Compendium to the WRIA 12 Watershed Restoration and Enhancement Plan

Introduction

The materials in this compendium are not part of the WRIA 12 watershed plan, which was fully approved by the WRIA 12 Committee. This compendium provides background on how the plan was developed or supplemental materials provided by committee members. The inclusion of the compendium provides information on the process and shares the diverse opinions of the WRIA 12 Committee members. The documents in this compendium may provide insights on, or qualifications to, an entity's vote to approve the plan. However, these documents do not change the outcome of a vote by the WRIA 12 Committee to approve the plan.

The Committee did not discuss all the documents included, and Committee members did not attempt to reach consensus on the content of these materials. Any opinions expressed in the documents are solely those of the submitting entity and may not reflect the perspective or position of other members of the Committee.

Contents

The documents in this compendium include:

A Framework for Tracking Projects and New Permit-Exempt Wells using Salmon Recovery Portal

This document describes the elements required to track projects from a conceptual stage through completion and monitor new permit-exempt domestic well construction. Project and well tracking are an essential component of implementation monitoring and adaptive management procedures. Therefore, it is recommended that projects be tracked through planning and implementation phases to enhance the Committee's ability to conduct implementation monitoring at the sub-basin and WRIA scale, monitor grant funding, identify plan successes and deficiencies, and streamline project development.

The Committee recommends a pilot program using the Salmon Recovery Portal (SRP; https://srp.rco.wa.gov/about) to conduct project tracking for the streamflow restoration effort under 90.94.030 RCW. As a statewide salmon recovery tracking tool, the capacity for the SRP to allow for goal setting, hierarchical project tiers, supplemental information, and printing of automated reports makes it well-suited for tracking projects associated with streamflow restoration and salmon recovery efforts. As a statewide tool administered by the Recreation and Conservation Office (RCO) and in partnership with salmon recovery Lead Entities (LE), the SRP provides a dynamic platform to track project development, funding, and offsets.

Tracking of projects will consist of two primary phases: (1) uploading required project information from all projects included in this plan into the SRP, and (2) uploading and updating all funded projects, project reports, and completed projects into the SRP database on an annual basis. Phase 1 will be coordinated and funded by the Washington Department of Fish and Wildlife (WDFW) and implemented by trained University of Washington (UW) data stewards in collaboration with RCO staff and Washington Department of Ecology (Ecology) staff. Phase 2 project uploads will be implemented by UW data stewards in consultation with Ecology grant management, RCO, and WDFW staff. To improve harmonization of streamflow restoration efforts with ongoing salmon recovery activities, local salmon recovery LE Coordinators shall be consulted prior to initial data uploads. While input and oversight is welcomed, no commitment of additional work is required from LE Coordinators. Streamflow restoration projects not funded through the streamflow restoration grant program, will be updated by data stewards during any grant reporting to Ecology or RCO. Primary quality control measures will be performed by data stewards. Funds to support initial and ongoing costs of data steward data entry (Phases 1 and 2) will be provided by WDFW.

The Committee recommends, at minimum, the following data fields for streamflow tracking: WRIA, sub-basin, project description, funding source, estimated cost, project spatial boundaries or coordinates, project sponsor (if applicable), estimated water offset or habitat benefits (using Pacific Salmon Recovery Fund (PCSRF) metrics or reference to the PCSRF list), and target project start date. Projects with sensitive locations can be made private or those with

undetermined locations can be entered as a project boundary or defined at the sub-basin scale. New domestic permit-exempt well location data will be drawn from the Ecology Washington State Well Report database[1]. Well location data will be incorporated into the SRP using point coordinates, or at the section or sub-basin scale to support implementation monitoring and adaptive management goals.

To support the implementation of the above program for tracking projects under 90.94.030 RCW, WDFW has initiated pilot projects in two 90.94.020 RCW basins: the Nisqually River Basin (WRIA 11) and the Chehalis River Basin (WRIAs 22/23). These pilots are coordinated by WDFW in conjunction with RCO, Ecology, local LE Coordinators, and the Planning Units. Intended as a proof of concept, these pilots are examining the capacity and effectiveness of the SRP to track streamflow restoration projects.

[1] https://appswr.ecology.wa.gov/wellconstruction/map/WCLSWebMap/default.aspx

WRIA 12
Analysis of water use under climate change
February 24, 2020
Paul Pickett

Assumption: increased evapotranspiration (ET) is equivalent to increased water use. If yard and landscaping vegetation has higher ET, homeowners will increase water use at a similar rate.

Approach: Regression of average daily ET to average daily temperature, relative humidity, wind speed, and precipitation. Method suggested by Guillaume Mauger UW Climate Impacts group. Direct calculation is possible but is complex and data-intensive.

Data source: AgWeatherNet (WSU) Puyallup station.
http://weather.wsu.edu/?p=90150&UNIT_ID=310102

Data selected: 2018 chosen for analysis – a summer with moderate summer conditions. Multiple years possible but labor-intensive. Single year seemed reasonable for screening-level analysis. April through October – growing season.

Initial regression screening. Relationship to temperature and humidity strong, wind and precipitation weak. (See attached graph.)

Regression Results: multiple regression of ET to temperature and relative humidity

Regression Statistics	
Multiple R	0.909
R Square	0.827
Adjusted R Square	0.825
Standard Error	0.023
Observations	214
Coefficients	
Intercept	0.909
Temperature	0.827
Relative Humidity	0.825

Method to project future climate conditions: assume primary driver is temperature change. Northwest Climate Toolbox provides forecasts of future climate, including daily average temperatures. Relative humidity forecasts are not available, so humidity is assumed to not change significantly.
https://climatetoolbox.org/tool/Future-Boxplots

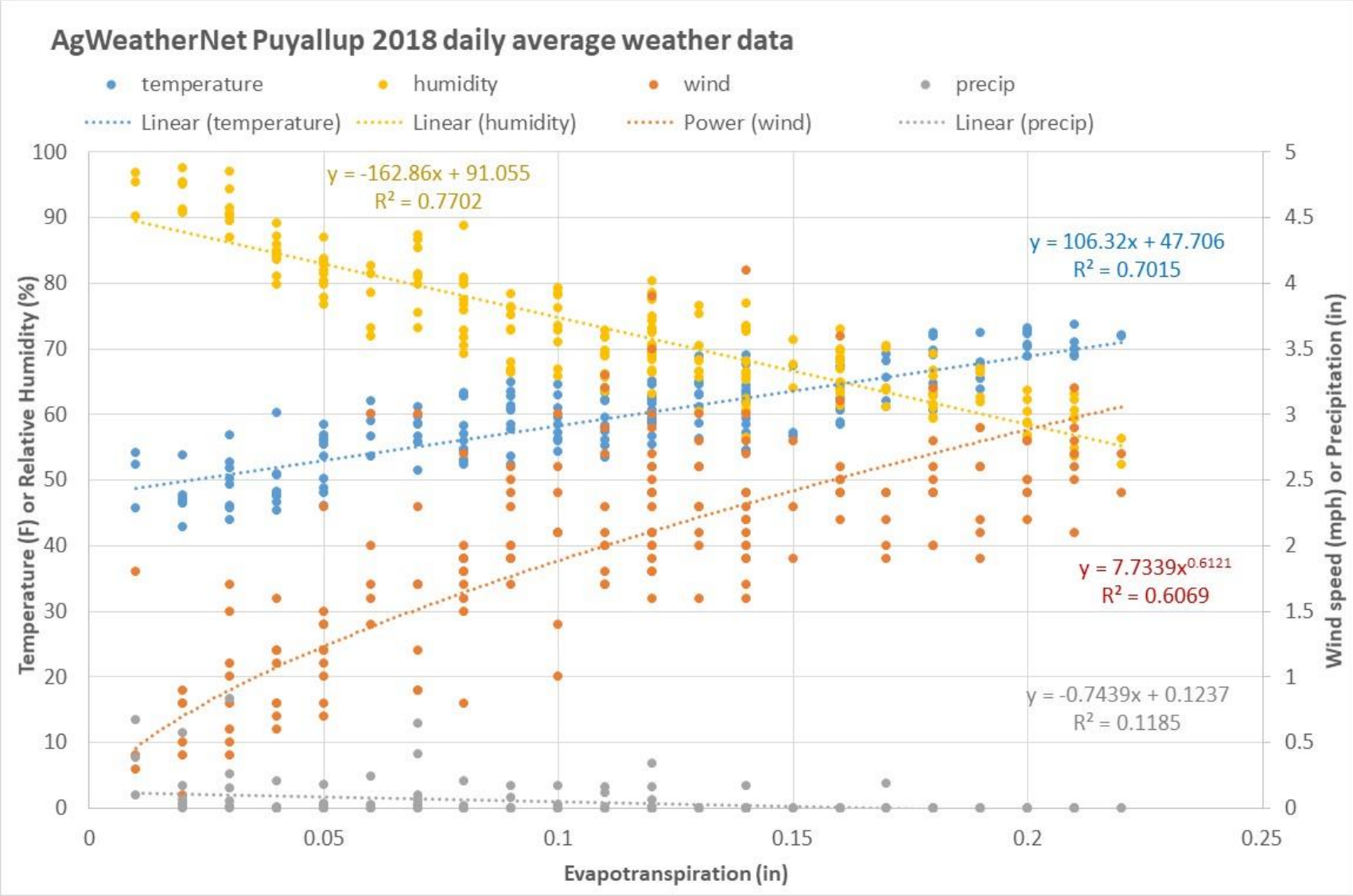
- Select location (same lat/long as AgWeatherNet station)
- Select season: spring (March-May), summer (June-August), fall (September-November)
- Select mean temperature

- Select high emissions scenario (current track)
- Box plots show mean of climate model results for seasonal mean temperatures

Climate Toolbox	Mar-May	Jun-Aug	Sep-Nov
1971-2000	49.8	62.9	51.6
2010-2039	52.1	65.7	53.7
Diff	2.3	2.8	2.1

Future ET results: Seasonal difference in temperatures applied to 2018 record. ET calculated with regression. Daily ET summed for a total difference by month and over the growing season.

Month:	Apr	May	Jun	July	Aug	Sept	Oct	Apr-Oct
2018	2.13	3.53	5.18	3.96	4.35	2.86	1.06	23.16
2040	2.33	3.74	5.43	4.20	4.60	3.05	1.23	24.68
Difference	0.20	0.21	0.25	0.24	0.25	0.18	0.17	**1.52**
percent	9.2%	5.9%	4.9%	6.2%	5.8%	6.5%	16.1%	6.6%


AgWeatherNet Puyallup 2018 daily average weather data
temperature
humidity
wind
precip
Linear (temperature)
Linear (humidity)
Power (wind)
Linear (precip)
y = -162.86x + 91.055
R² = 0.7702
y = 106.32x + 47.706
R² = 0.7015
y = 7.7339x^0.6121
R² = 0.6069
y = -0.7439x + 0.1237
R² = 0.1185
Temperature (F) or Relative Humidity (%)
Wind speed (mph) or Precipitation (in)
Evapotranspiration (in)
0
10
20
30
40
50
60
70
80
90
100
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
0
0.05
0.1
0.15
0.2
0.25

April 23, 2021

Hydrology and Instream Flows in the South Sound drainages of WRIA 12

Paul J. Pickett
Water Resources Specialist
Under contract with the Squaxin Island Tribe

Instream Flows

The Instream Flow (ISF) rule for WRIA 12 (WAC 173-512) includes closures of most streams in the Clover-Chambers Creek WRIA, including:

- Chambers Creek
  - Tributaries: Leach Creek, Flett Creek, Steilacoom Lake, Ponce De Leon Creek
- Clover Creek
  - Tributaries: North Fork Clover Creek, Spanaway Creek, Morey Creek, Spanaway Lake, Tule Lake
- Sequalitchew Creek
  - Tributaries: Sequalitchew Lake, American Lake, Murray Creek

Small coastal streams in the WRIA are not included in the rule.

