4:30 WELCOME

Andrew Dunn, RH2 Engineering

4:35 WRIA 1 (NOOKSACK) ADJUDICATION

Robin McPherson, Adjudication Manager, Department of Ecology

4:45 INTRODUCTION TO WATER RIGHTS

Jill Van Hulle, Aspect Consulting, LLC

5:00 WATER IN THE NOOKSACK WATERSHED

Jay Chennault, Associated Earth Sciences, Inc.

5:15 WATER RIGHTS RESEARCH 101

Jay Chennault, Associated Earth Sciences, Inc.

5:35 DOCUMENTING CURRENT AND HISTORIC WATER USE

Tyson Carlson, Aspect Consulting, LLC

5:55 ADMINISTRATIVE TOOLS WATER RIGHT CHANGES AND TRANSFERS

Andrew Dunn, RH2 Engineering

6:15 Q&A PANEL

AESI, Aspect, RH2

MARK YOUR CALENDAR



September 13 4:30-6:30

PREPARING FOR THE ADJUDICATION

Pioneer Pavilion Community Center 2007 Cherry St, Ferndale

Water right consultants from Aspect Consulting, Associated Earth Sciences, and RH2 Engineering will discuss steps you can take to prepare for the upcoming WRIA 1 adjudication. Information presented will include:

- Overview of water right basics.
- Checklist to better document your water rights and water use.
- Identify potential complications that can be addressed before the adjudication is filed.
- Time for questions.

Whether you plan to do all the work yourself, or seek the assistance of a consultant or attorney, the information presented will be helpful!



LOGISTICS

- SPECIAL THANKS AWB, WWIN
- INTENT OF THE PRESENTATION IS TO INFORM NOT DEBATE
- BE RESPECTFUL
- SAVE QUESTIONS FOR THE PANEL AT THE END
- THE PRESENTATION IS BEING RECORDED TO WATCH LATER
- THE PRESENTATION SLIDES WILL BE MADE AVAILABLE
- ASPECT, AESI, RH2, AND ECOLOGY HAVE TABLES WITH STAFF TO ANSWER ADDITIONAL QUESTIONS
- IF THIS EVENT IS SUCCESSFUL AND THERE IS INTEREST, WE CAN HOLD ANOTHER EVENT AT A LATER TIME

MARK YOUR CALENDAR



September 13 4:30-6:30

PREPARING FOR THE ADJUDICATION Pioneer Pavilion Community Center

2007 Cherry St, Ferndale

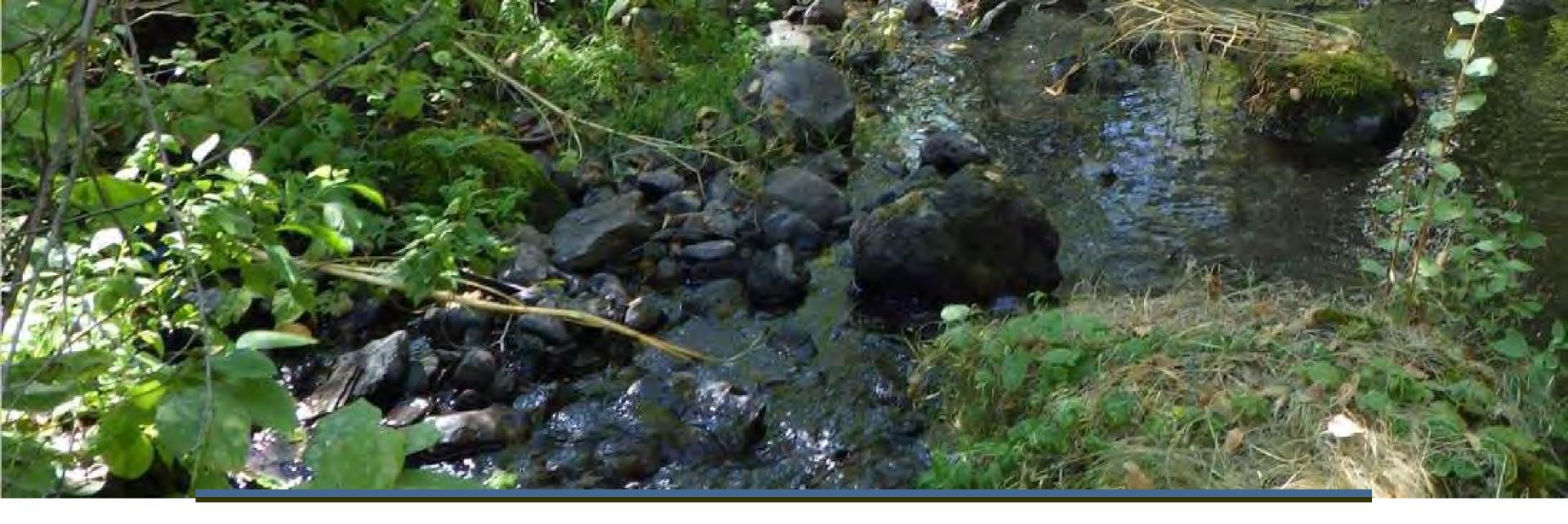
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• 7:30 – LIGHTS OUT



WRIA 1 (Nooksack) Adjudication

Robin McPherson, Adjudication Manager September 13, 2023





•Superior Court process to review all water use



- •Superior Court process to review all water use
- •Clarifies who has right to use water



- Superior Court process to review all water use
- •Clarifies who has right to use water
- Legislative direction



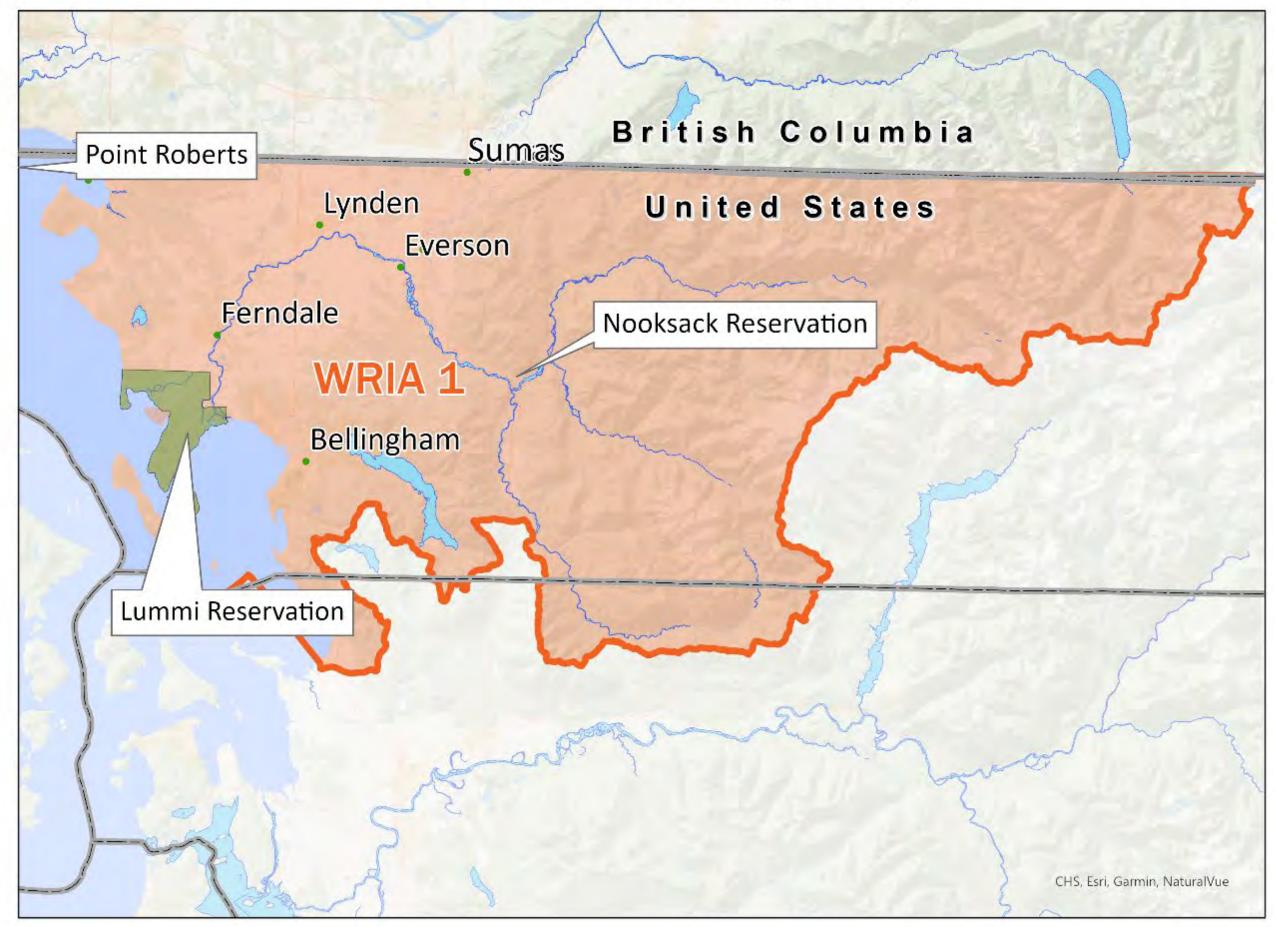
- •Superior Court process to review all water use
- Clarifies who has right to use water
- Legislative direction
- Court issues priority schedule (old to new)



