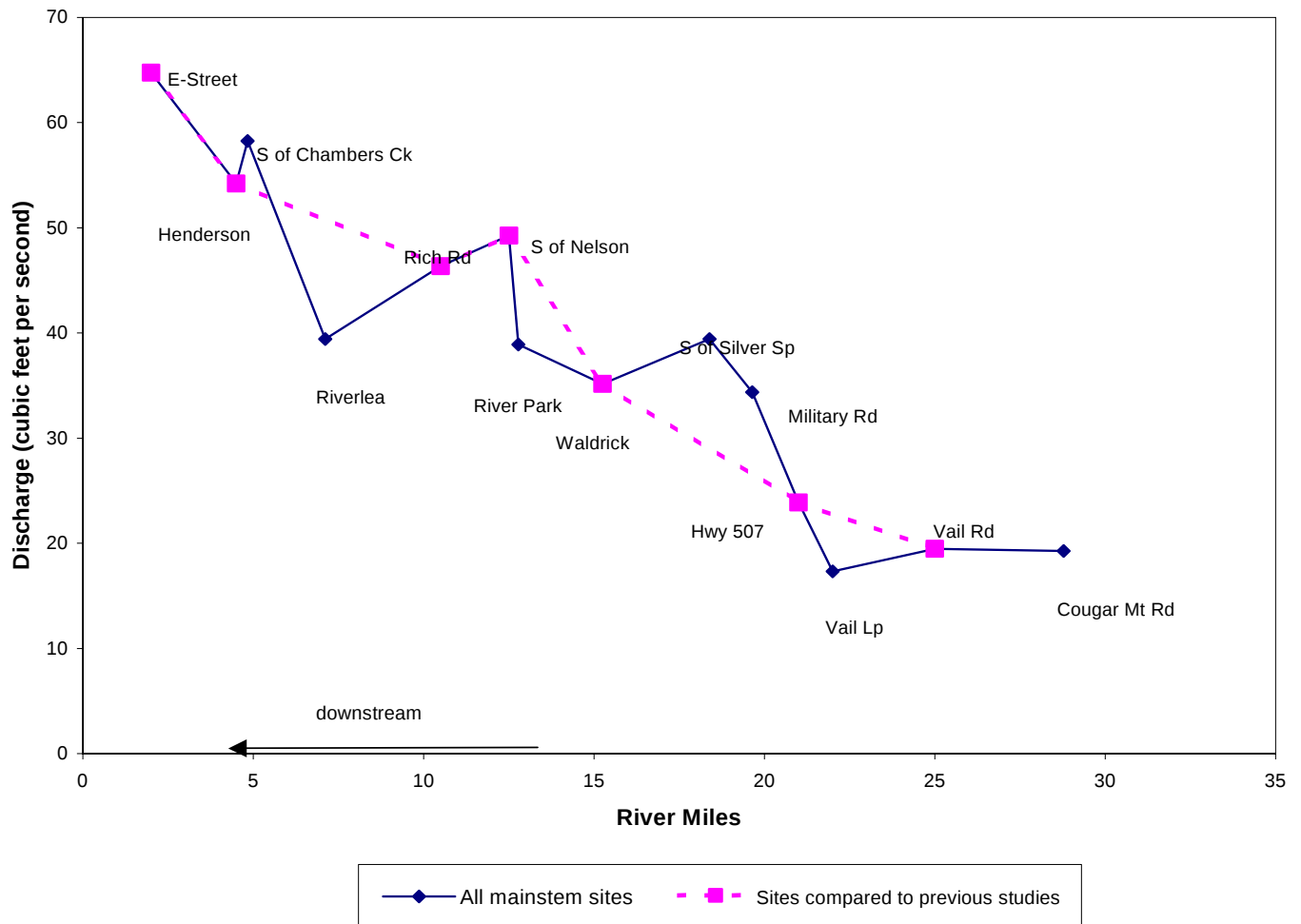
Figure 9: Deschutes Monthly High and Low Flows Station #12079000 (near Rainier) from 1987 -1998



2. Deschutes and Woodland Creek are "Gaining" streams

Our streams generally gain base flow from groundwater as they flow from headwaters

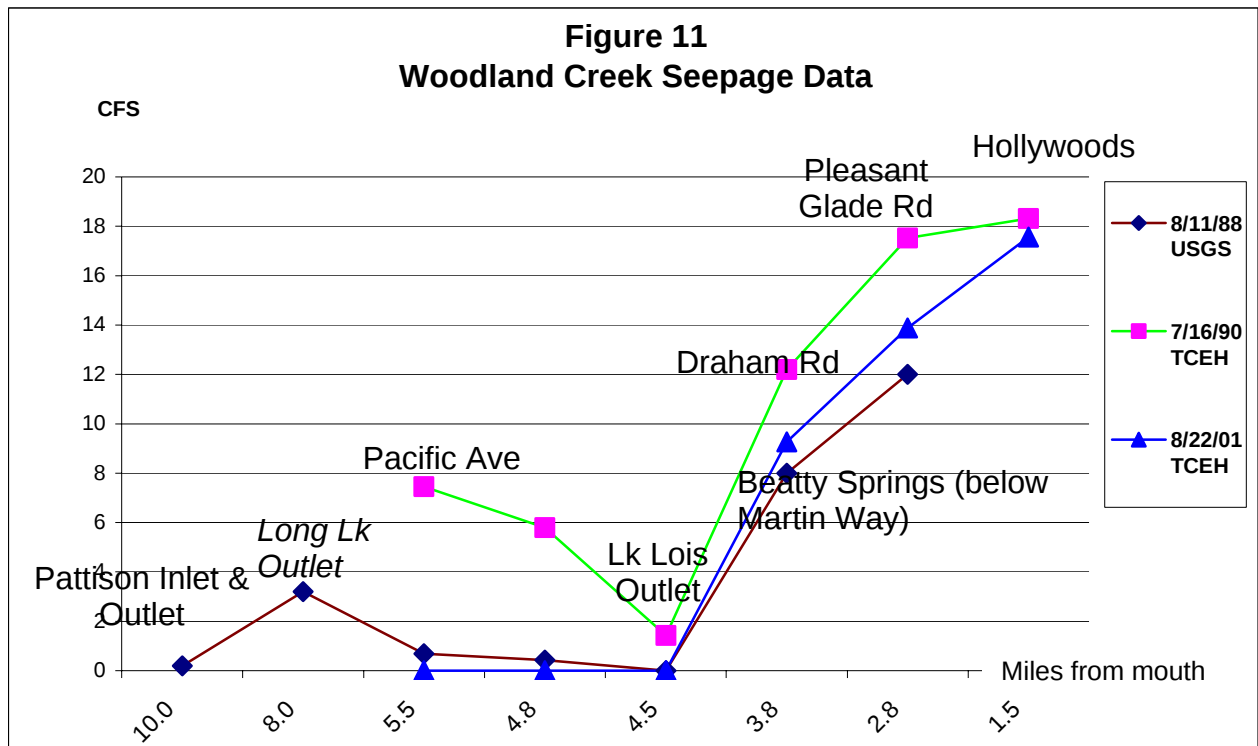
Figure 10: Deschutes River: 2001 Seepage Run vs Previous Seepage Sites



to mouth – with some segments that “lose” significant flow to groundwater recharge. This is clearly illustrated in low-flow “seepage studies” for the Deschutes River illustrated below. These are measurements taken over one or two days during the low flow period in summer at several sites in a river. A detailed study in 2001 revealed that previous studies – which measured flow only at public road bridges – had identified the general “gaining” streamflow from upper to lower river, but had missed the significant “losing” reaches that also exist along the stream corridor.²³ The dotted line is average flow from previous measurements at bridge crossings, while the solid line shows the more complex gaining/losing conditions documented in the 2001 field study.

²³ See “2001 Deschutes River Groundwater Inflow Study Report,” Thurston County Environmental Health, 2002.

Woodland Creek also gains streamflow from its start at Pattison Lake (shown at the left side of the graphic) to the mouth near Hollywoods subdivision on Johnson Point. A very



significant year-around flow is added at Beatty Springs, which is located just north of Martin Way. Above this point, the stream is often dry during summer months. As shown below, the creek was dry in the reach above Martin Way in the 1988 and 2001 field data collection years.²⁴ **There is evidence of increase in high-flow conditions over the past 50 years. This can be detrimental to instream habitat.**

Woodland Creek: Hydrologic modeling of streamflow change over time for Woodland Creek indicates a distinct shift to *increased time at high flows for the 2000 conditions* compared to the 1950's conditions.²⁵ Figure 1 illustrates percent of time the stream was at various flow levels in 1950 versus 2000 model conditions. Low base flows are similar for both time periods (around 10 to 14 cfs low base flow.) However, there is an increase in time at higher flows for 2000.

²⁴ See "WRIA 13 Instream Flow Recommendations – Woodland Creek Target Flow", Thurston County, October 2001. Includes summary of existing low flow ("seepage") data for the creek.

²⁵ "Woodland Creek HSPF Model Update", AQUA TERRA Consultants, July 2003.

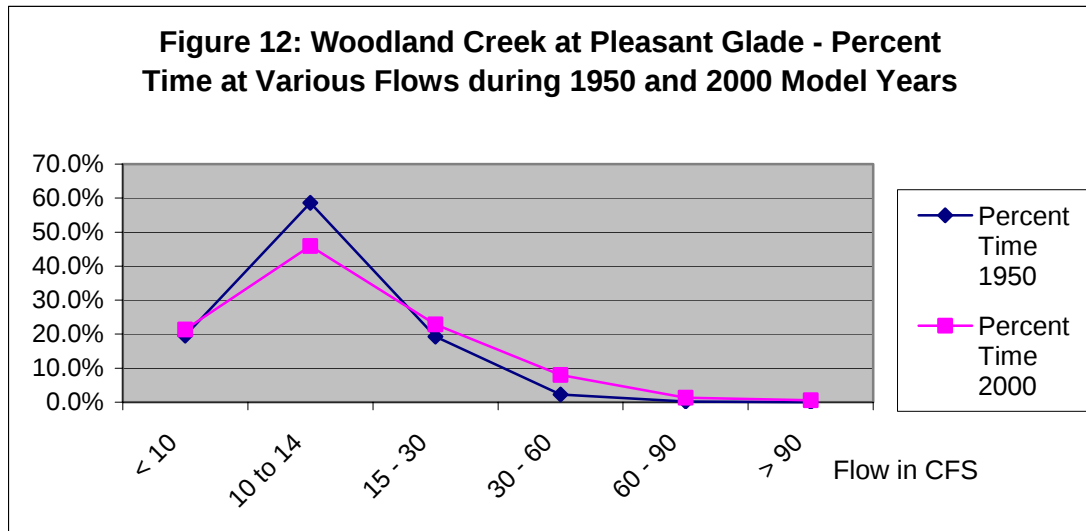
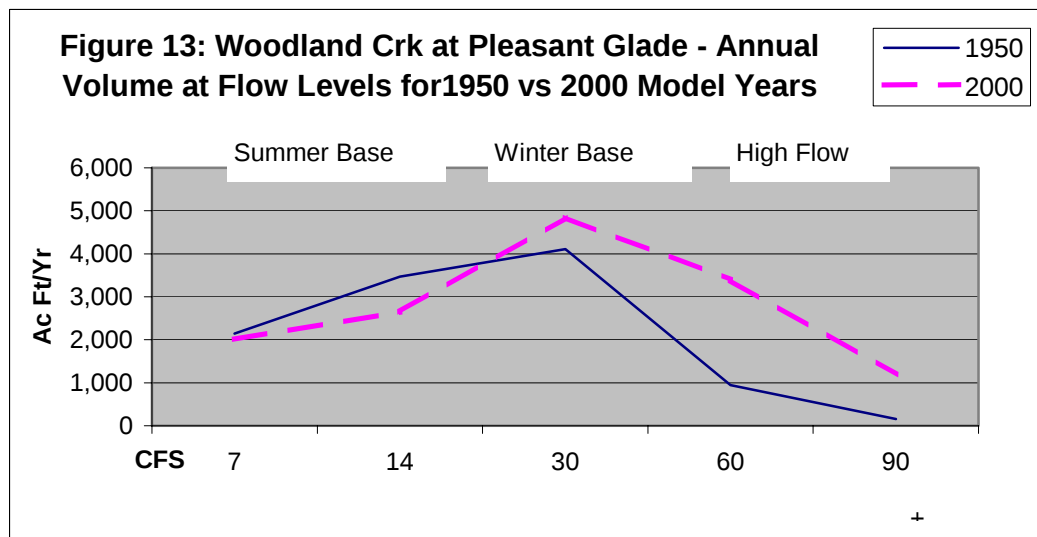


Figure 2 identifies *annual volume* carried by the stream at various flow levels. A relatively short period at high flow can convey a large volume of water. Viewed from this perspective, a considerable shift occurs between 1950 and 2000.



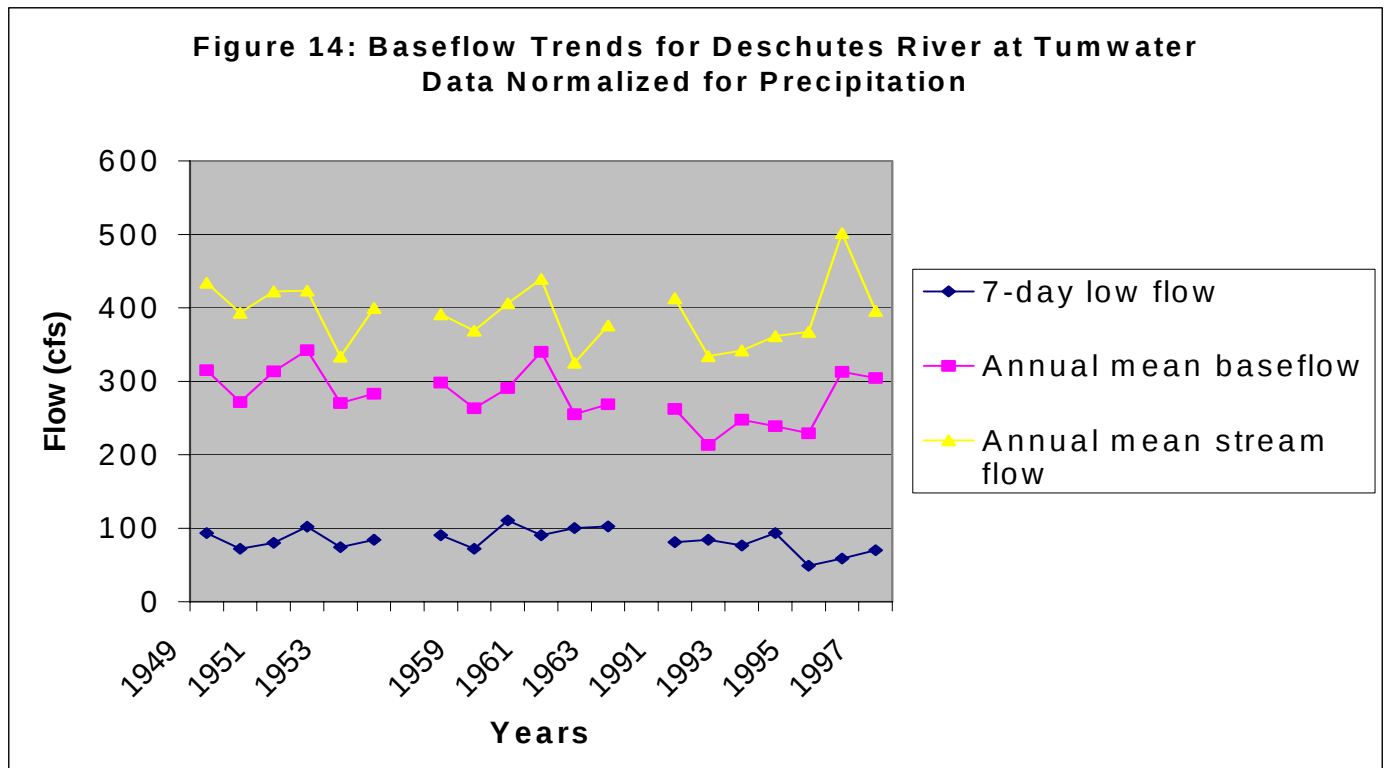
Change in high flow has implications for fish habitat. As stated in the Woodland Creek model consultant's report:

"Generally the results indicated that Woodland Creek experiences higher stream flows for longer periods of time than in 1950. This includes quick, flashy flood events that are more likely to cause erosive conditions in the stream channel and could be detrimental to some species of salmon."

Deschutes River: Analysis of streamflow data indicates a shift to lower "baseflow" and higher "runoff" between the 1949-63 period and the 1990's. A comprehensive

hydrologic model is not available for the Deschutes. Available data from the “E” Street gauging station indicates: ²⁶

- The annual mean “baseflow” declined from 293 cfs in 1949-63, to 258 cfs for 1991-97.
- Similarly, the mean 7-day low flow declined from 89 cfs for the 1949-63 period to 73 cfs during 1991-97. Baseflow and 7-day low flow are illustrated on Chart 1.
- Corresponding to the reduction in baseflow, the “surface runoff” component of flow increased from a mean of 100 cfs for 1949-63 to 130 cfs for 1991-97.²⁷



²⁶ For the Rainier gauging station, the data set is somewhat more complete. However, the thin soils above this station do not support significant baseflow. In addition, many of the human activities that may affect streamflow occur below this gauging station. Thus, E Street data was used for this analysis.

²⁷ Important limitations of the Deschutes data analysis include:

- The data gap from 1963 to 1991 precludes a solid understanding of long-term streamflow trends. The resulting data only shows the differences in mean values for the two data sets in question, '49-'63 and '91-'97.
- The limited size of the data sets poses a challenge for valid statistical analysis.
- A simplistic approach utilizing current year rainfall data was taken to normalizing high and low streamflow data to precipitation.

4. Existing “paper” rights to divert surface water equal a significant portion of summer low-flow.

Comparing water right record maximum allocations to streamflow provides a theoretical worst-case condition: Assuming all rights are valid and all are used at the maximum allowable level, what potential impact could occur to streamflow? While extreme from a *practical* standpoint, water right volumes represent *allocations* from the total water resource for specific purposes.

Surface water rights are a particular concern for impact on streams, lake and spring sources. Surface rights specify the *waterbody* from which withdrawal is authorized. This section examines the quantity of water associated with these water rights.

Deschutes River Surface Rights

A total of 41 surface water rights have been issued for withdrawal from the Deschutes River, with an additional 96 rights issued for tributary streams and springs. Only a handful of large Deschutes surface rights comprise most of the volume – the 11 largest permits (out of 137 total) contain 74% of instantaneous volume and 65% of annual quantity related to all 137 surface rights to the Deschutes and tributaries.

Table 7

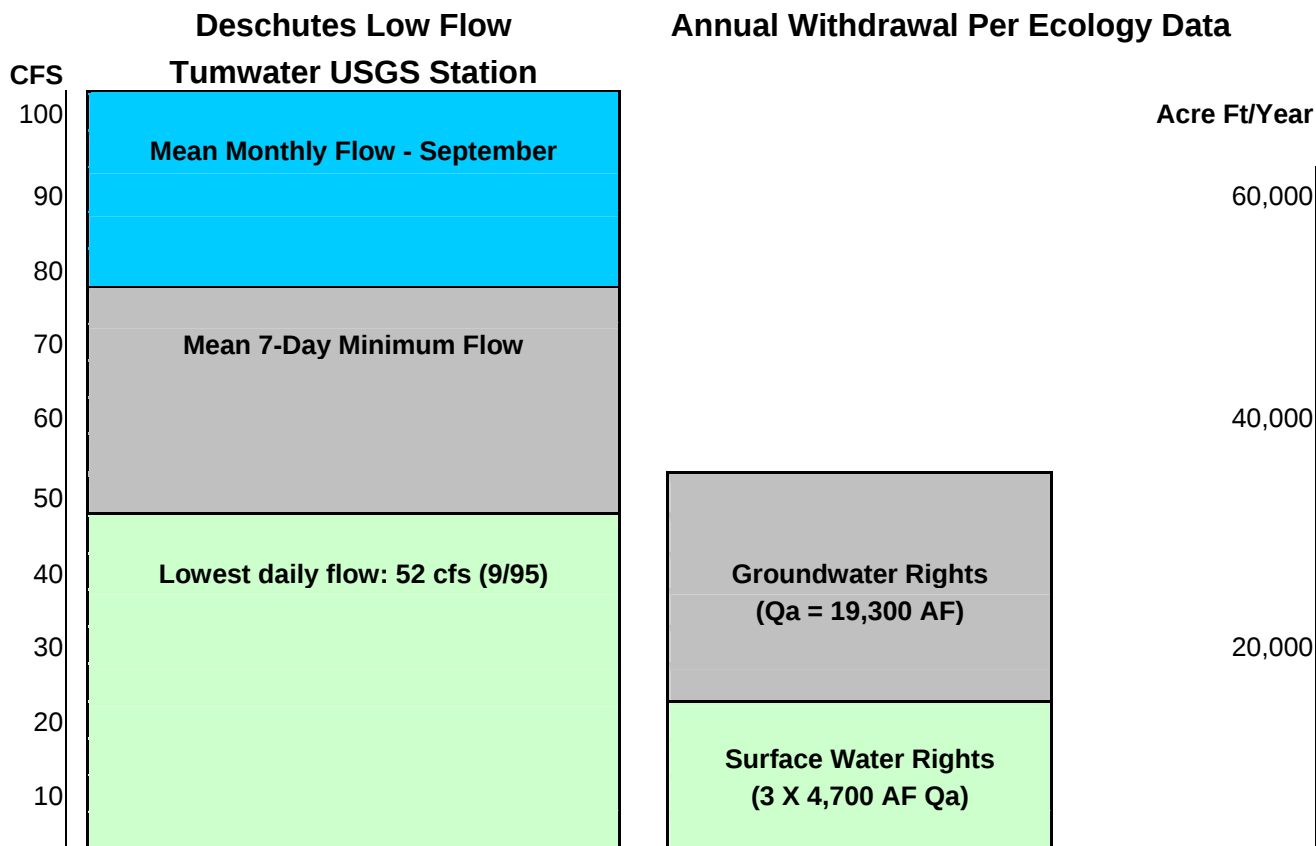
SURFACE WATER RIGHTS IN THE DESCHUTES BASIN SUMMARY BY SIZE OF PERMIT OR CERTIFICATE

		No. of Permits		Instantaneous		Annual Quantity		Irrigated Area	
		#	% of Total	CFS	% of Total	Acre Ft	% of Total	Acres	% of Total
MAINSTEM									
Qi	> 1 CFS	5	12%	7.89	57%	790	39%	345	38%
Qi	.5 - 1 CFS	6	15%	2.38	17%	530	26%	265	29%
Qi	.1-.5 CFS	12	29%	2.80	20%	521	26%	258	28%
i	< .1 CFS	18	44%	0.86	6%	160	8%	50	5%
		41		13.93		2,001		918	
TRIBUTARIES									
Qi	> 1 CFS	0	0%	0.00	0%	0	0%	0	0%
Qi	.5 - 1 CFS	7	7%	0.15	1%	5	0%	4.5	0%
Qi	.1-.5 CFS	26	27%	3.34	23%	520	26%	229	23%
Qi	< .1 CFS	63	66%	10.91	76%	1,456	74%	745	76%
		96		14.40		1,980		979	
TOTAL		137		28.32 cfs		3,981		1,897	

Deschutes Water Rights Compared to Streamflow

On paper, rights to divert Deschutes surface water (mainly for irrigation) equal about 20% of mean September flow and nearly ½ of the lowest recorded daily flow. If all groundwater rights were in full continuity with the river, total water allocation would theoretically equal about ½ of September mean flow and exceed the lowest flow in the river.²⁸ Flow values on the chart below are additive.