The effective date of the rule is December 12, 1979.

This review does not address the adequacy of the rule where closures or ISF limits are set. A rule update is necessary to improve water management and protection of salmon habitat, which could include:

- Including closures for coastal streams.
- Setting ISF levels using the most current science in salmon streams. This is needed for both streams currently closed, as well as for coastal streams not included in the rule, because streams are subject to impacts from permit exempt wells and from ongoing changes in basin hydrology.

Stream Gaging

There are 6 active continuous USGS stream gages in WRIA 12[1]:

- 12090400 NORTH FORK CLOVER CREEK NEAR PARKLAND, WA
  - Since 1999-10-01. Supported by Pierce County Public Works and Utilities.
- 12090500 CLOVER CREEK NEAR TILLICUM, WA
  - Since 1990-10-01. Supported by City of Lakewood.
- 12091100 FLETT CREEK AT TACOMA, WA
  - Since 1996-10-01. Supported by Tacoma Public Works and Lakewood Water District.
- 12091200 LEACH CREEK NEAR FIRCREST, WA
  - Since 1988-10-01. Supported by Tacoma Public Works.

[1] Date is beginning of complete data series, some gages have older data for intermittent dates

- 12091290 LEACH CR AT MEADOW PARK GC AT UNIVERSITY PLACE, WA
    - Since 2005-10-01. Supported by Tacoma Public Works.
- 12091500 CHAMBERS CREEK BL LEACH CREEK NEAR STEILACOOM, WA
    - Since 1997-09-11. Supported by Lakewood Water District.

There are 14 other sites where flows were measured continuously in the past (1 to over 20 years) but discontinued.

Outside of the Chamber-Clover system, streams in the Sequalitchew Creek system and along the coast do not have continuous flow gaging.

Analysis of flow data

Jim Pacheco from the Department of Ecology analyzed flow from the 5 USGS flow gaging data with longer records (included in Appendix E of the Plan). Some patterns of interest include:

- Chambers Creek below Leach Creek shows the highest flows. During the August-September low flow season, median flows drop to near 40 cfs, while 90th percentile low flows are just above 30 cfs.
- The other four gages show relatively low flows in the summer and early fall:
    - North Fork Clover Creek goes dry more than half of the years of record.
    - Clover Creek has median flows in September below 2 cfs and goes dry more then 10% of years.
    - Flett Creek has median flows that drop below 1 cfs and 90% percentile low flows that are sometimes less than 0.2 cfs
    - Leach Creek has median flows around 2 cfs and 90th percentile low flows just above 1 cfs.

The Leach Creek gage is included in the Puget Sound Partnership Vital Signs for Summer Low Flow[2]. Annual 30-day average low flows from 1975-2019 showed no significant change, increasing slightly with an average rate of increase of 0.01 cfs/year.

I developed an analysis using the same methodology for 7-day average low flows for five USGS gages in WRIA 12. Results show a few patterns of interest:

- Flows in Chambers Creek (Figure 1) show an increase in low flows at a rate of about 0.36 cfs/year, with a significance of >90%.
- Flows in Flett Creek (Figure 2) show a very slight increasing trend, but a few wet years leverage the regression against most years with very low flows, and the trend is not significant.
- Leach Creek (Figure 3) shows a slight decreasing trend, at a significance of >60%.
- Flows in Clover and North Fork Clovers Creeks have many summers with 7-day low flow of zero. These flow data cannot be used to develop a trend.

[2] https://www.pugetsoundinfo.wa.gov/ProgressMeasure/Detail/46/VitalSigns

The geology of this basin make interpretation of flows difficult. In general, glacial outwash soils allow streams in the mid-basin to go dry in the summer. Subsurface flows return near the shore, allowing flows near the mouth of Chambers Creek to be relatively high. Determining why Chambers Creek flows seem to be increasing would take a detailed analysis, to evaluate climate effects and the geohydrology of this basin.

Impact of existing water rights

A detailed analysis of existing consumptive water rights does not currently exist and would require a more intensive study. Ultimately, the definitive quantitative analysis of legally used water rights would most likely come as part of an adjudication.

I did a quick search for all water rights records from the Ecology Water Rights Search website[3], filtering for "Active" or "Change in Progress" and filtering out "Decommissioned Well" and "Monitoring Well. The search found 2,717 water rights records. This appears to be identical to the data downloaded by Pacific Groundwater Group (PGG) for the WRIA 12 planning process, as part of an analysis of potential acquisitions.

Of the total 2,717 records, 1,853 are claims (and one storage certificate) with no quantity specified, and 275 show only irrigated acres. Of the remaining 589 records, 583 have instantaneous use limits totaling 841.9 cfs, while 481 have annual use limits totaling 301.7 cfs (converted from acre-feet/year). Note that Chambers Creek near the mouth has low flows that are below 40 cfs in the majority of years. Total instantaneous amounts of all water rights are more than 20 times higher.

There are 115 water rights with quantities and priority dates since Ecology adopted the WRIA 12 rule, totaling 316.8 cfs of instantaneous use and 103.9 cfs of annual use. Thus, about one-fifth of WRIA 12 water rights were issued since the Instream Flow Rule was adopted, which represent about one-third of the water that Ecology has permitted.

The key point from these analyses is that there are already a significant number of water rights issued in WRIA 12. From a qualitative viewpoint, many of these rights are junior to instream flows, and all are junior to Tribal treaty rights. Whether junior rights have been mitigated or not would also be useful to know. The total permitted water use illustrates impacts to senior rights in this WRIA from permitted rights. Impacts from permit-exempt wells cumulatively add to the overall impacts. The large number and water volumes of water rights under permit tells us that the impact of water rights and permit exempt wells on streamflows is critically important and needs more research, monitoring, and detailed analysis of data.

[3] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-Resources-Explorer

Groundwater modeling

As noted in Appendix D of the Plan, USGS has developed a groundwater model that includes the geology of WRIA 12. This could be a useful tool to evaluate the impacts of water withdrawals on streamflow, as part of a study quantifying actual water use from water rights and PE wells. Evaluation of opportunities to improve the USGS groundwater model were included as a goal in the plan.

Conclusions

- Instream flow rules have closed major streams in WRIA 12, but should be updated to address small coastal tributaries. Also, instream flow levels need to be determined and added to the rule, even for closed basins.
- Flow is being monitored intensively in the Chambers-Clover system, but not in Sequalitchew Creek or small coastal tributaries. Flows in summer and early fall are very low in most of the system and many tributaries frequently go dry.
- The records of most stream gages in WRIA 13 are short, and other information on water and land use have not been collected. To better understand human impacts on streamflow, additional effort is needed:
    - A commitment to on-going and expanded continuous stream gaging so a long-term record will be available in the future.
    - Collecting and conducting a detailed assessment of existing information, both to determine human impacts to the extent possible, and to identify information gaps that need to be filled.
    - The collection of additional data and information necessary to understand human impacts and effectively manage water to protect instream flows, Tribal water rights, and other senior water rights, and in general to protect and restore ecologic functions dependent on streamflow.
- The screening level evaluation of water rights shows that water rights exist on paper at levels over 20 times greater than flows in lower Chambers Creek. Permitted water use could be having a significant impact on summer low flows in WRIA 12 salmon streams. Additional analyses of actual legal use of water and the extent of unmitigated use, including the location and consumptive use of all existing permit exempt well, are critical to beginning an effective program of streamflow restoration.
- When water use has been better quantified, the USGS model should be updated and enhanced to include that information and analyze the impacts of water use on streamflows.

Figure 1. Trend in 7-day average daily summer low flows at USGS gage in Chambers Creek below Leach Creek.

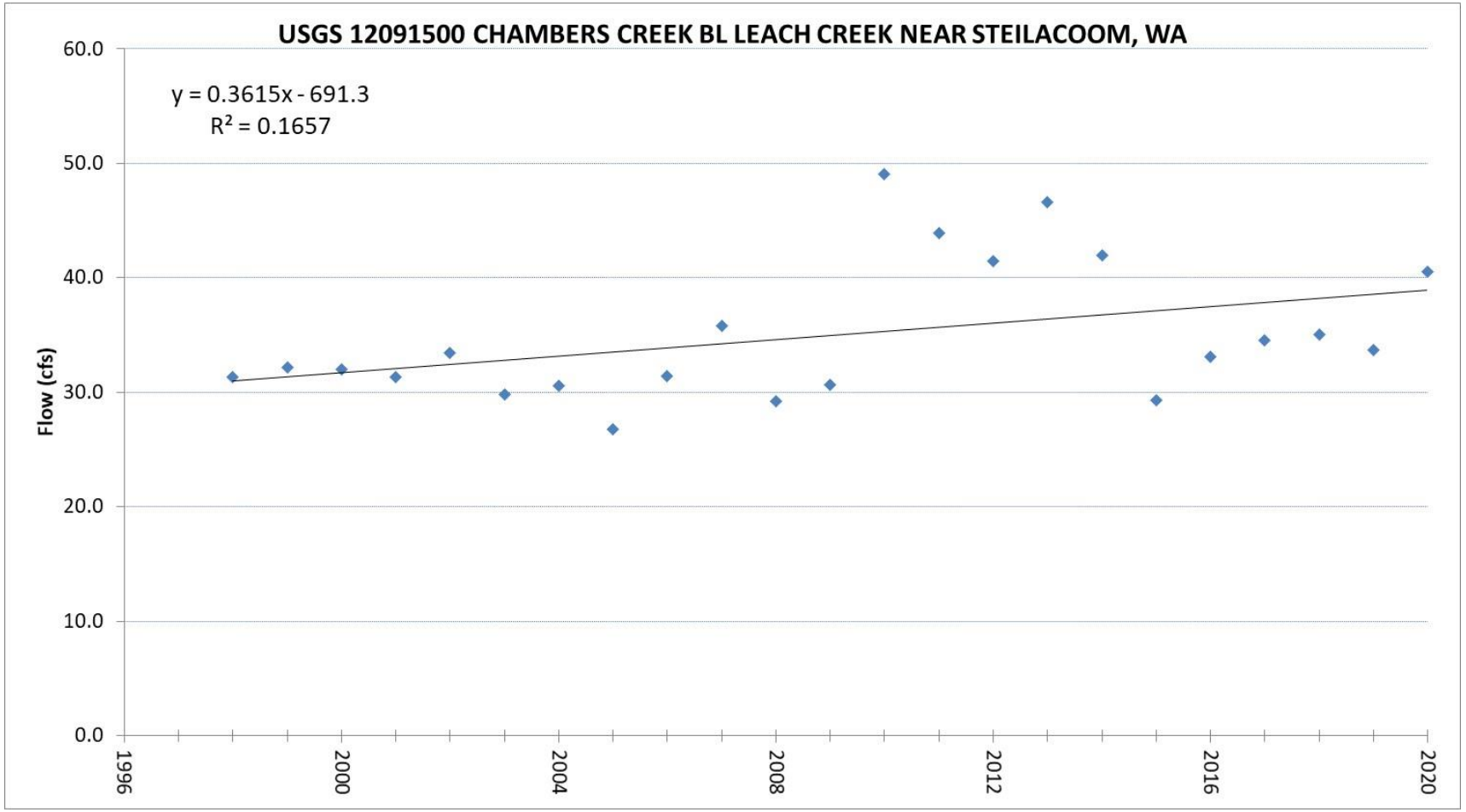


Figure 2. Trend in 7-day average daily summer low flows at USGS gage in Flett Creek.