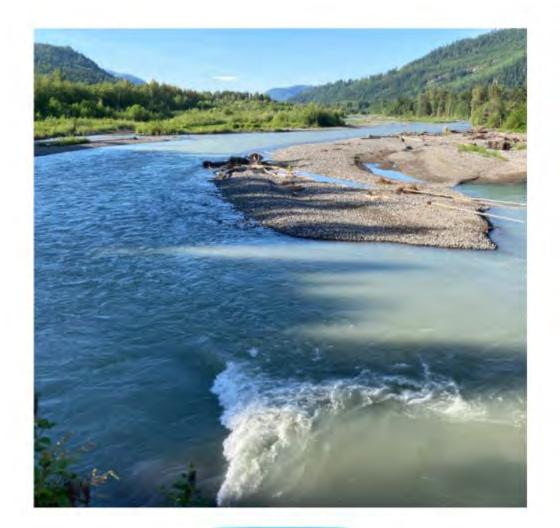
- •Superior Court process to review all water use
- •Clarifies who has right to use water
- Legislative direction
- Court issues priority schedule (old to new)
- Ecology issues adjudicated certificates



Nooksack Watershed (WRIA 1)







Get ready

- Go to our website and find out if we have a record of your water right.
- Learn how much water you use from your pump or well.

- **1. We** notify all water users by certified mail. Spring 2024
- **2. You** fill out the form about your court. 2025 (one year later)
- information. 2025-2028
- 4. We write a report about your water use. 2025-2028
- certificates



water use and submit it to the

3. We let you know if we need more

5. The court makes a final decision

6. We issue adjudicated water right



Get ready

Go to our website

Permit-exempt groundwater will not have a record

> Learn how much water you use from your pump or well.

- 1. We notify all water users by certified mail. Spring 2024
- **2. You** fill out the form about your water use and submit it to the court. 2025 (one year later)
- information. 2025-2028
- 4. We write a report about your water use. 2025-2028
- certificates



3. We let you know if we need more

5. The court makes a final decision

6. We issue adjudicated water right



Small domestic well proposal

500 gpd or less Acreage limitation **Simplified Process** -Date of first use -Verify purpose =Adjudicated certificates for 500 gpd each



Single home on a well

Small domestic well proposal

500 gpd or less Acreage limitation **Simplified Process** -Date of first use -Verify purpose =Adjudicated certificates for 500 gpd each



Single home on a well Small domestic well proposal

> 500 gpd or less Acreage limitation **Simplified Process** -Date of first use -Verify purpose =Adjudicated certificates for 500 gpd each

Other Permit-Exempt Wells

Date of first use Current use Highest use

=Adjudicated certificates **for actual use**

-up to 5000 gpd each

-no limit for stock



Single home on a well Small domestic well proposal

> 500 gpd or less Acreage limitation **Simplified Process** -Date of first use -Verify purpose =Adjudicated certificates for 500 gpd each

Other Permit-Exempt Wells

Date of first use Current use Highest use

=Adjudicated certificates **for actual use**

-up to 5000 gpd each

-no limit for stock



Documented Rights

Surface or Ground Permit, certificate, pre-code claim Current use Highest use

=Adjudicated certificates for actual historic use

- Send in your form within one year
- Online or on paper
- Amend later if evidence is different
- "Proof"
 - Personal knowledge
 - Ecology documents
 - County property records
 - Water use records

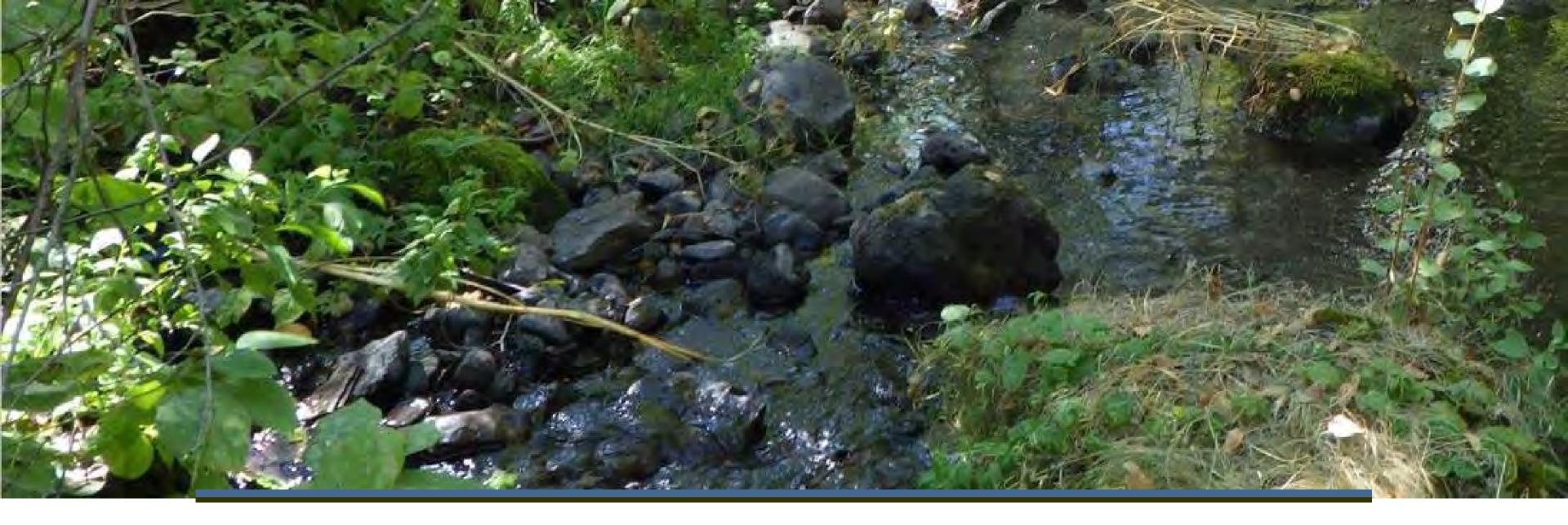




Get ready

 Go to our website and find out if we have a record of your water right.

 Learn how much water you use from your pump or well.



Adjudication of WRIA 1 (Nooksack)

Robin McPherson, Adjudication Manager September 13, 2023





WRIA 1 – Water Week Introduction to Water Rights

September 2023



Presented by Jill Van Hulle, CWRE

earth+water

What is a Water Right?

A water right is:

A right to the beneficial use of a reasonable quantity of public water for a beneficial purpose during a certain period of time that occurs at a certain place.

Water rights defines how much water you can use (Qi/Qa), where you can use it (Place of Use/Service Area), what your source is (Well or Stream) and what you can use it for (Purpose of Use).

earth+water

Types of Water Rights

State-Issued

- Permit: Permission by the state to develop a water right –but is not a final water right.
- Certificate: Issued to document full use of permit, recorded with the County Auditor. A water right certificate is considered a property right.