FIGURE 15: DESCHUTES WATER RIGHT ALLOCATIONS VS LOW FLOW



The 1995 Initial Watershed Assessment WRIA 13, Ecology Open File Report Fig 5-10, correlated streamflow in cfs to annual volumes in acre-feet. From page 26:

"The minimum flow data, read on the acre-feet axis, gives the annual volume which would result from the minimum flow occurring for a full 365-day period." 1995 Fig. 5-10 compared all WRIA 13 water rights to Deschutes low flow, as assessing Ecology water right data by basin was not included in the 1995 scope of work.

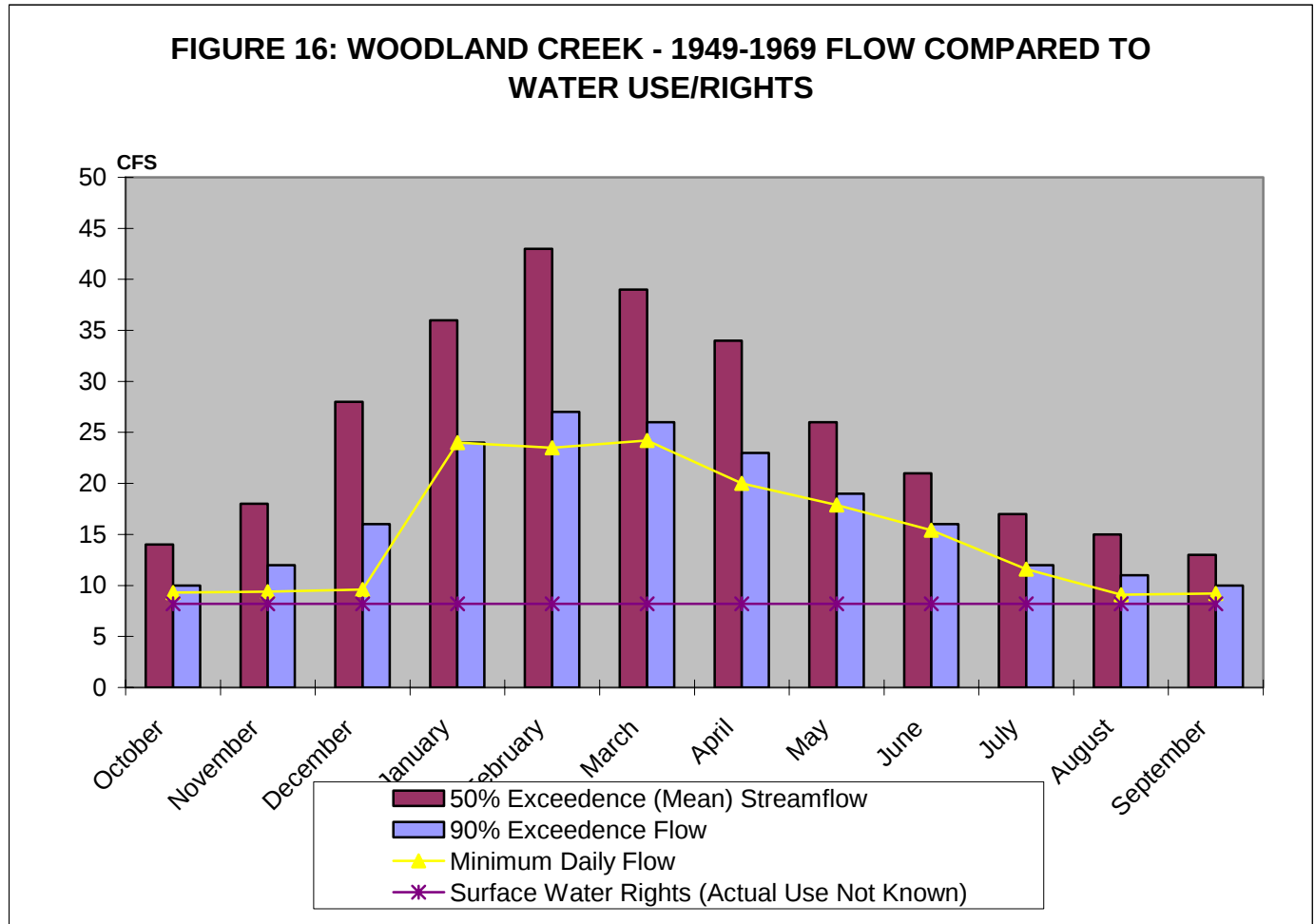
²⁸ An extreme worst-case assumption is made in this analysis. All groundwater rights are assumed to be in 100% continuity with surface waters. Actual continuity conditions are highly variable depending on aquifer conditions, distance from river and other factors.

Surface right appropriation volumes are assumed to be fully utilized during the irrigation season in this analysis (irrigation ramping up and tailing off in June and October, with highest irrigation in July-September). While most surface rights were for irrigation, some surface rights support industrial activities such as gravel mining which may not be limited to summer withdrawal. For this worst-case comparison, all surface rights are assumed to be summer-period withdrawals. Groundwater rights for irrigation are also allocated solely to the summer period.

This update compares Deschutes basin water right records to Deschutes low flow values.

Woodland Creek Rights versus Streamflow

The only continuous period of streamflow record for Woodland Creek is 1949-69. Monthly flow from this period is compared to volume in surface water rights to the creek and tributaries. As can be seen, surface water right volumes theoretically nearly equal minimum flow during summer.



5. Linkage between Federal reserved tribal water rights and protecting instream flow are implied but not quantified.

While the extent of Tribal water rights has not been legally resolved, the existence of Tribal rights reserved by the Federal government serves to reinforce the central role of protecting instream flow for water resource management in WRIA 13.

Federal reserved water rights including rights reserved to tribes are outside the entire State-regulated water right arena. Rights reserved to tribes are senior to all State-regulated water rights in our region, dating back to “time immemorial” or at least to the date that the Indian reservation was established. Federal reserved rights are based on principles of sovereignty, not documentation of beneficial use as required for State

water rights. Federal reserved rights are not subject to relinquishment for non-use and do not require approval from the state for change or transfer.

Treaty fishing rights imply a federally protected water right in instream flow to maintain fish. While this is clearly implied in legal cases including the Yakima adjudication case (“Aquavella II”), the precise nature and extent of such rights has not been conclusively determined.²⁹

6. Protecting instream flow in WRIA 13 was a concern of State resource agencies for over 50 years, culminating in the 1980 Instream Flow Rule.

State resource agency administrative actions from 1940 to 1972 established instream flow protection on 13 specific waterbodies in WRIA 13. Surface water rights issued during this period often included instream flow protection. For example, many surface right holders must curtail diversion when their stream falls below a specified low flow.

In 1980, the WRIA 13 Instream Resource Protection Program (often called the Instream Flow Rule) was adopted as WAC 173-513. This rule consolidated all earlier regulations and applies to all streams and lakes in the WRIA. The rule establishes a formal “water right” for streamflow under the State water resources management program. No water rights can be issued by Ecology that are “consumptive” of critical streamflow or lake level.

7. Ecology’s lack of implementation of a comprehensive water rights management structure undercuts potential future opportunities for creative solutions.

Ecology has not fully implemented the 1980 Instream Flow Rule and has failed to provide oversight of water right conditions of approval. These past administrative shortcomings threaten to undermine potential future opportunities for creative water resource management solutions.

- **Exemptions from Instream Flow Rule:** In WAC 173-513-070, the Department of Ecology expressly provided a narrow window of exemption from the WRIA 13 IRPP. The only post-1980 water uses *exempted* from the rule are 1.) Single domestic wells where no alternative source is available, and 2.) Stock watering. The concept is that these small water uses have minimal impact on instream flow and are essential to make use of property in many rural areas.³⁰ This window is

²⁹ The information in this section comes from Federal and Indian Reserved Water Rights: A Report to the Washington State Legislature by the Office of Attorney General, October 2002. Authors are Jim Pharris, Mary Sue Wilson and Alan Reichman, Assistant Attorneys General. A useful summary table of the differences between state-based and Federal reserved water rights is provided on page 15 of the report.

³⁰ The exemption provisions of the Rule also 1.) Allows Ecology to limit individual wells to in-house use if cumulative effects on streamflow are a problem and 2.) Stipulates that “feedlots” are not allowed under the stock watering exemption.

significantly narrower than the exemption from obtaining a formal water right, which accommodates multiple domestic units and industrial uses up to 5,000 gallons per day. Despite the explicit language in the IRPP WAC, Ecology has not systematically applied the rule to new wells that are not subject to water right review. In rural areas, small wells exempt from water rights can be a significant fraction of groundwater withdrawal. Small group domestic wells and other water right-exempt wells are often located in the upper aquifer where instream flow continuity is most pronounced. Thus, Ecology failure to implement may be adversely affecting instream flow.

- **Conditions of water rights:** For several decades, Ecology (and its predecessor) placed instream flow-related conditions on water rights. However, Ecology has not provided oversight to ensure compliance with these conditions, such as curtailing diversion during critical low-flow periods.

New concepts to meet our future water resource management challenges - such as mitigating instream flow impact from new water rights - are dependent on effective Ecology administration of water rights. The past track record is a significant impediment to considering future innovations.

8. Some vital provisions in the 1980 Instream Flow Rule are seriously outdated or superceded by case law.

Outdated sections include:

- **Applicability to groundwater rights:** The 1980 WAC text sounds like groundwater rights are generally **not** subject to the Instream Flow protections. However, Ecology practice and case law (especially the Washington State Supreme Court's 2000 *Postema* decision) require that groundwater proposals be fully reviewed for potential instream flow impact. In reality, no groundwater rights that are "consumptive" of critical streamflows can be approved.
- **"Low flow" for winter Deschutes, Green Cove Creek and Adams Creek:** To provide a basis for the "Shellrock Dam" proposal from Olympia, the 1980 rule includes winter minimum flows for the Deschutes.³¹ Earlier administrative low flows set for Green Cove and Adams creeks were incorporated into the 1980 rule. These specific low-flow values do not add to effective instream flow protection and could be construed to allow further allocation of surface water.

³¹ The basis for the 1980 Rule provisions for Deschutes winter minimum flow is described in the technical report Deschutes River Basin Instream Resources Protection Program Including Proposed Administrative Rules (WRIA 13), Ecology, June 1980:

"The reason for not proposing closure of the Deschutes River year round is to retain the option of development of environmentally sound storage projects in future years that could make use of winter flows for a variety of potential uses including hydroelectric power generation, municipal and industrial water supply, release of stored water to support fish, wildlife, and water quality enhancement during low flow periods.

During 1968-1969, a proposal to construct the Shellrock Dam was reviewed by Ecology at the request of Olympia. The City of Olympia no longer has any plans to construct the Shellrock Dam. Recent city plans call for the development of ground water resources in the vicinity of East Olympia, and additional withdrawals from McAllister Creek in nearby WRIA 11 (Nisqually Basin.)"

9. Supplementing the existing regulatory Instream Flow Rule with a management-oriented “target flow” is not recommended at this time.

Recent instream flow setting guidance from Ecology and WDFW provides general support for the concept of a dual-flow approach - a high regulatory flow “bar” to protect instream resources from future water right actions, and a second management flow curve related to stream flow objectives. This management-oriented flow is often referred to as a “target flow”. In concept, it could provide the basis for efforts to directly improve streamflow conditions, such as buying existing water rights or other measures to increase flow during the summer.³²

As a test case, the WRIA 13 project examined potential for a “target flow” for Woodland Creek, to supplement the regulatory 1980 Instream Flow Rule. The project examined preferred flows for fish; modeled 1940s versus current flow conditions; and examined feasibility of a management-oriented “target” flow. Outcome: The technical basis for a “target” flow is weak; management-type flows can be identified and utilized without amending the rule; and Ecology needs to focus on implementing the 1980 rule. Thus, a supplementary “target” flow is not recommended for any WRIA 13 streams at this time.³³

WATER QUANTITY RECOMMENDATIONS

Introduction

Conservation and efficient use of water are core principles in Washington water resource statutes. Legislatures have declared the need for efficiency and conservation for nearly 100 years. Actual implementation of water efficiency has often fallen short of legislative objectives.

Watershed planning under RCW 90.82 is an opportunity to re-examine WRIA-specific opportunities for water use efficiency and conservation actions. This section addresses Recommendations for Conservation and Water Use Efficiency. All recommendations are potentially applicable WRIA-wide.

CONSERVATION AND WATER USE EFFICIENCY RECOMMENDATIONS

Conservation And Water Use Efficiency Findings Summary

The following briefly summarizes the key Findings identified for Conservation and Water Use Efficiency in the preceding section:

³² “A Guide to Instream Flow Setting in WA State”, Ecology/WDFW, Publication No. 03-11-007, March 2003. Page 22.

³³ See “Project Completion Report: WRIA 13 In-stream Flow Recommendations – Woodland Creek Target Flow” available from Thurston County Department of Water and Waste Management.

1. The two fundamental water resource challenges in WRIA 13 are protecting instream flow and providing water for our growing communities. A regional conservation framework could emphasize the linkage between meeting out-of-stream needs, and instream flow protection and restoration.
2. Conservation should be balanced between cost to the water user and protection of the common water resource. This approach is endorsed in the “maximum net benefits” approach of Washington water law (RCW 90.54.)
3. All water users should apply cost-effective conservation. While it is important to address our largest uses of water, we also need *equity* in effort and in compliance with State water law. All sectors and sizes of water users should do their part to conserve our common water resources.
4. Conservation planning processes need to provide flexibility for water utilities and water users to invest in the most appropriate measures for their particular circumstance. These processes should also provide accountability for timely implementation of conservation.

The following recommendations address these key issues.

Conservation Recommendation 1:

Design a regional conservation framework linking instream flow protection with water for our growing communities.

Our region’s fundamental water resource issue is protecting instream resources during the critical low-flow period while providing water for our growing communities. But while groundwater withdrawals for the larger utilities are near the bottom of the Deschutes basin, the need to protect instream flow is greatest further upstream. On paper, rights to divert Deschutes surface water for irrigation and other uses equal about 20% of mean September flow and nearly ½ of the lowest recorded daily flow.³⁴ While many of these rights are unused or only partially used in most years, full utilization of existing surface water diversion rights could significantly affect summer streamflow for the Deschutes and other streams.

A regional conservation framework focused on instream flow protection and restoration could directly address this management issue. A regional framework could complement conservation planning by the larger utilities, which focuses on utility water source capacity and utility customer conservation.

Recommended action:

Initiate a workgroup to begin designing a regional conservation framework. Participants would need to include the expanding private and government Public Water Systems, tribes, resource agencies, major irrigators, Utilities and Transportation Commission and others. Initial concept of such a plan:

- Identify those water users with the greatest potential impact on instream flow, particularly water users relying on direct diversion from streams or lakes.
- Identify potential alternate sources or other opportunities to reduce instream flow impact, along with potential funding sources.

³⁴ See Water Quantity Findings report Section 3, Instream Flow

- Prioritize implementation of actions with highest benefit to instream flow and greatest feasibility for implementation.
- DOH and the UTC should be asked to incorporate this strategy into review of water system plans and proposed rate structures for public water systems.

Conservation Recommendation 2:

Maximize feasible use of Reclaimed Water given best science and current state and federal laws.

As LOTT reclaimed water becomes available, this new water resource should be utilized via the north Thurston County city water utilities where feasible for uses including:

- Converting existing city irrigation water customers such as parks and schools to reclaimed water;
- Providing water to independent irrigators with independent water sources, such as golf courses
- Commercial/industrial non-potable uses such as toilet flushing and industrial process water.

Much of the planning and implementation for reclaimed water use will be conducted by the individual city water utilities. However, several region-wide and state-level issues need be addressed to remove impediments or provide support for actions by the individual utilities.

Recommended actions:

Regional issues recommended for action are:

2 a: Track and evaluate emerging research on reclaimed water issues.

Emerging issues such as residual hormones in reclaimed water should be tracked and reclaimed water management programs adjusted as needed, to maximize beneficial use while protecting the environment and public health.

2b. Create a conceptual map of the regional purple pipe trunk line system.

An entire new pipe system will be needed to deliver reclaimed water throughout the region. Laying out the general location of this network should involve both the city water utilities and LOTT. When major road reconstruction is planned or other opportunities arise, the general plan will guide installation of purple pipe to meet long-range needs. This effort could also provide a conceptual-level estimate of the investment required to make reclaimed water use a reality in this region.

TABLE 8: LOTT RECLAIMED WATER PROGRAM			
LOTT Reclaimed Water Facilities	Target Date: Phase 1	Initial Capacity	Ultimate Capacity
Budd Inlet WWTP	Jan. 2004	1 mgd	3 mgd
Hawks Prairie Satellite	2006	1 mgd	5 mgd
Airport/West Satellite	2014	1 mgd	5 mgd
Chambers Prairie Satellite	2016	1 mgd	5 mgd
TOTAL RECLAIMED CAPACITY		4 mgd	18 mgd
Budd Inlet Plant Current Flows		17 mgd average 15 mgd dry weather flows	

2c. The cities should define reclaimed water use “zones”, where reclaimed water will be provided in the foreseeable future as a source for non-potable uses such as toilets in commercial and multifamily structures, industrial process water and landscape irrigation. Within these “zones”, new development should install pipes and plumbing to utilize reclaimed water when it becomes available. Incentive programs need to be designed to avoid driving development away from these areas due to increased costs.

State issues recommended for action are:

2d. Request State financial support for purple pipeline systems. Financial support is vital if we are to achieve re-use of reclaimed water in the coming years. If we rely solely on traditional funding approaches such as developer extension of pipelines, it will be many decades (if ever) before we have a functioning reclaimed water distribution system. State financial support may be vital to initiating use of reclaimed water in our region and other areas of Washington.

2e. Excessively stringent State standards should be revised, such as the separation requirements for purple pipe from other pipelines. State standards need revision to make reclaimed water economically viable while protecting public health. Some current requirements are excessively costly, such as the required 10-foot separation of purple pipe from both potable water and sewer lines. States with long experience in reclaimed water should be consulted on standards that protect public health while avoiding extraordinary costs for reclaimed water pipes and other facilities.

2f. Use of reclaimed water for water right mitigation or credit should be supported by Ecology and State Department of Health. State agencies need to support water utility investment in planning and capital projects to use reclaimed water to mitigate instream flow impacts of water rights. Reclaimed water should have a strong role in protecting instream flow while allowing utilities to utilize groundwater vital to our communities.

Ecology should fully implement the policy direction contained in Policy 1021 “Priority Processing of Water Right Applications” (adopted in January 2004). This policy supports priority processing where reclaimed water will ensure the “nonconsumptive” nature of a proposed water right. Ecology should extend the same policy direction to all facets of water right review and approval.

Conservation Recommendation 3:

Request that DOH consider requiring service meters for new public water systems serving seven or more residences.

Price response, education and consumer awareness are fundamental to conservation, especially to reduce non-vital seasonal irrigation use. Metering and conservation-oriented rates are important tools for encouraging conservation. However, many

smaller public water systems and community-owned systems do not have meters. DOH should consider requiring metering and conservation rates or equivalent alternative measures by all new Group A and Group B public water systems with seven or more customers. It is too onerous to require meters for the smallest water systems (6 or fewer hookups.)

Recommended action:

DOH should consider requiring metering for all new water systems exceeding 6 connections. If necessary, DOH should revise State rules or request State statute revision to accomplish this objective. This would require coordination with Thurston County Environmental Health, which under agreement from DOH regulates Group B water systems (14 or fewer services.) DOH would also need to work with the Washington Utilities and Transportation Commission, which provides rate oversight for investor-owned water systems.

Conservation Recommendation 4:

Ensure that Public Water System Conservation Plans are consistent with WRIA Watershed Plan objectives.

Under HB 1338 (“Muni Bill”) adopted in 2003, DOH is tasked to adopt new requirements for conservation planning by public water systems by the end of 2005. Opportunity for public input on proposed conservation plans is required by the legislation. DOH will develop detailed conservation planning guidelines to meet the new requirements.

Recommended action:

The WRIA 13 Planning Committee recommends the following for inclusion in the new DOH conservation plan requirements:

- Water system conservation plans should specifically identify their conformance with conservation objectives of this Chapter.
- Watershed planning committees, tribes, local governments and other interested parties should be included in distribution of proposed conservation plans for public review.

Conservation Recommendation 5:

Design and implement a water supply management framework for independent irrigation and industrial water users within WRIA 13

In WRIA 13, nearly all farms and golf courses, and several industrial operations, provide their own water from independent water sources. Thus, there is no rate-driven incentive for conservation for these self-supplied water uses. Additionally, in most cases there has been no systematic State oversight of these independent water users. These independent “non-municipal” water users total about 25% of estimated water use in WRIA 13, excluding smaller wells exempt from obtaining a water right permit,

These independent water suppliers also lack certainty of supply to protect water right volumes when conservation is instituted. Under current statutes, conservation efforts by these independent water suppliers could result in partial relinquishment (loss) of water rights after several years of reduced use, as this could be viewed as “unneeded” water and returned to the overall water “pool” by action of the Department of Ecology.

Recommended actions:

The following Legislative, administrative and incentive actions are proposed to improve water use management by these independent water suppliers:

5a. The Legislature should revise statutes to address “use it or lose it” problems, through balancing increased requirements for conservation with improved certainty for water rights. Under current statutes, non-municipal water users could lose water rights as a result of conservation achievements. Incentives for conservation need to be built into statute, including protection of actively conserved water from water right relinquishment. Statutory revisions should avoid extending relinquishment protection to water held for purely speculative purposes.

5b. Ensure compliance with conditions of water right and development permit approval for independent water suppliers.

- Ecology water rights: Various statutes and permit conditions direct water right holders to use water efficiently. Other water right permit conditions specifically limit water use to protect instream flow. The larger water users should be a priority for pursuing compliance with these conservation-oriented statutes and conditions.
- Local government land use permits: Thurston County and the cities should ensure compliance with water resource-related conditions of permit approval for golf courses and other development projects with independent water supplies. For example, land use permits for golf courses often include fertilizing and pesticide use conditions of approval intended to protect groundwater quality. Compliance with these conditions should be assured by local government oversight.

5c. Improve agricultural water use efficiency, especially within Long-Term Agriculture Areas. The Department of Ecology, Thurston Conservation District and other agencies should work with agricultural operators to improve water use efficiency. Long-Term Ag areas should be one focus for such efforts, given the policy intent that these lands remain in agricultural use for the foreseeable future. Efficiency programs should also consider measures to reduce impact on instream flow, such as incentives to shift from surface water diversion to wells into deeper aquifers.