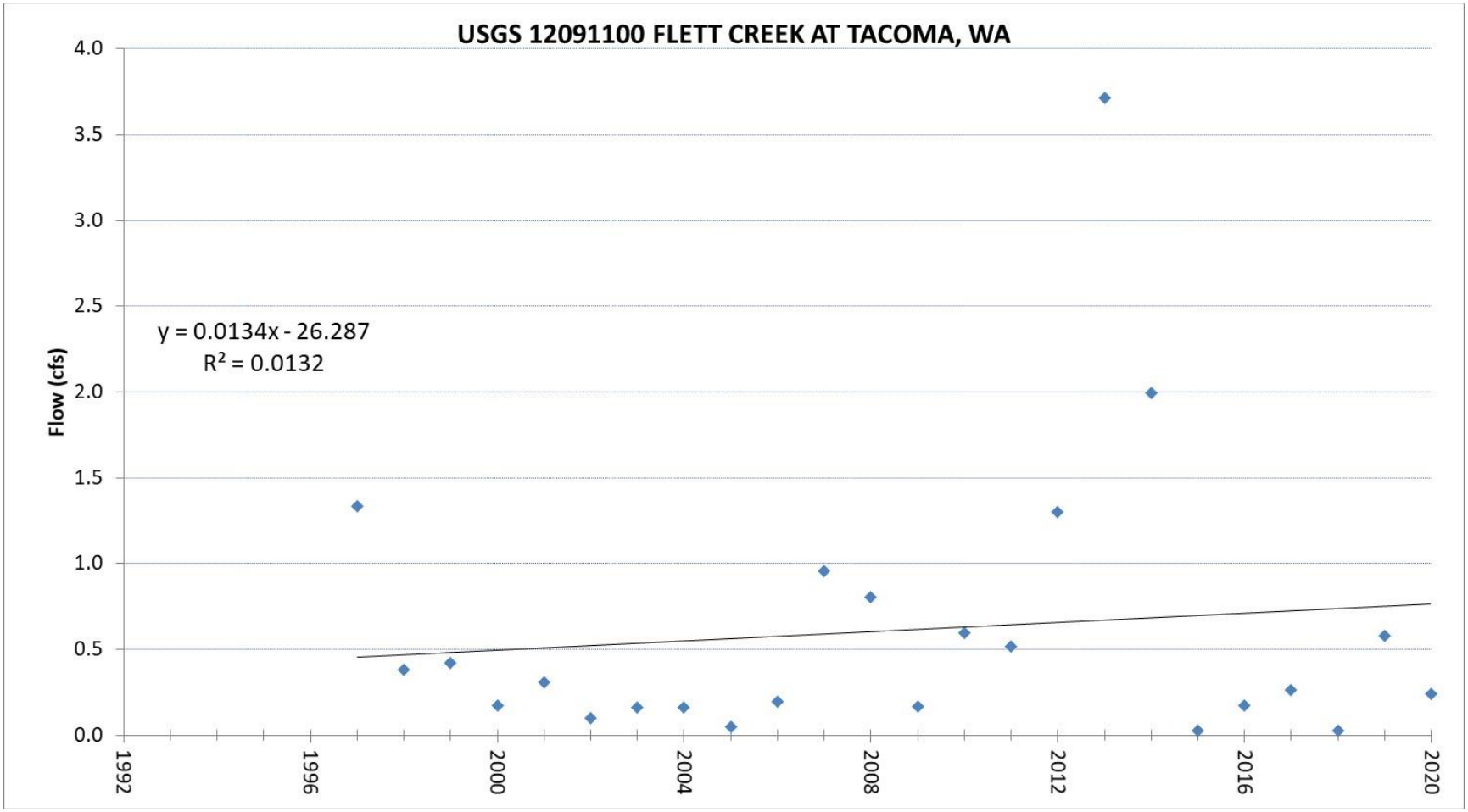
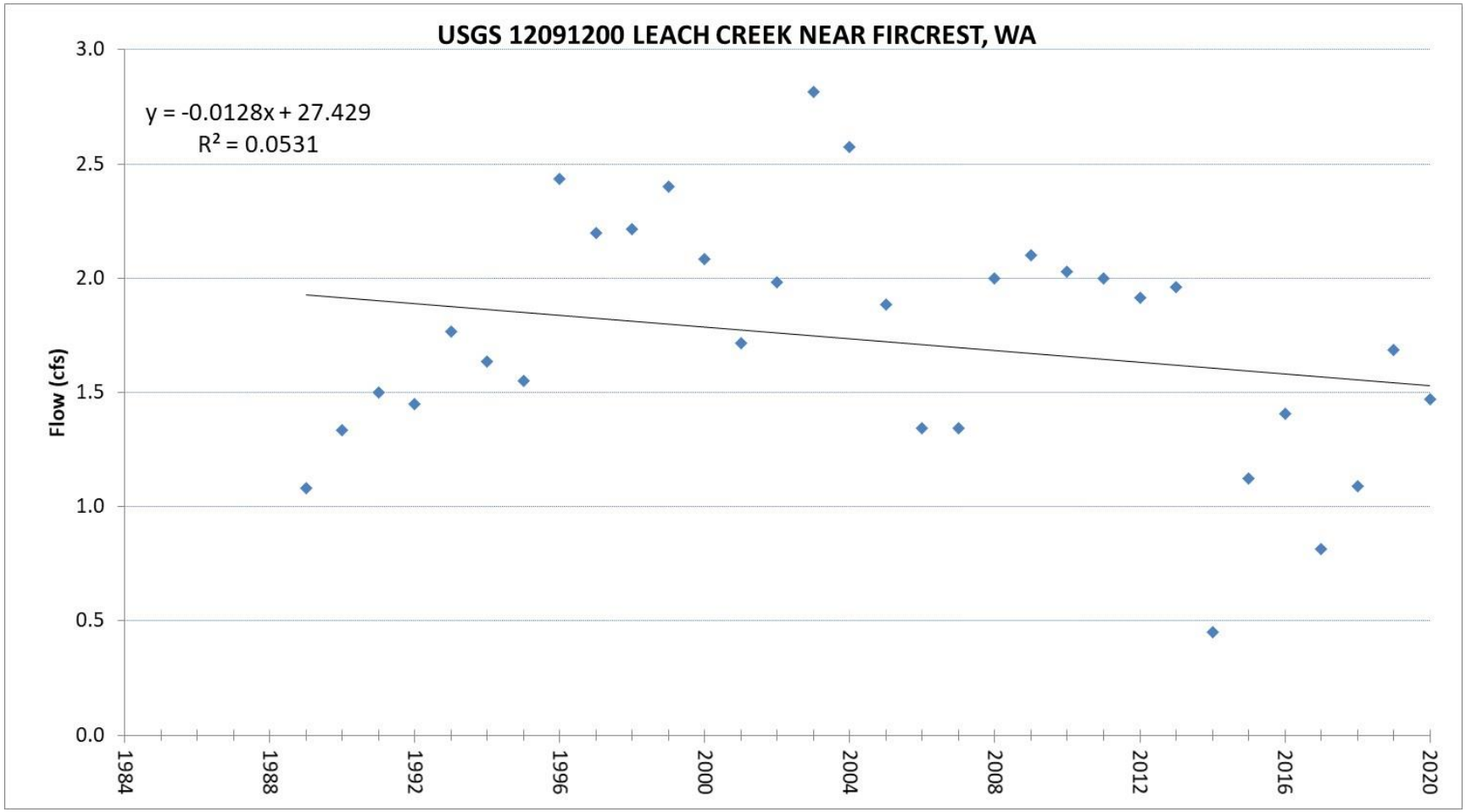


Figure 3. Trend in 7-day average daily summer low flows at USGS gage in Leach Creek.



Comments on behalf of the Chambers-Clover Creek Watershed Council (CCWC) upon the recommendation of Approval for the Streamflow Restoration Plan (RCW 90.94) with significant comments to be provided in the Compendium.

The CCWC approves this Stream Flow Restoration Plan while recognizing the two major projects providing the calculated offset are in the lower drainages without water benefits to the Clover Creek sub-basin. However, these two calculated projects provide important Net Ecological Benefit (NEB) to the larger watershed. We strongly recommend and support further development of projects with water-for-water and time-in-place benefits in the Clover Creek sub-basin. We understand there is need for additional water quantity planning in this watershed. We are interested in participating in such efforts.

The current RCW 90.94 plan finds the 20-year project high growth "Permit-Exempt Wells" (PE) total for WRIA 12 could be 227 wells with a calculated impact of 89.9 acre feet. Nearly all the PE wells are in the highly stressed Upper Clover Creek sub-basin. The Upper Clover Creek system needs the benefit from offset projects in the vicinity of the projected well development area. Such projects include: "depaving" the existing Clover Creek streambed for clear NEB, auxiliary sewage treatment plants and storm water infiltration to provide water-for-water, time-in-place benefits with NEB.

WRIA 12 includes 134,400 acres north of the Nisqually Basin and south of the Puyallup Basin. It occupies an historic prairie or oak savannah overlying glacial outwash that dates from the last glacial recession some 13,000 years ago. For more than 5000 years the watershed was home to at least five villages of the Sequalitchew and Steilacoom tribes. More recently, in the 1830-1840s the Hudson Bay Company operated an agricultural company of over 160,000 acres with 15,000-plus grazing stock in the area. All of WRIA 12 was within the Hudson Bay holdings during the joint US-GB administration period that ended with the International Boundary Settlement in 1846. Since the 1850's there has been fairly continuous US military activity with various forts and cantonments (currently Joint Base Lewis McChord and Camp Murray Washington State National Guard) in this area. The definitive Water Resource Plan for WRIA 12 of 1979 under RCW 90.54 et al found a population of 225,900 in 1975; the current (2019) population is 409,843. Development included extensive channeling to remove storm waters as quickly as possible and free up land for agricultural uses and urban growth. In the 1940's, regional water suppliers began continuous expansion of groundwater pumping. However, with septic disposal of wastes most of the extracted water remained in the basin to sustain regional groundwater levels.

