

Reclaiming the Water and Reclaimed Water's Part

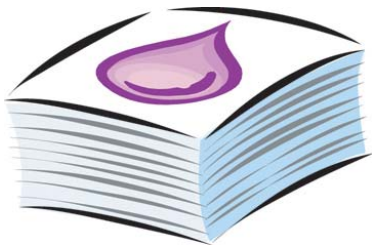
Reclaimed Water Center Seminar
October 2009

Stephen Hirschey & Mark Buscher



King County

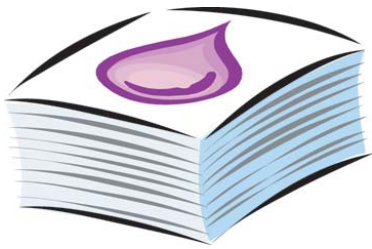
Department of Natural Resources and Parks
Wastewater Treatment Division



What is Water Reclamation?

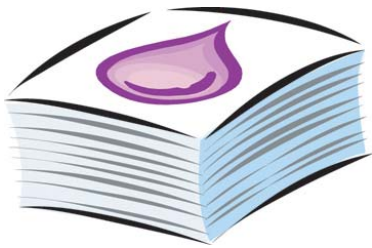
- ❑ The act or process of reclaiming – so what is that?
- ❑ To recall from wrong or improper conduct
- ❑ To rescue from an undesirable state
- ❑ To make available for human use by changing natural conditions.

Credits to Webster's New Collegiate Dictionary

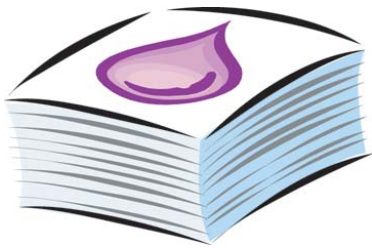


What is Water Management?

Otto J. Helweg articulated one definition; "Water resource planning is to make optimum use of available water resources so as to achieve the correct balance between conservation and depletion, between use and misuse."

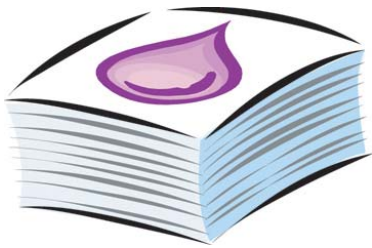


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- ❑ Salmon Recovery or water/habitat for fish within the Puget Sound Partnership
 - ❑ Stormwater Management, peak flows and non-point water quality
 - ❑ Flooding
 - ❑ See bullets number one and two



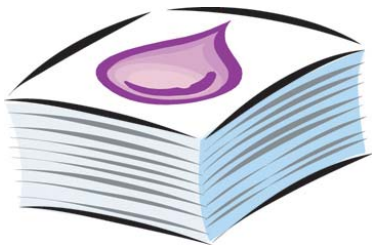
Puget Sound ESU Salmon Recover Plan

- ❑ Lack of robust programs for certain issues like water quantity at the watershed level
- ❑ Regional supplement
- ❑ Commitment to creation of protection and enhancement programs. PEP's for all! And all for PEPs – but what are they?
- ❑ Water Resource Inventory Areas 7, 8, & 9



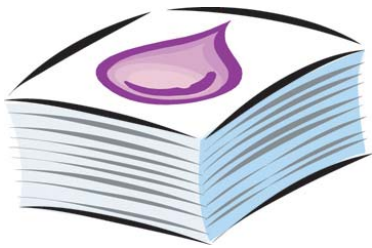
Stormwater Management

- ❑ 1990 program, first permits in 1995, EPA change in 1999, new permits and then appeals of 2007 for both Phase I and II and both sides of the state.
- ❑ Appeals from local, county and environmental community – recently resolved
- ❑ New development, old development, AKART and MEP..... Monitoring



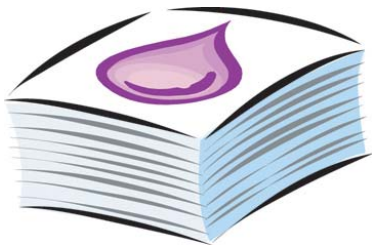
Snapshot of Reclaimed Water Legislation

- ❑ 1992 – passage of the Reclaimed Water Act, directing DOH and Ecology to develop standards for commercial, industrial, and land application of highly treated wastewater. Ch. 90.46 RCW
- ❑ 1995 – amendment to the Reclaimed Water Act, requiring standards for environmental uses – wetlands, stream flow augmentation, and ground water recharge.
- ❑ 1997 – amendment addressing water rights, demonstration projects, and standards for greywater use.



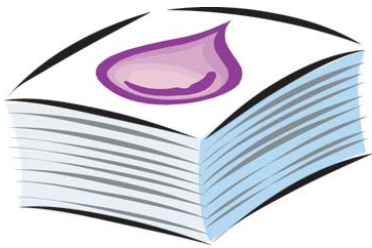
More Brief History of Reclaimed Water Legislation

- ❑ 2001 – amendment to add agricultural industrial process water and in 2002 to add industrial process water
- ❑ 2006 – an amendment directing Ecology and DOH along with an advisory committee to develop a comprehensive rule no later than December 2010, addressing technical standards, administrative process, and permitting and regulatory roles of each agency.



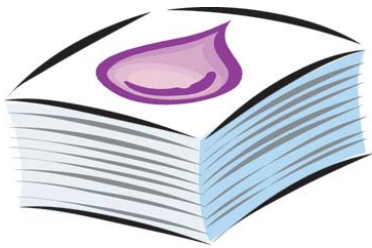
More Brief History of Reclaimed Water Legislation

- 2007 – amendment to re-emphasize importance of reclaimed water, creation and tasking of two additional committees, and required a number of reports on implementation of the reclaimed water program.



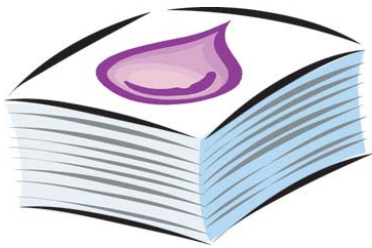
Current State Activity

- ❑ Removing Barriers Task Force - report
- ❑ Reclaimed Water and Water Rights Advisory Committee formed in 2007
- ❑ Technical expert panel for water quality standards updating and development
- ❑ Rule development on track for adoption in 2010



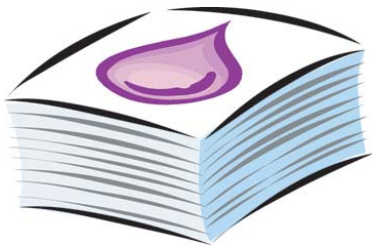
So What Is All That Law Supposed To Do?

- ❑ The act has the following goals:
- ❑ Encourage and facilitate reclaimed water use;
- ❑ Provide new basic supplies to meet future water needs;
- ❑ Protect public health and safety;
- ❑ Protect and enhance the environment;
- ❑ Gain public confidence and support for reclaimed water use; and
- ❑ Find cost effective solutions.



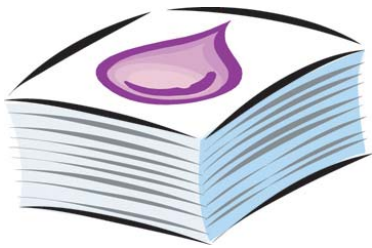
Facilities Statewide

- ❑ 20 projects in operation
- ❑ 7 projects under construction
- ❑ 41 in planning or design.
- ❑ Projections indicate that the number of projects will double by 2020.