A water trust or water bank program may be a useful innovative mechanism to help implement agricultural water use improvements, especially ag water use conflicts with instream flow. In these cases, mitigation funds from municipal water right

applicants and other innovative local funding sources could be used to support implementation of agricultural water efficiency incentives. .³⁵

³⁵ A trust water program is authorized by RCW 90.42.050(d). Purposes listed in the statute include “improving streamflows on a voluntary basis, providing water right mitigation, or reserving water supply for future uses.” The most comprehensive water bank program in Washington State is the Yakima basin program. More information is available at www.roundtableassociates.com/ywe.

RECOMMENDATIONS TO IMPROVE WATER RIGHT MANAGEMENT

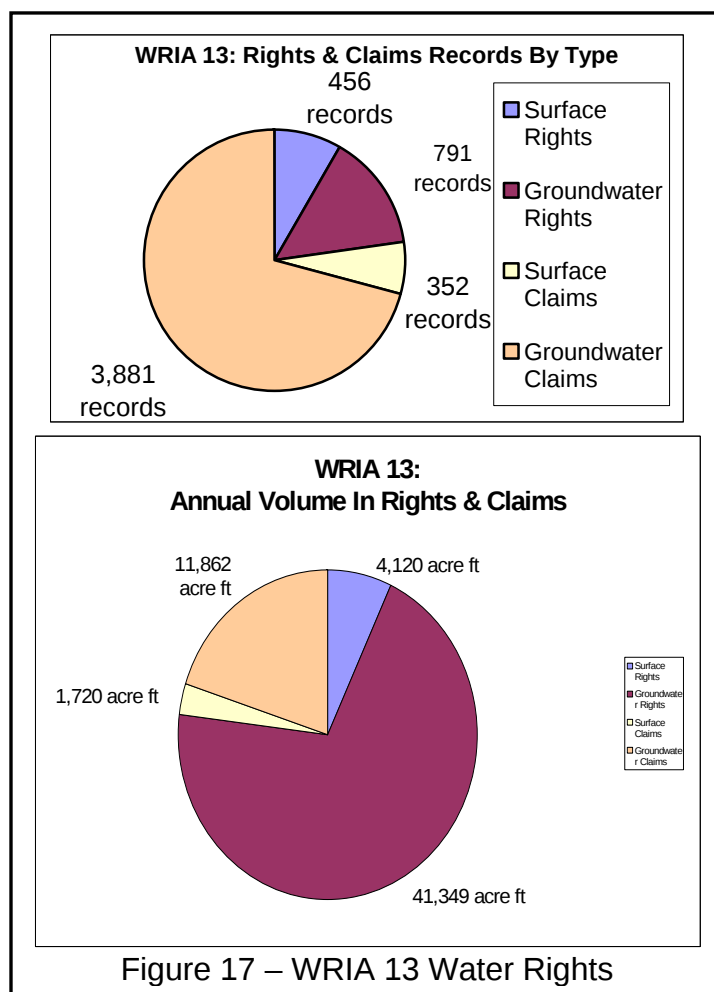
Introduction

Water rights are fundamental to water resource management. The Watershed Planning Act (RCW 90.82) specifically requires assessment of water rights data as part of watershed plans. Further, the Legislature intends that Watershed Plans be a principle guide for Ecology to determine “public interest” regarding water right applications and other future actions.

Water Rights Findings Summary:

The following section summarizes core issues regarding water rights described in the Findings section:

1. Water rights are key to water management. However, Ecology has not adequately implemented statutes, rules or conditions of approval for specific water rights.
2. The legal status of many water allocations is uncertain. In the case of claims, only a General Adjudication through Superior Court can completely resolve legal status. Ecology has legal authority to seek relinquishment of unused water right certificates. However, administrative mechanisms have not been actively utilized to maintain water right records.
3. The Watershed Plan is intended by the Legislature to help define “public interest” regarding water resources. Local public interest issues include harmonizing water rights management with land use policies related to Long Term Agriculture Areas and Urban Growth Areas.
4. “Inchoate” water rights (rights approved but not yet put to beneficial use) held by public water systems are a potential supply for future needs. However, HB 1338 (the “Muni Bill”) raises unresolved issues regarding instream flow protection and non-expanding water systems.



5. Additional water rights will ultimately be needed even with conservation and “recycling” of existing allocations, especially to provide potable supplies. *Mitigating* any potential instream flow impact of future proposed wells is critical.
6. The “exemption” provision of the Instream Flow Rule (WAC 173-513) accommodates rural single-family wells while protecting critical instream flow. However, this important WAC provision has not been implemented.

Water Right Recommendation 1:

Seek funding through Ecology to complete mapping of all WRIA 13 rights and claims.

Ability to contact current owners and readily identify location of water rights is a prerequisite for virtually all actions to improve water right management – from simply contacting owners to obtain meter data, to legal notices for complex legal proceedings such as adjudication. Ecology water right records are on microfiche; no update of owner address or other data has occurred since original issuance of the water right.

A 2002 WRIA 13 project mapped 1,247 water right permits and certificates into a modern Geographic Information System. This mapping links the original water right “Place of Use” with current parcel maps and property ownership records. However, the roughly 4,500 claims records in WRIA 13 were not mapped. And the Ecology summary tables utilized for the WRIA 13 mapping project very likely did not identify 100% of water rights records.

Based on previous Ecology and County water right mapping projects, estimated cost to complete WRIA 13 mapping is approximately \$75,000. Mapping of all WRIA 13 water rights and claims could be contracted a local agency or a private firm to be completed to Ecology specifications.

Recommended action: Seek funding through a Ecology pilot project to complete mapping all water rights and claims in WRIA 13.

Water Right Recommendation 2:

Pursue removal of unused water rights and non-qualifying claim registrations from Ecology records for WRIA 13.

Unused water rights: Significant quantities of water may be linked to outdated water right records. The WRIA 13 water right mapping and initial assessment project identified numerous water right certificates that are long out of use, such as former agricultural land with Irrigation Purpose surface water rights that is now a residential subdivision on city water. Based on initial assessment of aerial photos, nearly ½ of

WRIA 13 surface water rights (by volume) appear to be entirely or partially out of use due to changes in land use.³⁶

When water rights are no longer needed and used, the allocated water is intended to be returned to the “pool.” State law (RCW 90.14.130) provides a process for Ecology to remove “nonused” water rights records. The process includes either voluntary relinquishment or legal notice to the property owner with opportunity for appeal.

Non-qualifying claim forms: Claims are filed documents that assert water use prior to the time that the State water right application system was established. It is likely that most of the 4,000+ claims submitted in WRIA 13 simply do not qualify for a valid claim – since qualifying claims must be for wells drilled before 1945 or for surface water diversions initiated before 1917. During the times the registry was open to file claims, Ecology did not consistently review claim forms with applicants to determine whether they qualified to assert a claim. For example, many of the claims are for small wells exempt from obtaining a water right. Parties with an exempt well drilled after 1945 desiring formal affirmation of their well need a *water right* rather than a claim. However, Ecology did not direct these parties to the appropriate application form.

A cleanup process could be pursued to contact the filing parties to confirm the asserted dates of first use. Then either a voluntary process or possibly a simplified adjudication process could be used to remove these non-qualifying claims from the records (and then assist interested property owners with filing the *appropriate* water right application.) This would greatly simplify the effort to manage water right and claim records for WRIA 13, since claims comprise the largest number of water right records in the planning area.

Recommended action: Ecology should pursue basic cleanup actions regarding WRIA 13 water right records to achieve the goal of removing unused water rights and non-qualifying claims:

2a. Database cleanup should start with the records with the greatest potential impact to instream flow.

2b. Implement the provisions of RCW 90.14.130 regarding reversion of obviously nonused water right certificates. This process should be utilized where water rights nonuse is evident, such as where land has been converted to a different use than that identified in the water right Purpose of Use, and an alternate water supply is provided. Research performed for the WRIA 13 water right mapping project should be used as the starting point for identifying “nonused” water rights.

2c. Identify claim documents where the asserted date of first use or other facts indicate that the filing does not qualify for a claim. These claim records should be removed through voluntary action or a simplified legal process if possible. If not, this work will be very useful in facilitating action under an eventual General Adjudication of all claims and water rights. In many cases,

³⁶ See Key Findings report section on Water Rights.

claim forms were submitted for exempt wells. For those claimants, removal of a claim registration from the roles will not affect their rights. In other instances, water users filed claims to post-1945 groundwater use that is beyond the volume and purposes covered by the exemption statute, Post-1945 groundwater use does not qualify for a claim. However, Ecology should clarify whether they will facilitate processing of these “claim” applications through the regular water right permitting process and what the priority date of those permits will be.

2d. Ecology should seek pilot project funding and pursue local partnerships to accomplish this recommended action. Ecology should retain clear legal responsibility for water rights. Appropriate local partner roles may include assistance with records management and partial local funding for WRIA-specific actions. See Water Right Recommendation 8.

Water Right Recommendation 3:

Pursue effective oversight of water rights to ensure compliance with statutes and permit conditions.

To ensure proper use of water resources, Ecology added conditions of approval to many water right permits and certificates. For example, metering appears to be required for rights constituting over $\frac{1}{2}$ of total WRIA 13 water right volume, through either permit conditions or statute.³⁷ A common permit condition for surface water rights required that diversion cease when stream flow drops below a specified level. However, Ecology has not provided oversight to ensure compliance with these requirements.

The WRIA 13 Planning Committee recommends systematic oversight of permit conditions, statutes and WACs to address proper use of water, including the following measures. The water right mapping recommended above would directly support permit oversight actions. Implementation of these measures will likely depend on appointment of a Water Master or other dedicated staff resources for WRIA 13 (see Water Right Recommendation 8.) Recommended oversight actions are:

2a. The County and local jurisdictions should encourage efforts of Ecology to obtain funding to enforce existing statutes and permit conditions related to water rights.

2b. Provide funding assistance for installation of metering devices required as a condition of water rights. The existing Ecology meter installation cost-share program (originally focused on the 16

³⁷ Based on information in the existing Ecology water right summary tables, metering requirements appear to be as follows:

- Groundwater rights required to meter comprise about 60% of annual volume and 17% of water right records, if all rights held by city water systems are included in reporting as being metered.
- Surface water rights with permit-specific or statutory requirements to meter comprise about 70% of instantaneous volume in the water right records, involving about 26% of all surface water right records.

priority basins in the metering lawsuit settlement) should be extended to all areas where metering is recommended in Watershed Plans.³⁸

Water Right Recommendation 4:

Manage “exempt” wells through consistent implementation of the WRIA 13 Instream Flow Rule.

The WRIA 13 Instream Resource Protection Rule provides a balanced approach to our region’s needs for both rural water supply and instream resource protection:

- Rural residences are able to install a single-family well if no alternative source is available, without being subject to detailed review for instream flow impact.
- All other new withdrawals – including small community and industrial water supplies exempt from obtaining a formal water right permit - must provide protection of critical instream flows.³⁹

ISF Exempt vs. Water Right Exempt	
<i>Exempt from ISF Rule review per WAC 173-513-070</i> • Single Domestic • Stock Watering (not feedlots)	Exempt from obtaining a water right per RCW 90.44.050 (limited to 5,000 gpd): • Single Domestic • Group Domestic • Stock Watering • Industrial

Ecology has not implemented this provision of the rule. This is one vital piece of the overall effort to improve water resource management in WRIA 13.

Recommended action: Implement the Exemption provision of the Instream Flow Rule (WAC 173-513-070.) See Instream Flow Recommendation 1.

³⁸ Under 1993 revisions to RCW 90.03.360 (metering statute) the Department of Ecology must require measuring as a condition for all new surface water right permits *and* for existing water rights that meet at least one of the following criteria:

- Surface water diversions greater than one cubic feet of water per second, or
- Diversions and withdrawals from surface and ground water sources that support fish stocks classified as critical or depressed by the Washington Department of Fish and Wildlife.

A 2001 settlement of a lawsuit for failure to implement this statute defined 16 initial watersheds for metering. Ecology designed a reporting system and provided cost-share for meters and other water measuring devices, within the 16 critical basins. This initial phase is well underway. In early 2004, Ecology is considering the next steps in achieving compliance with the metering statute. More information on metering is available at <http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>

³⁹ Instream Resource Protection Program for WRIA 13, WAC 173-513-070(2): “Domestic use for a single residence and stock watering, except use related to feedlots, shall be exempt from the provisions of this chapter if no alternative source is available.” Statute exempts withdrawals of less than 5,000 gallons per day. The State Supreme Court has determined that this exemption applies to a *development*, not each proposed well. For more information on exempt wells see <http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html>

Figure 19: Exempt Well Water Use: Deschutes Watershed

Current Rural Development Water Service			Potential Future Rural Res. Water Demand			Total
Group A Public Water Systems	Exempt Wells (Ind. & Grp B)	Sub-Total Current Use	Existing Vacant Lots	Additional Potential Lots	Sub-Total Future Use	Full Build Out Potential Use
625 ac ft/yr	500 ac ft/yr	1,125 ac ft/yr	500 ac ft/yr	600 ac ft/yr	1,100 ac ft/yr	2,225 ac ft/yr

Water Right Recommendation 5:

Support the Nisqually Aquifer Regional Water Supply recommendations in the WRIA 11 Watershed Management Plan.

The Nisqually WRIA 11 Watershed Management Plan includes recommendations related to the “Nisqually Aquifer”, which is an aquifer capture area extending from the vicinity of the City of Rainier in WRIA 13 northeasterly to the McAllister Springs area and then out to Puget Sound. A number of recommendations are included in the WRIA 11 Plan to explore technical and policy issues related to this water-rich aquifer area, as a possible regional source to meet future needs. It is appropriate for the WRIA 13 Watershed Planning Committee to be included in this cross-WRIA sub-area, with anticipated lead role by the WRIA 11 planning group.

Recommended action: Support the Nisqually Aquifer recommendations contained in the Nisqually Watershed Management Plan, provided the parties in the WRIA 13 planning area are included in the recommended technical and policy development activities.

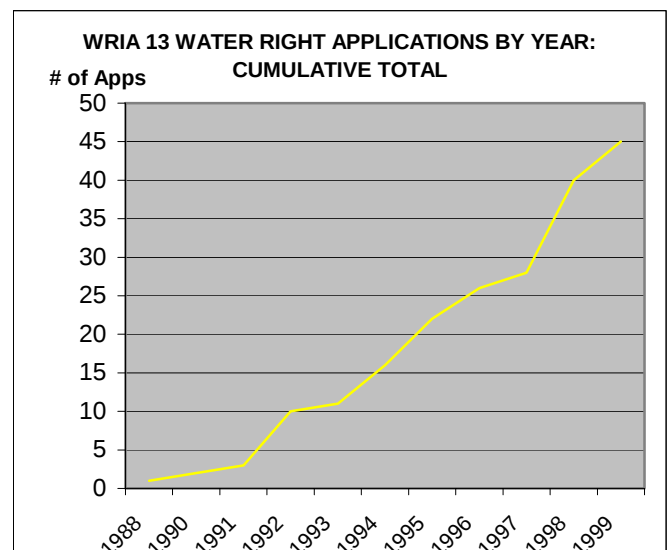
Water Right Recommendation 6:

Request that Ecology adopt Instream Flow Mitigation Guidance for water right applicants, regulators and other interested parties.

Our WRIA’s surface waters are “closed” to all future water rights that would impair instream flow. Over much of our area, highly productive and interrelated aquifers appear to have some degree of “hydraulic continuity” with streams and lakes. Over time, even with conservation and other efficiencies, we will need additional water sources to meet projected community needs. And since consumptive use of

Figure 20: Pending WRIA 13 Applications

A total of 38 applications for water rights in WRIA 13 are pending Ecology action. About 10 have been pending for ten years or longer. The earliest pending application was filed in 1988 by the City of Olympia. Ecology action is pending.



surface waters is prohibited, mitigating the potential impacts of future proposed wells is critical to achieving the WRIA 13 Watershed Planning mission: *Protect aquatic habitat and provide water for vital community needs.*

Mitigation guidance is needed for proposed new water rights and for utilization of inchoate municipal water rights. As used in this Plan, mitigation programs should first *avoid* impact where practical; then *minimize* impacts to the extent feasible; and finally provide *compensatory mitigation* where instream flow impacts of essential new water rights are unavoidable.

“In-kind” mitigation measures to achieve replacement water for streamflow may include:

- Retire existing surface water rights
- Use reclaimed water for direct or indirect streamflow augmentation
- Store surface or groundwater for release during critical flow periods
- Use groundwater to augment stream flow during low flow periods
- Decommission existing shallow wells
- Shift production among wells to minimize summer impacts to streamflow

“Out-of kind” mitigation may be appropriate as part of a mitigation package or where instream impacts are small and difficult to quantify. Such methods may include:

- Riparian habitat preservation and restoration
- Wetlands restoration
- Conservation

Recommended action: Ecology should adopt guidance for mitigating instream flow impacts of proposed water withdrawals. This guidance should address the techniques and definitions discussed in “WRIA 13 Guidance Report on Mitigating Instream Flow Impacts of Proposed Water Withdrawals” included at Attachment B.

Water Right Recommendation 7:

Revitalize the “Reservation of Public Water Supply for Thurston County” (WAC 173-591).

Ecology created the “reservation” program to assist in allocating groundwater in various parts of the State. This was a planning tool to forecast *need* for water rights and track *allocation* over time, but it did not substitute for the normal water right review and issuance process. The “Reservation of Public Water

Highlights of WAC 173-591-010:

- “Public water supply” – the focus of the Reservation - is defined as “human consumption and community uses for more than one single-family residence”.
- The Reservation applies to Thurston County north of about Maytown.
- Water quantities are “reserved” to serve the projected 50-year population, estimated at 288,092 in 1986. “Sub-areas” are identified with projected available groundwater quantities.
- Ecology is to track water right appropriations issued in the various sub-areas. After 1986, all “public supply” water rights are to be given a 1986 priority date.
- State and local governments are to monitor groundwater quantity and quality.
- Update will be initiated by Ecology when necessary to accommodate “new information, changing conditions or statutory modifications.”

Supply for Thurston County” (WAC 173-591-010) was adopted in 1986 at the request of the north Thurston County water utilities. Thurston County is one of only two Reservations adopted to date by Ecology rule.

The Thurston County Reservation has not been systematically implemented. However, an updated and revitalized Reservation has potential to be a useful component of improved water resource management in WRIA 13.

Recommended action:

7a. Update WAC 173-591: Ecology (directly or through contracted service) should update the Reservation, in coordination with the local jurisdictions and other interested parties. The update should:

- Incorporate new long-range population and water demand projections;
- Update groundwater “sub-areas” based on the significant new information developed since 1986.
- Identify water rights issued since 1986, including “public water supplies” and other appropriations. Exempt withdrawals should be estimated and included.
- Summarize the extensive water quality and quantity monitoring conducted since 1986 that supports the monitoring objectives of the Reservation.

7b. Use Reservation to track water allocations: Following the update, Ecology should continue tracking water allocations within the Reservation “sub-areas”, with regular reports to local governments and other interested parties.

Water Right Recommendation 8:

Explore the potential of innovative mechanisms such as a Water Master to implement WRIA 13 Plan water right recommendations.

Implementation of the WRIA 13 Plan water rights recommendations is uncertain if they are simply directed in general to Ecology, given the statewide scope of the Department and budget constraints.

One mechanism to provide dedicated WRIA-specific staff for water right management is the “Water Master”. Under RCW 90.03.060, Ecology is authorized to appoint a water master to regulate and control the use of water within a designated area, consistent with the amount of water to which each water right holder is entitled. If requested by a Watershed Plan, Ecology may appoint a water master for a Water Resource Inventory Area (WRIA) or for a portion of a WRIA, subject to “availability of state or non-state funding” (RCW 90.03.060).⁴⁰

⁴⁰ RCW 90.03.060 (2) A water master may be appointed by the department for a watershed management area for which a plan adopted by a planning unit and by the counties with territory

Similar but less formal mechanisms may be available to ensure a dedicated level of effort implementing WRIA 13 water right recommendations. In establishing any water right implementation mechanism, we need to avoid creating a new bureaucracy that further complicates the processing of water right applications.

A partnership approach combining local and state sources may be the most likely route for success in funding. One potential partial local funding source might be a small increment on water rates for all government and UTC-regulated public water systems.

Recommended action: Convene a meeting of Ecology and the WRIA 13 Planning Committee to outline a potential scope of work/level of effort and state/local funding strategy for a Water Master or other implementation mechanism. The target scope should include water right data cleanup, instituting reporting of water use and other water right management actions in the WRIA 13 Plan.

Water Right Recommendation 9:

Following initial WRIA Plan implementation, local parties, Ecology and affected Tribes should evaluate the value and feasibility of a Water Right General Adjudication

RCW 90.03.105 specifically authorizes petitions from WRIA planning groups for a General Adjudication of water rights. The Legislature authorized these petitions because “the lack of certainty regarding water rights within a water resource basin may impede management and planning for water resources.” Further, the Legislature directed Ecology to prioritize adjudication petitions from watershed planning groups.

A General Adjudication before the Superior Court is the only method to resolve status of the 4,500 claims filed in WRIA 13. It is also a means to “clean up” the entire set of water rights. All rights would be clarified regarding quantities and seniority. While this is a complex legal process, improvements have been recommended to make the process more timely and accessible to claimants.⁴¹ An adjudication would be a major step in building a strong foundation for future management of water rights and water resources in WRIA 13.

Initial WRIA Plan implementation should focus on basic water right data cleanup and other water right management measures recommended in the Plan. Following this initial phase, evaluate the potential effectiveness and feasibility of a General Adjudication as the next logical step in improving water resource management in WRIA 13.

in the watershed management area under RCW [90.82.130](#) contains a requirement or request that a water master be appointed, subject to availability of state or nonstate funding.

⁴¹ See “A Report to the Washington State Legislature from the Water Disputes Task Force, December 2003.”

Tribal interests are a paramount consideration in considering the usefulness and specific scope of an adjudication, since this process has the potential to entail quantification of tribal rights.

Recommended action: Following the initial five years of WRIA Plan implementation, evaluate the value and feasibility of a Water Right General Adjudication to provide a full and timely “tune-up” of claims and rights within all or a part of WRIA 13.

Water Right Recommendation 10

Support efforts of the Legislature and Ecology to improve the timeliness of the Adjudication process

Ecology and the Legislature should seek improvements in the adjudication process, to make the process more timely and flexible. Potential measures include improving access and transparency of the legal process for claimants; providing more documentation work up front to facilitate the formal court process; and use of partial adjudications to address specific sub-basins or sets of water right records.

“PUBLIC INTEREST” RECOMMENDATIONS REGARDING EXISTING RIGHTS AND WATER RIGHT CHANGES

The Watershed Plan has an appropriate and important role in helping define “public interest” regarding water right transfers within WRIA 13. The Legislature intends that Watershed Plans help guide Ecology and Water Conservancy Board decision-making on water right applications and other water resource management actions.⁴²

The following public interest guidance is recommended to Ecology and Conservancy Boards related to WRIA 13 water resources:

Existing Rights Recommendation 1:

Protect water rights associated with designated Long-Term Agriculture Areas.

Within WRIA 13, about 1,700 acres are designated for exclusive agricultural use under “Long-Term Agriculture” (LTA) zoning. The County is required by the Growth Management Act to designate and reserve lands having “long-term commercial agricultural significance”. But current Washington water rights laws may not ensure similar long-term protection of water supply for these exclusive-use areas.