In 1986 a regional sewage system was activated that diverts up to 27,000 acre feet per year directly to Puget Sound by this system. (Additional diversion is projected.) Note the average annual flow from 47,000-acre Clover Creek basin is 29,000 acre feet. Average annual flow from Chambers Creek below Leach and Flett Creeks is 78,600 acre feet. In below average flow years, this sewage system fully diverts waters in these creeks below the groundwater levels upon which most streams and surface water bodies depend, particularly in the Clover Creek basin.

We have significant additional WRIA 12-specific contextual information attached in the PowerPoint (WRIA12WREPlanBriefing) with Speaker Notes briefed to the CCWC February 17, 2021. The CCWC Executive Board will include monitoring Streamflow Restoration Plan elements status in the Chamber's-Clover Creek Watershed Council's Six Year Action Plan and Annual Work Plans.

Attachments:

Clover Creek Exceedance Table (Attachment 1)

Picture of Clover Creek, Paved (Attachment 2)

WRIA12WREPlanBriefing Presentation Slides (Attachment 3)

WRIA 12 Committee Representatives:

___*Renee M. Buck*_____4/21/21_____ _____KG Kauffman _____ 4/21/21_____

CCWC Chair (date) WRIA 12 Q Restore Rep. (date)

(Attachment 1)

Chambers and Clover Creeks Exceedance Tables

Periodicity of flow ranges for the indicated streams in WRIA 12 with additional USGS data provided.

The exceedance data in bold below shows that for **Chambers Creek 10% of the flows (Q) exceed (>) 221 cfs; 50% Q > 85 cfs; and, 90% Q > 40cfs** (**WY 38 – 20 - all records fair);** and**,** for **Clover Creek 10% Q > 100 cfs; 50% Q > 23.6 cfs; and, 90% Q > @ 1.57 cfs** (**WY 49 - 05 with Q>10cfs fair and Q<10cfs poor**). Clover Creek had zero flow for some time in 1949, 52-53, 2001-06, 2015 and 2019 for the period of record noted.

2091500 CHAMBERS CREEK BELOW LEACH CREEK, NEAR STEILACOOM, WA

SUMMARY STATISTICS

	Water Year 2020		***Water Years 1938 - 2020***	
Annual total	34,480			
Annual mean	94.2		112.4	
Highest annual mean			183.8	1951
Lowest annual mean			59.3	1944
Highest daily mean	347.0	Feb 01	650.0	Feb 13, 1951
Lowest daily mean	35.2	Oct 12	14.0	Aug 16, 1965
Annual 7-day minimum	35.7	Oct 07	26.0	Aug 13, 1965
Maximum peak flow	422[a]	Feb 01	792[a]	Jan 05, 1956
Maximum peak stage	3.15	Feb 01	3.92	Jan 13, 2006
Annual runoff (cfsm)	0.906		1.08	
Annual runoff (inches)	12.3		14.7	
10 percent exceeds	165.6		**221.0 cfs**	
50 percent exceeds	74.8		**85.0 cfs**	
90 percent exceeds	40.8		**40.0 cfs**	

12090500 CLOVER CREEK NEAR TILLICUM, WA

SUMMARY STATISTICS

	Water Year 2019		Water Years 1949 - 2019	
Annual total	6,077			
Annual mean	16.6		39.6	
Highest annual mean			81.9	1997
Lowest annual mean			9.72	2001
Highest daily mean	68.1	Feb 13	532.0	Feb 12, 1951
Lowest daily mean	0.0	Sep 25	0.0	Oct 20, 1949
Annual 7-day minimum	0.004	Sep 24	0.0	Oct 20, 1949
Maximum peak flow	69.9	Feb 14	568	Feb 12, 1951
Maximum peak stage	15.78	Feb 14	18.25	Mar 11, 2014
Annual runoff (cfsm)	0.226		0.540	
Annual runoff (inches)	3.06		7.33	
10 percent exceeds	37.9		**100.0 cfs**	
50 percent exceeds	11.6		**23.6 cfs**	
90 percent exceeds	0.756		**1.57 cfs**	

(Attachment 2)

Picture of Clover Creek, Paved

(Attachment 3)

WRIA12WREPlanBriefing - Presentation Slides with Notes

Streamflow Restoration Planning

Kris Kaufmann & Renee Buck

WRIA 12 Watershed Restoration and Enhancement Plan

February 17, 2021

DEPARTMENT OF ECOLOGY
State of Washington

Presentation Outline

1. Background
2. Streamflow Restoration law
3. Role of the Committee
4. Elements of the Watershed Plan
5. Steps to complete plan
6. Resources
7. Questions? Put in the chat.

Background

January 2018

Washington State Legislature passed the Streamflow Restoration law 90.94 RCW

Purpose

support robust, healthy, and sustainable salmon populations while providing water for homes in rural Washington.

The law calls for

local watershed planning and project implementation to improve streamflows

Department of Ecology

administers funds implementation through its competitive grant program

CCWC

Participated on the WRIA 12 watershed planning committee

What is a permit -exempt domestic well?

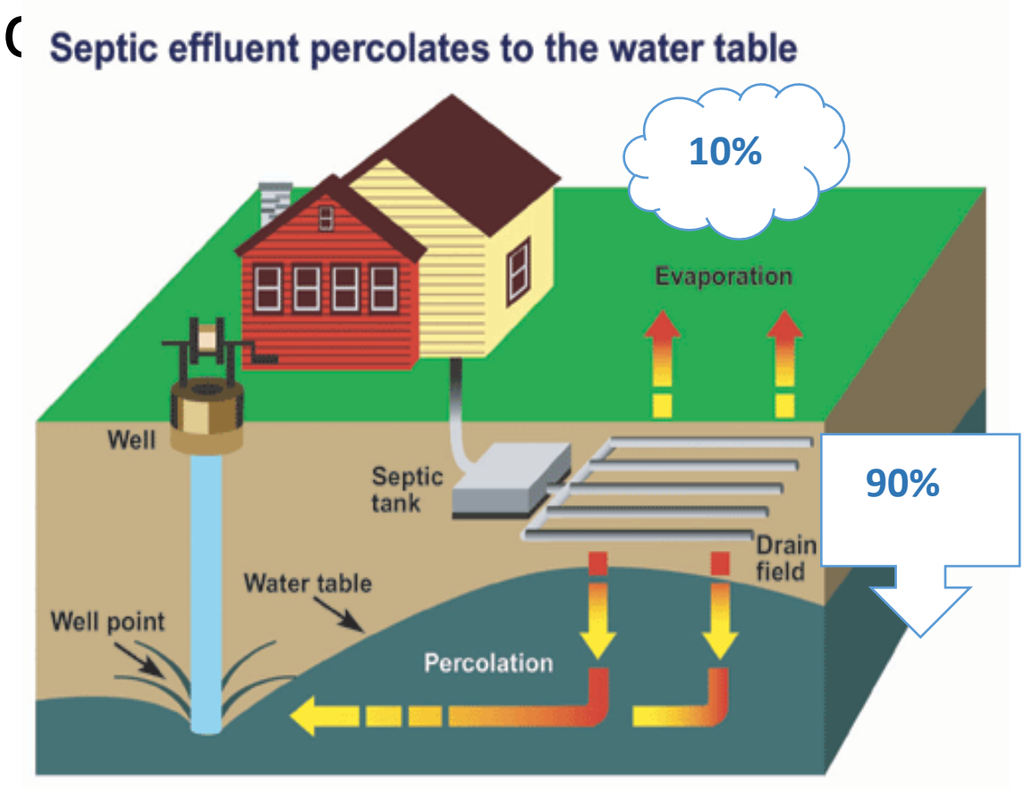
- Serve single homes, small developments, irrigation of small lawns and gardens

- Chapter 90.94 RCW establishes withdrawal limits for permit-exempt domestic well connections in this watershed

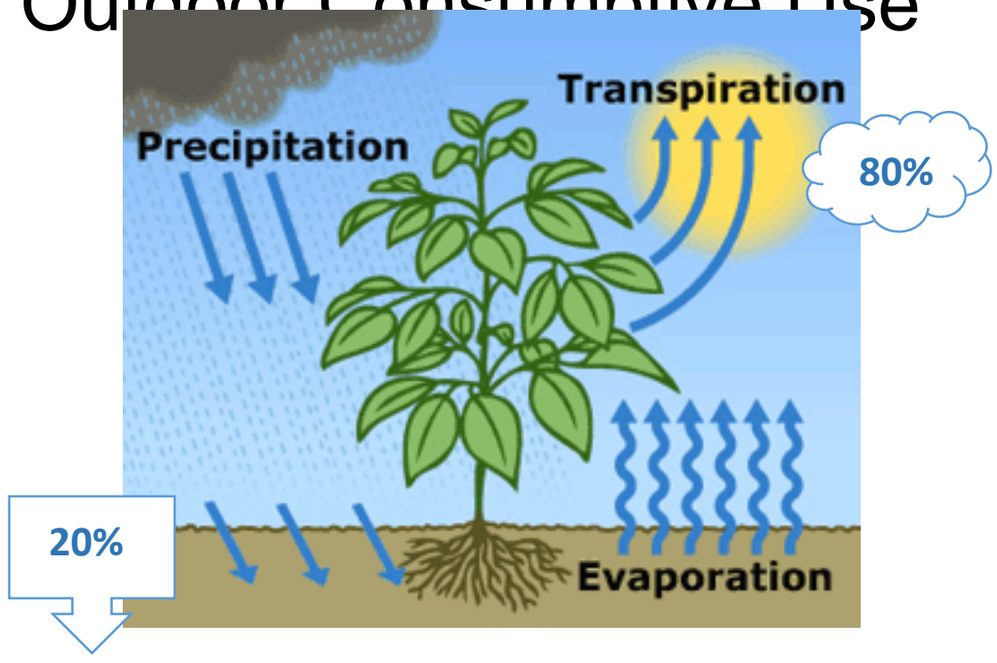
What is consumptive water use?

Water that is evaporated, transpired, consumed by humans, or otherwise removed from an immediate water environment due to the use of new permit -exempt domestic wells.