Other

- Claims: Statements that water was used prior to 1917 Surface Water
 Law or 1945 Ground Water Law.
- "Permit-Exempt" Uses: People can develop a water right based on their use of water under the Groundwater Exemption and are legally entitled to the same rights and protections.

earth + water

Water Rights Stats

Statewide

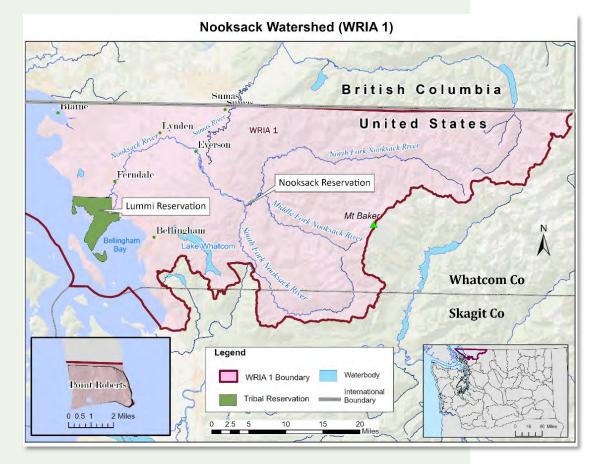
- Legal water rights: 53,000
 - □ 50,000 certificates
 - □ 3,000 permits in development
- Claims: 170,000 (surface and groundwater)
- Permit-Exempt Wells: 400,000
- Ecology expects 25,000 letters for WRIA 1

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Water Rights Stats, cont'd

WRIA 1/Nooksack

5,000+ surface water and groundwater right documents on file with Ecology



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Who Owns the Water?

In Washington water is "owned" in common by the people

 Access to use the water managed by State – generally though a permit system



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Key WA Water Right Laws

- RCW 90.03 Surface Water Code of 1917
- RCW 90.44 Groundwater Code of 1945

Washington State water law based on *"first in time – first in line"* premise, and older water rights have seniority over junior water rights

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Groundwater vs. Surface Water

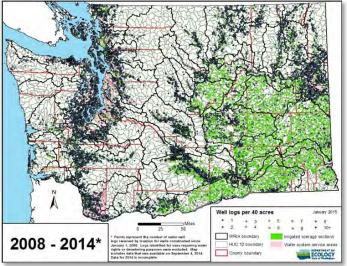
- Any surface water use requires a water right – no practical exemptions
- Some groundwater use is exempt from needing a formal "papered" water right authorization



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Groundwater Permit Exemption

- Water for a single or group of homes (limited to 5,000 gpd, unless otherwise specified)
- Water for livestock (no gpd limit or acre-foot restriction)
- Watering a non-commercial lawn/garden one-half acre in size or less (no gpd limit)
- Water for industrial purposes including commercial irrigation (limited to 5,000 gpd)



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Permit-Exempt Wells (cont'd)

- Exemption is "project-based" and needs to consider entire intent
- Exemption can be "stacked"
- No paper but still subject to the prior appropriation doctrine
- Supreme Court says still subject to proof of no impairment to surface waters and the legal availability of water

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Getting a Water Right Permit

- Water rights are issued by Ecology's regional offices -- Lacey, Shoreline, Yakima, and Spokane.
- Initiated by filing of an "Application for a Water Right".
- Once application is received, that date is the application's "priority date" which establishes the water right's seniority.



2023 Status of Permitting Process

- Currently ~5,000 application backlog statewide
- Most applications processed through Cost Reimbursement, which is a pay-for-service option
- Finally, in much of the state requests for new permits are unlikely to be successful

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The answer must be "yes" to all four of the following questions for each application for a water right:

- **1. Is the proposed use beneficial?**
- 2. Is water available, physically and legally?
- 3. Will existing water users be impaired?
- 4. Is the proposed use not detrimental to public welfare?

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Steps and Stages

Stage	Purpose
Application	Establishes intent to appropriate
Permit	Authorization to develop
Proof of Appropriation	Water put to beneficial use
Certificate	Perfection of water right

WRIA 1 Water Week - Water Rights 101

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Post-Certificate and Protecting What You Can

- Staying in compliance (Know what you have)
- Avoiding relinquishment (Use it or lose it)

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Relinquishment

 Relinquishment" occurs when a water right has reverted to the state because of nonuse for five or more successive years after 1967 without sufficient cause that excuses the nonuse. There can be full or partial relinquishment of a water right.

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The relinquishment provisions codified in RCW 90.14.130 to .180 in 1967

Sufficient Cause RCW 90.14.140

- Water unavailability
- Irrigation issues
- Legal Proceedings
- Change Applications
- Conservation programs

- Hydropower
- Standby Reserve
- Determined future development
- Municipal supply
- Agricultural process water substitution
- Trust Water

earth + water

Jill Van Hulle, CWRE

jvanhulle@aspectconsulting.com 360.810.3508

www.aspectconsulting.com www.nooksackadjudication.com





earth + water

WRIA 1 Water Week - Water Rights 101

WATER IN THE NOOKSACK WATERSHED (WRIA 1)

Whatcom Water Week September 13, 2023





www.aesgeo.com

Jay W. Chennault, L.G., L.Hg., P.E., CWRE

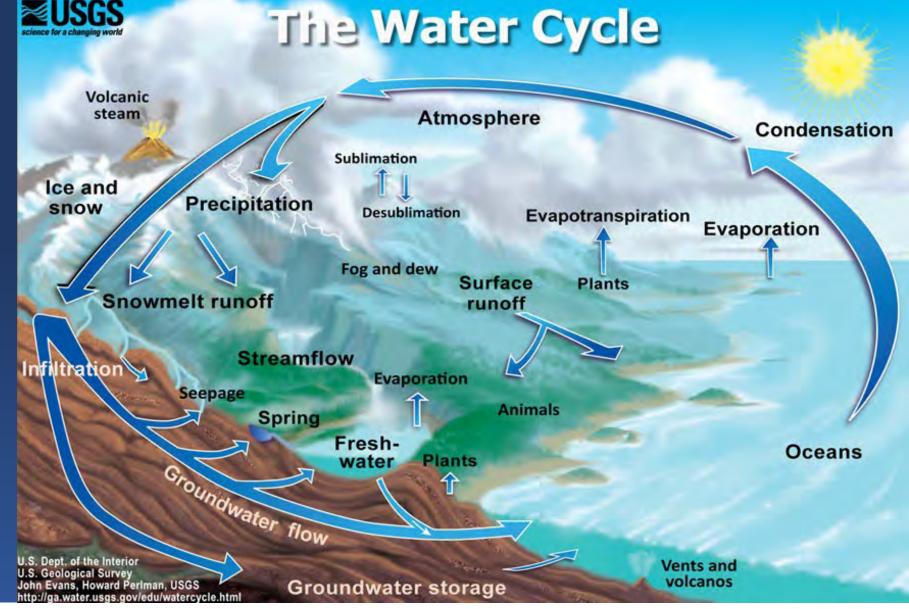
Principal Hydrogeologist/Engineer jchennault@aesgeo.com

425-827-7701



The Water Cycle

- Evaporation into the atmosphere
- Precipitation
- <u>Many</u> paths back to the ocean or atmosphere







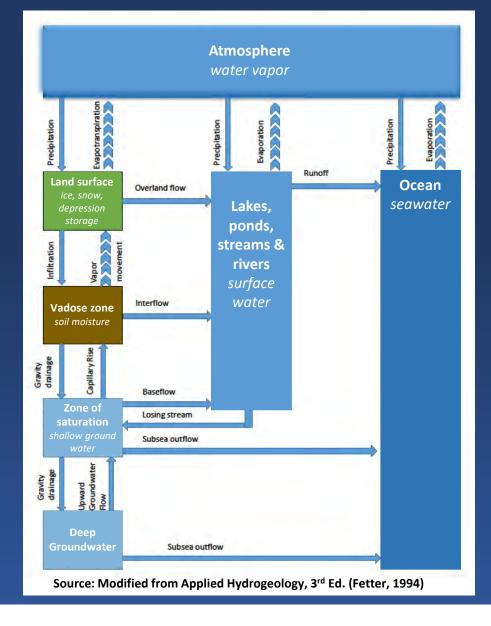
Water Budget

(Quantification of the Water Cycle)