⁴² 2003 legislation (HB 1336) stipulates:

“The department (Ecology) shall use the plan as the **framework for making future water resource decisions** for the planned watershed or watersheds. Additionally, the department shall rely upon the plan as a primary consideration in **determining the public interest** related to such decisions.” (RCW 90.82.130(4) in part)

Two actions could threaten LTA water rights:

- 1.) Partial relinquishment due to low water use for a period of years, due to market conditions or crop selection. Ecology allocated two acre-feet per acre for most Irrigation Purpose water rights. This is still the appropriate volume to serve high water-demand crops such as turf and nursery stock. However, most of the LTA lands in WRIA 13 are currently in lower-intensity pasture and hay uses. The original water right quantity needs to be protected to provide long-term adaptability for agricultural production, to achieve long-term land use objectives.
- 2.) Sale and transfer of water rights out of LTA lands. Ecology and the Water Conservancy Board have no specific public interest statement that could avoid such an action in the future. Loss of water rights would effectively negate the intent of the County's land use designation that these are lands of "long-term commercial agricultural significance."

Watershed Plan recommendations should support policies adopted in the County's Comprehensive Plan – such as the designation of Long-Term Ag lands. However, if land use policies regarding these lands change in the future, changes in water rights should be allowed to support the new intended land uses.

For municipal water systems, recent legislation balances improved "certainty" in the ability to use existing water rights without fear of relinquishment, with increased requirements for water use efficiency (see HB 1338.) This type of comprehensive legislative action has not yet adopted for agricultural water rights. Thus, there is no specific requirement for conservation for agricultural rights.

Recommended actions:

- 1 a. **Preclude permanent transfers that would remove water rights from Long Term Agriculture areas:** Inform Ecology and the Water Conservancy Board that the public interest is served by retaining water rights associated with Long-Term Agriculture Areas within these areas. Ecology or the Conservancy Board should not approve water right transfer applications that permanently remove existing water rights from Long Term Ag areas.⁴³ This protection should extend for the duration of the zoning designation. When land use policies are revised, changes in water rights should be allowed to serve the new land uses.
- 1 b. **Protect water rights in Long-Term Agriculture Areas from relinquishment:** The WRIA 13 Watershed Planning Committee finds that the public interest is served by protecting water rights from relinquishment in designated Long-Term Agriculture Areas (LTA). This protection should extend for the duration of the zoning designation.

⁴³ *Temporary* transfers to trust may be useful to protecting these agricultural rights: See Recommendation 2 below.

The WRIA 13 Planning Committee requests that Ecology determine that permanent protection of LTA water rights is in the public interest and that this protection from relinquishment is in harmony with RCW 90.14.140.⁴⁴

- 1c. Improve water use efficiency within Long-Term Ag Areas.** The Department of Ecology, Thurston Conservation District and other agencies should work with agricultural operators to improve efficiency in irrigation and other agricultural water uses. Long-Term Ag areas should be a focus for such efforts, given the policy intent that these lands remain in agricultural use for the foreseeable future. Also see the following recommendation on “water trust” support for conservation incentives.

Existing Rights Recommendation 2:

Utilize a water trust to preserve water for agricultural purposes.

RCW 90.42 provides for establishment of water right trusts. Water rights can be temporarily placed in trust, which protects the right from relinquishment. The trust agreement can be designed to allow the water right holder to withdraw the right from the trust when needed. Trusts are under care and management of the Department of Ecology. A similar concept is leasing or banking water rights on a temporary basis.

Local funding for a trust would have benefits of retaining control in our local communities. State and other funding sources may be available as well.

Recommended action:

⁴⁴ State law provides several exemptions from relinquishment that may relate to agriculture, including:

- **Temporarily reduced water need for irrigation use due to varying weather conditions.**
- **The reduced use of irrigation water resulting from crop rotation,** which is defined as “the temporary change in the type of crops grown resulting from the exercise of generally recognized sound farming practices.” (It may be a stretch to consider multiple years of continual pasture/hay use to be part of “crop rotation.”)
- **Rights claimed for a “determined future development.”** Long-Term Agriculture designation in Comprehensive Plan and Zoning seems like it might fit as “determined future development”. However, statute and case law do not provide permanent protection based on land use planning as recommended in this Watershed Plan. Under current law, a “fixed plan” must be in place within 5 years of the last use of the right, with action to develop the plan accomplished within 15 years. Statute and case law related to the “determined future development” exception is discussed in “An Introduction to WA Water Law, January 200”, issued by the Office of Attorney General. See Chapter VI.

However, none of these provide explicit long-term protection of water rights based on exclusive-use zoning.

2a. Pursue establishment of a Deschutes (or WRIA 13) trust to hold currently unused water rights or unused portion of rights associated with agricultural lands. While in trust, there would be benefit to instream flow or to meeting other uses from these rights currently not being utilized for agricultural purposes. When needed in the future to support more water use-intensive agriculture, the right or a portion could be withdrawn to meet the increased need created by more intensive agricultural production.

2b. Incentives to encourage agricultural water use conservation should be included as part of the Trust program.

Existing Rights Recommendation 3:

Request that Ecology remove the requirement for a formal water right change when shifting from one agricultural activity to another.

Water rights were issued for various Purposes including Stock Watering and Irrigation. At this time, Ecology requires formal Water Right Change applications when agricultural production shifts between irrigation to stock watering.

The WRIA 13 Plan supports use of all water rights issued for agricultural purposes for all types of agricultural activities. For example, all or part of a right issued for Irrigation Purpose should be useable for poultry watering; conversely, a right issued for Stock Watering Purpose should be useable for all types of agricultural activity - not just watering of large animals or poultry.

Recommended action: Ecology should pursue department guidance or legislation clarifying that the public interest is served by allowing all types of agricultural activities to be supported by Irrigation or Stock Watering water rights, provided impact to instream flow is equal or less than would have occurred under the original Purpose of Use.

Existing Rights Recommendation 4:

Improve management of Urban Growth Area water rights

In recent years, water rights have been transferred from within the UGA to non-UGA development by action of the Water Conservancy Board and Ecology. This can be seen as contradictory to two important policies:

1.) The Growth Management Act includes the fundamental principle that cities need to provide infrastructure for allocated future growth within their UGA. Water is a vital infrastructure requirement for our growing communities. In addition, the Act specifically requires that municipalities plan for water service to industrial and commercial uses, which may be water intensive activities with high value for the public interest.

2.) Transfers out of the UGA may also be seen as contradictory to the Reservation of Future Public Water Supply for Thurston County WAC 173-591.

On the other hand, transfers of water rights from within the UGA to Rural areas have provided water for Rural "cluster" development. Rural cluster developments are served

with Group A public water systems. They also preserve large areas of agricultural and forest land from development. If water rights cannot be obtained through the transfer market, Rural development will occur as disjointed “min-developments” served by a series of exempt wells or 5-acre tracts served by individual wells. These development patterns occupy all the available land with low-density development, with fragmented water supplies with less incentive for conservation and less reliable long-term service.

Recommended action:

- 4a. When a proposed water right transfer would shift UGA rights to Rural areas, Ecology and the WCB should retain sufficient rights with the original Place of Use to support urban levels of development based on the adopted Comprehensive Plan.
- 4b. Expanding UGA water utilities should adopt policies to acquire existing water rights when extending water service.
- 4c. Ecology should define clear, efficient administrative procedures to support consolidation of rights acquired by expanding urban water systems. A simplified Ecology process is needed to support timely acquisition and use of acquired rights by expanding systems, which also protects the interests of other existing water right holders in the vicinity.
- 4d. Drilling of new private wells within corporate limits and UGAs should only be allowed in locations that cannot be served by an existing water system at a reasonable cost and in a timely manner. City water system policies and/or the regional Coordinated Water System Plans should be revised to provide specific guidance on this issue, with the objective of balancing interests of the individual property owner; reliable long-term water supply; Comprehensive Plan goals of intensified land uses within urban areas; and long-term protection of aquifers from contamination.
- 4e. When the owner of an existing individual well connects to a public water system, the individual well should be decommissioned to help protect aquifer water quality in these urbanizing areas. The Thurston County Sanitary Code should be revised to ensure decommissioning of such wells except where they are actively used for irrigation or other non-potable reasons and the required sanitary radius is provided.

INSTREAM FLOW RECOMMENDATIONS

Instream Flow Recommendation 1:

Implement the “exemption” provisions of the WRIA 13 Instream Resource Protection Program, WAC 173-513.

WAC 173-513 (often called the WRIA 13 “Instream Flow Rule”) applies to nearly all water uses proposed after 1980. Under the rule, post-1980 water uses cannot be approved if they would take water out of streams and lakes - termed “consumptive appropriation.”

The only post-1980 water uses *exempted* from the rule are 1.) Single domestic wells where no alternative source is available, and 2.) Stock watering. The concept is that these small water uses have minimal impact on instream flow and are essential to make use of property in many rural areas.⁴⁵ The existing rule is intended to balance protection of instream flow while ensuring vital water supplies for rural land uses. However, this rule section has not been systematically implemented.

ISF Exempt vs. Water Right Exempt	
<i>Exempt from ISF Rule review per WAC 173-513-070</i> • Single Domestic where no alternative source is available • Stock Watering (not	Exempt from obtaining a water right per RCW 90.44.050: Up to 5,000 gpd for: • Single Domestic • Group Domestic • Stock Watering • Industrial

Key factors impeding implementation of the rule section include:

1. Ecology focus on water right statute exemption rather than ISF Rule

exemption: While the *ISF Rule* exemption is limited to “single domestic” wells, the statutory exemption from formal Ecology *water right permit review* accommodates “group domestic” and industrial uses up to 5,000 gallons per day – which can serve 6 or more households. Ecology’s focus has been on wells that exceed the statutory water right permit threshold. Even deciding when a well is (or is not) exempt from the water right permit statute has been controversial for Ecology and other parties.

As explained in 9/24/04 correspondence from Ecology Water Resources staff, “we have interpreted the exempt well provisions of Chapter 173-613 to be implementable on a site specific basis where potential impairment can be demonstrated. We believe the exemption, as written, is much more difficult to implement across the entire basin.”⁴⁶

⁴⁵ The exemption provisions of the Rule also 1.) Allows Ecology to limit individual wells to in-house use if cumulative effects on streamflow are a problem and 2.) Stipulates that “feedlots” are not allowed under the stock watering exemption.

⁴⁶ Correspondence dated September 24, 2004 from Thomas Loranger, Ecology Southwest Region Water Resources Program Manager.

- 2. Lack of Instream Flow Rule threshold decision within the well drilling review process:** Under intergovernmental agreement, well drilling “start cards” are approved by Thurston County and filed with the Department of Ecology. . Proposed wells are reviewed for compliance with the Thurston County Sanitary Code, which stipulates that a new well not be drilled where water is available from an existing Group A system at a cost no greater than drilling a new well.⁴⁸ The well drilling statute supports the adoption of such special well drilling requirements in general.⁴⁹ GMA specifically provides that building permit applicants may be required to connect to an existing water system, provided service can be provided “with reasonable economy and efficiency.”⁵⁰

However, the County and Ecology have not included Instream Flow Rule review for wells exempt from a water right permit, including determining whether an “alternative source” is available under WAC 173-513-070.

- 3. Lack of leadership and coordination in reviewing small water supplies::** Ecology adopted this Washington Administrative Code (WAC) section for their Department. Thus, local governments view implementation of the Ecology WAC as a Ecology lead responsibility.

However, local governments also have important roles in water supply review:

- a.) “Potable water” provisions: Subdivisions cannot be approved unless there is evidence of water availability. In some cases, Thurston County has used SEPA review to minimize instream flow impact from subdivisions that propose using water right-exempt wells, such as requiring drilling to a deeper aquifer.

⁴⁷ Under an agreement with Ecology, Thurston County reviews a percentage of new wells to ensure proper drilling practices. Well logs are filed with Ecology.

⁴⁸ Sanitary Code Part 3 Section 5.1.1. In concept, this discretionary review for a well drilling permit is supported by the well drilling statute which specifies in RCW 18.104.040 : “The department (Ecology) shall have the power: (4) to adopt rules...(which) may include, but are not limited to:

(g) Limitations on well construction in areas identified by the department as requiring intensive control of withdrawals in the interests of sound management of the ground water resource.”

⁴⁹ RCW 18.104.040(4)(g) gives Ecology the power to adopt rules which may include “limitations on well construction in areas identified by the department as requiring intensive control of withdrawals in the interests of sound management of the ground water resource.”.

⁵⁰ RCW 19.27.097(1), which implements part of the Growth Management Act, stipulates that applicants for a building permit must provide evidence of “adequate water supply.” The section goes on to specify that:

“In addition to other authorities, the county or city may impose conditions on building permits requiring connection to an existing public water system where the existing system is willing and able to provide safe and reliable potable water to the applicant with reasonable economy and efficiency.”

The Growth Management Act includes broad planning goals relating to protecting the quality and quantity of water.⁵¹ Additionally, building permits cannot be issued until there is a finding that potable water is available.,⁵²

- b.) Water utilities: Some water utilities limit drilling of new wells within their service areas through either local regulation or through the regional Coordinated Water System Plan. The CWSPs in WRIA 13 address priority of service for public water systems but do not specifically address the issue of individual wells.

Thus, both Ecology and local governments are engaged in the arena of water supply review – but neither has taken lead responsibility for implementing WAC 173-513-070. Action (or lack of action) by one agency in this arena affects the other. As explained by Department of Ecology staff, “in situations where the County has made a determination of water availability for domestic use through issuance of a building permit, the exempt well provisions of Chapter 173-513 are very difficult to implement.”⁵³

- 4. Water system mapping:** If “alternative sources” are to be identified in a timely manner, staff and property owners need to know which existing public water systems are in the vicinity. Thurston County has mapped most Group A water system service areas and has started mapping the small B system service areas. However, without complete water system mapping it will be difficult to determine “alternative sources” for Rural property.
- 5. Continuity information and mitigation frameworks:** A key issue for implementing 173-513-070 will be timely methods to identify a.) The degree of instream flow impact from proposed small group or industrial wells, and b.) Means to minimize or mitigate this impact. Applicants for formal Ecology water rights can spend years and many thousands of dollars addressing these issues. A streamlined process is essential for small group and industrial wells subject to ISF Rule review but exempt from obtaining a water right permit. This will require new information and policy frameworks such as:

⁵¹ RCW 36.70A.020(10) includes a GMA planning goal to “protect the environment and enhance the state’s high quality of life, including air and water quality, and the availability of water.” More specifically, the Act in RCW 36.70A.070 includes water supply as a fundamental component of land use planning: “Each comprehensive plan shall include a plan, scheme or design for ...a land use element providing for protection of quality and quantity of groundwater used for public water supplies.”

⁵² This is stipulated in RCW 19.27.097(1) “Each applicant for a building permit of a building necessitating potable water shall provide evidence of an adequate water supply for the intended use of the building.”

⁵³ Letter dated September 24, 2004 from Thomas Loranger, Ecology Southwest Region Water Resources Program Manager.

- Generalized maps of designated aquifers to be utilized for these water right-exempt wells, to support timely decisions on water supply for rural development while minimizing impact on instream flow.
- A water “bank” for protecting and enhancing instream flow, where development proponents could contribute funds as mitigation for small impacts to streamflow.

In contrast to lack of action on implementing the Exemption section, Ecology has made full use of other portions of WAC 173-513. Instream flow protection is a key issue facing applicants for all new formal water right permits. Water right applicants must satisfy Ecology that instream flow will not be impaired - or the water right application is denied. These sections are rigorously implemented, despite WAC text that is very out of date and directly conflicts with case law (see discussed in the following recommendation.)

Measures to implement section 070 need to avoid creating new administrative problems, such as long delay in obtaining approval. Water right applicants commonly wait for several years before Ecology action occurs. Instream Flow review for small community wells must be predictable, timely and cost-effective. Otherwise, property owners will design Rural developments to rely on multiple individual wells – which are exempt from virtually all reviews.

Recommended action:

1a. Ecology should initiate contact with Thurston County to design an effective implementation program for the Exemption provision of the WRIA 13 Instream Flow Rule (WAC 173-513-070(2)). This implementation program should:

- ◆ Harmonize the responsibility of local government regarding “water availability” determinations for building permits with Ecology’s lead responsibility to protect instream flow under WAC 173-513.
- ◆ Provide reasonably efficient processing for development permits including water source review, at a cost that is commensurate with the scale of the proposed development.
- ◆ Balance the responsibilities of applicants to meet environmental regulations, with the responsibility of the agencies to provide clear procedures and access to available environmental information. Specifically, the implementation program should include maps of each principal aquifer reflecting current understanding of impact to streamflow, and a framework for timely mitigation of streamflow impact.
- ◆ Initial scoping should be drafted by July 2005, with the system fully in place by January 2007.
- ◆ Apply the program to all production wells and exclude test wells from the approval process.
- ◆ Include revisions to administrative procedures or the Instream Flow Rule needed to effectively implement this provision, t
- ◆ Identify funding sources to support increased County and/or State staff review time.

1b. Thurston County and DOH should complete and systematically update the water system mapping initiated by Thurston County. These two agencies should also improve links between DOH water system data and County maps of water system service areas. This action is vital to timely review of “alternative” supplies within Rural areas.

1c. Update Coordinated Water System Plans and city water system policies related to individual wells. Policies adopted by the city water systems, the Coordinated Water System Plans and the Thurston County Sanitary Code should strictly limit drilling of new private wells to only those locations that cannot be served by an existing water system in a timely and reasonable manner. When the owner of an existing individual well connects to a public water system, the individual well should be decommissioned to help protect aquifer water quality in these urbanizing areas.

1d. Establish a “water bank” to mitigate impacts from small wells on instream flows. Where project-specific mitigation action is not feasible or cost effective, applicants would provide fees in lieu to the “water bank”. See ISF Recommendation 3 for further discussion of the “bank” concept.

Instream Flow Recommendation 2:

Update WAC 173-513 to remove outdated provisions and incorporate WRIA 13 Plan action recommendations.

Several revisions are recommended to WAC 173-513. Ecology would pursue these through the rule amendment process. See Attachment A “WRIA 13 Instream Flow Rule – Proposed Updates to 1980 WAC”. This bill-format document details proposed WAC revisions and provides accompanying discussion and background on each recommended change.

In summary, the recommended revisions are:

Proposal 1: Clarify “Purpose” section of the Rule: The “Purpose” section (.020) addresses “the Deschutes River basin”, while section .010 of the rule clearly applies the WAC to all waters in WRIA 13. The “Purpose” section should be revised as follows to provide consistency and avoid confusion regarding application of the rule.

WAC 173-513-020 Purpose. The purpose of this chapter is to retain perennial rivers, streams, and lakes in ~~the Deschutes River basin~~ WRIA 13 with instream flows and levels necessary to provide protection for wildlife, fish, scenic, aesthetic, environmental values, recreation, navigation, and water quality.

Proposal 2: Delete the irrelevant Winter Flows for the Deschutes River: Most waterbodies in WRIA 13 were simply “closed to consumptive appropriation” by the 1980 rule. The main exception was the Deschutes, where

winter minimums were set to “retain option for...environmentally sound storage projects in future years”⁵⁴. In the 1960’s, Olympia had proposed the “Shellrock Dam” on the mainstem Deschutes River near Clear Lake. Winter-period minimum flows were included in the 1980 rule to address discharge from this proposed dam.

Shellrock Dam was not pursued by Olympia. No mainstem dam on the Deschutes River is recommended or envisioned by any parties. Section .030 of the rule is irrelevant and outdated. Deletion of Section 173-513-030 is proposed.

Proposal 3: Clarify that the prohibition on “consumptive appropriation” applies to all water use proposals and establish a water right application framework for mitigation. The proposed revision to section .040(1) simplifies the WAC and specifies the manner in which the rule applies to groundwater withdrawals. As discussed in Proposal 5 below, the groundwater references in the 1980 text are very outdated and do not match Ecology practice or case law. The proposed revision expressly applies the prohibition on “consumptive appropriation” to groundwater withdrawals as well as surface water diversions.

In addition, a mitigation framework is proposed for WRIA 13, to ensure protection of instream flow while providing vital groundwater supplies to our communities. See Attachment B, “WRIA 13 Guidance Report on Mitigating Instream Flow Impacts of Proposed Water Withdrawals”.

Proposed revisions to 040 are shown as follows in bill format:

WAC 173-513-040 Surface water source limitations to further consumptive appropriations.

- (1) The department of ecology, having determined that further consumptive appropriations would harmfully impact instream values, closes ~~the following all~~ streams and lakes in WRIA 13 to further consumptive appropriation.
- (2) “Consumptive appropriation” means proposed use of water whereby there is a diminishment of the water source. Consumptive appropriation is defined as either:
 - a. Any surface water diversion, except those determined by the department to provide a net benefit to instream habitat; or
 - b. That portion of a groundwater withdrawal that results in reduction in stream baseflow during critical flow periods. Baseflow is that component of streamflow derived from groundwater inflow or discharge.
- (3) Mitigation may be proposed and approved to address withdrawals that would otherwise result in diminishment of surface water resources. Mitigation shall be considered and implemented in the following sequential order of preference:
 - Avoid or reduce impact through optimal use of existing water allocations.

⁵⁴ Deschutes River Basin Instream Resources Protection Program Including Proposed Administrative Rules (WRIA 13), Ecology, June 1980

- Minimize impact to aquatic resources. This may include consideration of location, depth and/or timing of withdrawal to limit impact to instream flow.
- Fully compensate for unavoidable impact by replacing water or providing substitute resources to offset a measurable or calculated reduction in stream baseflow.

Complete mitigation is achieved when these mitigation elements ensure no net loss of instream flow or ecological functions.

Proposal 4: Delete specified Low Flow values for Green Cove Creek and Adams Creek.

The 1980 IRPP Rule consolidated earlier instream flow administrative actions on 13 specific waterbodies adopted between 1940 and 1972. These various waterbodies are listed in section 040. Nearly all streams and lakes were simply “closed to consumptive appropriation” in the 1980 Rule, which provides maximum protection from impacts due to future water rights. The exceptions were winter Deschutes flow (discussed above) and minimum flows for two “unnamed streams”. Based on the section-township-range location in the WAC, the creeks and their “low flow” in the 1980 Rule appear to be:

- Adams Creek (“unnamed Gull Harbor tributary”) 1.0 cfs low flow; and
- Green Cove Creek (“unnamed Eld Inlet tributary”). 1.5 cfs low flow.

In reality, lowest flows in Green Cove Creek are virtually not measurable. And no continuous flow data exists for Adams Creek.

Deletion of these “low flow” items and the list of waters in 173-513-040 are proposed, in favor of including all and lakes in the overall closure to consumptive appropriation discussed in Proposal 3.

Proposal 5: Update 173-513-050 “ Ground water” to conform to case law:

This section is effectively void as written but still in the WAC. The current WAC language largely exempts groundwater proposals from the rule. The proposed update reflects current Ecology practice and the *Postema* Supreme Court case - which require review of all proposed groundwater rights for any potential impact to instream flow, and preclude approval of unmitigated “consumptive” groundwater rights. The following revision is proposed:

WAC 173-513-050 Ground water. Future ground water withdrawal proposals ~~will not be affected by~~ are subject to this chapter unless it is verified that such withdrawal would ~~not clearly~~ have an adverse impact upon the surface water system contrary to the intent and objectives of this chapter.