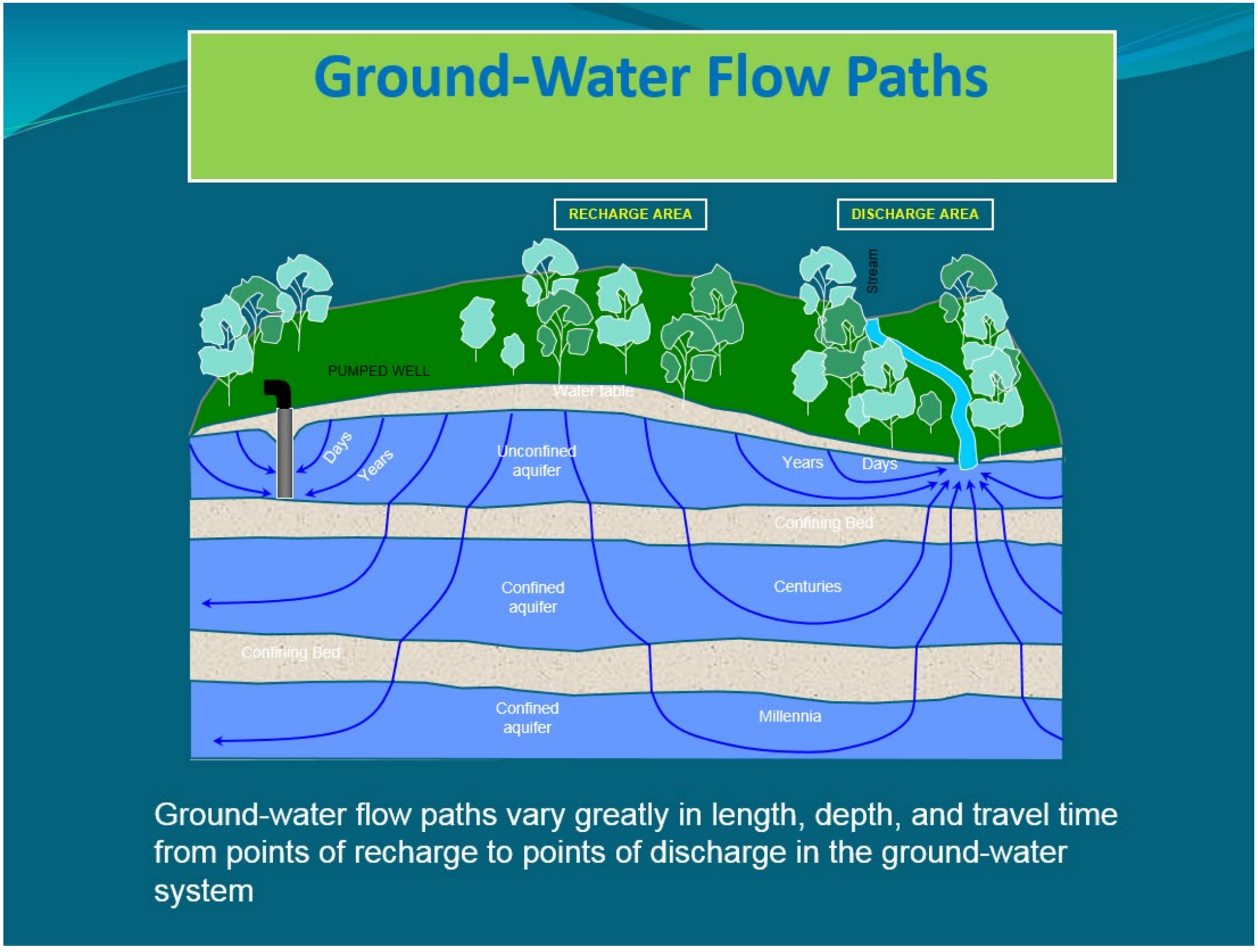
Inc



Outdoor Consumptive Use

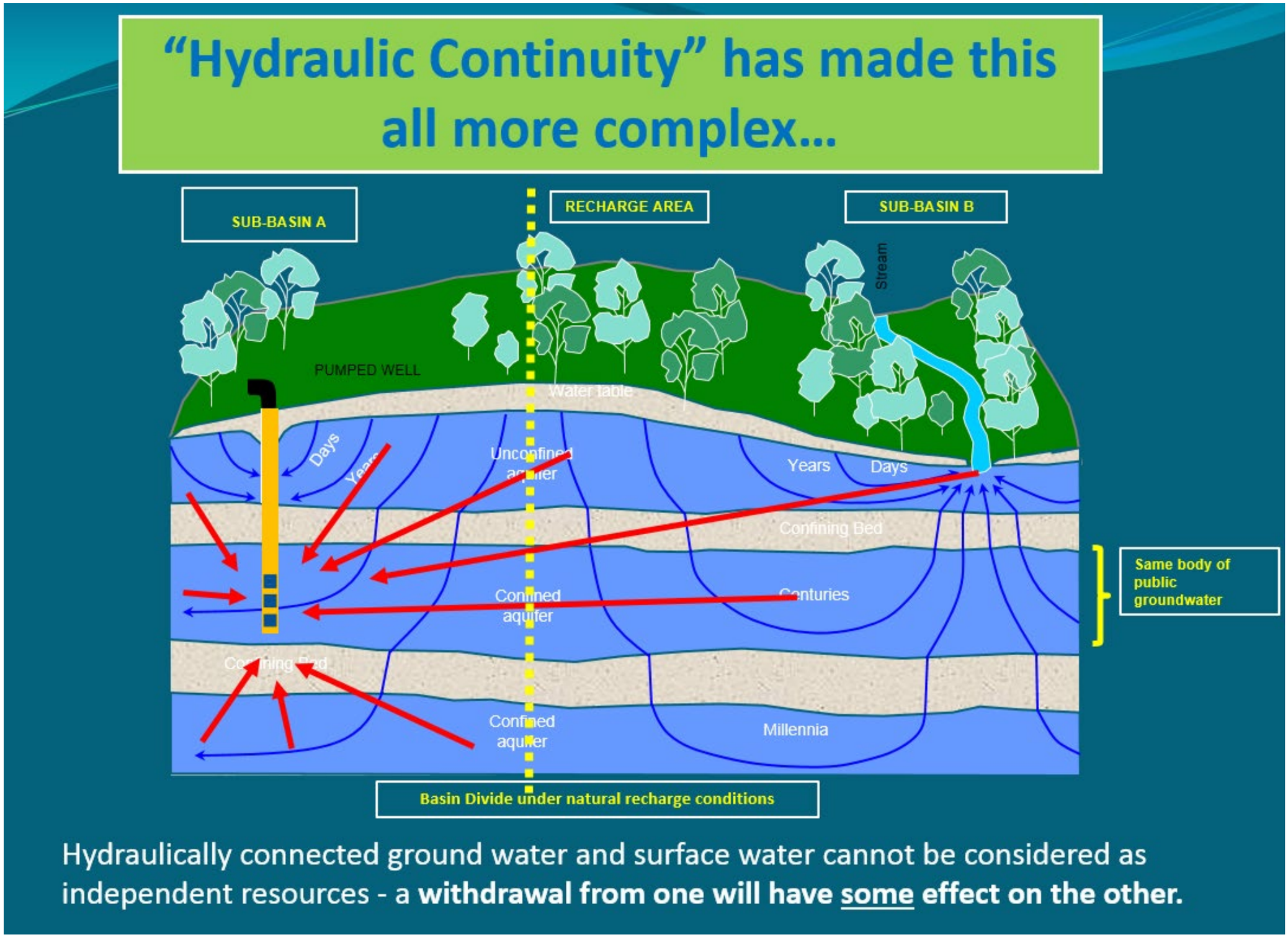


How are groundwater and streamflows connected?



Ground-water flow paths vary greatly in length, depth, and travel time from points of recharge to points of discharge in the ground-water system

How do wells affect streamflows?



Hydraulically connected ground water and surface water cannot be considered as independent resources - a **withdrawal from one will have some effect on the other.**

Hydraulic Complexity in WRIA 12
1979

Sequalitchew Lake outflow structure had fish weir until Hatchery Production stopped in early 1990s.

Streamflow Restoration Funding Program Overview

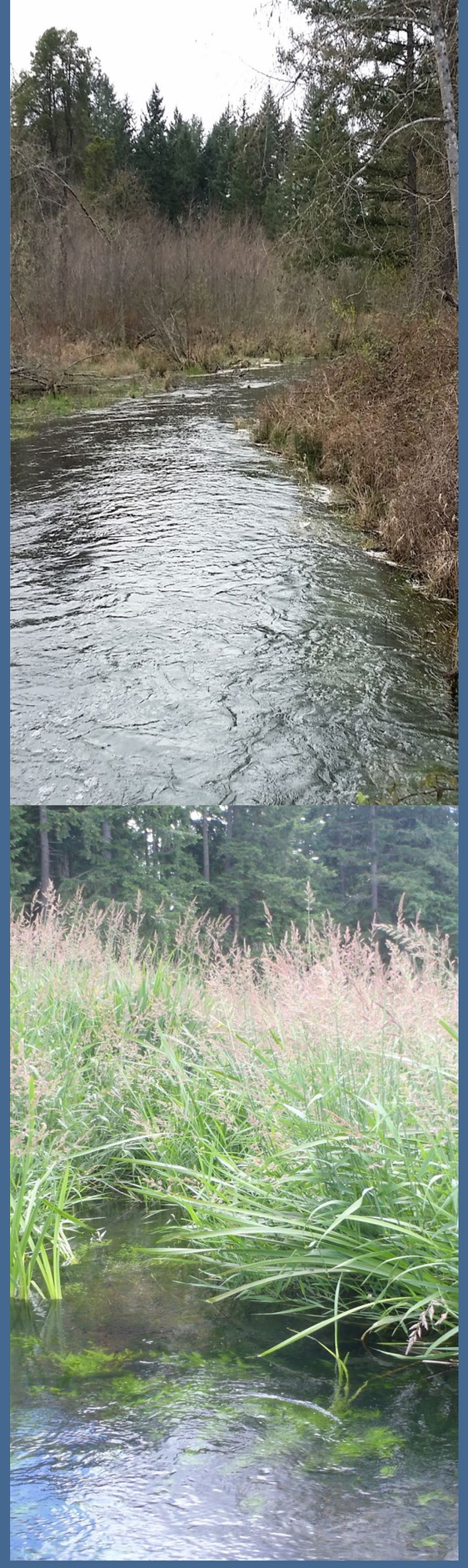
15 Year Competitive Grant Program - $300 million

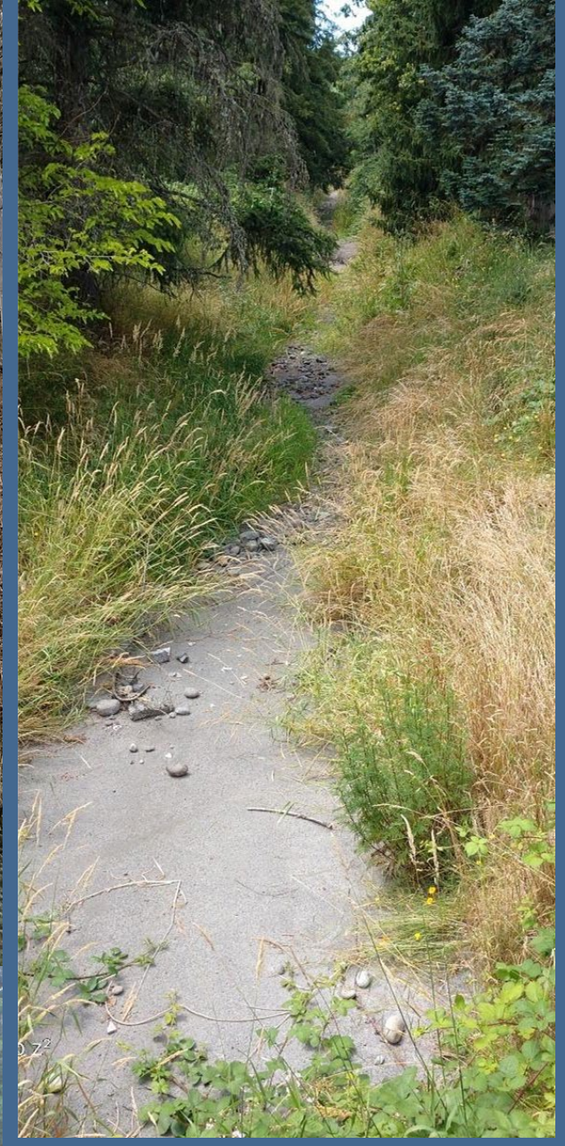
- Pilot Round (2018/2019)
- Current Round (2020)