P = ET + RO + GW + / - S

P = Precipitation
ET = Evaporation and Transpiration
RO = Surface Water Runoff (Overland and Interflow)
GW = Groundwater Recharge
S = Storage

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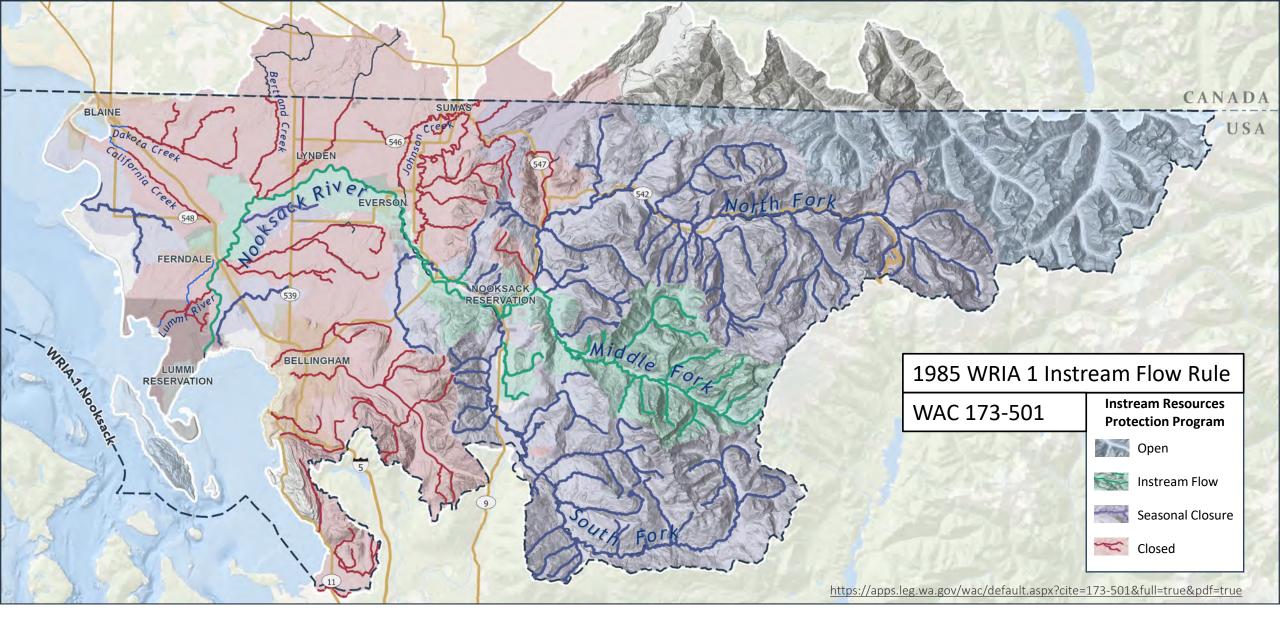
Surface Water

SUBBASIN	FLOW DIRECTION	TRIBUTARY TO	MAJOR STREAMS	
Coastal North			California, Dakota	Surrey
Coastal West	West	Pugot Sound	Schell, Lummi	Point Nooksack
Coastal South	vvest	Puget Sound	Colony, Oyster	Roberts
Lake Whatcom			Austin, Smith	USA Clothe Lynden Sumas Chilliwack
Sumas	East, North	Fraser River	Johnson, Breckenridge	Coastal Stookser
Chilliwack	North			North Fork
Lower Nooksack	West	Puget Sound	Bertrand, Fishtrap, Tenmile, Fourmile	Coastal West Nooksack West Middle Fork Nooksack
South Fork Nooksack	North		Hutchinson, Black Sough	Coastal South Lake South Fork Whatcom Nooksack
Middle Fork Nooksack	West	Lower Nooksack	Porter	Mit. Vermon
North Fork Nooksack	West		Kendall	Lor (Do Barbard)













Groundwater Definitions¹

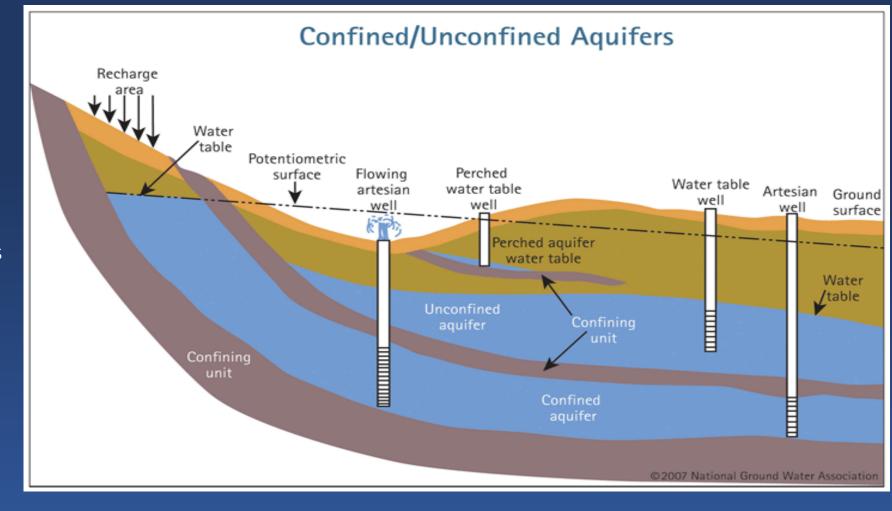
Aquifer

Rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Confining Unit (Aquitard)

Low-permeability unit that can store ground water and also transmit it slowly from one aquifer to another.

1. Fetter, Applied Hydrogeology, 3rd Ed., 1994



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Groundwater Definitions¹

Unconfined Aquifer

An aquifer in which there are no confining beds between the saturated zone and ground surface. Water pressure in aquifer is atmospheric

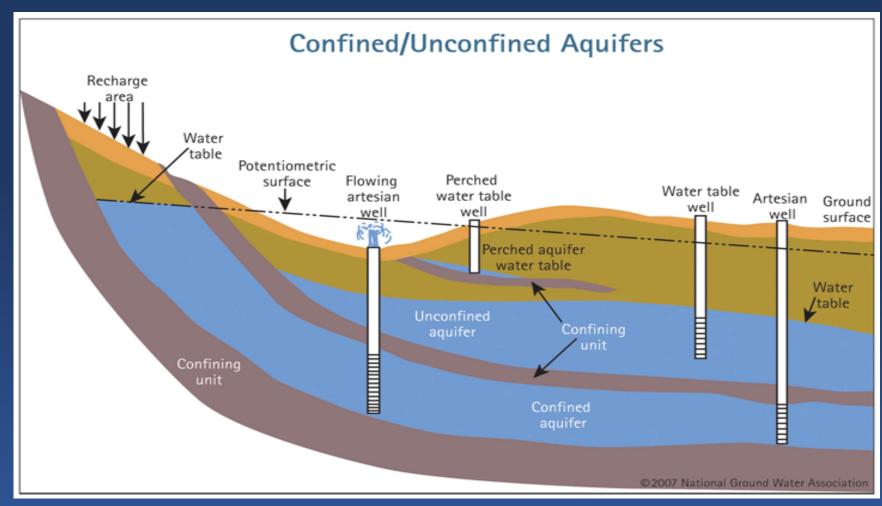
Perched Aquifer

Region in the unsaturated zone that may be locally saturated because it overlies a low-permeability unit.

Confined Aquifer

An aquifer that is overlain by a confining bed. Water pressure in aquifer is greater than atmospheric.