Proposal 6: Implement 173-513-070 “ Exemptions”:

Item (2) of this WAC section balances two vital issues for water management in WRIA 13 – access to water for rural residences and protection of instream flow. Unfortunately, this important section of the WAC has not been implemented. ISF Recommendation #1 above recommends that Ecology provide an implementation program for the Instream Flow Exemption provisions of WAC 173-513-070, to be adopted and implemented jointly with Thurston County. Minor revision of the WAC text is proposed by Thurston County staff

to clarify that the exemption applies to existing lots but not to proposed new subdivisions:

WAC 173-513-070 Exemptions. (1) Nothing in this chapter shall affect water rights, riparian, appropriative, or otherwise existing on the effective date of this chapter, nor shall it affect existing rights relating to the operation of any navigation, hydroelectric, or water storage reservoir or related facilities.

(2) Domestic use for a single residence on an existing lot of record and stock watering, except that use related to feedlots, shall be exempt from the provisions of this chapter if no alternative source is available. If the cumulative effects of numerous single domestic diversions would seriously affect the quantity of water available for instream uses, then only domestic in-house use shall be exempt.

Proposal 7: Update WAC 173-513-080 “Future rights”: This section is significantly outdated. The 1980 WAC text expressly applies the rule only to future **surface water** rights. However, in practice, current Ecology practice places great emphasis on protecting instream flow from proposed groundwater withdrawals. Update is clearly needed.

WAC 173-513-080 Future surface or groundwater rights. No rights to divert or store public surface waters or withdraw groundwater in ~~of the Deschutes River Basin,~~ WRIA 13 shall hereafter be granted which shall conflict with the purpose of this chapter as stated in WAC [173-513-020](#).

Instream Flow Recommendation 3:

Develop a “water bank” to help address streamflow protection and restoration

The ISF Rule (WAC 173-513) has provided a tool for Ecology to avoid instream flow impacts from proposed post-1980 water right permits. However, the rule does not address impacts from previously approved rights. In addition, applying the ISF Rule to small wells (exempt from a water right permit) will require mechanisms to address relatively small impacts in instream flow in a timely manner. A regional water bank program focused on reducing impact from existing rights and new withdrawals is recommended.

In the proposed concept, the “water bank” program could initially be applied to the Deschutes watershed. If the mechanism proves useful and there is need to expand the program, it could be extended to additional watersheds in the future.

Recommendation: Establish a WRIA 13 “water bank” to pursue protection and restoration of instream flow. Water that is “saved” permanently or for specified periods of time would be reserved to protect instream flow during critical summer low-flow periods. Mechanisms include trusts, water rights and conservation savings. Measures to be pursued may include:

- High flow diversion into constructed wetlands or other off-channel areas, to increase recharge and enhance streamflow during the summer and fall.
- Water rights mitigation “bank” where development applicants could provide funding for implementation of approved mitigation action measures, in lieu of designing and gaining approval for specific instream flow actions. This will be especially important for proposed new small community wells (beyond single family wells), which cannot afford expensive studies and specially-designed mitigation programs.
- Substitute sources for surface water withdrawals. Several significant water rights provide surface water for irrigation and gravel washing along the Deschutes. Alternate water sources for these uses could help protect instream flow.

See also the “Regional Conservation Program” recommendation in Quantity Section 1 above.

GROUNDWATER PROTECTION RECOMMENDATIONS

Groundwater Protection Recommendation 1:

Sustain long-term monitoring of aquifer levels and quality throughout the WRIA, to improve understanding of water resources, track trends and identify problems.

Consistent long-term monitoring is necessary to track changes in aquifer level and quality. Localized groundwater quality concerns include known nitrate and pesticide problem areas.

Currently, the cities and larger purveyors monitor conditions for their supply wells. But this addresses only a limited area of the aquifers within the WRIA. The County currently tracks well level monthly in 10 wells in north Thurston County. But long-term focus and commitment to area-wide aquifer monitoring is not strong. And monthly sampling is unlikely to identify the highest and lowest aquifer levels reached each year.

The long-term objective should be ***groundwater level monitoring by continuous recording devices within all aquifers and covering all sections of the WRIA***. As an interim measure, monthly well level measurements should continue to be obtained. Focus should be on complementing existing monitoring wells operated by the cities within their own Wellhead Protection Areas.

Recommended actions:

1a. Develop regional aquifer monitoring objectives and an action plan. Identify long-range monitoring objectives for the region, gaps in current information and actions to address all significant data gaps. Also identify the lead agency/mechanism for gathering, keeping and analyzing groundwater data.

1b. Identify funding to sustain region-wide groundwater data collection and analysis. One option for funding may be a WRIA 13 “water master” type program. Monitoring aquifers is a fundamental need identified in the Reservation of Public Water Supply. Regional monitoring complements water right-specific oversight, placing individual water use in a regional context that tracks cumulative impact.

1c. During development review, encourage installation of monitoring wells in locations identified by regional aquifer monitoring plans, WRIA Plans or to address a specific identified problem. This measure can assist in building our understanding of water resources and identifying problems in an area.

1d. Encourage independent water suppliers to participate in the regional aquifer monitoring effort. To improve local and regional understanding of aquifer conditions and trends, encourage interested independent water suppliers and single-family wells to participate in aquifer monitoring. This could include well level and water sampling. Where suitable wells are available in aquifers with significant data gaps, pursue funds to install and operate continuous recording devices in these private wells that accurately track seasonal changes in aquifer levels.

1e. Seek funding to install permanent County-owned monitoring wells in the upper and lower Deschutes. The recommended dedicated “resource protection” wells would be installed in each aquifer in the general vicinity of the Vail USGS station and the E Street USGS streamflow station in Tumwater. These wells would be used solely for monitoring purposes: this eliminates conflicts encountered when using production wells for monitoring. The monitoring wells would enhance understanding of the interrelations between precipitation, streamflow and aquifers. Over time, the data collected would provide the basis for integrated groundwater/surface water modeling and management.

See Attachment C for description and preliminary estimated construction cost for these monitoring wells.

Groundwater Protection Recommendation 2:

Adopt land use protections for all approved Wellhead Protection Areas.

Wellhead Protection Area (WHPA) mapping and protection programs are required for all Group A water systems (15+ connections) by the State Department of Health. DOH has maps of all the approved WHPAs. However, current Thurston County land use regulations provide WHPA protection only for systems with 1000 or more connections. Within these areas, certain hazardous land uses are prohibited or require special review.

All approved WHPAs merit consideration in review of proposed new development. Thurston County should consider means to recognize these sensitive areas during development review.

Recommended action:

Thurston County should consider revising the Critical Areas Ordinance section on development proposals within delineated Wellhead Protection Areas, to ensure consideration of WHPAs for water systems serving fewer than 1000 connections. This action needs to balance impact on property owners in the designated WHPAs with protection of aquifer supplies. Notice to affected property owners should be provided early in the process of developing a new or revised WHPA.

CHAPTER 4: WATER QUALITY

This Plan chapter contains:

- Introduction/Background – A brief summary of water quality issues and role of water quality in WRIA 13 Plan
- Water Quality Findings for WRIA 13 – Discussion of the key water quality issues as identified by the Watershed Planning Committee
- Recommendations – Area-wide and basin-specific recommendations on water quality issues

Additional documentation on conditions and priority water quality problems is provided in the WRIA 13 Assessment Chapter 6 – Water Quality available from Thurston County Department of Water and Waste Management.

INTRODUCTION/BACKGROUND

Protecting water quality is vital to protecting drinking water and aquatic habitat. A very broad range of urban and rural land use activities can threaten water quality.

Status quo levels of enforcement and outreach are not adequate to protect water quality. For example, despite various plans and water quality ordinances, restrictions on commercial shellfish harvest were recently imposed in Henderson Inlet and Nisqually Reach. The dispersed “nonpoint” source of most pollution poses a particular challenge to water quality protection.

Overall, our region has done a great job with monitoring and studies, and a good job with ordinance adoption. However, systematic enforcement and innovative outreach will be essential to success in protecting our surface water and groundwater quality in the future.

The Water Quality element of the WRIA 13 Plan focuses on the most significant water quality problems affecting substantial portions of the planning area. As discussed below in the section on “Water Quality Findings in WRIA 13”, these key issues are:

- Bacterial pollution - Shellfish harvesting in certain WRIA 13 inlets is threatened by bacterial pollution, such as fecal coliform bacteria
- Elevated water temperature Fish and trout in the Deschutes River are vulnerable because of the river’s increased water temperature over the summer months
- Toxics in urban runoff - Fish and other organisms experience toxic conditions because of urban stormwater runoff.
- Low dissolved oxygen - Fish and other organisms in Budd Inlet and Henderson Inlet sometimes lack adequate dissolved oxygen because of nutrient loading.

- Nitrate loading – Nutrient loading to our Inlets leads to inadequate dissolved oxygen levels to support fish and may be triggering more frequent toxic algae blooms. In parts of northern Thurston County, nitrate pollution is degrading the quality of water in the upper aquifers.
- Monitoring - Current monitoring programs need to be sustained and refined, to track conditions and guide future water-planning needs.
- Implementation – Statements of good intentions in plans and ordinances will not protect water quality. A vigorous, innovative action program must be sustained including outreach and education to all sectors of the community, enforcement of water quality violations, and purchase or other permanent protection of the most water quality-sensitive lands.

WATER-QUALITY FINDINGS FOR WRIA 13

The following findings are addressed:

- ❑ Overall water quality conditions in most WRIA 13 waterbodies are Good to Fair, while a few waterbodies rank as Excellent or Poor. However, several significant water quality problems threaten human health or habitat for fish and other species.
- ❑ Shellfish harvesting in certain WRIA 13 inlets is threatened by bacterial pollution, such as fecal coliform bacteria.
- ❑ Fish and trout habitat in the Deschutes River are vulnerable to water quality impairments to aquatic habitat.
- ❑ Fish and other organisms in Budd Inlet and Henderson Inlet sometimes lack adequate dissolved oxygen because of nutrient loading.
- ❑ Fish and other organisms are exposed to potentially toxic pollutants carried in urban stormwater runoff.
- ❑ In parts of northern Thurston County, nitrate pollution is threatening the quality of water in upper aquifers.
- ❑ Current monitoring programs may be inadequate to guide future water-planning needs.

- 1. OVERALL CONDITIONS ARE GOOD TO FAIR IN WRIA 13 WATERBODIES. HOWEVER, SEVERAL SIGNIFICANT WATER QUALITY PROBLEMS THREATEN HUMAN HEALTH OR HABITAT FOR FISH AND OTHER SPECIES.**

- o **Water Quality Problem:** Overall conditions in most WRIA 13 waterbodies are Good to Fair, while a few waterbodies rank as Excellent or Poor.⁵⁵ See Exhibit 1 for a summary of water quality conditions. The Department of Ecology has placed 15 of our streams and lakes on the official “impaired” waters list (Clean Water Act Section 303(d) List). Note that some important water quality issues escape inclusion on the “official” state list. These include deteriorating trends that are not yet above the water quality standard or pollutants that do not have an adopted standard, such as nitrates.
- o **Sources of pollutant:** Pollution problems are directly linked to land use activities. As our area grows, protecting water quality will require increasingly effective programs to counterbalance impacts from more intense land use. One case in point: Additional urban growth on lands draining to shellfish areas puts them at increased risk from contamination and closure or harvest restriction.

2. SHELLFISH HARVESTING IN CERTAIN WRIA 13 INLETS IS THREATENED BY BACTERIAL POLLUTION, SUCH AS FECAL COLIFORM BACTERIA.

- **Water quality problem:** Bacterial pollution is a critical issue for commercial and recreational shellfish harvesting. Fecal coliform is used as an indicator of potential disease-causing pathogens that could adversely affect human health from eating shellfish. (It is not a problem for the shellfish themselves.)

Bacterial pollution is also a public health threat to water contact recreation, such as swimming, wading and boating. The Deschutes River, area lakes, creeks and inlets are used for a range of water contact recreation.

- **Sources of pollutant:** Both urban and rural areas contribute to this pollution problem. Near-shore on-site septic systems; sewer system leaks or miss-connections; livestock; pets; and wildlife are all sources of bacterial loading. Recent Henderson Inlet and Nisqually Reach DNA-based sampling have confirmed the broad range of “nonpoint” bacterial pollution sources.⁵⁶

⁵⁵ Thurston County Water Resources Monitoring Report 1999-2001 Water Year is available on the County Web site at <http://www.co.thurston.wa.us/www/lakes%20pages/watermonitoringreport.htm> or in paper by request from Tom Clingman, Thurston County Water & Waste Mgt.

⁵⁶ Bacteriological Contamination Source Identification, Henderson Inlet, 1999-2001 by the Thurston County Environmental Health Division in conjunction with Dr. Mansour Samadpour of the University of Washington. Available at <http://www.co.thurston.wa.us/shellfish/publicationsmedia.htm#dnatest>

Urban runoff poses a particular challenge for shellfish harvesting. See Exhibit 2 illustrating the contrasting water quality conditions in Eld, Henderson Inlet and Nisqually Reach shellfish harvest area monitoring stations. In moderately urbanized watersheds including Eld Inlet and North Bay near Shelton, action programs have successfully improved water quality. However, heavily urbanized lower Budd Inlet is closed to all harvesting due to bacterial and industrial pollutants. And in urbanizing watersheds like Henderson Inlet our current methods of source control and stormwater treatment may be inadequate to sufficiently reduce bacteria in runoff. The published Shellfish Protection District action plans and upcoming TMDL strategies for Henderson and Nisqually Reach will provide guidance to determine level of action needed to address urban runoff and other pollutant sources.

- **Existing and emerging programs to address water quality:**
 - o **Henderson and Nisqually Reach** have both had recent shellfish harvesting downgrades. Two planning efforts (one local and one state-led) are underway with mandates to identify and correct pollution problems:
 1. **Shellfish Protection District** action programs have been prepared for both Henderson and Nisqually Reach areas. A SPD Stakeholders Group is continuing work to oversee implementation of these reports.⁵⁷
 2. **TMDLs:** are underway for both Henderson Inlet and Nisqually Reach to identify pollution sources; calculate amount of pollution that can be accommodated without impairment – the Total Maximum Daily Load; and finally prepare action plans for each area to reduce pollution to the target level.⁵⁸ Anticipated completion of Summary Implementation Strategies in 2005 and Detailed Implementation Plans in 2006. Lead: Ecology.
 - o **Budd Inlet** suffers significant bacterial pollution and contamination from other industrial and urban sources. Most of the inlet is closed to shellfish harvesting. Pollutants carried in the out flowing freshwater “lens” may impact water quality for shellfish harvesting in the “open” outer inlet and

⁵⁷ Shellfish Protection Districts for Henderson Inlet and Nisqually Reach were mandated by State statute; formation of these Districts by the County was triggered by downgrade in commercial shellfish harvesting status. More information is at <http://www.co.thurston.wa.us/shellfish/>

⁵⁸ Ecology website has further information on the 303(d) List of Impaired Waters, including parameters listed for WRIA 13 waterbodies, and the TMDL process. See www.ecy.wa.gov/programs/wg/links/impaired_wtrs.html

could create human health concerns for recreational contact in the inner inlet and freshwater tributaries.⁵⁹

- **TMDL** process has been initiated for Budd/Deschutes “impaired” parameters, including fecal coliform pollution in several streams and the Inlet. Anticipated completion of Summary Implementation Strategies in 2006 and Detailed Implementation Plans in 2007.. Lead: Ecology.
- o **Eld Inlet** water quality still supports commercial shellfish harvesting although some marine sampling stations indicate declining conditions;
 - **TMDL** process has been initiated for Eld Inlet tributaries McLane Creek (WRIA 13) and Perry Creek (WRIA 14) on the basis of a recently published Ecology water quality study showing fecal coliform pollution. Action plans anticipated in 2005/2006.
- o **Eld Inlet:** With the exception of the McLane and Perry Creek fecal coliform TMDLs, no significant water quality action program is underway or scheduled for the Eld Inlet watershed, despite water quality conditions show evidence of decline.⁶⁰ Increasing fecal coliform levels threaten to reverse gains made in the mid-1990’s, when a grant-funded project led to repair of nearly 100 failing on-site systems and improve agricultural practices – resulting in an upgrade in shellfish harvesting status.⁶¹ Waiting for the TMDL to address existing problems in watershed streams may be too slow and indirect to protect shellfish harvesting classification from downgrade.
- o **Action plan implementation:** Past water quality action plans were only partially implemented. Most activity was through short-term projects, rather than long-term sustained action programs. New upcoming action plans will require additional activities and funding to achieve objectives. In addition, the TMDL for McLane and Perry Creeks will not address bacterial pollution from sources on the Cooper Point and Griffin peninsulas.

⁵⁹ Circulation and other data are summarized in the WRIA 13 Budd Inlet Technical Report.” Detailed information is provided in the Budd Inlet Scientific Study Final Report, August 1998, prepared for LOTT Partnership by Aura Nova Consultants and several others.

⁶⁰ Eld was listed as “Threatened” in the 2001 Annual Inventory of Commercial and Recreational Shellfish areas of Washington State, WA Department of Health. While most samples indicated “Good” water quality conditions, a few fecal coliform samples fell in the “Fair” status category.

⁶¹ Watershed Implementation: Eld, Henderson and Totten/Little Skookum, 1990-1992, July 1993, Thurston County Environmental Health.

3. FISH AND TROUT HABITAT IN THE DESCHUTES RIVER AND OTHER STREAMS ARE VULNERABLE TO WATER QUALITY IMPAIRMENTS TO AQUATIC HABITAT.

- **Water quality problem:** Aquatic habitat for salmon and other species is impaired by a range of water quality problems, commonly including changes in stream flow (high winter/low summer flows), turbidity, elevated summer water temperature and poor condition of critical habitat features such as large woody debris.

Changes in land cover impact hydrology and stream habitat. In urban and suburban streams, pollutants and changes in hydrology lead to significant aquatic habitat degradation.

The Deschutes River exceeds temperature standards set for maintaining healthy salmonid populations - a potentially limiting factor for summer residents like juvenile coho and Chinook salmon and cutthroat trout. A summer-long study of Deschutes water temperature in 1995 identified high water temperature conditions in the mid-Deschutes, with standards exceeded for 54 days. Temperatures in the lower river were moderated by additional groundwater input but still violated standards for 25 days.⁶² Ecology continuous temperature monitoring at Tumwater in 2001 identified maximum water temperature of 19.9 and highest 7-day average daily maximum of 19.4 degrees.⁶³ Cold groundwater input is critical to maintaining water temperature during the summer months.

Proposed new Ecology water temperature standards are based on multiple studies documenting environmental requirements of various species and life stages under more chronic (on-going) conditions.⁶⁴ The proposed salmon spawning and rearing temperature standard is a *7-day average daily maximum* of 16 degrees C. Water temperature impairment for the Deschutes is included on the Ecology 303(d) List. No other stream has extensive continuous temperature data at this time.

⁶² An Assessment of Stream Temperature, LWD Abundance and Spawning Gravel In the Main Stem Deschutes, 1995, Squaxin Island Tribe. Includes continuous monitoring of water temperature at six stations throughout the middle and lower river; and habitat parameters including large wood and sediment composition at five stations in middle and lower river.

⁶³ Ecology is monitoring Deschutes summer temperature with continuous recording devices near Tumwater. Began in 2001. See <http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?sta=13A060>

⁶⁴ Evaluating Criteria for the Protection of Aquatic Life in Washington's Surface Water Quality Standards - Dissolved Oxygen - Draft Discussion Paper and Literature Summary Department of Ecology December 2002. Available at <http://www.ecy.wa.gov/biblio/0010071.html>

The McLane Creek system supports a notably strong chum salmon run. No fish habitat-related impairments are included on the 2002-2004 303(d) List. Emerging concerns from recent research by Squaxin Tribe, Ecology, TCCD and Thurston County include water temperature, large woody debris, and stream flow (hydrology/land use change issues).⁶⁵

Less data is available on other WRIA 13 systems. However, water quality impairments related to aquatic habitat have been documented for nearly all significant streams.⁶⁶

- **Sources of impairment:**

Water temperature problems in the Deschutes illustrate the interrelated nature of aquatic habitat impairments. As discussed below, habitat concerns related to water temperature are directly linked to three additional items included on the Ecology 303(d) List for the Deschutes River: Instream Flow, Large Woody Debris and Fine Sediment.

- o *Groundwater inflow:* Reduced instream streamflow – particularly summer input of cold groundwater – is directly linked to water temperature problems. Deschutes instream flow is included on the Ecology 303(d) List of impaired water quality parameters.

The Deschutes groundwater inflow study funded by the WRIA project in 2001 provides very good data on which sections gain groundwater input and which sections lose streamflow to groundwater.⁶⁷ Withdrawals from wells located in from the upper aquifer are generally considered to have high potential for some impact to instream flow. Less understood is relationship between deeper aquifers and influence on streamflow.

- o *Lack of shade:* Sun shining on water is one source of increased water temperature. Lack of riparian vegetation increases direct solar input to stream temperature.
- o *Air temperature* can be reduced within a dense canopy of vegetation along a waterbody. The 1996 Squaxin study identified a strong correlation between periods of high air temperature and elevated water temperature

⁶⁵ An Assessment of Salmon Habitat for Protection and Restoration Efforts in the McLane Creek Watershed, 2000, Thurston Conservation District. Also see As Assessment of Salmonid Habitat and Water Quality for Streams in the Eld, Totten-Little Skookum and Hammersley Inlet-Oakland Bay Watersheds in Southern Puget Sound, 1996, Squaxin Island Tribe

⁶⁶ WRIA 13 Salmon Habitat Limiting Factors Final Report for WRIA 13, 1999, WA State Conservation Commission

⁶⁷ 2001 Deschutes Groundwater Inflow Study, February 2002, Thurston County Environmental Health. Funded by WRIA 13 Watershed Planning Grant funds.

conditions.⁶⁸ Standards developed by the Forest Service recommend a 300-foot buffer on each side of the river to provide this microclimate zone.

- o *Water depth: Large wood (LWD)* in the stream is vital to creating pools of deeper water, which can provide critical refuge for fish during warm spells.⁶⁹ For the Deschutes, inadequate Large Woody Debris has been documented in the 1996 Squaxin Island Tribe studies; on the basis of this research, LWD is included as an impaired parameter on the 303(d) list.

Large wood also provides *shade* especially in channel-spanning jams. And large wood plays a role in capturing *fine sediment*. Fine sediment can add to temperature problems by reducing groundwater inflow through the channel bottom. Fine Sediment problems in the Deschutes are also included on the 303(d) List.

- **Existing and emerging programs:**

- o Deschutes: Deschutes Water Temperature and, Fine Sediment are included in the Budd/Deschutes TMDL project that Ecology initiated in 2003.⁷⁰
- o Critical Area Ordinances of the local governments are undergoing revision to incorporate “best available science”. One of the critical areas identified in these ordinances is stream buffers.