Statewide

Funding Rule
Chapter 173-566 WAC

Funding Guidance
Publication 19-11-089



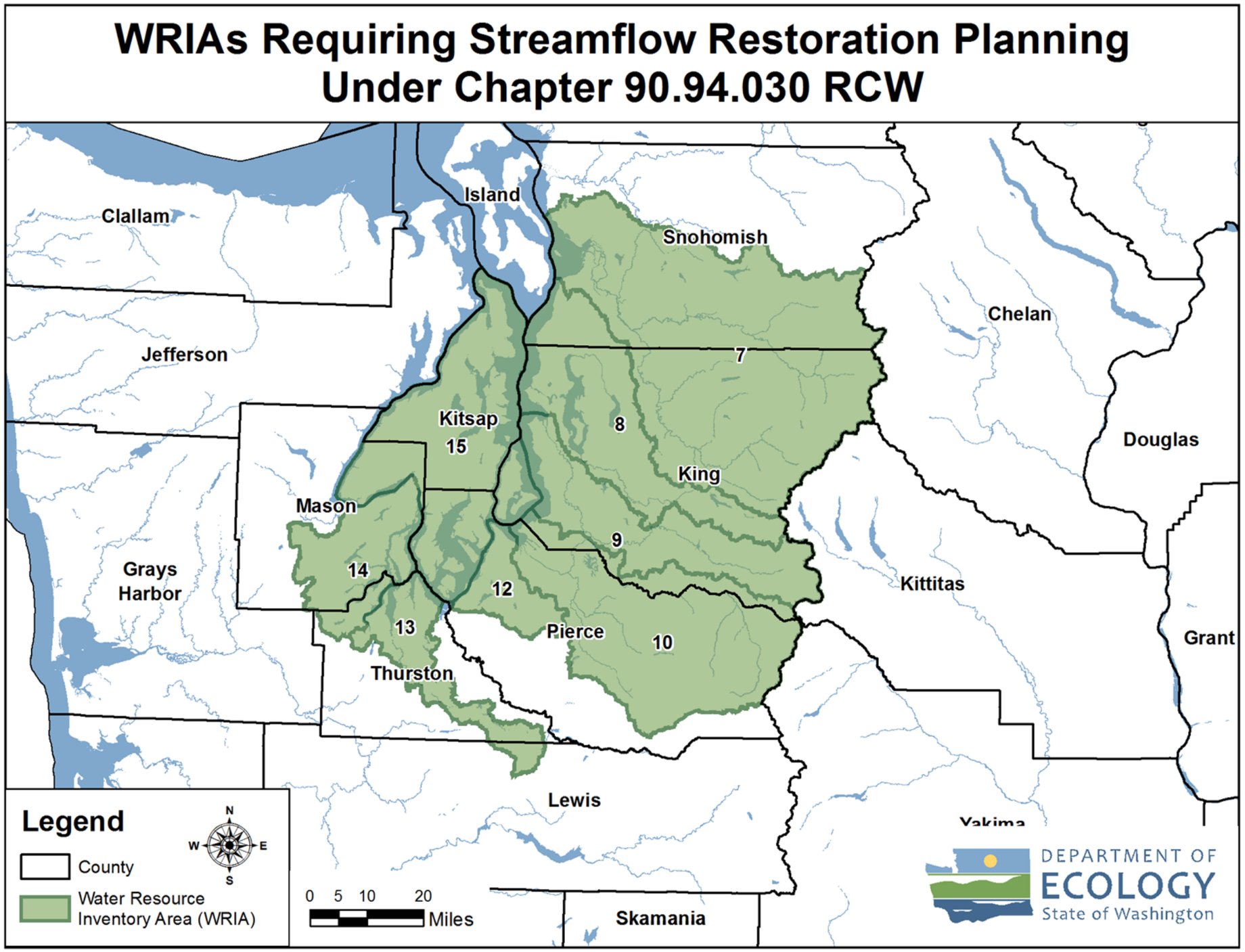


Streamflow Restoration law RCW 90.94

Clarifies how local governments can issue building permits for homes intending to use a permit-exempt well for their domestic water supply **and offsets those impacts through a local watershed planning effort** .

Ecology chaired the WRIA 12 Committee, **composed of tribes, counties, cities, WDFW, municipal water purveyor, irrigation district, and interest groups (CCCWC).**

Streamflow Restoration Planning Map



WRIA 12 Committee brochure: https://fortress.wa.gov/ecy/publications/SummaryPages/2011072.html

Overview of the Watershed Plan

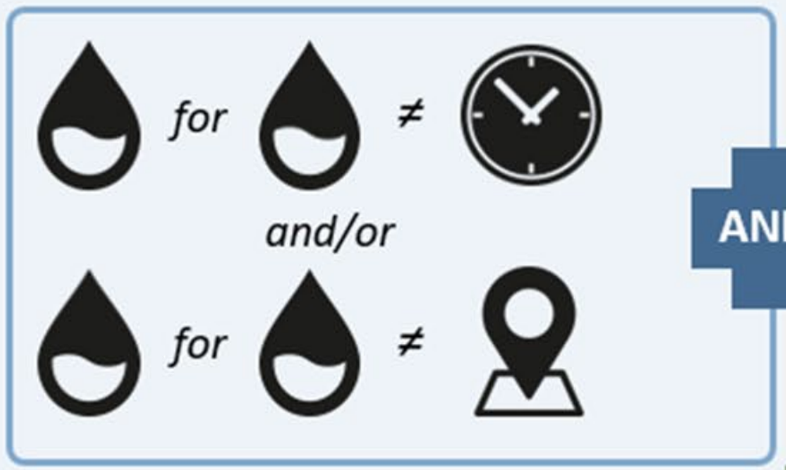
1 QUANTIFY EXPECTED CONSUMPTIVE WATER USE OVER 20 YEARS

DEPARTMENT OF ECOLOGY
State of Washington

2 IDENTIFY WHERE IT IS POSSIBLE TO OFFSET

FIRST PRIORITY

SECOND PRIORITY



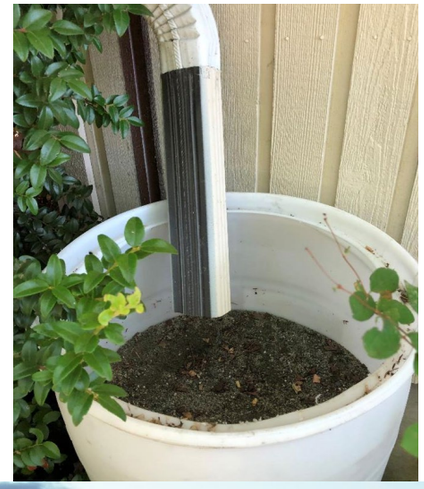
Projects that enhance

and/or

3 ECOLOGY MUST EVALUATE: *DOES THIS PLAN HAVE A NET ECOLOGICAL BENEFIT?*

What is offset?

The anticipated ability of a project or action to counterbalance some amount of the new consumptive water use over the next 20 years (2018 - 2038).



What is Net Ecological Benefit (NEB)?

From Ecology's Final NEB Guidance

"…local planning groups are best situated, and will therefore determine the appropriate amount of benefits beyond the offsetting of projected impacts …"

WRIA 12 Watershed Restoration and Enhancement Committee

- Town of Steilacoom
- City of Lakewood
- City of Tacoma
- Squaxin Island Tribe
- Puyallup Tribe
- Pierce County
- Washington Department of Fish and Wildlife
- Washington Department of Ecology
- Lakewood Water District
- Pierce County Conservation District
- Master Builders Association of Pierce County
- **Chambers-Clover Creek Watershed Council**
- WRIA 10/12 Salmon Recovery Lead Entity - ex officio member
- Joint Base Lewis-McChord – ex officio member

What is the Committee's role?

Ecology

- Determines NEB
- Adopts Plan

Committee

- Develops Watershed Plan
- Approves Plan

Watershed Restoration and Enhancement Plan Components

Planning Horizon

2018 - 2038

WRIA Subbasin Delineation

3 subbasins

Projected New Permit -Exempt Wells

145 - 227 projected new permit -exempt wells

Estimated Consumptive Use

More likely : 57 .4 AFY (0 .08 cfs)
High growth : 89 .8 AFY (0 .12 cfs)
353 GPD per household

Projects and Actions

1,425 AFY of offsets, stream enhancements, and habitat projects to achieve Net Ecological Benefit (NEB)

Delineate Subbasins

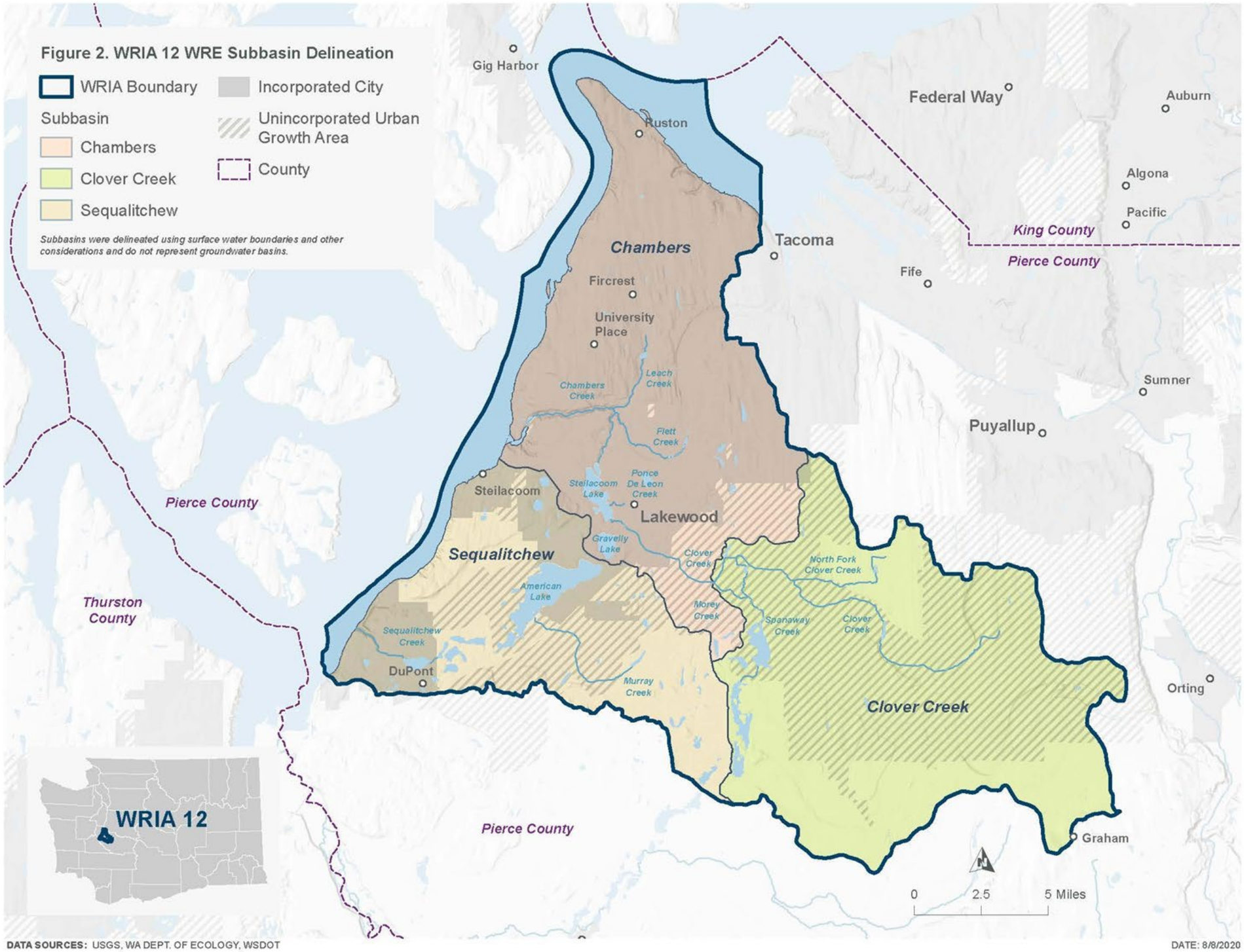
- The WRIA 12 Committee divided WRIA 12 into 3 subbasins for the purposes of assessing consumptive use and project offsets.