1. Fetter, Applied Hydrogeology, 3rd Ed., 1994





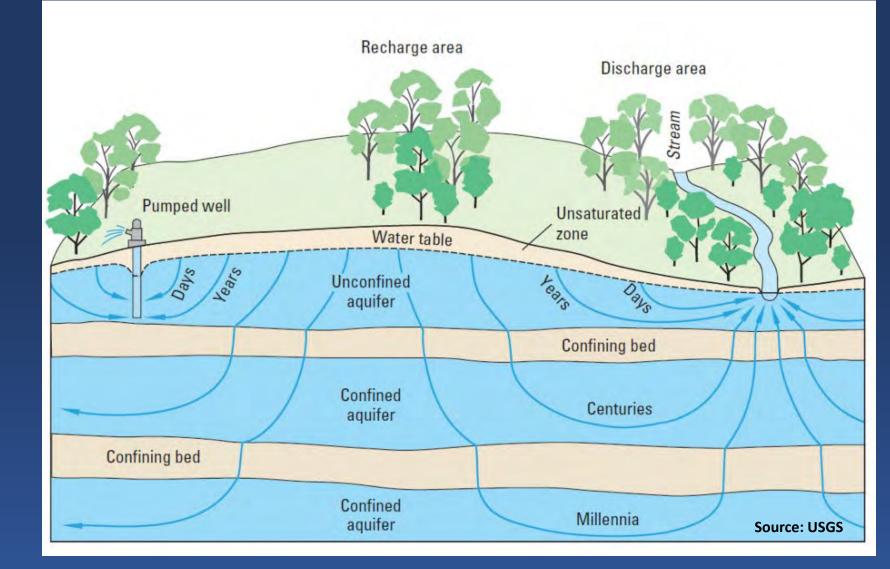


Ground Water Flow

- In aquifers, from high "head" to low "head"
- From recharge to discharge areas
- Rate depends on many factors including:
 - Hydraulic gradient
 - Aquifer properties (K, T, S)

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• Travel time can range from days to millennia





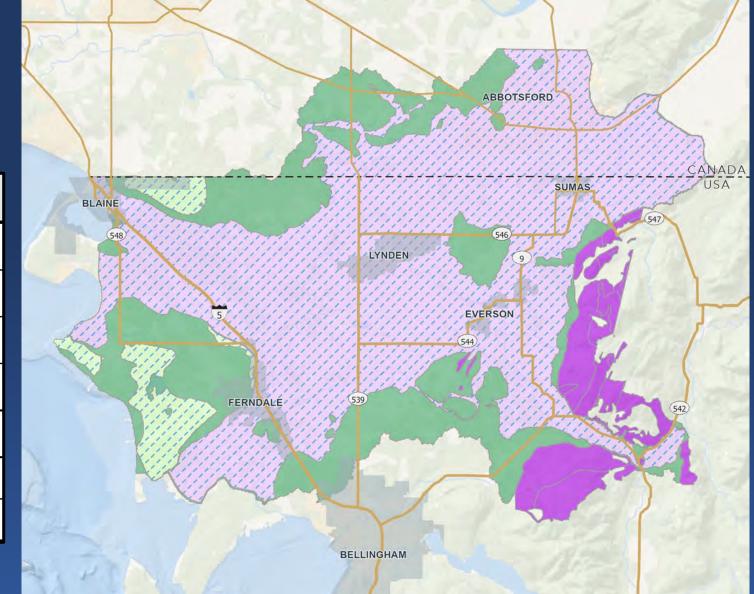
Geologic Framework		Age	Description	Geologic Units for this Study	Geologic Units USGS ¹	Geologic Units USA ²	Geologic Units Canada ³
Geologic Francework	F		Alluvium	Qa	Qsc	Qa, Qal	SAh-k
und Samed Antone of Langler			Alluvial fan deposits	Qaf		Qaf	Sao
No Press Phate Press Phate Press		ene	Landslide deposits	Qls		Qls	Sam
		Holocene	Beach deposits	Qb		Qb	SAs
		I	Eolian deposits Peat	Qe	 On	-	SAt SAb,c,e
White History			Lacustrine deposits	Qp Ql	Qp Qsf	Qp 	SAD,c,e SAq, r; Fc-d
Rock and Company for the Company of Company		as le	Glacial outwash	Qgos	Qso	Qgo₅, Qso	
Blaine US-Canada Border		Sumas Stade	Glacial till	Qgt₅	Qsi	Qgt _s , Qs	1-10 ka
The Sumas	ion	n de	Emergence deposits	Qgome	-	Qgom _{ee} , Qbg	FLa,b
Lynden	Glaciation	Everson Interstade	Glaciomarine drift	Qgdme	Qed, Qevf	Qgdm₂, Qb, Qk, Qs <mark>1</mark>	3-11 ka
	Fraser G	<u>п</u> <u>Е</u>	Fluvial sand	Qd	Qevc	Qd	
Nooksaek Everson	Fra		Glacial till	Qgt _v	Qvd	Qgt, Qvt	Va
		Vashon Stade	Glacial outwash	Qga_v	Qvd, Qevc	Qga, Qve 2	0-13 ka
		S S	Glacial undifferentiated	Qgd	Qvd	Qgd,Qf	-
Fernitale		Olympia	Nonglacial sediments	Qc₀	Qevu	Qco 6	0-20 ka
		цо	Glacial till	ot	Qevu	Ot	LIDV
	e-Fraser	Possession	Glacial outwash	00	Qevu	00	80-60 ka
	Pre-I	Whidbey	Nonglacial sediments	Qcw	Qevu	Qcw 12	25-80 ka
www.aesgeo.com		Tertiary and pre- Tertiary	Bedrock	br	Tbr	OEc _h ; Ec _{cb} ; Ec _{cm} ; Ec _{cp} ; Ec _{cs} ; Jphj; JPMhmc _e ; pDgn _y ; PDMhmc _c ; PMDms _c ; pTms _b ; pTu	T; PT

Hydrostratigraphy

- Four Aquifers
- Three Confining Units

Hydrogeologic Unit	Included Geologic Units	
Unit 1 – Sumas Aquifer		Qa, Qb, Qaf, Qe, Ql, Qgd, Qp, Qgo₅
Unit 2 – Sumas-Everson Aquifer		Qgome, Qgos
Unit 3 – Everson-Vashon Confining		Qgt _s , Qls, Qgdm _e , Qd, Qgt _v
Unit 4 – Vashon-Olympia Aquifer	NS	Qgd , Qga_{v} , Qc_{\circ}
Unit 5 – Olympia-Possession Confining	NS	Qc _{o,} ot
Unit 6 – Possession-Whidbey Aquifer	NS	00, Qc _w
Unit 7 – Bedrock Confining		br