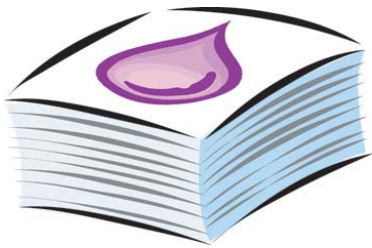
Facilities in King County

- ❑ Carnation plant with discharge to a wetlands
- ❑ South Plant and use by City of Tukwila as well as internal plant use
- ❑ King Conservation District
- ❑ Woodinville Water District
- ❑ Lakehaven Utility District and OASIS
- ❑ City of Snoqualmie



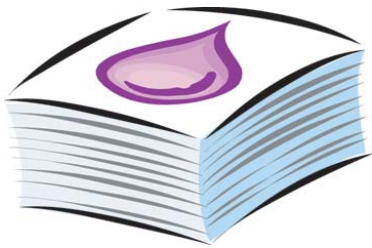
General Observations

- ❑ Reclaimed water is a new kind of *water*
- ❑ We are very still early in the creation of the institutional framework around reclaimed water.
- ❑ It makes sense to explore all potential sources of water to meet future demand
- ❑ Economic forces alone will not create a market for reclaimed water



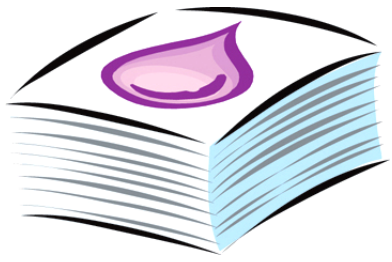
King County's Interests

- Predictable water supply for people
 - Forum's work
- Predictable water/habitat for fish or create and implement the PEP programs
 - Ownership of the problem – we have with interlocal government agreements in each WRIA
 - Ownership of the solution – we have with the idea but specifics with adoption of the recovery plan- not so sure



How Reclaimed Water Fits In

- ❑ In many respects, it is unknown how reclaimed water will fit in with our aquatic landscape management – hence a plan
- ❑ What we do know is we can be part of the solution – a regional solution



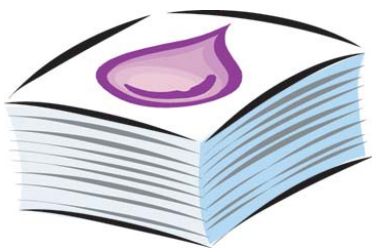
Reclaimed Water Comprehensive Planning: Creating Resources from Wastewater

Reclaimed Water Center Seminar
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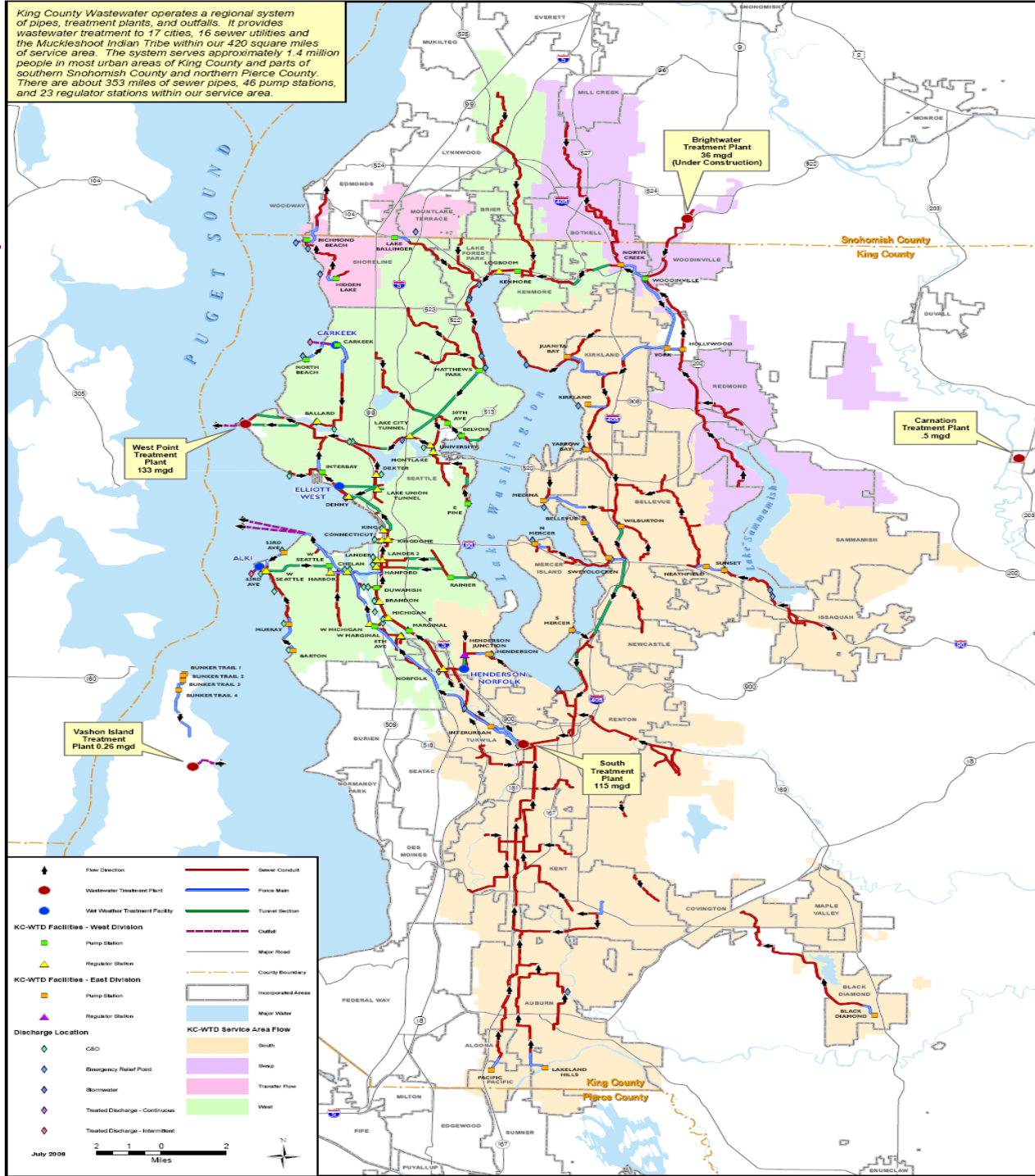
King County

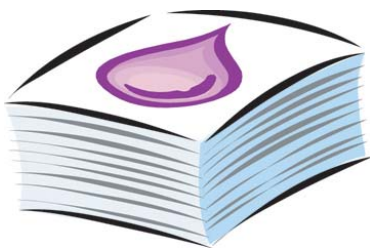
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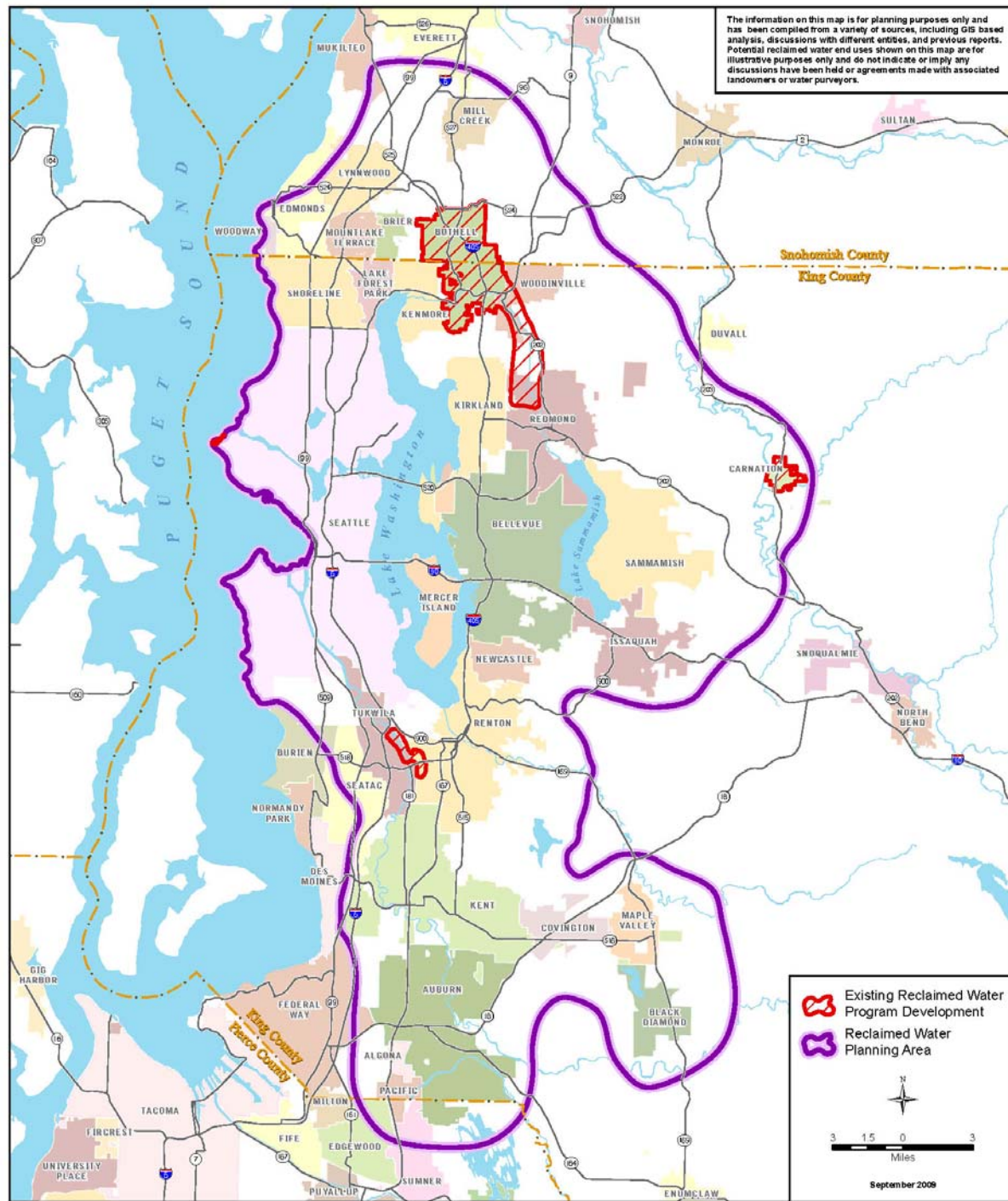
King County Wastewater operates a regional system of pipes, treatment plants, and outfalls. It provides wastewater treatment to 17 cities, 16 sewer utilities and the Muckleshoot Indian Tribe within our 420 square miles of service area. The system serves approximately 1.4 million people in most urban areas of King County and parts of southern Snohomish County and northern Pierce County. There are about 353 miles of sewer pipes, 46 pump stations, and 23 regulator stations within our service area.