- **Data and Programmatic Gaps:**

- o Stream corridor width: Current required buffer widths along streams are generally not sufficient to provide the cool microclimate needed during warm periods to help protect stream temperature.⁷¹
- o Instream Flow and Large Woody Debris 303(d) Listed Parameters: Instream Flow during the summer months is directly linked to water temperature. Large Woody Debris is an essential habitat component associated with summer refuge for fish. However, these are not

⁶⁸ An Assessment of Stream Temperature, LWD Abundance and Spawning Gravel In the Main Stem Deschutes, 1995, Squaxin Island Tribe

⁶⁹ A good technical discussion of water temperature related to fish habitat is “Spatial and Temporal Patterns of Stream Temperature” in Scientific Issues Relating to Temperature Criteria for Salmon, Trout and Char Native to the Pacific Northwest, EPA Region 10 Water Temperature Criteria Guidance Project”, February 28, 2001

⁷⁰ A good example of a river temperature study is from the Grand Ronde River in Oregon. See TMDL report on this river system at <http://www.deq.state.or.us/wq/>

⁷¹ See “Management Recommendations for Washington’s Priority Habitats: Riparian”, 1997, WDFW. Also “Stream-Riparian Ecosystems: A Review of Best Available Science”, May.

included in the Deschutes or Henderson TMDL, as these are “non-pollutant” impairments.

- o New fish-based temperature standards: Continuous recording data is now being collected as part of the County ambient monitoring program on most major WRIA 13 streams. This data should be analyzed to determine if the new 7-day temperature standard is exceeded.
- o Hydrologic examinations of McLane and Deschutes watersheds: Hydrologic basin plans will be needed to address the impact that changes in land use/land cover may have on stream flow. Process and roles for such long-range planning should be resolved by Thurston County, Squaxin Island Tribe, DNR and other involved parties.

4. FISH AND OTHER ORGANISMS IN BUDD INLET AND HENDERSON INLET SOMETIMES LACK ADEQUATE DISSOLVED OXYGEN BECAUSE OF NUTRIENT LOADING.

- **Water quality problem:** Low oxygen is a recurring summer problem in lower Budd Inlet, dropping below the Class B standard set to protect fish and other marine life (5 ppm).⁷² Low oxygen conditions have also been documented for Henderson Inlet.⁷³ Dissolved oxygen is consumed at night during daily cycles of algae growth, and during decay of dead algae and other matter. “Blooms” of marine algae are created by over-enriched (eutrophic) conditions, which result from excessive nitrate loading. Declining oxygen levels in inner Budd Inlet coincide with an increase in algae growth and decrease in circulation – an increase in consumption of oxygen with less opportunity for re-oxygenation from “fresh” input of marine water circulating from Puget Sound.⁷⁴

Algae growth in the marine system is driven principally by the presence of nitrates. Excess nutrient loading drives algae growth, leading to cycles of oxygen depletion. There is emerging concern that increasing nitrate loading

⁷² Oxygen conditions for various parts of Budd Inlet were documented in extensive sampling and summarized in the “Budd Inlet Technical Report” prepared for WRIA 13 project. A wealth of information is provided in Budd Inlet Scientific Study Final Report, August 1998, prepared for LOTT Partnership by Aura Nova Consultants and several others.

⁷³ Henderson Inlet Dissolved Oxygen is included on the Ecology list of “impaired” waters on the basis of limited sampling (2 excursions beyond the dissolved oxygen criterion out of 19 samples or 11% in Ecology ambient monitoring from 9/91 to 9/96. See Final 1998 Section 303(d) List – WRIA 13U, Department of Ecology, April 2000.

⁷⁴ LOTT Wastewater Resource Management Plan and Supplemental EIS, August 1998, Brown and Caldwell.

to South Puget Sound could lead to significant disruption of the ecosystem.⁷⁵ For example, nitrate loading may be a factor in increasing incidence of toxic marine algae blooms in our area. In 2001, Eld and Totten Inlet were entirely closed for the first time due to presence of paralytic shellfish poisoning toxins or PSP (commonly called “red tide”.) The microscopic organisms that create PSP are naturally occurring and are usually present in small numbers. However, when environmental conditions are optimal, “blooms” occur. These create toxins that are concentrated to potentially harmful levels by filter-feeding shellfish.⁷⁶

- **Sources of pollutant:** Ecology South Sound nitrate studies identify Deschutes, Woodland and Woodard as significant nitrate contributors to the inlets. Nitrate sources include fertilizers, manure, septic systems and other human activities.

Nitrates enter creeks and the inlets from both *surface water* runoff and from *groundwater* inflow. Rising nitrate levels in the shallow groundwater have been documented throughout Northern Thurston County (see Shallow Groundwater Loading problem below.) Trend data from Chambers Creek nitrate values is particularly striking; low-flow nitrate values have increased steadily over the past decade.

- **Existing and emerging programs:**
 - o Budd/Deschutes and Henderson Inlet TMDLs: Nitrate loading should be addressed as part of TMDLs to correct dissolved oxygen problems in these inlets.
 - o Education efforts: “Best practice” public education efforts have been pursued by the Stormwater Utilities to encourage proper fertilizing and other practices

Regional nitrate control: Ecology has completed Phase 1 of the South Puget Sound Model Nutrient Study (SPASM) to identify sources of nitrate loading to South Sound. Completion of the study depends on identifying future funding sources and/or resource partnerships.

- **Gaps:**
 - o Shallow groundwater loading with nitrates has not been directly addressed (see problem discussion below.)

⁷⁵ “South Puget Sound Model Nutrient Study” (SPASM). See <http://www.ecy.wa.gov/programs/eap/spasm/>

⁷⁶ Shellfish toxin information is available at <http://www.doh.wa.gov/ehp/sf/BiotoxinProgram.htm>

5. FISH AND OTHER ORGANISMS ARE EXPOSED TO POTENTIALLY TOXIC POLLUTANTS CARRIED IN URBAN STORMWATER RUNOFF.

- **Water quality problem:** Urban runoff, even runoff flowing through stormwater treatment facilities, can carry a wide range of pollutants to small streams and tributaries. Sediment in Lacey stormwater contained 29 organic contaminants and 7 toxic metals.⁷⁷ Tumwater stormwater contained 29 contaminants that come from fuels and plastics.⁷⁸ Because of these accumulated pollutants, our urban streams have limited diversity in bottom-dwelling organisms indicating chronic pollution conditions.⁷⁹ In the Seattle area, death of spawning salmon – particularly coho – has been directly linked to toxic pollutants “flushed” from urban areas by stormwater.⁸⁰
- **Sources of pollutant:** Pollutants are generated by vehicles (such as petroleum products and heavy metals); use of pesticides and herbicides; and other activities. During rainfall, runoff carries these pollutants into streams. In fall, rains carry a particularly heavy load of accumulated pollution – which coincides with the presence of spawning salmon, especially coho. Illicit or mistaken sewer pipe connections and dumping into stormwater systems also contribute a variety of pollutants.
- **Existing and emerging programs:** The region’s Stormwater Utilities and other entities have pursued recent urban stormwater quality efforts including:
 - o Comprehensive Stormwater Basin Plans were produced for Green Cove; Chambers/Ward/Hewitt; Woodland/Woodard; Percival Creek; and Indian/Moxlie basins. These plans addressed both quantity and quality of urban stormwater; recommended actions range from capital facilities to regulations to education on avoiding or minimizing pesticides and herbicides.
 - o The Capitol Lake Adaptive Management Plan identifies urban stormwater as a key water quality issue. The plan also provides a

⁷⁷ Woodland and Woodard Creek Basins Stormwater Quality Survey, December 1989, Thurston County Environmental Health Division (Susan Davis and Randy Coots)

⁷⁸ City of Tumwater Comprehensive Stormwater Implementation Program – Technical Appendices March 2002.

⁷⁹ “Benthic Invertebrate Index of Biological Integrity” information on area streams is briefly discussed in the “WRIA 13 Water Quality Technical Paper. Additional information is available in the Thurston County Water Resources Monitoring Report issued each year (cited above).

⁸⁰ An excellent newspaper article on the coho problem and urban stormwater is at http://seattlepi.nwsourc.com/local/107460_coho06.shtml

context to address long-range management questions, particularly the reservoir vs. estuary issue.

- o Sampling to identify pollutants in stormwater outfalls to the lower Deschutes, Capitol Lake, Woodland Creek and other urban streams. Video surveys of stormwater pipes emptying into Indian/Moxlie Creek identified mistaken sewer hookups by businesses to stormwater pipes.
- o Retrofit facilities, such as the Lacey Boulevard stormwater outfall retrofit to protect Woodland Creek.
- o Comprehensive stormwater programs are stipulated by the Clean Water Act "Phase II NPDES" stormwater program. This will provide an opportunity to assess adequacy of existing programs.

- **Gaps:**

- o Stormwater treatment is not adequate to remove toxic pollutants. Multiple stormwater outfalls would need new or upgraded treatment facilities if we were to remove pollutants.
- o Maintenance of privately owned oil/water separators and other facilities has not been consistently tracked in all jurisdictions.
- o Routine preventative maintenance practices may need to be evaluated for public and private stormwater treatment facilities, street cleaning and other measures to reduce toxic pollution of our streams and inlets.
- o Some sub basins are particularly vulnerable to urban stormwater impacts. For example, it was determined that Green Cove Creek could only sustain natural resource values with significant changes to development standards and/or densities. Other streams may be similarly vulnerable to urban density development.

6. IN PARTS OF NORTHERN THURSTON COUNTY, NITRATE POLLUTION IS THREATENING THE QUALITY OF WATER IN UPPER AQUIFERS.

- **Water quality problem:** Elevated nitrates (above 6 ppm) have been documented in urban areas in the vicinities of Tanglewilde, Woodland Creek Estates (north of Lacey) and Chambers Creek. Another documented area lies south of the Lakes area, down gradient of significant agricultural activities in the Chambers Prairie.

Nitrate-enriched groundwater from the upper aquifer (Vashon recessional or Qvr) flows into streams and inlets, contributing to nitrate over-enrichment and dissolved oxygen problems. Our creeks are dependent on this shallow groundwater for summer flows. Due to elevated nitrates in this shallow groundwater nitrates, the highest nitrate values in our urban streams are observed during summer.

In some areas, nitrates exceed safe drinking water standards of 10 ppm in the Vashon Advance aquifer (Qva) (the aquifer lying below the Qvr). This aquifer is used by small community and individual wells. Homeowners in community water systems such as Woodland Creek Estates subdivision could no longer use their well due to nitrate pollution. The neighborhood paid to extend city water to their area. Businesses along Martin Way have abandoned their wells and hooked up to city water after sampling results identified nitrate levels exceeding drinking water standards.⁸¹

Nitrates are also an “indicator” of other highly mobile pollutants such as household chemicals. These chemicals may be entering groundwater along with septic nitrates. Similarly, pesticides may be entering groundwater along with nitrates from fertilizers.

“Leakage” from the upper aquifers to the deeper “sea-level” aquifer used by municipal and large private water systems is another concern. The degree and location of “leakage” is poorly understood at this time.⁸²

- **Sources of pollutants:** Studies have shown that nitrate levels in the upper aquifer have increased about 30% since 1989 – roughly the same increase as population.⁸³ Sources include:
 - o Septic systems in suburban-density areas are a source of nitrate loading. This is a likely factor in the documented elevated nitrate levels in the Tanglewilde area.⁸⁴
 - o “Deep trench” systems were commonly installed in some areas, such as 15th Avenue north of Lacey. These exacerbate nitrate loading by infiltrating septic effluent into a narrow gravelly lens flowing directly to Woodland Creek. These systems were widely installed in the 15th Avenue area north of Lacey – a documented high nitrate area where at

⁸¹ “Septic System Inventory for Tanglewilde, Thompson Place and Bicentennial Developments”, Thurston County Environmental Health for LOTT Partnership, December 1998.

⁸² Rate of groundwater movement from upper to lower aquifers – known as vertical hydraulic conductivity – is not well understood in our region. See Conceptual Model and Numerical Simulation of the GW Flow System in the Unconsolidated Sediments of Thurston County, 1999, USGS (Water-Resources Investigations Report 99-4165).

⁸³ North County Regional Groundwater Monitoring Report, Thurston County Groundwater Program, May 2002. Included in Thurston County Water Resources Monitoring Report 1999-2001 Water Year cited above.

⁸⁴ “Septic System Inventory for Tanglewilde, Thompson Place and Bicentennial Developments”, Thurston County Environmental Health for LOTT Partnership, December 1998.

least one community well has been contaminated and a new source substituted.

- o Fertilizing by homeowners and commercial operations are another significant source of nitrate loading. In sandy and gravelly soils, the combination of fertilizer over-application and extensive irrigation and rainfall can push nitrates below the root zone and into the upper aquifer. This is a likely source of elevated nitrate conditions south of Pattison Lake.⁸⁵

- **Existing and emerging programs:**

On-site system regulations and sewer policies: On-site systems must be repaired when they fail, which is evidenced by surfacing sewage or other obvious malfunction. Codes generally require individual “failed” systems to hook up if sewer is available and it is financially feasible. Thurston County has also adopted a **groundwater protection policy** stipulating contamination source investigation at the “Early Warning Level” and an action program at the “Critical Action Level”. While employed in a few specific problem areas, the EWLs/CALs policy has not been systematically implemented.

A key factor limiting effectiveness of existing regulations is the inability to associate a groundwater contamination problem with specific on-site systems or land use activities – groundwater contamination problems are generally *area-wide* and *cumulative* in nature, while regulations are system-specific.

Conversion policies: the Henderson Inlet and Nisqually Reach Shellfish Protection District Stakeholder Groups issued Water quality action recommendations in 2004. A policy framework regarding conversion of urban-density septic systems to sewer is being tackled by the ongoing SPD Stakeholder Group (as of August 2004)

Anti-Degradation policies - State statute and Ecology rules address protection of groundwater quality. As intended in WAC 173-200-030 (excerpt):

“Existing and future beneficial uses shall be maintained and protected and degradation of ground water quality that would interfere with or become injurious to beneficial uses shall not be allowed.”

⁸⁵ Thurston County Lakes Water Quality and Restoration Analysis, 1978, Entranco Engineers for Thurston County. Results of intensive one-year monitoring for Hicks, Pattison and Long Lakes. Also Final Report: Pattison and Long Lakes Restoration Project Final Report, 1985, Entranco for Thurston County. Updated water and nutrient budgets were included.

As to future development, Thurston County Critical Areas Ordinance anti-degradation regulations would preclude the existing septic system densities in Tanglewilde and other suburban-density developments, as on-site system densities exceeding 2 units per acre are not permitted in Category I Aquifer Recharge areas. But this does not address pre-existing development.

Regulation of new development - Landscape Plans: In Aquifer Sensitive areas, new developments such as subdivisions and golf courses are generally required to include Integrated Pest Management (IPM) landscape management plans as a condition of permit approval. Compliance with these low-impact landscaping plans is problematic for subdivisions, where multiple individual property owners are involved. Landscaping controlled by a single entity – such as golf courses – has a higher level of management regarding irrigation, pesticides and fertilizing.

Wellhead Protection Areas: The cities have mapped their wellhead capture areas – the areas where rainfall enters the ground and eventually supplies a municipal well. Within these areas education on best practices has been initiated, such as outreach to businesses and homeowners.

- **Gaps in Policy and Funding:** Our region lacks effective policies and funding mechanisms to address this issue. Despite documented contamination of the upper aquifer, comprehensive consideration of urban area conversion from on-site sewage systems to sewer has been thwarted by several factors:
 - o Sanitary Code and EWLs/CALs policy don't provide a trigger for action. Groundwater contamination from on-site sewage systems cannot be traced to individual "failing" systems – the problem is area wide and cumulative.
 - o City sewer utilities have limited funds for programmatic city-sponsored extension of sewer mains. Cities have mainly relied on developers to pay for sewer line extensions to reach new customers.
 - o Homeowners have limited financial capacity. Sewer conversion could be very expensive. Utility Local Improvement District assessments cannot exceed the *increased value to property* from the improvement. Meeting this "benefit test" may be a significant challenge in established neighborhoods where existing on-site systems are not in enforceable "failure" condition – and much of the benefit of conversion to sewer accrues to the general public and environment.
 - o Municipalities have not systematically implemented sewer hookup policies and regulations.

- o Business and homeowner outreach has been focused on city Wellhead Protection Areas, not areas of shallow groundwater contamination concern.
- o Resolving whether we have a problem: We have not answered the fundamental question “Is contamination of the shallow groundwater by urban-density on-site systems a problem that our region should address”?

7. **CURRENT MONITORING PROGRAMS MAY BE INADEQUATE TO GUIDE FUTURE WATER-PLANNING NEEDS.**

- **Problem: Current monitoring programs are inadequate to assess effectiveness of programs.** Monitoring must be conducted consistently over the long run to track emerging problems and gauge success of emerging pollution control efforts. Long-term monitoring will be especially important to track implementation of TMDL and Shellfish Protection District action programs. Facility-specific monitoring is also important to track conformance of stormwater control facilities with design and maintenance standards.
- **Existing programs:**
 - o Grants have funded several water quality investigation projects, including current efforts in Henderson and Nisqually Reach. Limitations: Limited to discrete short-term projects and generally only one time in the same waterbody.
 - o Ambient monitoring is conducted on most urban area streams through Stormwater Utility funding. Stream sampling is generally conducted four times in winter and twice during the summer months. A few lakes have on-going monitoring through local funding (Lake Management District on Long Lake; GA for Capitol Lake.)
 - o Groundwater monitoring is conducted by cities within their mapped Wellhead Protection Areas. Thurston County led a regional groundwater monitoring program for several years; city funding for regional monitoring ended in 2002.
- **Gaps:**
 - o Current ambient monitoring does not include toxic pollutants like hydrocarbons or pesticides. This sampling has been limited to special projects as problems are identified (e.g., illicit discharges) or particular facilities are monitored to verify performance. Routine toxics monitoring is not cost-effective because of the large number of potential pollutants, lab costs, and the lab results rarely identify target pollutants.

- o Absence of funding source to support ambient monitoring in the middle and upper Deschutes, as this is outside the existing Thurston County Stormwater Utility rate boundary.
- o Stormwater facilities have rarely been systematically sampled to determine effectiveness in meeting design goals. Stormwater facility monitoring is complex and very costly, including labor, sampling equipment, and laboratory costs. In general, this type of work is best done at the manufacturer, state or national level, with government or manufacturer funding. Ecology is implementing a stormwater practice evaluation program that will help determine facility effectiveness.

RECOMMENDATIONS: WATER QUALITY ELEMENT

In the following section, recommendations are provided separately for 1.) Area-wide actions to address water quality, and 2.) Basin-specific water quality actions.

WRIA-WIDE RECOMMENDATIONS

Recommendations of the WRIA 13 Watershed Planning Committee to guide water quality protection efforts throughout the planning area:

1. Implementation and enforcement of existing regulations to protect water quality should be systematic, sustained and comprehensive.

Our local governments have invested significant resources in adopting a host of water quality – oriented policies and ordinances. But implementation and enforcement has been a secondary focus. Enforcement has been under funded and complaint-driven, rather than systematic, sustained and comprehensive.

Significant new research is being conducted related to water quality problems and corrective actions. In our region, recent research includes the Phase I SPASM study of nitrate loading to the South Sound; National Academy of Science study on development regulations; and the Puget Sound Action Team assessment of urban impacts on shellfish harvesting. As new information emerges, it should be considered for incorporation into policies and ordinances.

Recommended actions:

- a. The cities and County should systematically enforce adopted regulations that can protect water quality. These include:
 - On-Site Septic System regulations for existing systems in rural areas
 - Requirements for urban area septic system conversion to sewer
 - Non-Point Ordinance to address specific pollution problems caused by poor practices at farms and other facilities.
 - Groundwater Protection Early Warning Policy
 - Stormwater Manual requirements for erosion and stormwater control
- b. Investigate and evaluate new and emerging information relating to water quality protection. Integrate valuable new information into ordinances and implementation programs

2. Support implementation of the adopted and upcoming water quality action plans for WRIA 13 watersheds and water bodies.

Details on a wide range of water quality problems are contained in adopted plans, including Stormwater Basin Plans and Watershed Action Plans for Eld, Budd and

Henderson Inlet. The recently issued “Shellfish Protection District Plans” for Henderson Inlet and Nisqually Reach are in process of prioritization and implementation. In the coming years, Ecology-sponsored “Total Maximum Daily Load (TMDL) cleanup plans” for Henderson Inlet, Nisqually Reach, Deschutes/Budd Inlet and McLane Creek. These new plans will further refine our identification of pollutant sources and action strategies in these portions of WRIA 13.

Recommended actions:

- a. On-Site O&M: Thurston County Commissioners should adopt an operation-and-maintenance (O&M) program for on-site systems in order to protect water quality in WRIA 13. At a minimum, the Commissioners should launch a program in areas where the need to protect water quality is greatest and where previous plans for O&M programs have been supported by the public and adopted by the Board or recommended by Shellfish Protection District Stakeholders. .
- b. TMDLs: Local governments and interests should be actively involved in developing the TMDL action plans for Deschutes/Budd, Henderson Inlet, Nisqually Reach and McLane Creek. Consider our experience with success and shortcomings in implementing previous water quality action plans, to improve the TMDL action programs.
- c. Previous Plans: Previous water quality plans for Eld Inlet and our other watersheds should be examined to identify implemented items that should be sustained and non-implemented recommendations that warrant future action.

3. Design and implement an aggressive, innovative water quality outreach strategy for our region

Status quo levels of effort will not be effective in addressing the critical challenge of non-point pollution – the multiple small sources of contamination that cumulative lead to degraded conditions in our streams, inlets and aquifers.

Our local governments sponsor interested volunteers in revegetation and monitoring (Stream Team); “pest practices” demonstration projects (Pesticide-Free Neighborhood); and public information programs on pollutant sources ranging from pesticides to dog waste. The Conservation District has pursued multiple outreach projects to small farmers and large animal owners.

However, the existing level of these outreach programs has not touched the vast majority of property owners and residents. Often, existing efforts are short-duration *projects* (often funded by grants) rather than sustained programs.

A strategic and aggressive water quality public outreach program is needed, employing modern marketing tools and techniques. We need to build on current programs and

interjurisdictional coordination to design a new innovative outreach strategy. Examples of innovative programs such as in Snohomish County should be used as springboards for defining our region's outreach strategy.

Recommended action: A regional Water Quality Public Outreach Strategy should be designed and implemented. This should build on the experience of local governments, tribes, non-governmental groups, shellfish industry and others engaged in water quality public outreach.

4. Pursue financial incentives and acquisition programs where needed to protect the most water quality-sensitive lands.

In some cases, we need to move beyond enforcement and outreach to incentive programs.

Recommended actions:

- g) Pursue acquisition of conservation easements and land along water quality-sensitive stream corridors and marine shorelines.
- h) Prioritize the most important areas for acquisition but also be prepared to proceed when property owners are willing.
- i) Make full use of existing governmental and non-governmental mechanisms, such as the Capitol Land Trust and the Open Space Tax Program.

Also see the Habitat chapter regarding acquisition and incentives programs for stream corridors and marine shorelines where land use activities may be incompatible with protecting water quality and habitat.

5. Enhance city and county Stormwater programs to reduce impacts to water quality

City and County Stormwater Utility programs are well established in north Thurston County. Enhancements are underway to meet emerging NPDES requirements. Continue efforts to enhance Stormwater programs in the region to reduce impacts on water quality.