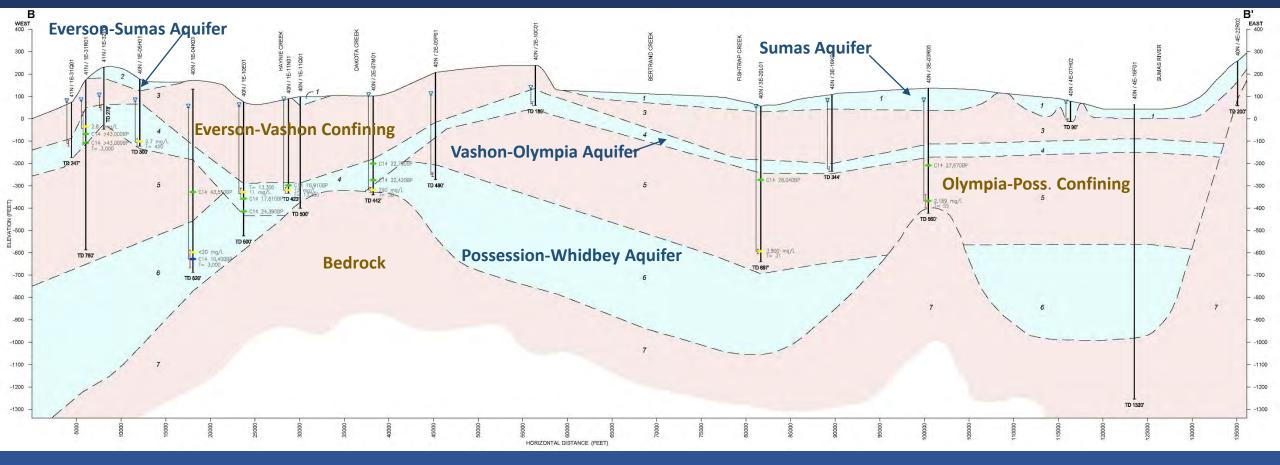
NS subsurface unit not shown





Hydrostratigraphy

- Four Aquifers
- Three Confining Units

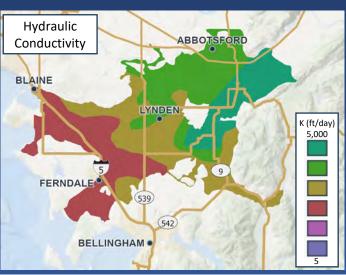


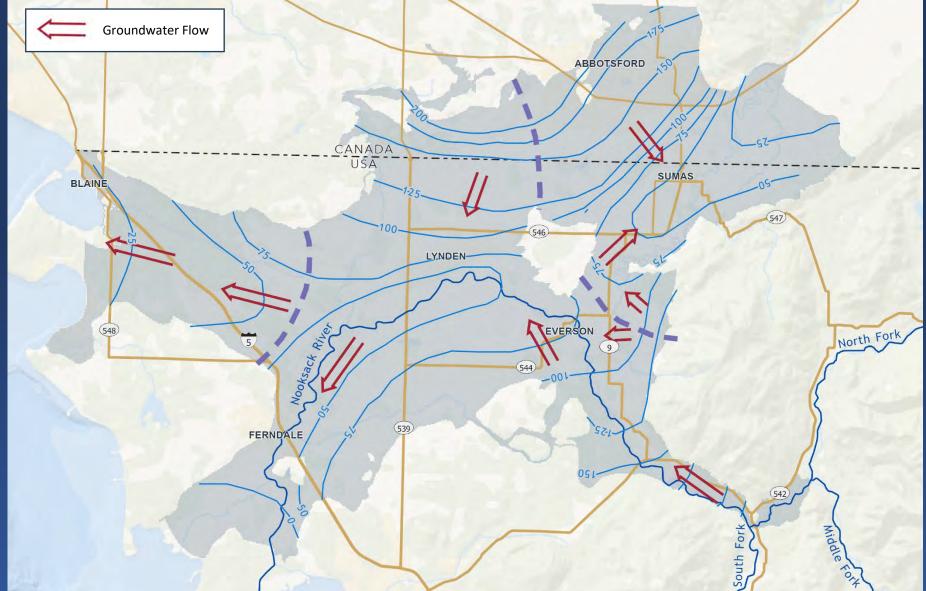




Sumas Aquifer

- Mostly unconfined
- Groundwater flow does not always coincide with surface water
- Highly productive aquifer system
- ~97% groundwater use in WRIA 1



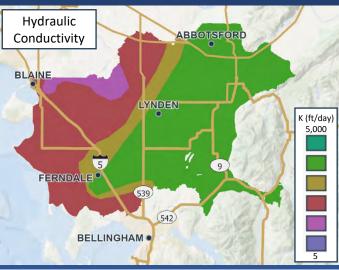


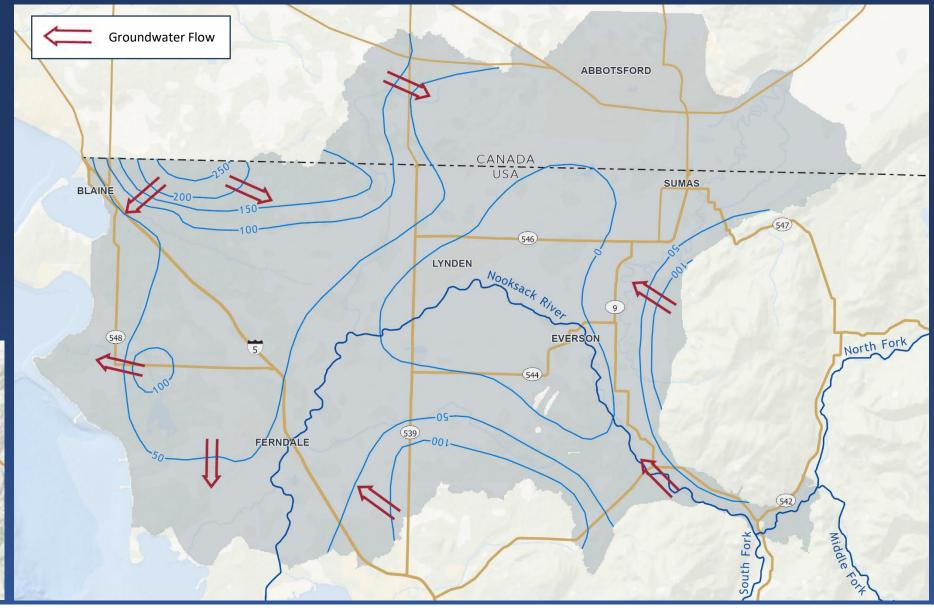




Vashon-Olympia Aquifer

- Confined
- Predominately utilized beneath the uplands outside the Nooksack Valley (Boundary, Mountain View, Deer Creek)
- Radial flow from uplands



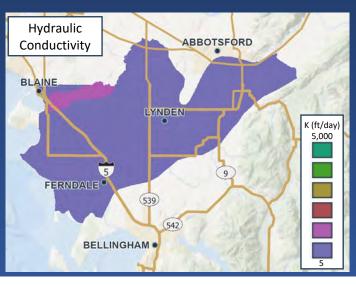


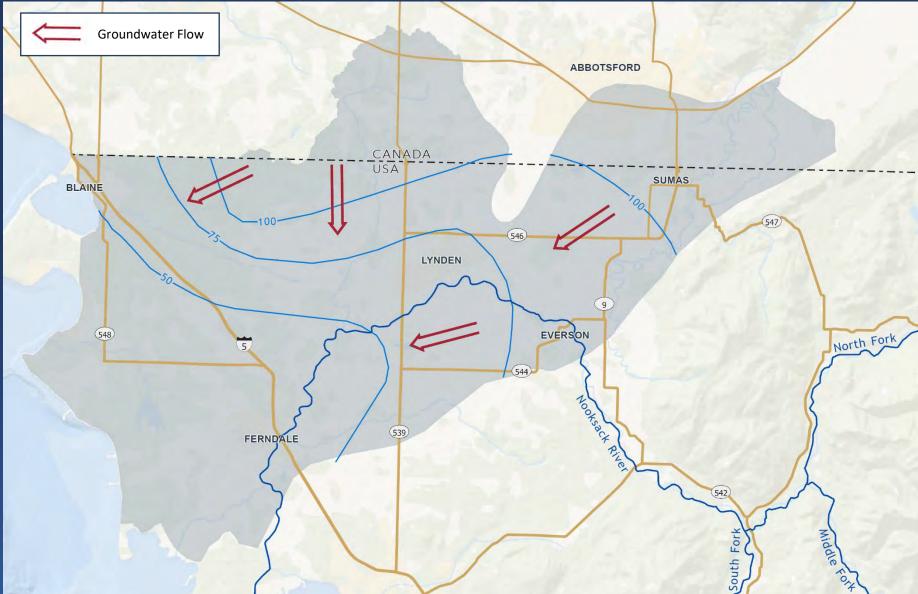




Possession -Whidbey Aquifer

- Confined
- Groundwater flows generally NE-SW
- Currently utilized by the Cities of Blaine-Birch Bay and Ferndale.