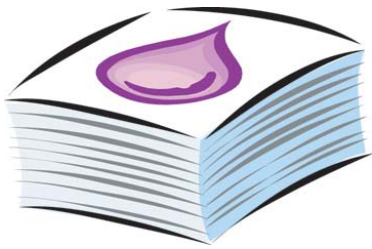
King County's Regional Wastewater Treatment System





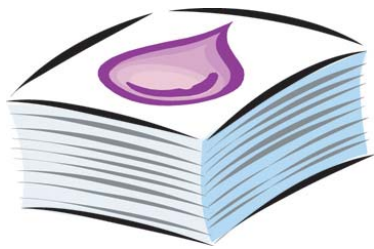
Reclaimed Water Planning Area





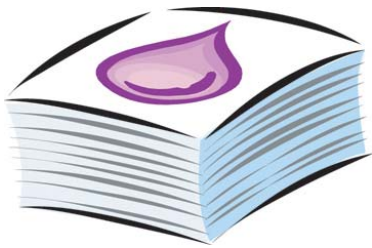
Regional Drivers for the Reclaimed Water Comprehensive Plan

- Regional Wastewater System Planning
- Creating Resources from Wastewater
- Protecting Water Quality in Puget Sound



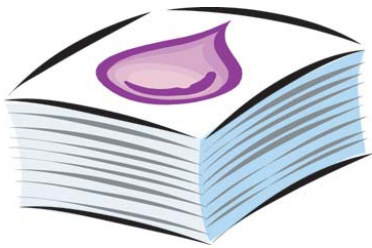
Regional Wastewater System Planning

- King County is required to conduct comprehensive planning. State statute calls for planning documents to evaluate alternative ways of providing wastewater services, including opportunities to use reclaimed water



Creating Resources from Wastewater

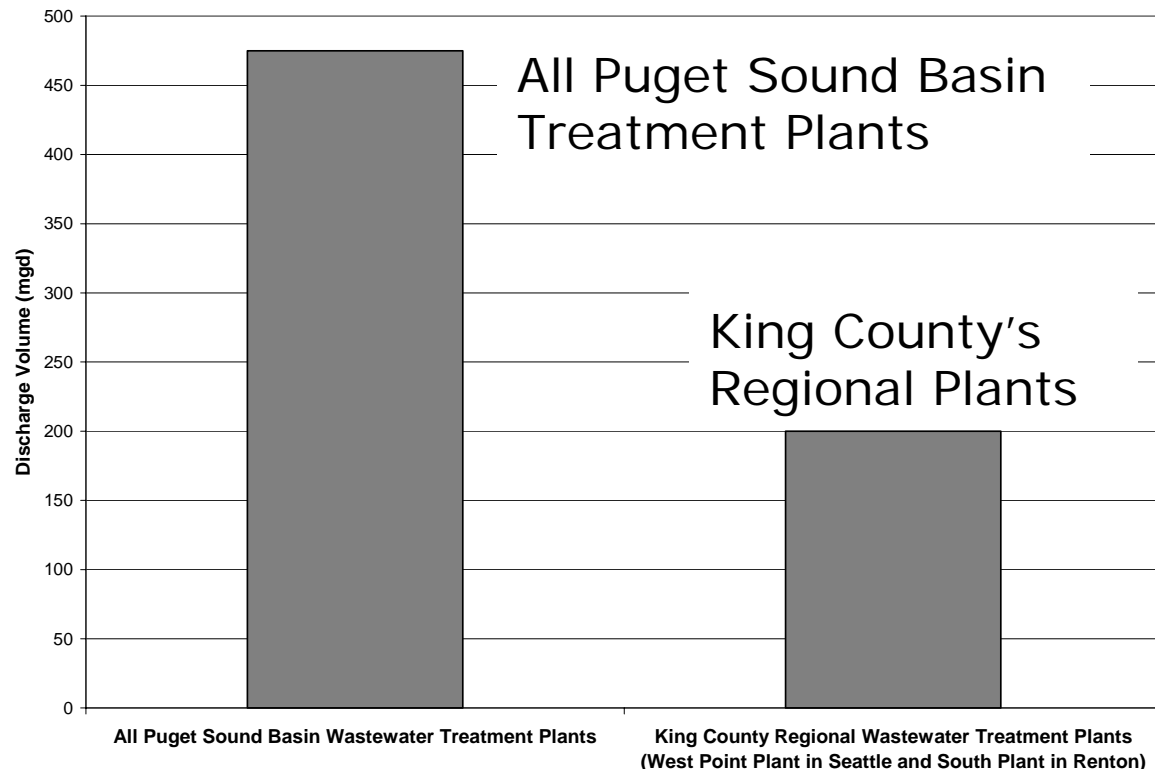
- ❑ 100 percent of biosolids recycled
- ❑ 70 percent of the digester gas used for energy
- ❑ 1 percent of the daily average of 200 million gallons of wastewater processed is reclaimed
- ❑ Reclaimed water is one tool to help address water resource needs and future challenges, e.g. increased development, climate change impacts

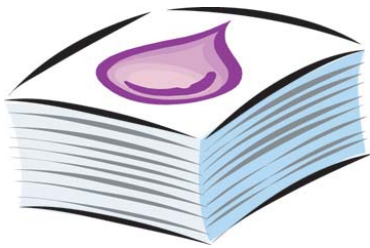


Protecting Water Quality in Puget Sound

- The health of the Puget Sound ecosystem is in decline. King County is the largest discharger of treated wastewater to Puget Sound.