Clover Creek (above McChord)

Chambers Creek

Sequalitchew Creek

Subbasin Delineation Map

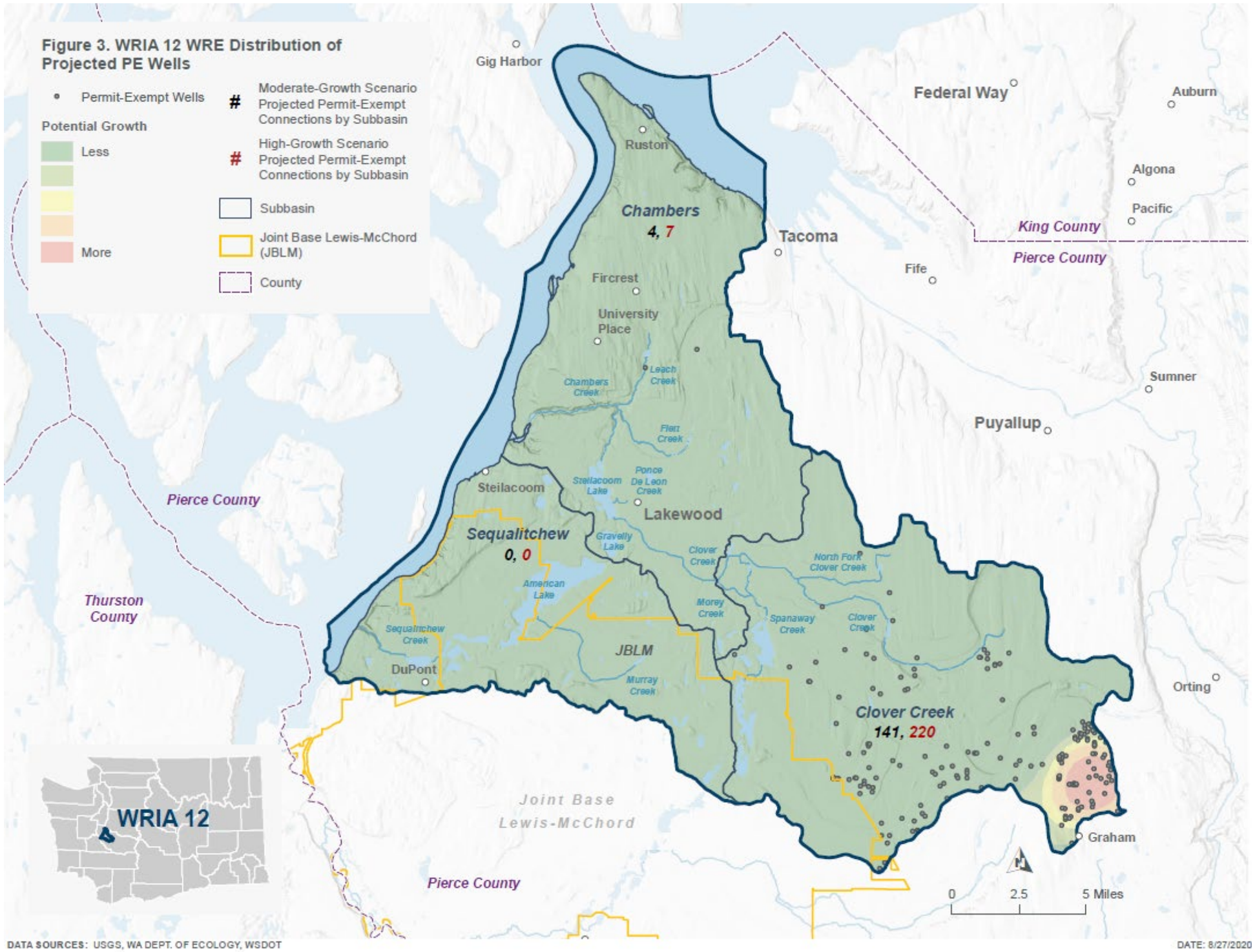


Project New Permit -Exempt Wells

- The WRIA 12 Committee projects 145 PE wells over the planning horizon.
  - Most growth is expected in the Clover subbasin.

- An offset target relies on the "high growth scenario" projection of 227 PE wells over the planning horizon.

Projected New Permit -Exempt Wells Map



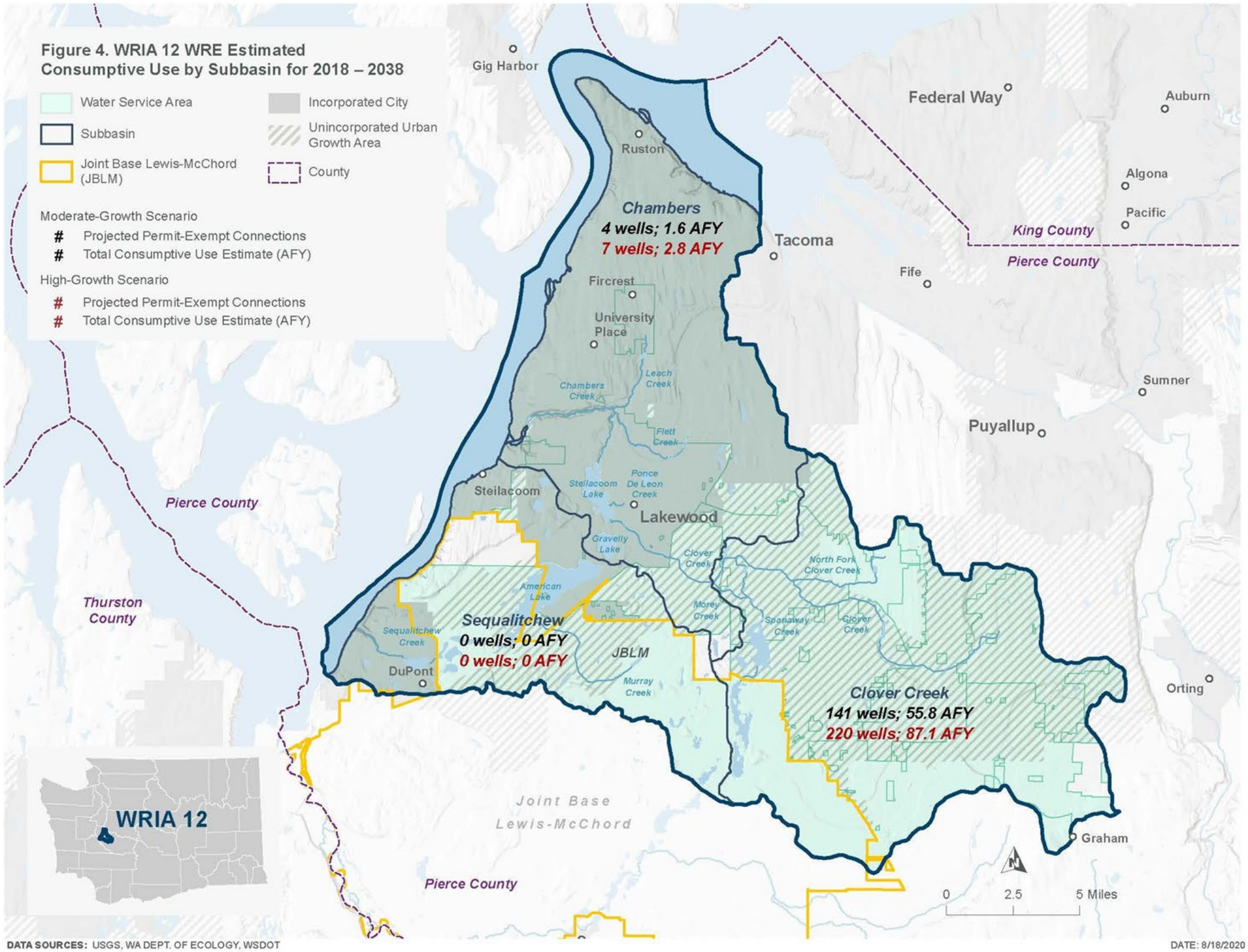
Projected New Permit -Exempt Wells Table

Subbasin	Moderate Growth	High Growth
Chambers	4	7
Clover Creek	141	220
Sequalitchew	--	--
WRIA 12 Total	**145**	**227**

Estimate New Consumptive Water Use

- The WRIA 12 Committee used the **"moderate" (145) projection as the most likely estimate and "high" (227) projections of new PE wells as a higher offset target** to estimate the consumptive water use that this watershed plan must address and offset. The Committee estimated that by the end of the planning horizon, new consumptive use would average 57.4 acre-feet per year (0.08 cfs) under the moderate growth scenario and 89.9 acre-feet per year (0.12 cfs) under the high growth scenario.