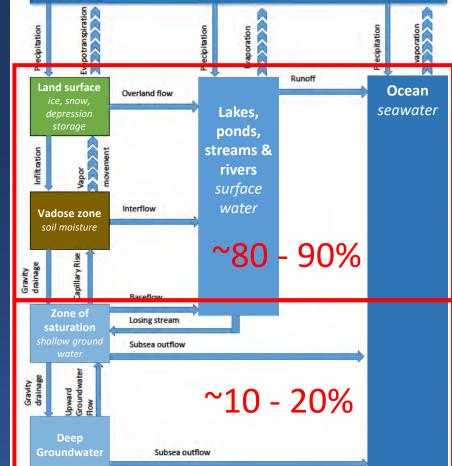


WRIA 1 Water Budget Context

ANNUAL WATER BUDG			
Surface Water	~ 80-90%		
Groundwater	~ 10-20%		
ANNUAL WATE	R USE		
Surface Water	~ 40%		
Groundwater	~ 60%		

GROUNDWATE	R USE
Sumas Aquifer	~ 97%
Vashon-Olympia	~ 2%
Possession-Whidbey	~ 1%





Atmosphere water vapor

Source: Modified from Applied Hydrogeology, 3rd Ed. (Fetter, 1994)





WATER RIGHTS RESEARCH 101

Whatcom Water Week September 13, 2023





www.aesgeo.com

Jay W. Chennault, L.G., L.Hg., P.E., CWRE



425-827-7701



1. Ecology Water Rights Search

• Google "Ecology Water Rights Search"

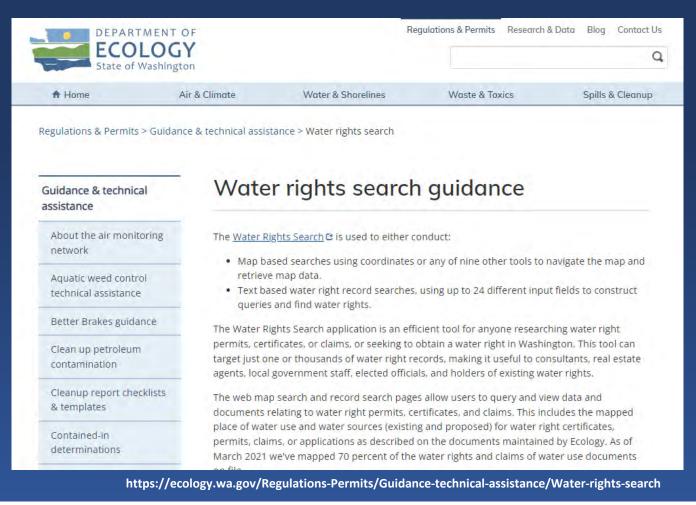
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Washington state	Images Videos News Shopping	Maps Books Flights	Finance All filters - Tools
About 128,000,000 re	sults (0.38 seconds)		
	te Department of Ecology (.gov) gov > Guidance-technical-assistance		
Water Rights Se	earch - Washington State Departme	nt of Ecology	
No information is avail	able for this page.		
Learn why			
You've visited this pag	e many times. Last visit: 8/30/2023		





1. Ecology Water Rights Search

- Google "Ecology Water Rights Search"
- Select Water Rights Search







1. Ecology Water Rights Search

- Google "Ecology Water Rights Search"
- Select Water Rights Search
- Select Map Search

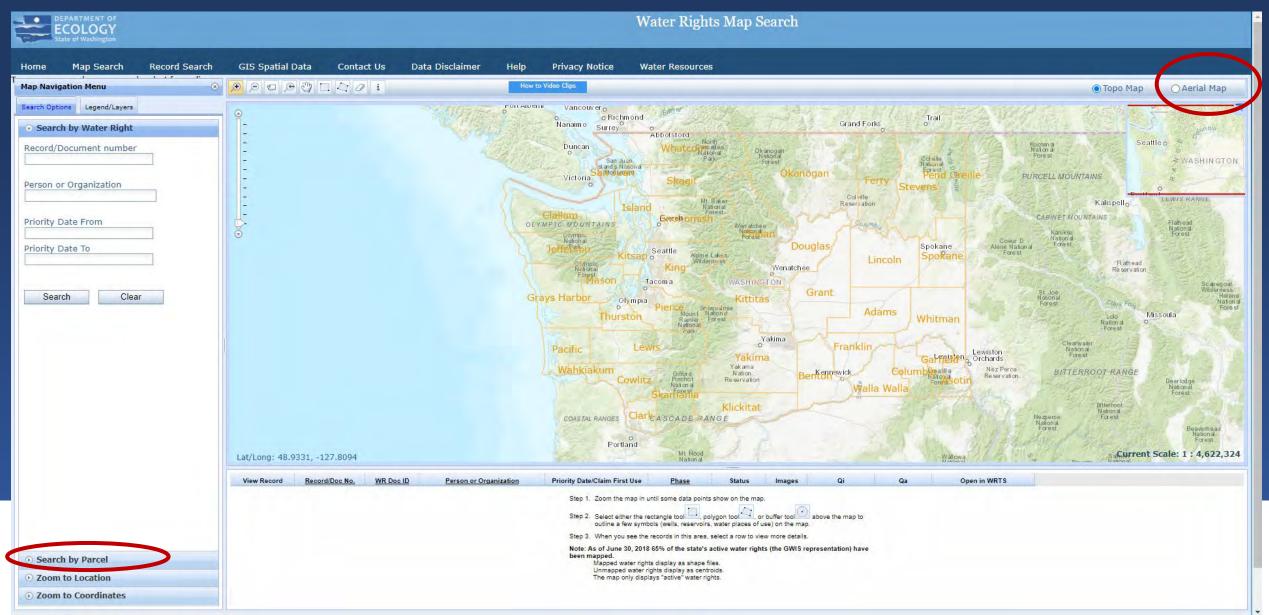
https://appswr.ecology.wa.gov/waterrighttrackingsystem/WaterRights/default.aspx



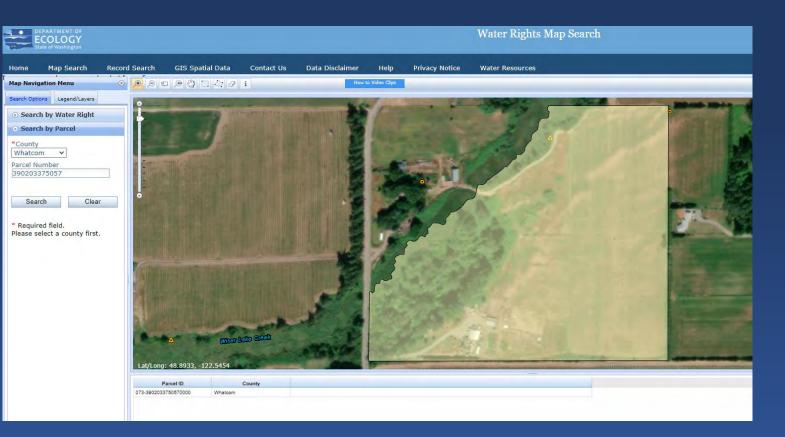




https://appswr.ecology.wa.gov/waterrighttrackingsystem/WaterRights/Map/WaterResourcesExplorer.aspx?from=menu



- 1. Ecology Water Rights Search
 - Google "Ecology Water Rights Search"
 - Select "Water Rights Search"
 - Select "Map Search"
 - Select "Search by Parcel"
 - Whatcom County
 - Parcel Number
 - Select "Parcel ID"
 - All water rights in Ecology's system with a place of use that includes <u>a</u> <u>portion of</u> the search parcel will be listed.

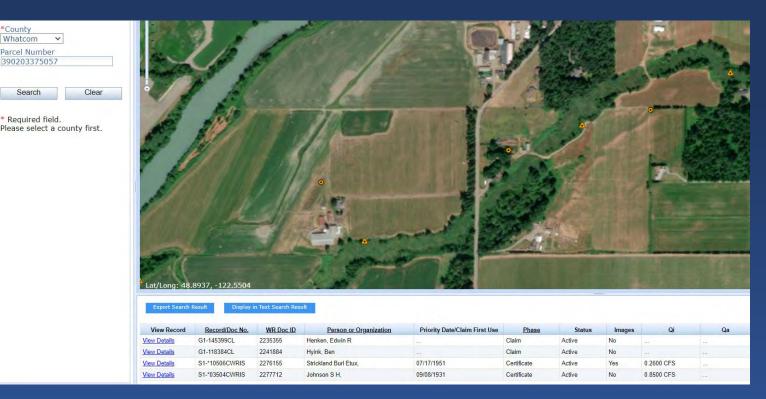






County

- 1. Ecology Water Rights Search
 - Google "Ecology Water Rights Search" \bullet
 - Select "Water Rights Search" ۲
 - Select "Map Search" \bullet
 - Select "Search by Parcel" \bullet
 - Whatcom County
 - Parcel Number
 - Select "Parcel ID" \bullet
 - All water rights in Ecology's system • with a place of use that includes <u>a</u> portion of the search parcel will be listed.
 - 4 water rights listed: 2 Claims, 2 • Certificates