Average Daily Discharge Volumes from Wastewater Treatment Plants Discharging to Puget Sound, 2006–2007

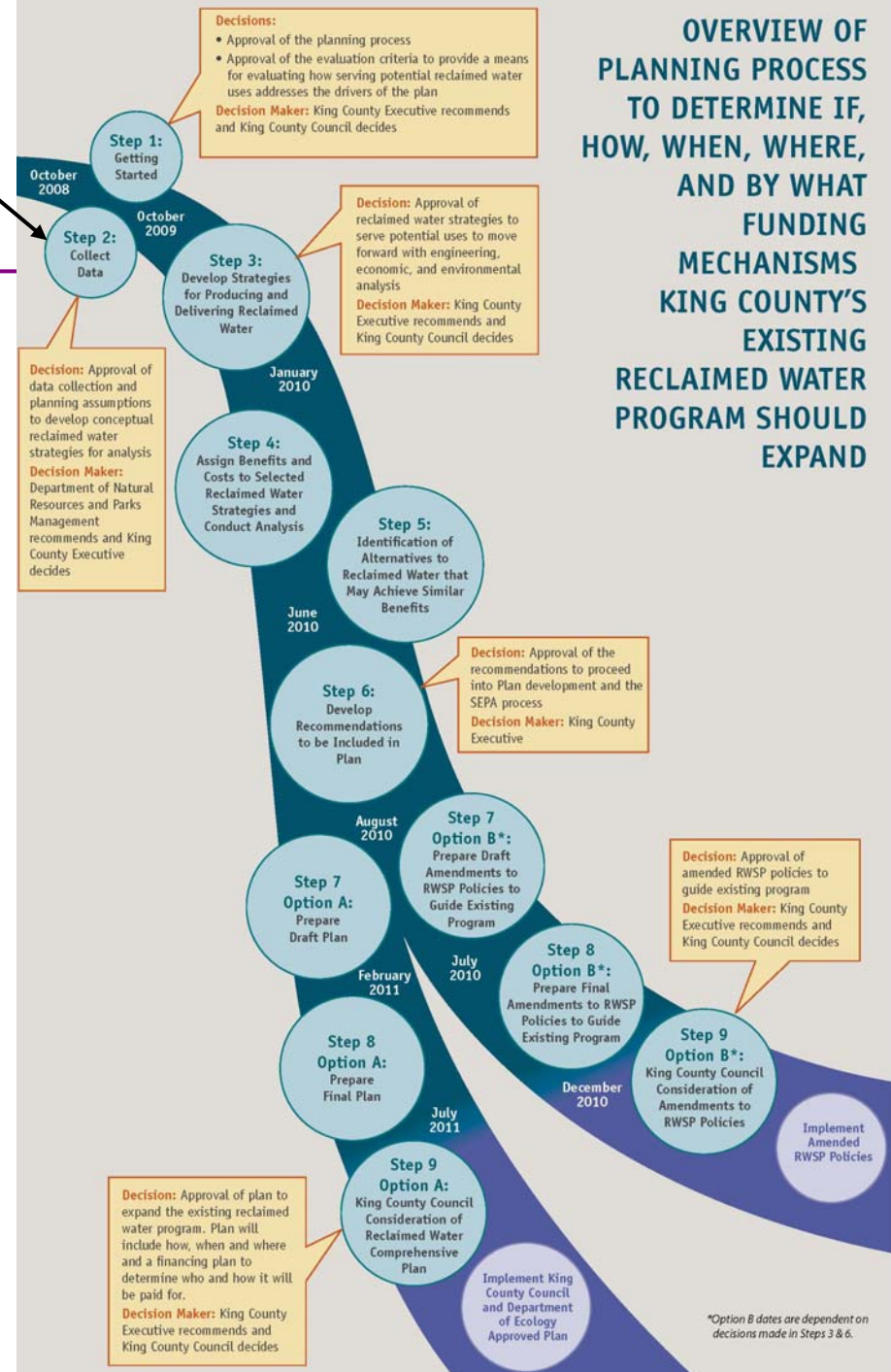


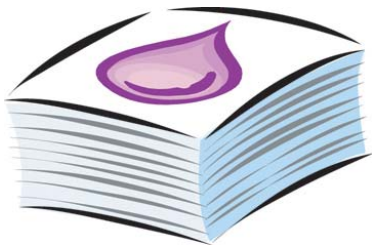


We Are Here

Purpose of Planning Process

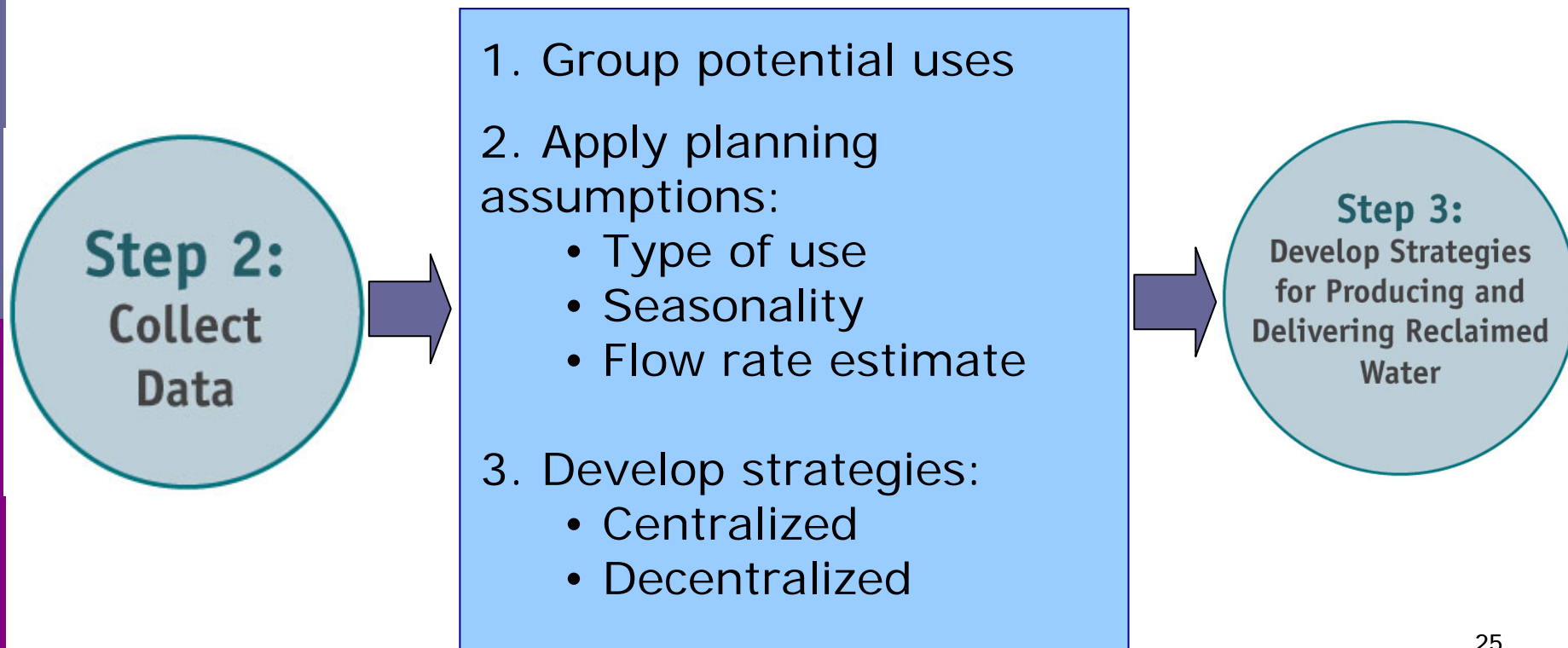
To determine if, how, when, where, and by what funding mechanisms over the next 30 years should King County's existing reclaimed water program expand