Estimated New Consumptive Water Use Map



Estimated New Consumptive Water Use Table

Subbasin	Projected PE wells	Indoor CU		Outdoor CU		Total CU/year in 2038	
		Acre-feet per year	Gallons per day	Acre-feet per year	Gallons per day	Acre-feet per year	Gallons per day
Chambers	4	0.1	89	1.5	1,139	1.6	1,428
Clover Creek	141	2.4	2,143	53.4	47,672	55.8	49,815
Sequalitchew	-	0	0	0	0	0	0
TOTAL	**145**	**2.5**	**2,232**	**54.9**	**49,101**	**57.4**	**51,243**

Indoor and Outdoor Consumptive Use Estimates by Subbasin (Moderate Growth)

Subbasin	Projected PE wells	Indoor CU		Outdoor CU		Total CU/year in 2038	
		Acre-feet per year	Gallons per day	Acre-feet per year	Gallons per day	Acre-feet per year	Gallons per day
Chambers	7	0.1	89	2.7	2,410	2.8	2,500
Clover Creek	220	3.7	3,303	83.4	74,455	87.1	77,758
Sequalitchew	-	0	0	0	0	0	0
TOTAL	**227**	**3.9**	**3,482**	**86.1**	**76,865**	**89.9**	**80,258**

Indoor and Outdoor Consumptive Use Estimates by Subbasin (High Growth)

Types of Projects & Actions

- Water Right Acquisition Offset Projects
- Non-Acquisition Water Offset Projects
- Habitat and Other Related Projects
- Regulatory Action Recommendations

Projects Overview

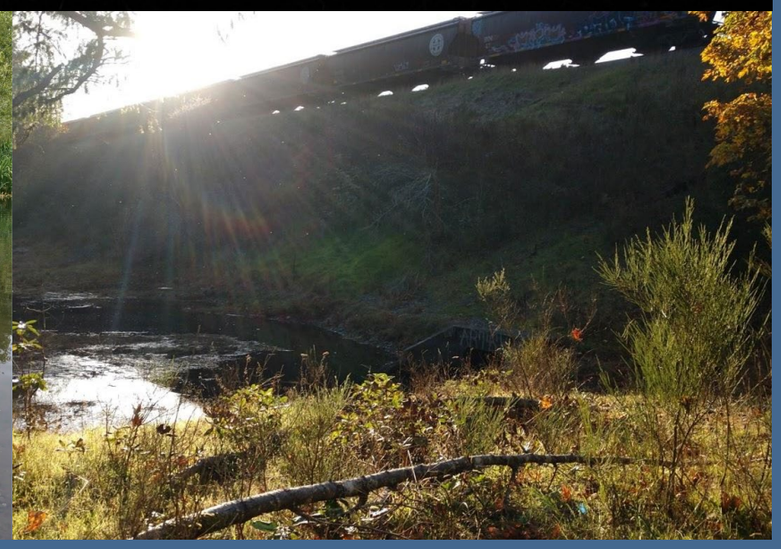
South Tacoma Channel
- ~701 AFY

Repair Diversion Structure at Lake Sequalitchew
- ~724 AFY

Water right acquisition

Floodplain reconnection

Additional projects



Non-Project Recommendations

- Implementation and Adaptive Management
- Policy and Regulatory Recommendations

Policy and Regulatory Recommendations

- As required by the NEB Guidance, the Committee prepared the watershed plan with implementation in mind. However, as articulated in the Streamflow Restoration Policy and Interpretive Statement (POL-2094), “RCW 90.94.020 and 90.94.030 do not create an obligation on any party to ensure that plans, or projects and actions in those plans or associated with rulemaking, are implemented."

Steps to complete plan

- Committee members review and provide comments on draft plan
- Committee members meet (virtually as needed) to vote on plan
- If all members of the Committee **approve** the plan, the Committee chair will submit the plan to Ecology for review and NEB determination.
- If the Committee **does not approve the plan**, Ecology will prepare the plan. Ecology will send the plan to the Salmon Recovery Funding Board for technical Review. Ecology will then finalize the plan and the Director shall initiate rulemaking.

Your role with CCCWC to complete plan

- review the plan
- provide direction to the committee representative (Kris Kauffman) on whether to approve the plan
- Provide direction to the committee representative on the signing document for the compendium which we intend to provide a general characterization of the watershed

Post Plan Submission

- SEPA public comment period
- No changes to plan after submission
- Ecology will review plan
- Ecology will determine action by June 30, 2021
- If achieves NEB, adopt plan

WRIA 12 Committee Brochure

- More information on WRIA 12 Committee can be found online

Water Resources Program

DEPARTMENT OF ECOLOGY
State of Washington

WRIA 12 Chambers-Clover Watershed Restoration and Enhancement Committee Overview

More information
Visit the Streamflow Restoration webpage[1].

Contact information
Rebecca Brown
Committee Chair
rebecca.brown@ecy.wa.gov
360-407-6666

Background

In January 2018, the Legislature passed the Streamflow Restoration law to help restore streamflow levels. Its purpose is to support robust, healthy, and sustainable salmon populations while providing water for homes in rural Washington.

The law calls for local watershed planning and project implementation that improve streamflows. The Department of Ecology funds implementation through its competitive grant program[2].

Ecology's Policy Interpretation

- More information on the Streamflow Restoration law can be found online

DEPARTMENT OF ECOLOGY
State of Washington

POL-2094

DEPARTMENT OF ECOLOGY WATER RESOURCES PROGRAM
POLICY AND INTERPRETIVE STATEMENT

STREAMFLOW RESTORATION POLICY AND INTERPRETIVE STATEMENT

Effective Date:	07/31/2019
Contact:	Program Development and Operations Support
References:	*Statute:* Chapters 18.104, 34.05, 90.03, 90.82, and 90.94 RCW; RCW 19.27.097, 43.83B.405, 89.08.460, and 90.44.050 *Administrative Rule:* Chapters 173-500, 173-531A, 173-563, and 173-566 WAC.
Purpose:	To ensure consistency, conformity with state law, and transparency in the implementation of chapters 19.27 and 90.94 RCW.
Application:	This policy applies to the evaluation of building permit applications under RCW 19.27.097 and the implementation of activities authorized under chapter 90.94 RCW.

This policy supersedes any previous policy statement with which it conflicts.

Ecology's NEB Guidance

- More information on the Final Guidance for Determining Net Ecological Benefit can be found online

WATER RESOURCES PROGRAM GUIDANCE

Final Guidance for Determining Net Ecological Benefit

GUID-2094 Water Resources Program Guidance

July 31, 2019
Publication 19-11-079

Grants Guidance Overview

DEPARTMENT OF ECOLOGY State of Washington

Thank you for your time!

Any questions?

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: PO Box 43200, Olympia, WA 98504-3200 · 360 902-2200 · TDD 360 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street, Olympia, WA

April 22, 2021

Via Electronic Submission

WRIA 12 WREC
Attn: Rebecca Brown
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: Chambers-Clover Watershed Restoration and Enhancement Plan

Dear Chair Brown:

The Washington Department of Fish and Wildlife (WDFW) is pleased to vote in support of the Chambers-Clover Watershed Restoration and Enhancement Plan. The streamflow restoration law, primarily codified under RCW 90.94, presents both novel opportunities and challenges with respect to the management of limited water resources in Washington watersheds. Our vote to approve this watershed plan is carried by an optimism that the opportunities provided by the law, and embraced by the committee, will be realized through the implementation of the plan's components.

The elements of this plan we feel are essential to its success include:

- A water replacement strategy that will offset future domestic permit-exempt well impacts in a quantity significantly greater than the estimated offset target.
- Diverse projects and actions capable of providing streamflow benefits and habitat improvements.

We recognize that significant uncertainty exists in both consumptive use offset targets and in the magnitude and timing of anticipated streamflow benefits. However, we feel that the aggregate benefit of the projects and actions proposed in this plan will make this effort resilient to these uncertainties.

We appreciate the effort, commitment, and collaborative spirit demonstrated by the committee members throughout this planning process. We look forward to continued engagement with Chambers-Clover watershed stakeholders as we work toward protecting, restoring, and enhancing streamflows and improving watershed function.

Sincerely,

Megan Kernan
Water Policy Section Manager

SQUAXIN ISLAND TRIBE

SENT BY ELECTRONIC MAIL

April 16, 2021

Mary Verner, Program Manager
Water Resources Program
Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503
mary.verner@ecy.wa.gov

Re: Squaxin Island Tribe's approval of Watershed Restoration and Enhancement Plan WRIA 12 – Chambers-Clover Watershed (Final DRAFT, January 2021)

Dear Mary:

By this letter, the Squaxin Island Tribe ("Tribe") informs you that the Tribal Council has approved the above WRIA 12 Watershed Restoration and Enhancement Plan ("Plan"). The Tribe now looks to Ecology to adopt the Plan and fully commit to its implementation. This letter discusses our reasons for supporting the Plan as well as our concerns. In light of the uncertainties going forward, we also feel it necessary to reserve and not waive certain rights.

The Tribe acknowledges and greatly appreciates the hard work that went into this Plan by Committee members and Ecology staff and consultants. The Committee's engagement in the consensus process resulted in specific elements of the Plan that the Tribe fully supports:

- Using a "higher" permit exempt well growth estimate that accounts for future uncertainty;
- Scientifically supported projects that may benefit flows and fisheries, with identified sponsors;
- Commitments to projects and implementation; and
- The Plan's analysis's acknowledgement of the importance of restoring streamflows.

Natural Resources Department • 200 S.E. Billy Frank Jr. Way • Shelton, WA 98584
Phone (360) 426-9781 • Fax (360) 426-3971

Please understand that while the Tribe has approved the WRIA 12 Plan, it continues to have reservations about the state's process, which include a lack of assurance that streamflow restoration will actually occur and protection of the Tribe's federally-reserved water rights. We expressed these and other concerns in our letter to you dated December 7, 2020.[1] Moreover, even if the Committee unanimously approves the Plan, we face significant uncertainty going forward, including Ecology action or inaction with regard to rulemaking, local government efforts, funding and implementation of projects and actions, and the accuracy of underlying Plan assumptions.

With that in mind, the Tribe feels it necessary to reserve and expressly not waive any rights including its right:

(1) To assert an interpretation of state laws, including ESSB 6091, that differs from that presented in the Plan or elsewhere;
(2) To take any legal action against any party if new evidence indicates that assumptions underlying the Plan are erroneous to the detriment of instream flows and fisheries;
(3) To take any legal action to protect its interests against any party if, after a reasonable amount of time has passed, projects and actions identified in the Plan to offset impacts are not implemented; and/or
(4) To bring any legal action against any party to seek any and all amendments of administrative rules or to oppose proposed amendments, including the WRIA 12 rule.

Additionally, the Tribe takes the position that neither the WRIA 12 Plan, nor its approval of the Plan, nor its participation in the planning process:

(1) Has any legal effect on its approval or disapproval of other watershed plans in the RCW Ch. 90.94 process;
(2) Affects the existence, amount or enforceability of the Tribe's federally-reserved water rights, or its right to have them adjudicated; and/or
(3) Has any effect on its right to take any legal action against any party to protect its interests.

In the event that the WRIA 12 Plan is not unanimously approved by the committee, the Tribe reserves all rights and does not waive any rights.

During this process, the Tribe submitted many documents into the agency record that support the need for an effective Plan and WRIA rule. Ecology should take these documents into consideration during any decision-making relating to developing a watershed Plan and/or rule-making; and should maintain them in the agency record for the long term, particularly in light of the operative statutes' forward-looking elements.

To conclude, the Tribe looks forward to participating in constructive partnerships that

[1] This letter and the Tribe's other correspondence with Ecology is incorporated by reference.

implement the Plan and restore and enhance streamflows. We encourage Committee members to continue to improve water management in the South Sound through collaborative dialogue and relationships, and demonstration of a firm commitment through actions and investments.

Sincerely,

Andy Whitener, Director
Squaxin Island Natural Resources Department