Recommended actions: Enhance current Stormwater programs to protect water quality of our streams, lakes and inlets, including:

- o Ensure adequate maintenance of publicly and privately owned stormwater facilities, especially those with surface discharge to natural waterbodies.
- o In older neighborhoods, continue efforts to design and construct retrofit stormwater facilities where sufficient land is still available.
- o Stormwater and erosion control design requirements and maintenance programs should be periodically evaluated and enhanced as necessary to ensure effectiveness in protecting water quality.

- o Pursue regional efforts to develop low impact development standards and to implement LID development projects.
6. **Support sustained funding for investigation of South Puget Sound nutrient loading trends and problems.** Recent developments in Hood Canal have shown the sensitivity of our marine waters to nutrient loading and resultant problems such as suppressed dissolved oxygen levels. South Puget Sound shows some early signs of similar dissolved oxygen problems. A comprehensive and predicable model of South Sound nutrient loading is needed to identify action thresholds to avoid environmental consequences. Continued development of the South Puget Sound Model Nutrient Study (SPASM) is one possibility for a long-range management tools for this area.

Recommended actions: The Legislature should provide sustained funding for investigation of South Sound nutrient loading and associated water quality problems, in conjunction with university-affiliated research programs.

AREA -SPECIFIC PRIORITY RECOMMENDATIONS

Priority problems for the sub-basins in the WRIA are briefly described, followed by action recommendations. Further description of key water quality problems is provided in the “Findings” section of this chapter.

A. Henderson Inlet and Nisqually Reach Sub basins:

1. Support Shellfish Protection District (SPD) efforts to correct bacterial contamination of Henderson and Nisqually Reach shellfish growing areas:

Henderson and Nisqually Reach have both had recent shellfish harvesting downgrades. Both urban and rural areas contribute to pollution problems in these areas. A broad range of “nonpoint” bacterial pollution sources from humans, pets and wildlife has been documented by recent DNA-based sampling.⁸⁶ Shellfish Protection District Stakeholder Groups for the two areas have issued proposed corrective action plans⁸⁷.

Recommended actions:

⁸⁶ Bacteriological Contamination Source Identification, Henderson Inlet, 1999-2001 by the Thurston County Environmental Health Division in conjunction with Dr. Mansour Samadpour of the University of Washington. Available at <http://www.co.thurston.wa.us/shellfish/publicationsmedia.htm#dnatest>

⁸⁷ Henderson and Nisqually Reach Shellfish Protection District Stakeholder Group Report and Recommendations (2003).

- a. Thurston County should implement the Risk-Based On-site System O&M Program being developed for the Henderson Inlet watershed.
- b. The appropriate agencies should pursue action on priority issues identified by the Henderson Inlet/Nisqually Reach SPD Stakeholders Group.

2. Support Ecology TMDL programs for Henderson Inlet and Nisqually Reach to address dissolved oxygen, temperature and other aquatic habitat impairments:

The 2003-2006 TMDL projects in Henderson and Nisqually Reach are led by Ecology with local involvement by the cities, Thurston County and Conservation District.

Recommended action:

TMDL action plans should:

- ❑ Incorporate local data and knowledge of water resources into TMDL planning;
- ❑ Incorporate science outcomes of the TMDL projects into local planning and action programs.

3. Investigate the implications of nitrate loading and other pollutants to shallow groundwater (Qvr) in urban areas such as Tanglewilde and pursue remedial action

Parts of north Thurston County (such as the Tanglewilde area) were developed at urban densities with on-site septic systems. The density of on-site systems in these areas greatly exceeds current standards. Nitrate levels in the upper aquifer near these areas commonly exceed safe drinking water standards (10 ppm). Nitrate-enriched groundwater from the upper aquifers flows into streams and inlets, contributing to nitrate over-enrichment and dissolved oxygen problems. Nitrates are also an indicator of other potential contaminants.

While elevated groundwater nitrate levels in these urbanized areas have been documented, the significance of this impairment has not been fully explored. No long-range action program has been defined or adopted to address the issue of urban-density areas with on-site septic systems. The existing policy framework of the County and cities is not adequate to address conversion of urban-density septic systems to sewer.

Recommended actions

- a. **Investigate the long-term implications of nitrate loading** to the shallow aquifer in areas with urban-density development on septic systems. This investigation should include assessment of other serious pollutants and their potential impact on surface and groundwater. Investigation should consider:

- Number of systems and households to date that have abandoned shallow source for municipal or other supply
- Number and location of households still relying on Qvr in the vicinity and implications for potential loss of source
- Trends in nitrate levels in all area aquifers
- Confining layer condition separating upper aquifer from deeper sources
- Contamination risk to deeper aquifers: Estimate quantity of upper aquifer water that would cause impairment in deeper aquifer; compare to likely actual conditions.
- Emerging research on South Sound ecosystem concerns regarding nitrate loading.

b. **Develop clear city and County policies** regarding conversion of urban area on-site systems to public sewer.

c. **Pursue funding for needed remedial action.**

4. Supplement existing Henderson Inlet water quality monitoring to address emerging issues:

As new water quality initiatives are pursued under the Shellfish Protection District or TMDL implementation, long-term data collection should be designed to track implementation success.

Recommended action:

Based on the 2003 Henderson Inlet Shellfish Protection District Stakeholder Group Report and Recommendations and the emerging TMDL outcomes, examine existing ambient monitoring to identify gaps regarding identifying pollution sources and documenting trends

B. Eld Inlet

1. Prevent further degradation of the marine water quality in Eld Inlet by addressing all impairment-creating pollution sources:

Except for the TMDL in preparation for McLane Creek, no significant water quality action program is underway or scheduled for the Eld Inlet watershed, despite declining water quality documented by the DOH sampling program for commercial shellfish growing areas.⁸⁸ Lack of action is jeopardizing water quality suitability for commercial shellfish harvest.

⁸⁸ Eld was listed as “Threatened” in the 2001 Annual Inventory of Commercial and Recreational Shellfish areas of Washington State, WA Department of Health. While most samples indicated “Good” water quality conditions, a few fecal coliform samples fell in the “Fair” status category.

Recommended actions:

- a. Proceed with implementing the risk-based on-site system O&M program recommended in the adopted Cooper Point Wastewater Facilities Plan (1999). The O&M program proposed in the 1999 Plan should be updated based on policy development in the Henderson Inlet, and the O&M program should be adopted concurrently for the two watersheds.
- b. Support the Ecology 2003-2006 McLane Creek fecal coliform TMDL.
Encourage consideration of impact to marine receiving shellfish harvesting from McLane Creek bacterial sources in determining the water quality cleanup plan.

2. Protect McLane Creek aquatic habitat from water quality impairments through the Ecology TMDL process and local Basin Planning:

The McLane Creek system supports a notably strong chum salmon run. No fish habitat related impairments are included on the 2002-2004 303(d) List. Other emerging concerns from recent research by Squaxin Tribe, Ecology, TCCD and Thurston County include water temperature, large woody debris, and stream flow (hydrology/land use change issues).⁸⁹

Recommended actions:

- a. **Engage in the 2003-2006TMDL process** for McLane Creek Fecal Coliform Outcomes should include:
 - o Incorporate local data and knowledge of water resources into TMDL planning;
 - o Incorporate science outcomes of the TMDL projects into local planning and action programs.
- b. **Instream flow/hydrology:** A basin plan is needed to address the impact that changes in land use/land cover may have on stream flow. Explore potential for joint project by Squaxin Island Tribe and Thurston County Stormwater Utility.

C. Budd/Deschutes

1. Support Ecology TMDL process to correct aquatic habitat pollutant impairments in freshwater and marine waters:

⁸⁹ An Assessment of Salmon Habitat for Protection and Restoration Efforts in the McLane Creek Watershed, 2000, Thurston Conservation District. Also see As Assessment of Salmonid Habitat and Water Quality for Streams in the Eld, Totten-Little Skookum and Hammersley Inlet-Oakland Bay Watersheds in Southern Puget Sound, 1996, Squaxin Island Tribe

Deschutes River aquatic habitat for salmon and other species is impaired by a range of water quality problems, including elevated summer water temperature, excessive fine sediments and poor condition of critical habitat features such as large woody debris. In lower Budd Inlet, low oxygen is a recurring summer problem, dropping below the minimum Class B standard set to protect fish and other marine life (5 ppm).⁹⁰

Recommended actions:

- a. Support Ecology's Deschutes/Budd TMDL process (scheduled to conclude in 2007) with strong local involvement. Propose local oversight be provided through WRIA Planning Committee or successor group. Implement science-based outcomes.
- b. Instream flow/hydrology: A basin plan is needed to address the impact that changes in land use/land cover may have on stream flow and related water quality parameters.

⁹⁰ Oxygen conditions for various parts of Budd Inlet were documented in extensive sampling and summarized in the "Budd Inlet Technical Report" prepared for WRIA 13 project. A wealth of information is provided in Budd Inlet Scientific Study Final Report, August 1998, prepared for LOTT Partnership by Aura Nova Consultants and several others.

Exhibit 1: WRIA 13 Waterbodies: Summary of Water Quality Conditions

BASIN	Indicators: Thurston Co. Reports			Parameters on 1998 Ecology 303(d) List (see notes below regarding status)									
	General WQ Conditions	Nitrate-Nitrite	Aquatic Biota Index	Fecal Coliform	Dissolved Oxygen	Water Temp	pH	Total Phosph.	PCB (Tissue)	Toxics (various)	Instream Flow	Woody Debris	Fine Sediment
DESCHUTES RIVER REICHEL LAKE LAKE LAWRENCE OFFUT LAKE MCINTOSH LAKE TEMPO LAKE			BIBI Index	Pollutants Causing Impairment . Numbers refer to action plans. See notes below.							"Non-Pollutant" Impairments. Numbers refer to notes below.		
DESCHUTES BASIN													
HUCKLEBERRY	Good					1							
AYER CREEK	Poor			1	1		1						
REICHEL CREEK	Poor			1									
LAWRENCE LAKE (Note 7)	Fair												
OFFUT LAKE	Fair												
SPURGEON CREEK	Good	Low											
CHAMBERS LAKE	Fair-Poor												
CHAMBERS CREEK	Good	High	Poor-Moderate										
DESCHUTES RIVER	Good	Moderate		1		1					6	6	6
PERCIVAL CREEK	Good	Low	Moderate										
CAPITOL LAKE (Note 8)	Fair-Poor			1				1					
HEWITT LAKE	Good												
WARD LAKE	Excellent-Good								1				
BUDD TRIBUTARIES													
ELLIS CREEK	Fair-Good	Moderate	Moderate-Good										
INDIAN CREEK	Poor	Moderate		1									

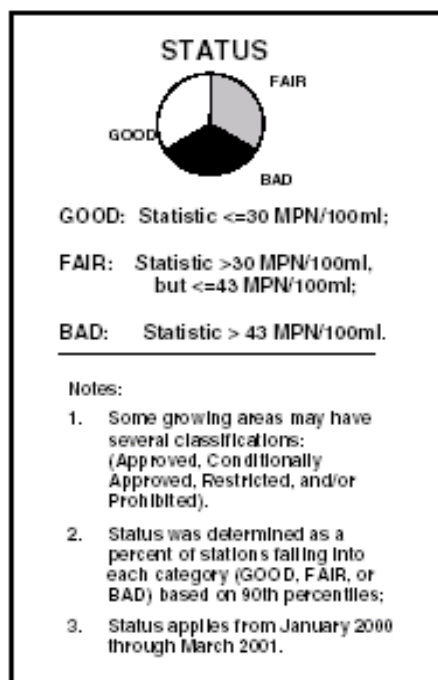
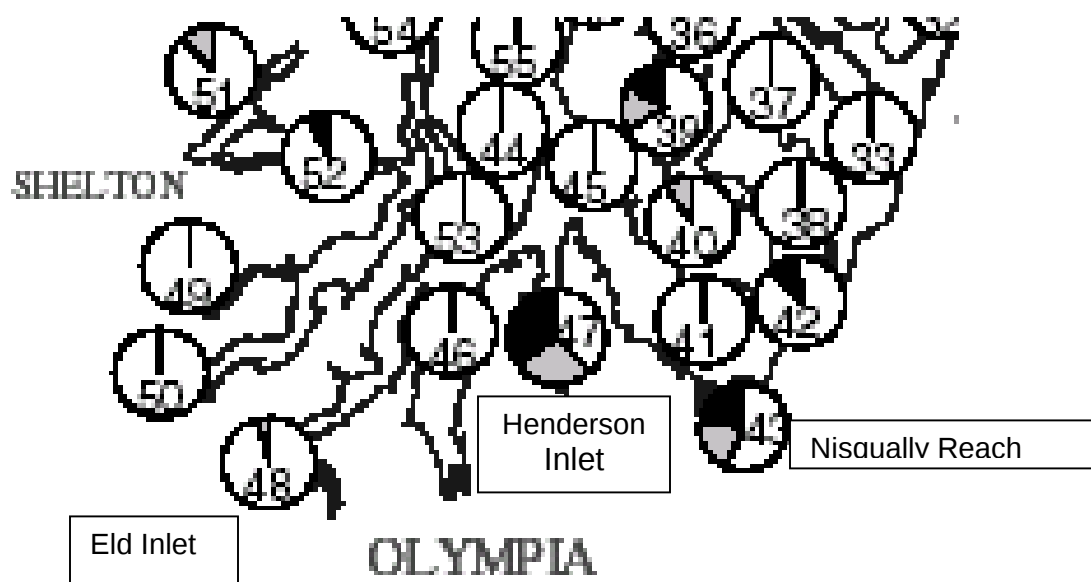
MISSION CREEK	Poor-Good	High		1									
MOXLIE CREEK	Poor-Fair	Moderate		1									
SCHNEIDER (EAST BAY)	Fair-Good	High											
BUTLER CREEK	Fair-Good												
BUDD INLET -MARINE WATERS					1		1			4			
ELD													
GREEN COVE CREEK	Good	Moderate	Moderate-Good										
MCLANE CREEK (Note 9)	Fair-Good	Low	Moderate-Good	5									
ELD INLET - MARINE WATERS													
HENDERSON													
DOBBS	Fair	Low		2			2						
MEYER	Fair	High		2									
SLEEPY (LIBBY)	Fair	Medium		2	2		2						
WOODARD	Fair-Good	Moderate	Moderate	2	2		2						
HICKS LAKE	Fair-Good												
PATTISON LAKE (Note 10)	Good												
LONG LAKE (Note 10)	Fair												
WOODLAND	Fair	High	Poor-Moderate		2	2	2				6		
HENDERSON INLET - MARINE				2	2								
Subtotal & average %													
NISQUALLY REACH													
NISQUALLY REACH													
NISQUALLY REACH - MARINE				3	3								

NOTES ON LISTING STATUS:

- Deschutes/Capitol Lake/Budd Inlet is on Priority List for TMDL to be initiated in FY 2003. Five-year process to complete.
- Henderson Inlet TMDL process initiated in 2002.
- Nisqually Reach TMDL process initiated in 2002.
- Cascade Pole toxics problems being addressed through separate action program.
- Eld Inlet notributaries McLane (WRIA 13) and Perry (WRIA 14) TMDL process initiated in 2004.
- "Non-pollutant" impairments cannot be "allocated" via TMDL. Ecology anticipates state/local agency actions will address these impairments.
- Lake Lawrence excluded from List despite documented impaired condition based on 1992 Lake Restoration Plan & Ecology monitoring
- Capitol Lake 1988 Lake Restoration implemented but Listed: Lacks monitoring to assure effectiveness
-
-
-
-
-
- Pattison and Long Lakes excluded despite documented impairment based on 1987 Lake Restoration Implementation, Ecology & County monitoring

Exhibit 2: Water Quality Conditions in Eld, Henderson and Nisqually Reach

From Fecal Coliform Pollution in Shellfish Growing Areas – South Sound,
DOH “2001 Annual Inventory of Commercial and Recreational Shellfish Areas of
Washington State”



- 39. Filucy Bay
- 40. Drayton Passage
- 41. Thompson Cove (Ar)
- 42. Oro Bay (Anderson)
- 43. Nisqually Reach
- 44. McMicken Island
- 45. Whiteman Cove
- 46. Budd Inlet
- 47. Henderson Inlet
- 48. Eld Inlet
- 49. Skookum Inlet
- 50. Totten Inlet
- 51. Oakland Bay
- 52. Hammersley Inlet
- 53. Peale Passage

INTRODUCTION

Overview

Protecting aquatic habitat is a fundamental component of WRIA 13 water management. At the outset of the WRIA 13 project, Habitat was included as an “optional” element. As stated in RCW 90.82.100,

“If the initiating governments choose to include a habitat component, the watershed plan shall be coordinated or developed to protect or enhance fish habitat in the management area.

The WRIA 13 Watershed Planning Committee recognizes the iconic role of salmon within the realm of habitat protection. In addition to salmon, a host of organisms are dependent upon aquatic and near-shore habitats. These critical habitats should be protected for all species. The recommendations contained in this chapter are intended to help achieve the WRIA 13 Mission: *“Create a long-range water resource management framework to protect aquatic habitat and provide water for vital community needs.”*

This chapter addresses:

- Introduction to Habitat planning guidance from RCW 90.82, the Watershed Planning Act.
- Linkage with the Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13, Thurston Conservation District Lead Entity, July 2004.
- Key findings relating to Habitat and Watershed Planning.
- Habitat Protection and Restoration Action Recommendations identified as having preliminary support from the WRIA 13 Watershed Planning Committee.

Coordination Requirements of RCW 90.82.100 and Current Status of WRIA 13 Salmon Habitat Programs

Many regional efforts are underway to improve salmon habitat data and habitat protection.⁹¹ The Watershed Planning Act emphasizes avoiding duplication and maximizing coordinating with these existing programs.

The three specific points of Habitat Element guidance from RCW 90.82.100 are paraphrased below, followed by a summary of current status in WRIA 13:

- *“Rely on existing laws, rules or ordinances created for the purpose of protecting, restoring or enhancing fish habitat, including the Shoreline Management Act, Growth Management Act and Forest Practices Act”.*

Status: As required by the Growth Management Act, the Critical Area Ordinances of the local governments are in the process of review. Stream buffers and other regulatory provisions are being reviewed to incorporate “best available science,” with a deadline for action by the end of 2004.

⁹¹ See Habitat technical report for an overview of important regional salmon efforts.

The Watershed Plan does not propose new regulations. However, effective administration and enforcement of these existing regulations is an important recommendation of the Plan.

- *“Rely on the Salmon Recovery Act (HB 2496) habitat restoration activities as the primary non-regulatory habitat component for fish habitat”.*

Status: HB 2496 activities have been underway in WRIA 13 for several years. The Thurston Conservation District is serving as “lead entity” for prioritizing habitat project funding requests to the Salmon Recovery Funding (SRF) Board. The WRIA 13 Habitat Limiting Factors Report was issued in July 1999. Thirteen projects have been funded in WRIA 13 in the initial three rounds of SRF Board funding, totaling nearly \$1.2 million.

The two principle habitat restoration guidance documents for WRIA 13 are the Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13 (July 2004) and the WRIA 13 Habitat Limiting Factors Final Report (July 1999.) The Watershed Planning Committee recommendations described in this Chapter are intended to complement and focus activity related to these existing habitat planning documents.

- *“Integrate the watershed plan with strategies developed to respond to ESA listings of salmon.”*

Status: WRIA 13 is included in the overall region covered by the Puget Sound Chinook “endangered” listing. However, the Chinook found in WRIA 13 streams are of hatchery origins and are not considered self-sustaining stocks⁹². Thus, WRIA 13 streams do not have a specific Chinook recovery population target under the ESA listing. However, the marine habitat in WRIA 13 is important for Chinook and other salmon species. .

In our region, a “South Puget Sound Salmon Recovery” effort is underway, led by the Squaxin Island and Nisqually Tribes and the Washington Department of Wildlife with participation by counties and cities. The planning project addresses all salmon stocks in the area south of the Tacoma Narrows. The initial product of this effort will be a South Sound Chinook recovery “chapter”, which will be integrated into the overall Puget Sound Chinook Recovery Strategy. The long-term objective of the South Puget Sound Salmon Recovery strategy is to protect our health salmon stocks – avoiding the need for additional ESA listings - and restore historic stocks throughout the South Sound.⁹³

HABITAT PROTECTION AND RESTORATION FINDINGS FOR WRIA 13

Key findings guiding the Habitat element of the WRIA 13 Watershed Plan include:

- 1. We need to go protect stream and nearshore habitat for all aquatic and riparian species.** Much of the stream habitat planning in our region is specifically oriented to salmon. We need a holistic approach that goes beyond salmon to protect aquatic habitat to benefit all species. A multitude of species is dependent on healthy aquatic

⁹² Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13, Thurston Conservation District Lead Entity, July 2004. Chapter Two provides a concise, comprehensive summary of all the species and stocks of salmonids in the planning area.

⁹³ See <http://home.comcast.net/%7Esouthsoundsalmon/>

and near-shore systems. Salmon and other keystone species are themselves dependent on prey species and an overall healthy aquatic ecosystem.

- 2. We need to go beyond habitat restoration projects and regulation to achieve permanent protection of the most sensitive habitats.** Acquisition of conservation easements and full acquisition of property are important actions to ensure permanent protection of critical habitat over the coming decades and generations.
- 3. Our local governments need to participate in ordinance implementation and invest in systematic ordinance enforcement** A great deal of effort is going into city and county updates of Critical Area Ordinances, to incorporate “best available science” for protecting riparian corridors and other sensitive areas. In the coming years, significant investment in revising Shoreline Master Program regulations is also anticipated. However, without adequate staffing for education, outreach and enforcement these updated regulations will be ineffective.

HABITAT ELEMENT RECOMMENDATIONS

The following Recommendations are intended to supplement the Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13, Thurston Conservation District Lead Entity, July 2004 and other salmon habitat strategies for the South Sound region.

Habitat Recommendation 1: Identify and implement priority actions in the “Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13” (July 2004) and other salmon habitat strategies for the South Sound region.

These strategies provide guidance for habitat protection and restoration projects. It is vital to clearly prioritize the most important actions based on best available information.

Recommended action: Priorities for habitat projects should be developed and adopted into local strategy documents. These priorities should:

- Focus on critical habitat in streams and watersheds with the highest salmon productivity or most significant stocks in determining use of regional and state funds and acquisition of conservation easements;
- Avoid discouraging local groups with energy and money for habitat projects on their small streams; and
- Strive to continually improve the linkage between habitat project priorities and co-manager salmon population management objectives. The emerging South Puget Sound Salmon Recovery Strategy should provide a stronger base in the future to link habitat management with stock management objectives.

Habitat Recommendation 2: Minimize habitat degradation from land use activities through enforcing local Critical Area, Shoreline and other habitat-oriented regulations

Habitat along rivers and streams is an important component of city and county Critical Areas Ordinances. Each jurisdiction is in the process of updating their Critical Area Ordinances, based on “best available science.” In addition, each jurisdiction is anticipated to update their Shoreline Master Program regulations in the coming years. Stream corridor buffer widths should be sufficient to protect riparian (streamside) vegetation as well as the

wider wooded “microclimates” critical for maintaining air and water temperature during the summer.