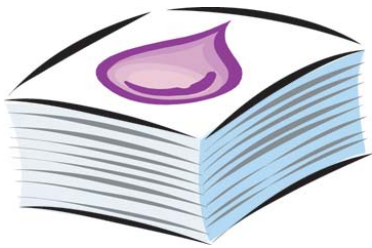




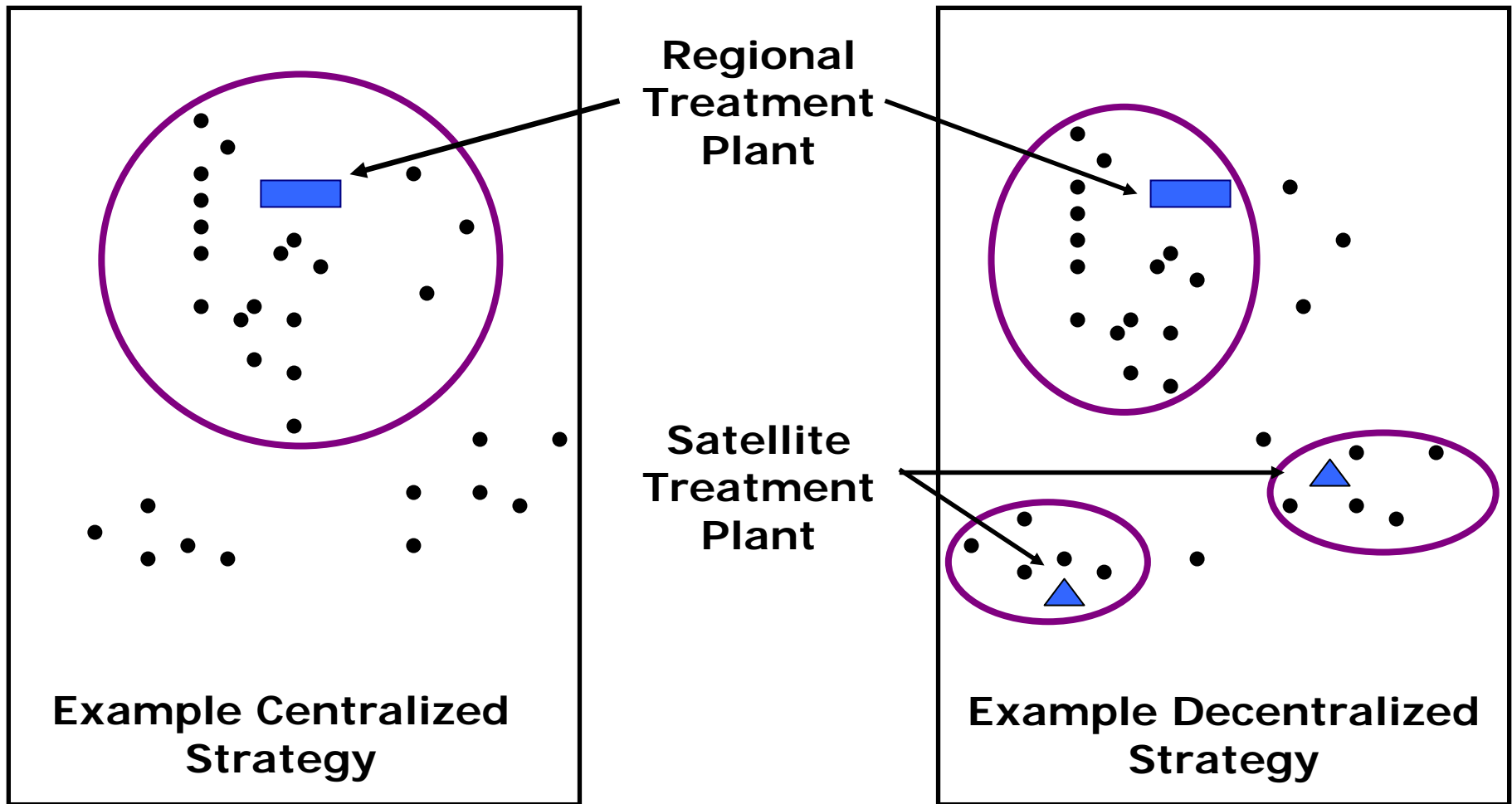
Gathering Potential Use Information

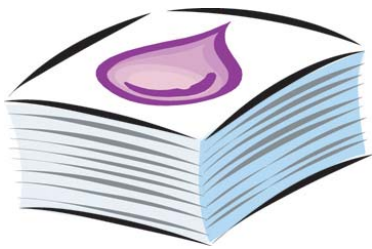
- Fundamental to planning process
- Will be used to develop reclaimed water strategies





Example Reclaimed Water Strategies



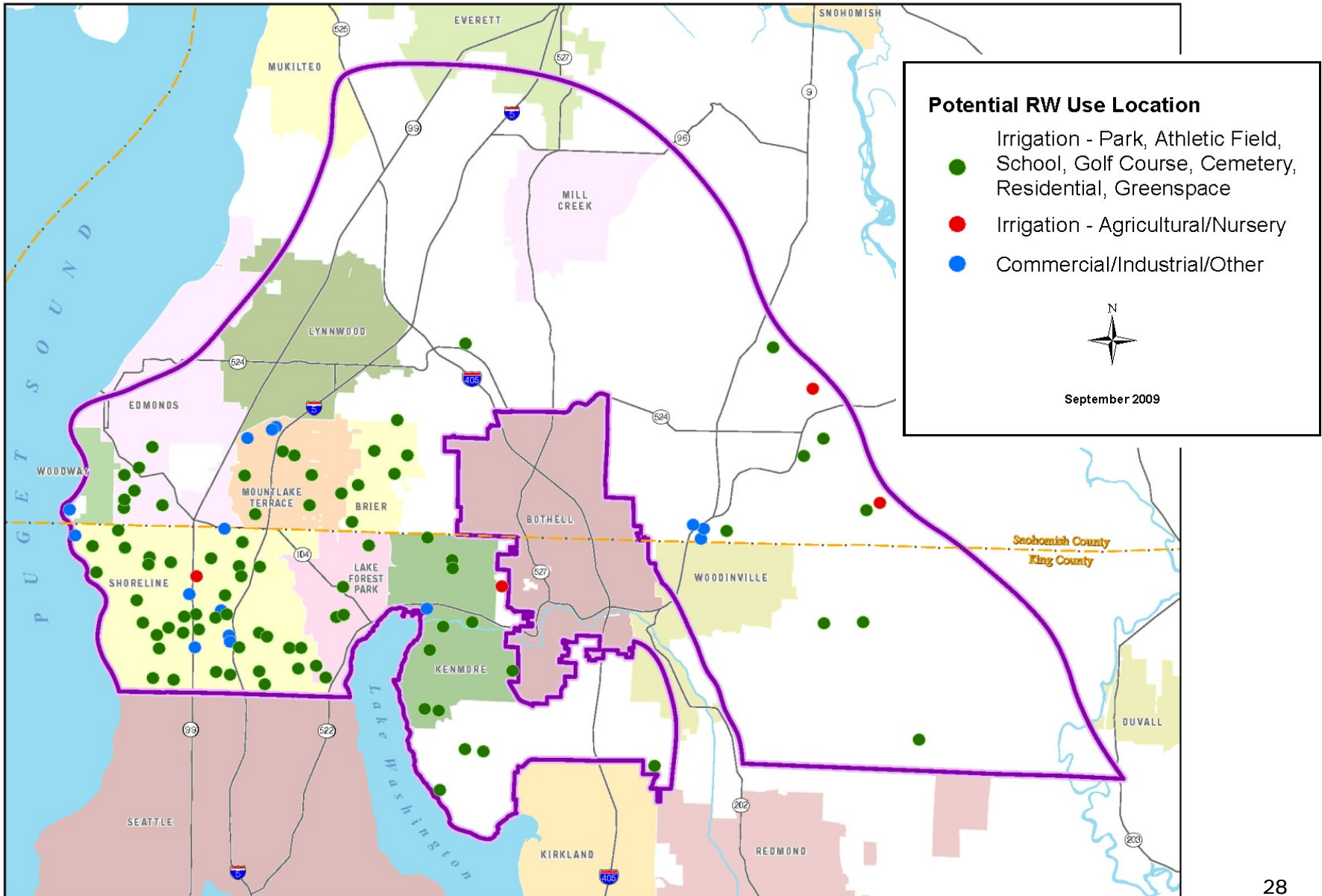


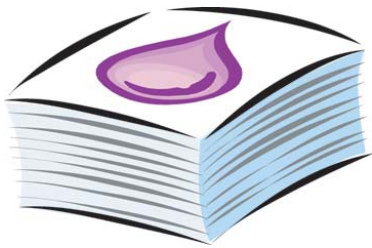
Types of Data Collected

- ❑ Nonpotable consumptive
 - Irrigation
 - Commercial/Industrial
- ❑ Environmental enhancement
 - Groundwater recharge
 - Wetland restoration or enhancement
 - Streamflow augmentation

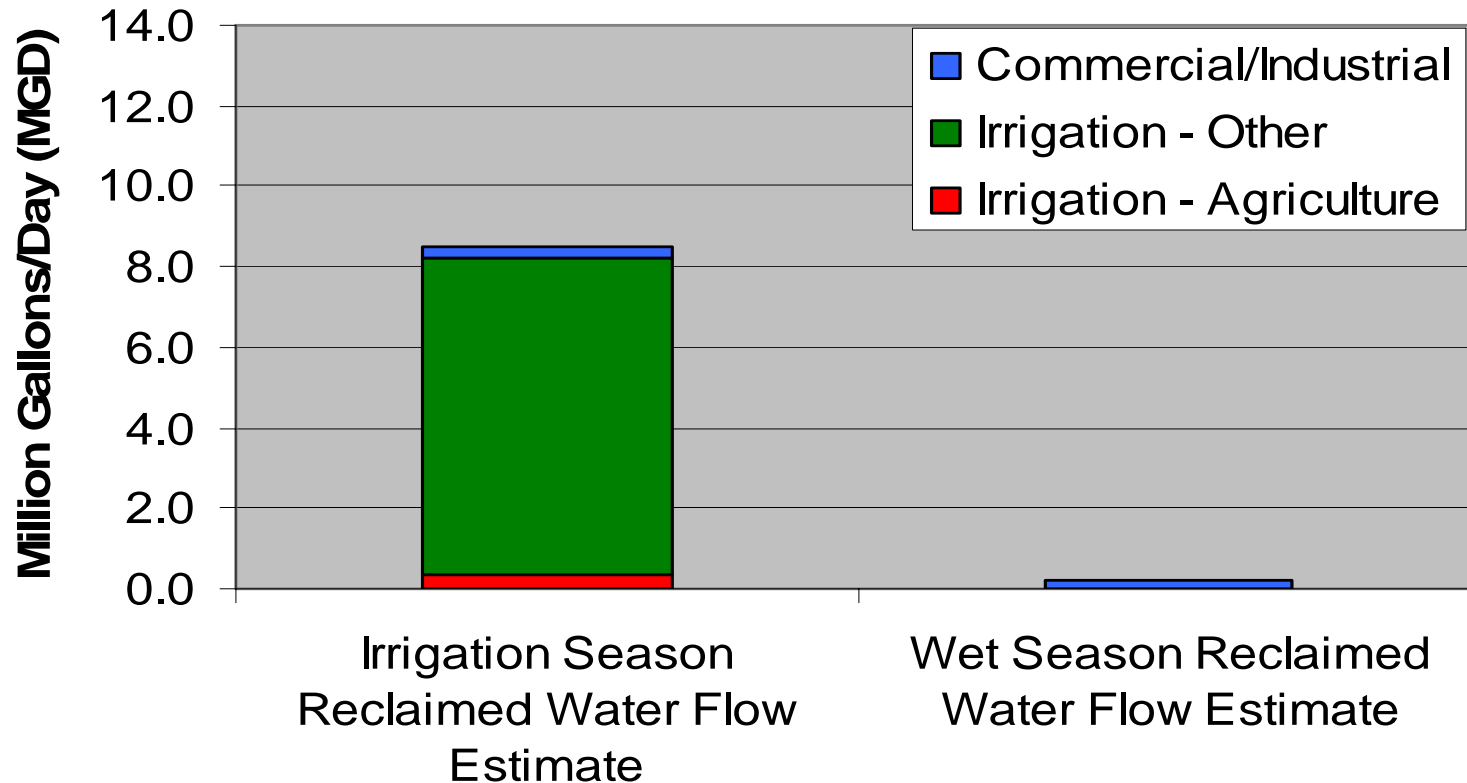


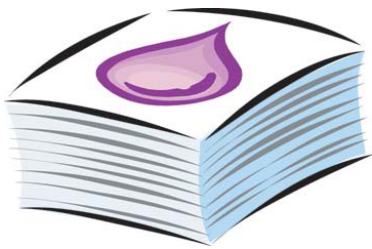
Nonpotable Consumptive Potential Use Data – North



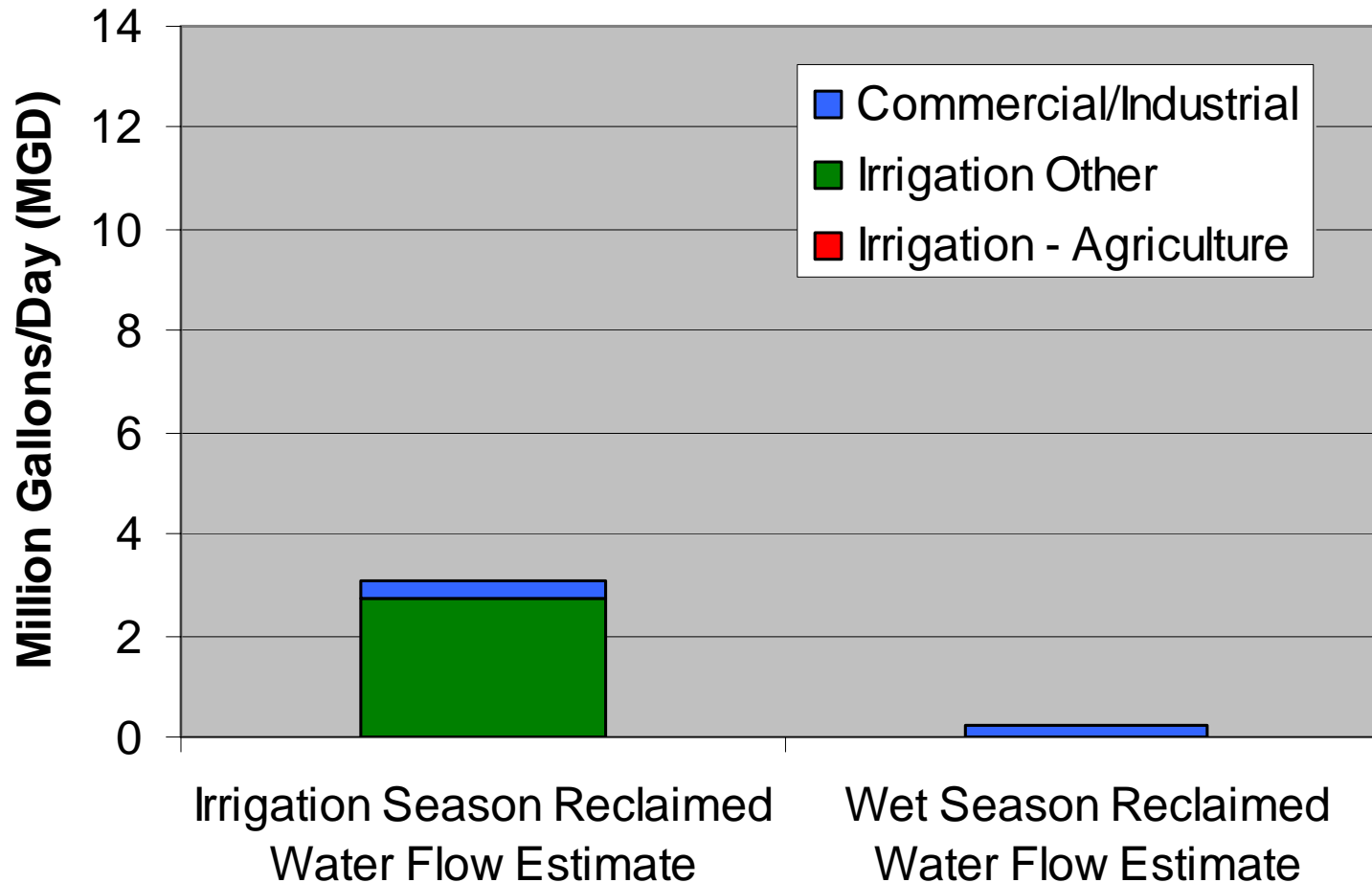


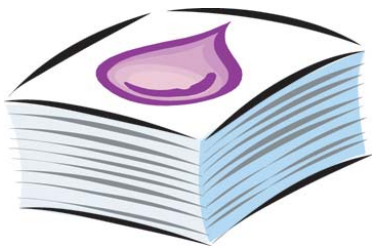
Nonpotable Consumptive Potential Use Data – North