Unless adequate staffing is providing for education, outreach and enforcement the Critical Area Ordinances and other land use regulations become simply good statements of intent. The significant investment in ordinance update should be accompanied with investment in implementation.

Recommended action:

- a. Each local government should adopt an enforcement plan for environmental regulations relevant to protecting aquatic and near-shore habitat, and identify funding to implement the plan.
- b. Provide funding for education and outreach to effectively implement the Critical Area Ordinances, Shoreline Master Plan and other habitat-oriented land use regulations adopted by our local governments.

Habitat Recommendation 3: Initiate a long-term broad-based program that will provide permanent protection of sensitive habitat areas in WRIA 13 watersheds.

Often, the best means to achieve healthy aquatic habitat is simply allowing nature to take care of itself over a very long period of time. It should be recognized that land use regulations may not secure this permanent protection. And as we consider new standards in response to improved scientific understanding of properly functioning habitat, we may reach the practical or legal limits that we can achieve through regulation alone.

We should consider the example of the Nisqually River watershed, where sustained effort over time by federal, tribal and local interests has placed significant stretches of the river and estuary into permanent habitat protection.

Critical habitat features should be prioritized for permanent protection, using studies like Identification of Salmon Habitat Refugia for Protection in WRIA 13 (Thurston Conservation District, June 2000). Channel migration zones extending beyond the 100-year floodplain may be appropriate candidates for acquisition programs. Another suggested priority for acquisition is undeveloped lands in the riparian corridor that are “grandfathered” for incompatible development. Since this will be a voluntary program, acquisitions will be based on opportunities that arise from willing property owners.

Recommended action: Establish an ongoing work group to identify priorities and funding opportunities for permanent habitat protection in WRIA 13 watersheds. This effort should include the Squaxin Island Tribe, Capitol Land Trust, WRIA 13 Lead Entity (Thurston Conservation District), state and local governments, Friends of the Deschutes (hatchery/education center proponents), and watershed landowners.

Habitat Recommendation 4: Support the Deschutes estuary restoration feasibility study.

The largest single aquatic habitat modification in the planning area is Capitol Lake, which was created by damming the lower Budd Inlet estuary at the mouth of the Deschutes River. Extensive filling of the original estuary has occurred, which originally extended to Columbia Street. Additional fill corridors were created for the railroad, Deschutes Parkway and I-5.

A comprehensive study sponsored by the Capitol Lake Adaptive Management Plan (CLAMP) Committee is underway to explore whether a functioning estuary could be re-

established at Capitol Lake. Community viewpoints are divided regarding the future of this waterbody at the heart of Olympia. A technically solid, balanced study of the estuary feasibility proposal is essential to gaining community support for the outcome of this project.

Recommended action: Support CLAMP's thorough evaluation of the Deschutes estuary feasibility study based upon best available science.

Habitat Recommendation 5: Manage stormwater to reduce impacts to stream habitat. Stormwater management programs of the cities and county can reduce impacts from future development by updating, applying, and enforcing stormwater codes for new and redevelopment. The programs can reduce ongoing impacts from existing developed areas that have inadequate stormwater controls through construction of stormwater facilities and by implementing source control activities.

Recommended action:

The city and county stormwater programs should:

- a. Reduce water quality and high-flow related impacts from new development and redevelopment projects through ensuring that stormwater codes reflect latest science and through enforcement of those codes. Local requirements should emphasize management strategies that infiltrate stormwater while protecting groundwater and steep slope stability.
- b. Mitigate stormwater impacts from existing development to the degree feasible through: construction of capital improvement (retrofit) facilities, proper operation and maintenance of all public and private stormwater facilities, source control programs for all businesses, and outreach programs to landowners.

Habitat Recommendation 6: Use watershed level assessments as input to land use management decisions that are necessary to protect critical areas.

For watersheds with soils that preclude 100% infiltration of stormwater, land cover changes due to land clearing and development will likely cause significant disruption of natural river/stream and wetlands hydrology. These disruptions degrade fish and shellfish habitat. Strategies to minimize the disruptions and protect critical areas in these watersheds are necessary.

Recommended action:

- a. The county and city Stormwater programs should use best available science for the Puget Sound region regarding impact of development on streams, along with projections of build-out under current and proposed zoning, to predict watersheds that will likely incur significant disruptions to natural hydrology.
- b. In upcoming updates of land use plans and development regulations, the county and cities should propose land use management strategies that avoid and minimize these disruptions. In particular, protection of "critical areas" in these watersheds shall be achieved through the following and other strategies:

- 1) Shifting development away from watersheds with “critical areas;”
- 2) Capping the amount of impervious surface and forest cover conversion in certain watersheds;
- 3) Modifying site development standards so that impervious surfaces are minimized, and more natural land cover is retained. This is often referred to as “low-impact development” standards.

Habitat Recommendation7: Fill important data gaps regarding stream and nearshore habitat.

Much data collection and habitat assessment work has been done on the Deschutes River, with considerable habitat data collection on McLane and some other streams as well. Significant gaps in data should be identified and action programs initiated. The Salmon Habitat Protection and Restoration Plan for Water Resource Inventory Area 13 (July 2004) and the WRIA 13 Habitat Limiting Factors Final Report (July 1999.) provide a good starting point for this. Existing on-going data collection should be refined and sustained. Existing efforts include spawner surveys by the WDFW and the ambient water quality and streamflow data collection funded by the local Stormwater Utilities.

Recommended action:

- a. Provide comprehensive stream corridor and near-shore assessments where these have not been performed. Pursue innovative solutions such as cooperative programs with local colleges, where tribal and state biologists provide oversight and college students perform labor-intensive assessments based on good science.
- b. Conduct locally-sponsored fish utilization surveys on all significant streams and tributaries, oriented to all significant salmon species. Consider opportunities for local government staff or trained volunteers to conduct these surveys. These local efforts are separate and distinct from regional spawner survey work performed by Department of Fish and Wildlife staff.

**WRIA 13 WATERSHED PLAN
WATER QUANTITY CHAPTER
ATTACHMENT A**

WRIA 13 INSTREAM FLOW RULE – PROPOSED UPDATES TO 1980 WAC (8/6/04)	
Washington Administrative Code 173-513 (Adopted 6/24/80) with proposed revisions in bill format	DISCUSSION AND BACKGROUND
Chapter 173-513 WAC INSTREAM RESOURCES PROTECTION PROGRAM -- DESCHUTES RIVER BASIN, WATER RESOURCE INVENTORY AREA (WRIA) 13 WAC SECTIONS <u>173-513-010</u> General provision. <u>173-513-020</u> Purpose. <u>173-513-030</u> Establishment of instream flows. <u>173-513-040</u> Surface water source limitations to further consumptive appropriations. <u>173-513-050</u> Ground water. <u>173-513-060</u> Lakes. <u>173-513-070</u> Exemptions. <u>173-513-080</u> Future rights. <u>173-513-090</u> Enforcement. <u>173-513-095</u> Appeals. <u>173-513-100</u> Regulation review. WAC 173-513-010 General provision. These rules apply to waters within the Deschutes River basin, WRIA 13, as defined in WAC 173-500-040. This chapter is promulgated pursuant to chapter 90.54 RCW (Water Resources Act of 1971), chapter 90.22 RCW (minimum water flows and levels), and in accordance with chapter 173-500 WAC (water resources management program).	<i>Proposed revisions to the 1980 WAC text are shown in bill format in the left column. In the right column, background information on the original text and rationale for the proposed revision is provided.</i> <i>The recommended revisions are intended to:</i> • <i>Remove outdated text.</i> • <i>Provide consistency with case law, particularly Postema.</i> • <i>Ensure clarity.</i> • <i>Provide a clearer basis for mitigating instream flow impacts of proposed new water rights.</i>

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-010, filed 6/24/80.]

WAC 173-513-020 Purpose. The purpose of this chapter is to retain perennial rivers, streams, and lakes in the Deschutes River basin WRIA 13 with instream flows and levels necessary to provide protection for wildlife, fish, scenic, aesthetic, environmental values, recreation, navigation, and water quality.

WAC 173-513-030 Establishment of instream flows. (1) Stream management units and associated control stations are established as follows:

Stream Management Unit Information

Control Station No. Stream Management Unit Name	Control Station Location, River Mile and Section, Township and Range	Affected Stream Reach
12.0800.00 Deschutes River	3.4 Sec. 35-18N- 2W	From the confluence of the Deschutes River with Capitol Lake upstream to the Deschutes Falls at river mile 41.

—(2) Instream flows established for the stream management unit described in WAC 173-513-030(1) are as follows:

INSTREAM FLOWS IN THE DESCHUTES RIVER BASIN (Cubic Feet per
Second)

Month	Day	-	USGS Gage 212-0800-00 Deschutes River
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Proposal 1: Clarify applicability of the Rule: The rule applies to all waters in WRIA 13, not just the Deschutes River basin. The “Purpose” section could be confusing in specifying only the “Deschutes River Basin”.

Proposal 2: Delete the irrelevant Winter Flows for the Deschutes River – Most waterbodies in WRIA 13 were simply “closed to consumptive appropriation” by the 1980 Rule. The main exception was the Deschutes, where **winter minimums were set to “retain option for...environmentally sound storage projects in future years”**. In the 1960’s, Olympia had proposed the “Shellrock Dam” near Clear Lake on the Deschutes. Winter-period minimum flows were included in the 1980 Rule to address discharge from this proposed dam, which was not pursued by Olympia.

The following excerpts are from the 1980 technical support document for the rule (Deschutes River Basin Instream Resources Protection Program Including Proposed Administrative Rules (WRIA 13), DOE, June 1980, page 2. Emphasis added.):

“Determination of Instream Flows: The Deschutes River Basin Instream Resources

Jan.	1	-	400
Feb.	15	-	400
	15	-	400
Mar.	1	-	400
	15	-	400
Apr.	1	-	350
	15	-	(Closed)
May	1	-	(Closed)
	15	-	(Closed)
June	1	-	(Closed)
	15	-	(Closed)
July	1	-	(Closed)
	15	-	(Closed)
Aug.	1	-	(Closed)
	15	-	(Closed)
Sept.	1	-	(Closed)
	15	-	(Closed)
Oct.	1	-	(Closed)
	15	-	(Closed)
Nov.	1	-	150
	15	-	200
	1	-	300
	15	-	400

~~(3) Instream flow hydrograph, as represented in the document entitled "Deschutes River basin instream resource protection program," shall be used for identification of instream flows on those days not specifically identified in WAC [173-513-030](#)(2).~~

~~[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-030, filed 6/24/80.]~~

Protection Program identifies the need to close the Deschutes River to future out-of-stream consumptive appropriation from April 15 until October 31 in order to protect instream resources. The recommended program is based on analysis of basin hydrology and surveys of fish production capabilities in various parts of the Deschutes River Basin."

"The reason for not proposing closure of the Deschutes River year round is to retain the option of development of environmentally sound storage projects in future years that could make use of winter flows for a variety of potential uses including hydroelectric power generation, municipal and industrial water supply, release of stored water to support fish, wildlife, and water quality enhancement during low flow periods."

(page 10, Impoundments) "In order to meet future water needs from the Deschutes River, storage may become necessary at sometime in the future. A storage project could be beneficial in reducing flood damage and augmenting low summer flows for the instream resources (DOE SW Region, Shaver and Bergstrom. Personal conversations 1980)"

"During 1968-1969, a proposal to construct the Shellrock Dam was reviewed by DOE at the request of

WAC 173-513-040 Surface water source limitations to further consumptive appropriations.

(1) The department of ecology, having determined that further consumptive appropriations would harmfully impact instream values, closes ~~the following~~ all streams and lakes in WRIA 13 to further consumptive appropriation. ~~for the periods indicated.~~"

(2) **Consumptive appropriation**" means proposed use of water whereby there is a diminishment of the water source.

Consumptive appropriation is defined as either:

- a. Any surface water diversion, except those determined by the department to provide a net benefit to instream habitat; or
- b. That portion of a groundwater withdrawal that results in reduction in stream baseflow during critical flow periods. Baseflow is that component of streamflow derived from groundwater inflow or discharge.

(3) Mitigation may be proposed and approved to address withdrawals that would otherwise result in diminishment of surface water resources. Mitigation shall be considered and implemented in the following sequential order of preference:

- Avoid or reduce impact through optimal use of existing water allocations.
- Minimize impact to aquatic resources. This may include consideration of location, depth and/or timing of withdrawal to limit impact to instream flow.
- Fully compensate for unavoidable impact by replacing water or providing substitute resources to offset a measurable or calculated reduction in stream baseflow.

Complete mitigation is achieved when these mitigation elements ensure no net loss of instream flow or ecological functions.

Olympia. The City of Olympia no longer has any plans to construct the Shellrock Dam. Recent city plans call for the development of ground water resources in the vicinity of East Olympia, and additional withdrawals from McAllister Creek in nearby WRIA 11 (Nisqually Basin.)"

Proposal 3: Clarify that the prohibition on "consumptive appropriation" applies all water use proposals and provide an opportunity for mitigation. *The proposed revision simplifies the WAC and specifies the manner in which it applies to groundwater withdrawals.*

The 1980 WAC consolidated a number of pre-existing administrative actions protecting flow for 13 different WRIA 13 streams and lakes. These specific waterbodies were referenced in the 1980 WAC - which is unnecessary as the WAC applies to protecting ALL surface waters.

As discussed in Proposal 5 below, the applicability of the WAC to groundwater proposals in the 1980 text is very outdated. The existing text is contrary to DOE practice and case law extending instream flow protection to proposed groundwater withdrawals. The proposed revision applies the prohibition on "consumptive appropriation" to groundwater withdrawals as well as surface water diversions. For groundwater, the "consumptive" issue defined as that part of the withdrawal that would reduce groundwater "baseflow" to a stream.

New Surface Water Closures

Stream or Lake Section, Township and Range of Mouth or Outlet	Tributary to	Period of Closure
Deschutes River below Deschutes Falls (river mile 41) NW1/4SW1/4 Sec. 26, T. 18N., R. 2W.	Puget Sound (Budd Inlet)	Apr. 15 to Nov. 1
Deschutes River above Deschutes Falls (river mile 41) and all tributaries of Deschutes River E1/2NE1/4 Sec. 10, T. 15N., R. 3E. (Deschutes Falls)		All year
McLane Creek and all tributaries SW1/4NW1/4 Sec. 33, T. 18N., R. 2W.	Puget Sound (Eld Inlet)	All year
Woodland Creek and all tributaries SW1/4NW1/4 Sec. 19, T. 19N., R. 1W.	Puget Sound (Henderson Inlet)	All year
Long Lake SE1/4NE1/4 Sec. 22, T. 18N., R. 1W.	Woodland Creek	All year
Patterson Lake SE1/4SW1/4 Sec. 35, T. 18N., R. 1W.	Woodland Creek	All year
Hicks Lake NE1/4SW1/4 Sec. 27, T. 18N., R. 1W.	Woodland Creek	All year

—(2) The following stream and lake low flows and closures are adopted confirming surface water source limitations previously established administratively under the authority of chapter 90.03 RCW and RCW 75.20.050.

A mitigation framework is proposed for WRIA 13, to ensure protection of instream flow while providing vital water supplies to our communities. The general framework in the WAC would be supplemented by more definitive Guidance. A draft of this Guidance is being circulated for review and is intended for inclusion in the WRIA 13 Watershed Plan package.

Existing Low Flow Limitations and Closures

Stream Section, Township and Range of Mouth	Tributary to	Action
Percival Creek SW1/4NE1/4 Sec. 22, T. 18N., R. 2W.	Capital Lake	Closure
Unnamed Stream NW1/4NW1/4 Sec. 33, T. 19N., R. 2W.	Puget Sound (Eld Inlet)	Low Flow (1.5 cfs)
Unnamed Stream NW1/4NW1/4 Sec. 25, T. 19N., R. 2W.	Gull Harbor	5. Low Flow (1.0 cfs)
Woodward Creek SW1/4NW1/4 Sec. 19, T. 19N., R. 1W.	Woodward Bay	Closure

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-040, filed 6/24/80.]

WAC 173-513-050 Ground water. Future ground water withdrawal proposals ~~will not be affected by~~ are subject to this chapter unless it is verified that such withdrawal would not ~~clearly~~ have an adverse impact upon the surface water system contrary to the intent and objectives of this chapter.

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-050, filed 6/24/80.]

WAC 173-513-060 Lakes. In future permitting actions relating to withdrawal of lake waters, lakes and ponds shall be retained substantially in their natural condition. Withdrawals of water which

Proposal 4: Delete specified Low Flow values for Green Cove Creek and Adams Creek: The 1980 IRPP Rule consolidated earlier instream flow administrative actions on 13 specific waterbodies adopted between 1940 and 1972. In 1980, these earlier protections were consolidated into WAC 173-513. Nearly all streams and lakes were simply “closed to consumptive appropriation”, which provides maximum protection from impacts due to future water rights. The exceptions were winter Deschutes flow (discussed above) and minimum flows for two “unnamed streams”. Based on the section-township-range location in the WAC, these appear to be:

- Adams Creek (Gull Harbor tributary) and
- Green Cove Creek (Eld Inlet tributary).

The 1.0 cfs low flow for Adams and 1.5 cfs low flow for Green Cove Creek were from earlier administratively adopted flow protection. There is no use for having these today. These flows could imply that there is some surface water to allocate from these streams. In reality, lowest flows in Green Cove Creek are virtually not measurable. And no continuous flow data exists for Adams Creek. Deletion of these items is proposed in favor of including these streams in the overall closure to consumptive appropriation.

Proposal 5: Update 173-513-050 “Ground water” to conform to case law: This section is effectively void as written but still in the WAC. The proposed update reflects DOE practice and the Postema WA Supreme Court case.

would conflict therewith shall be authorized only in those situations where it is clear that overriding considerations of the public interest will be served.

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-060, filed 6/24/80.]

WAC 173-513-070 Exemptions. (1) Nothing in this chapter shall affect water rights, riparian, appropriative, or otherwise existing on the effective date of this chapter, nor shall it affect existing rights relating to the operation of any navigation, hydroelectric, or water storage reservoir or related facilities.

(2) Domestic use for a single residence on an existing lot of record and stock watering, except that use related to feedlots, shall be exempt from the provisions of this chapter if no alternative source is available. If the cumulative effects of numerous single domestic diversions would seriously affect the quantity of water available for instream uses, then only domestic in-house use shall be exempt.

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-070, filed 6/24/80.]

WAC 173-513-080 Future surface or groundwater rights. No rights to divert or store public surface waters or withdraw groundwater in of the Deschutes River basin WRIA 13 shall hereafter be granted which shall conflict with the purpose of this chapter as stated in WAC [173-513-020](#).

[Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-080, filed 6/24/80.]

WAC 173-513-090 Enforcement. In enforcement of this chapter,

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Background: During the 1980 Rule making process, all three cities submitted letters regarding potential impact of the proposed rules on future groundwater source development. DOE responded by including section 173-513-050 limiting applicability of the rule to future groundwater withdrawals, based on the then-current assumption that groundwater was generally distinct from surface water.

*Over time, understanding of continuity has changed significantly. DOE administration of groundwater right applications evolved with this scientific understanding. The Washington Supreme Court “Postema” case in 2000 formalized the determination that **new scientific understanding should guide protection of instream flows – regardless of outdated text in WAC sections like 173-513-050.***

Proposal 6: 173-513-070 “Exemptions”: *The phrase “on an existing lot of record” is proposed to be added, to clarify that the exemption provision applies to use of existing lots and does not apply where subdivision of property is proposed..*

Proposal7: Update WAC 173-513-080 “Future rights”: *This section is significantly outdated. The. 1980 WAC text expressly applies the rule only to future **surface water** rights. However, in practice, current DOE practice places great*

the department of ecology may impose such sanctions as appropriate under authorities vested in it, including but not limited to the issuance of regulatory orders under RCW 43.27A.190 and civil penalties under RCW 90.03.600.

[Statutory Authority: Chapters 43.21B, 43.27A, 90.22 and 90.54 RCW. 88-13-037 (Order 88-11), § 173-513-090, filed 6/9/88. Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-090, filed 6/24/80.]

WAC 173-513-095 Appeals. All final written decisions of the department of ecology pertaining to permits, regulatory orders, and related decisions made pursuant to this chapter shall be subject to review by the pollution control hearings board in accordance with chapter 43.21B RCW.

[Statutory Authority: Chapters 43.21B, 43.27A, 90.22 and 90.54 RCW. 88-13-037 (Order 88-11), § 173-513-095, filed 6/9/88.]

WAC 173-513-100 Regulation review. The department of ecology shall initiate a review of the rules established in this chapter whenever new information, changing conditions, or statutory modifications make it necessary to consider revisions. [Statutory Authority: Chapters 43.21B, 43.27A, 90.22 and 90.54 RCW. 88-13-037 (Order 88-11), § 173-513-100, filed 6/9/88. Statutory Authority: Chapters 90.22 and 90.54 RCW. 80-08-019 (Order DE 80-11), § 173-513-100, filed 6/24/80.]

emphasis on protecting instream flow from proposed groundwater withdrawals. The Postema decision, specifically extended instream flow protection to proposed groundwater rights that are in continuity with surface water. The 1980 WAC does not reflect current practice and case law. Update is clearly needed.

Section 100: Revisions are anticipated when necessary due to “new information, changing conditions or statutory modifications.” The proposed revisions are consistent with this section. As specified in the WAC, DOE is responsible for WAC update.

Attachment B: WRIA 13 Guidance for Mitigating Instream Flow Impacts of Proposed Water Withdrawals

WATER QUANTITY CHAPTER ATTACHMENT C

DESCHUTES GROUNDWATER LEVEL MONITORING WELLS PROPOSAL

Description

Continuity between groundwater and surface water is at the heart of water resource management in many areas, including Deschutes WRIA 13. However, the relation between the various aquifers and streamflow is only partially understood, based on broad assumptions of critical factors such as vertical flow between aquifers.

Long-term monitoring of the entire hydrologic “picture” will prove invaluable to future water resource management for the Deschutes River. The proposed project would add the groundwater monitoring component to the existing monitoring of precipitation and streamflow. Existing monitoring includes USGS gaging stations near Vail and Tumwater, and precipitation monitoring at the Olympia airport and at Lake Lawrence (Thurston County precipitation monitoring station). A key data gap is continuous groundwater level recording to complement continuous river stage recording at the Vail and Tumwater USGS stations.

Permanent resource protection wells are proposed to be co-located within the three main aquifers near the Tumwater gaging station and the two aquifers near the Vail USGS station. The wells would be located on a site with permanent assured access, preferably government-owned, to ensure sustained long-term data collection. The wells would be operated as part of the existing Thurston County Ambient Well Monitoring Program. Data would be included in the Thurston County Water Resources Monitoring Report issued for each water year.

The proposed project and budget have been approved by the WRIA 13 Watershed Planning Technical Committee and reviewed with the project Planning Committee (planning unit). However, existing WRIA grant project funds are not adequate to support the installation of these monitoring wells.

Estimated expense

Proposed installations and estimated costs:

Locating sites: Well records review/site visits	\$2,100
5 transducers @ \$900	\$4,500
2 data loggers @ \$1,200	\$2,400
5 new “resource protection” wells	\$39,000
Project management	<u>\$ 2,000</u>
Total estimated installation cost	\$50,000