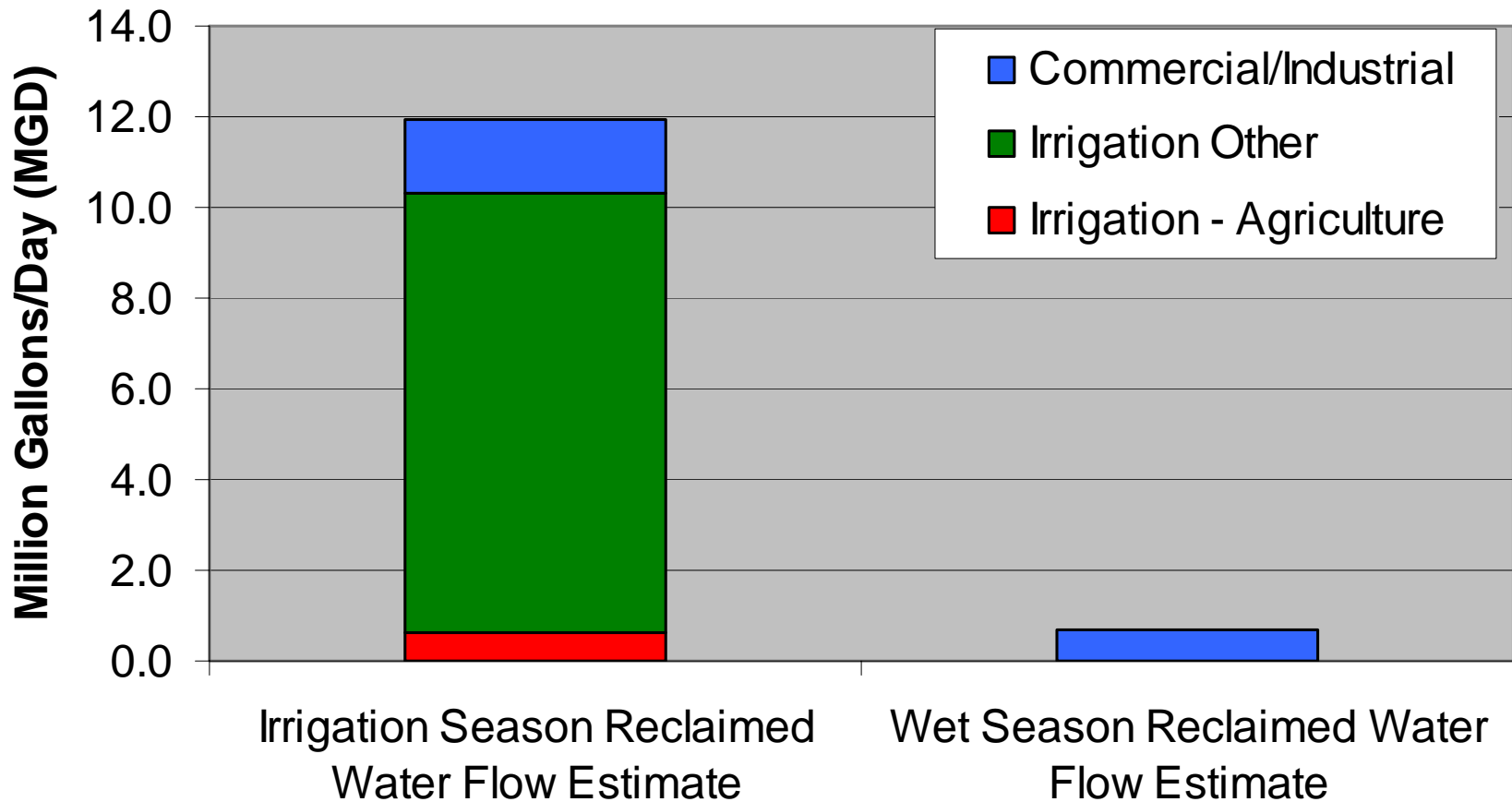


Nonpotable Consumptive Potential Use Data – West

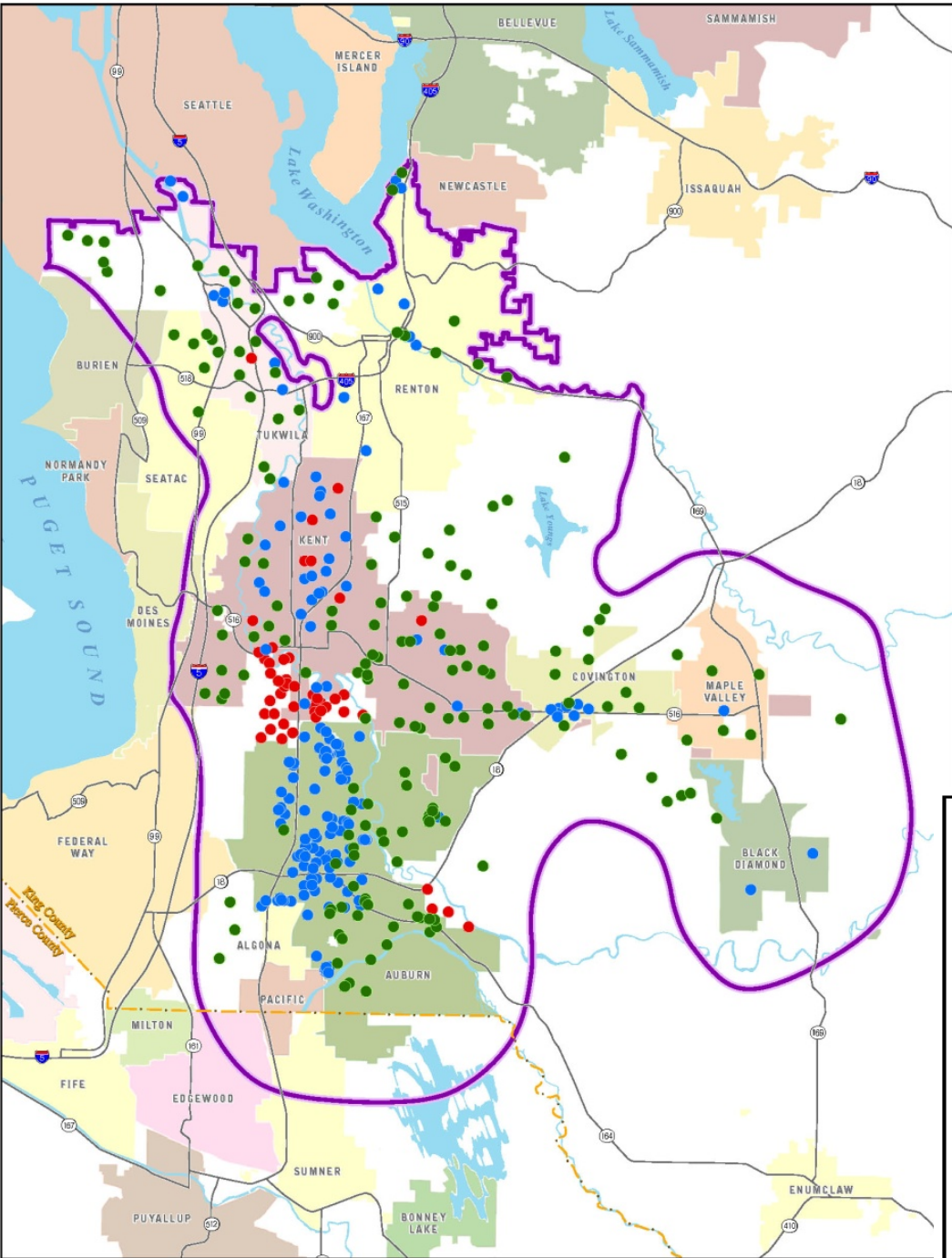




Nonpotable Consumptive Potential Use Data – East



Nonpotable Consumptive Potential Use Data – South

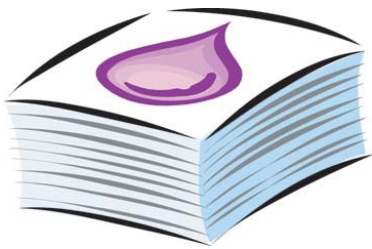


Potential RW Use Location

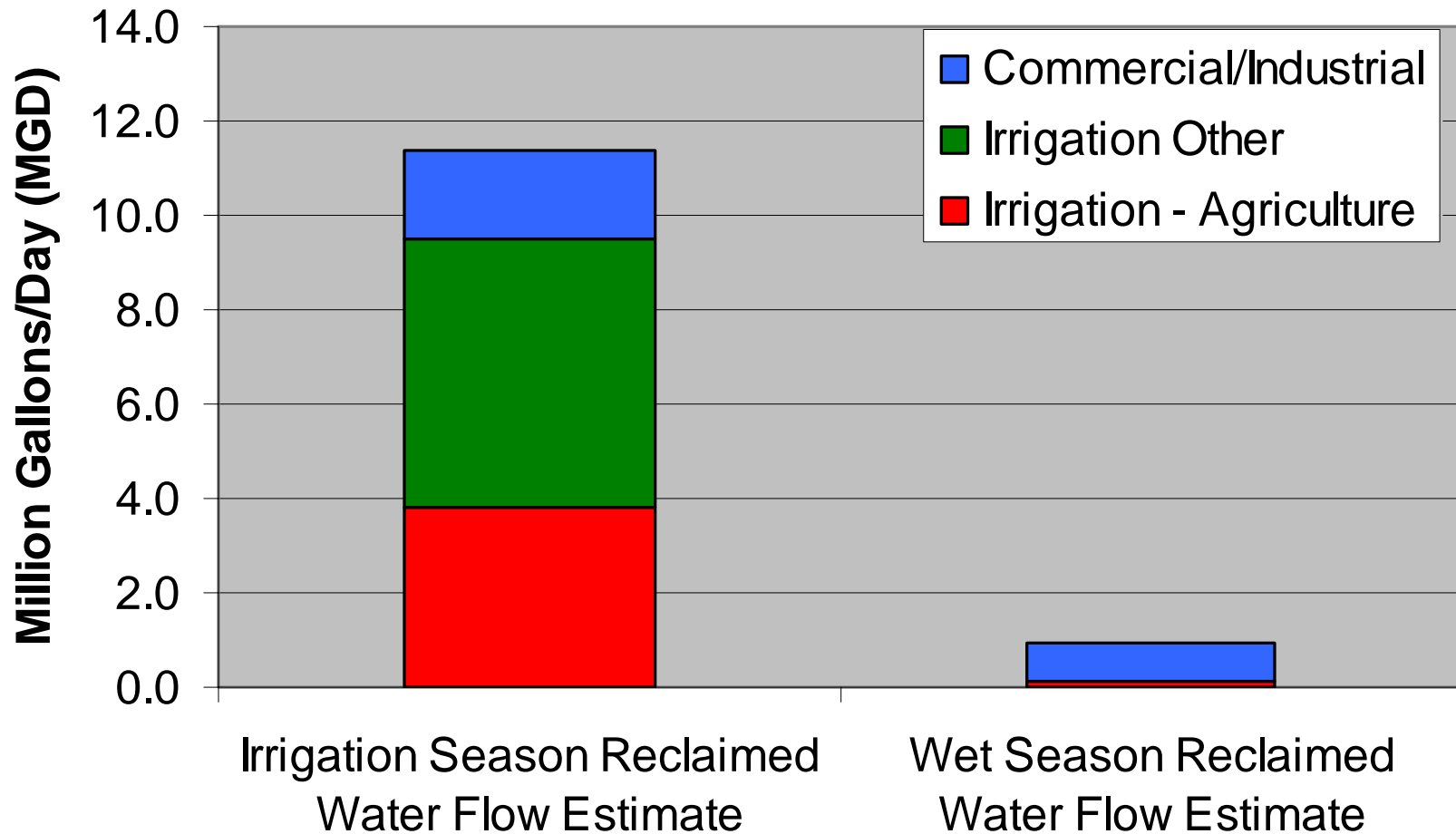
- Irrigation - Park, Athletic Field, School, Golf Course, Cemetery, Residential, Greenspace
- Irrigation - Agricultural/Nursery
- Commercial/Industrial/Other

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September 2009



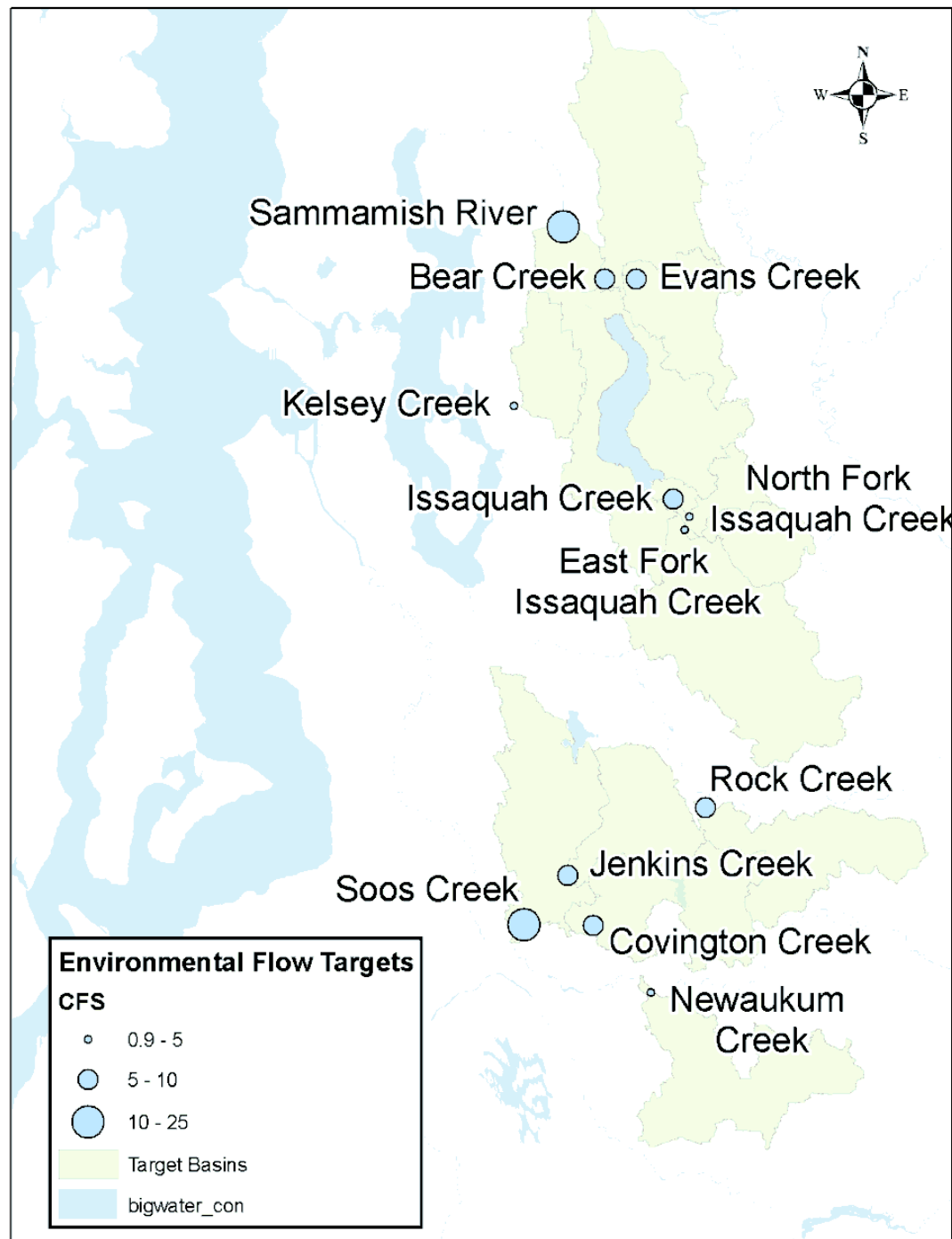
Nonpotable Consumptive Potential Use Data – South

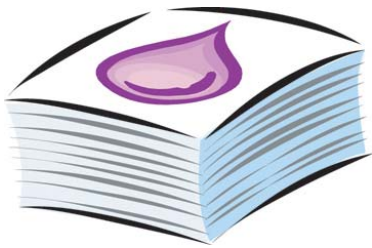




Baseflow Restoration Findings

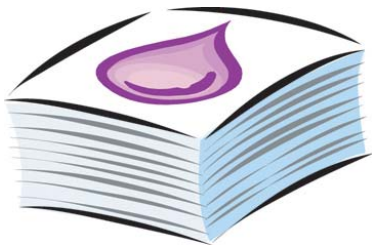
- Summer baseflow restoration targets estimated for 12 basins
- Total baseflow restoration target of 83 cfs (54 mgd)
- Current baseflows lowered by up to 82 percent (North Fork Issaquah Creek basin)





Potential Reclaimed Water Use Data Summary

- In total, 37 mgd per year has been identified for nonpotable consumptive use.
- In total, 54 mgd per year has been identified for environmental enhancement.



Questions?

For more information contact:

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