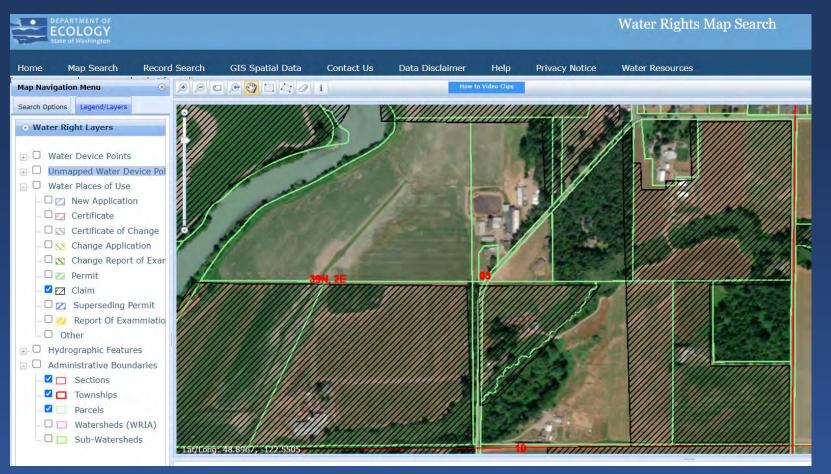






2. TIPS

- Select "Aerial Map" radio button
- Use "Legend/Layer" to turn on/off Administrative boundaries:
 - See Township, Range, and Section
 - Parcel boundaries
- Use "Legend/Layer" to turn on/off Water Right POUs:
 - See which types of water rights are appurtenant to your parcel

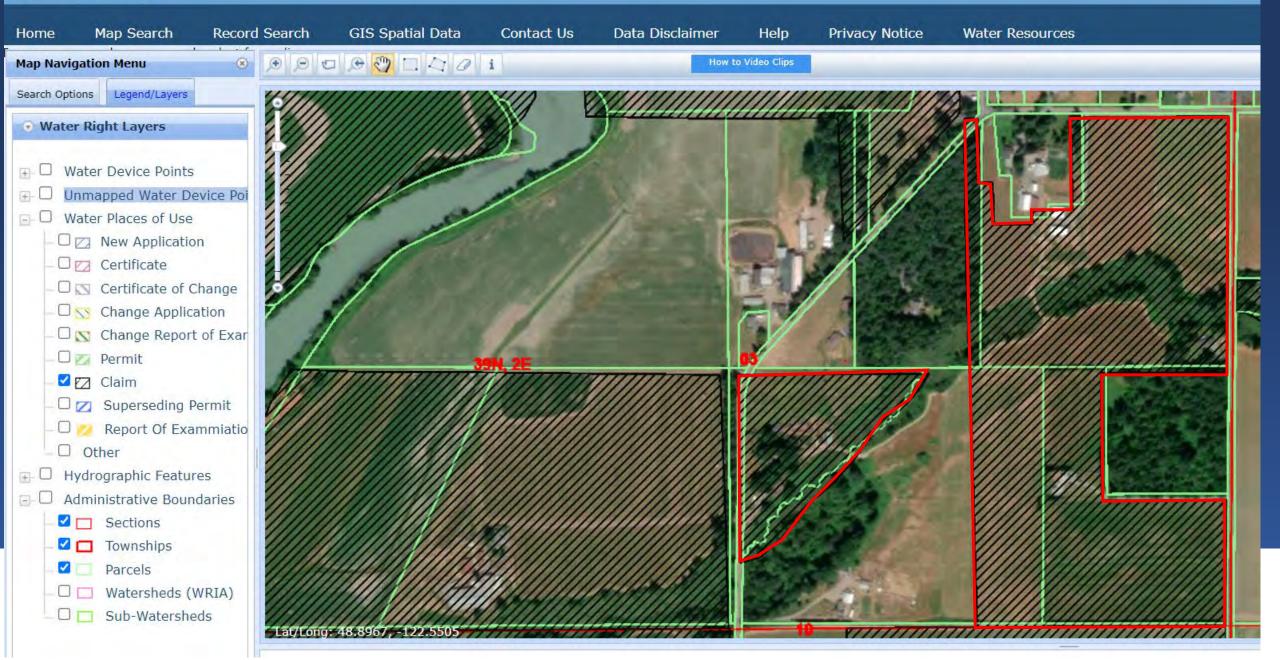








Water Rights Map Search

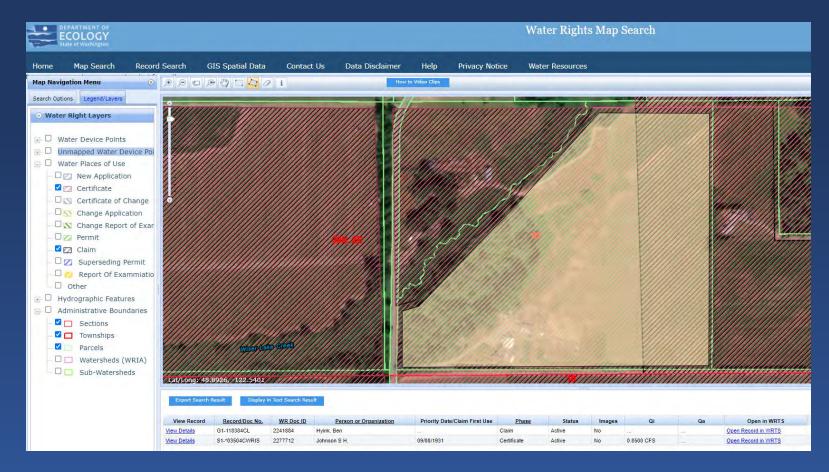




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2. TIPS

- Use "Legend/Layer" to turn on/off Water Right POUs:
 - See which types of water rights are appurtenant to your parcel
- Use Selection Tool (Polygon)
 - Identify which specific water rights are appurtenant to your parcel
- Select "Open Record in WRTS" specific water right information.







- 2. TIPS
- Click on "View Documents"
- Click on "Download Images"
 - This will download all the water right documents Ecology has electronically into a single .pdf file
 - Contact Ecology to get a copy of the complete water right file.

ECOLOGY			Water Right	ts Search					
lome Map Search	Record Search More Info	Water Resources							
ecord/Document Nun	nber S1-*03504CWRIS								BACK to Map Seal
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CLICK ON "VIEW DOCUMENTS"





2. TIPS

- Click on "View Documents"
- Click on "Download Images"
 - This will download all the water right documents Ecology has electronically into a single .pdf file
 - Contact Ecology to get a copy of the complete water right file.



CLICK ON "DOWNLOAD IMAGES"





2. TIPS

- Click on "View Documents"
- Click on "Download Images"
 - This will download all the water right documents Ecology has electronically into a single .pdf file
 - Contact Ecology to get a copy of the complete water right file.

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Download Images	PLACE OF	USE	Sector secondaria	FOR IRRI			
	Section Township	/ Range	LEGAL SUBDIVISION	No. Acres Described in Permit	No. Acres Actually Irrigated		
	<u> </u>	2 E.W.M.	South half of SE.	35	85		

P. No. 365-12-45-2M. 1084





atei

2. TIPS

- Click on "View Documents"
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 - This will download all the water right documents Ecology has electronically into a single .pdf file
 - Contact Ecology to get a copy of the complete water right file.

	<u>Image Type</u>
View	Application
View	Application Supporting Documents
View	Certificate Supporting Documents
View	Certificate Supporting Documents
View	Draft Report of Exam
View	Meter Form 1
View	Meter Form 1
View	Miscellaneous Reports
View	Miscellaneous Reports
View	PA Supporting Documents
View	Progress Sheet
View	Proof of Appropriation
View	Report of Exam
View	Superseding\Amended Certificates
View	Supporting Docs for ROE
View	Supporting Docs for ROE
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Principal Hydrogeologist/Engineer jchennault@aesgeo.com

425-827-7701





Whatcom Water Week

September 13, 2023

Documenting Current and Historic Water Use



Tyson D. Carlson, LHG, CWRE Principal Hydrogeologist

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Read the File...



- Obtain Ecology file
- Interview Water User
- Focus on current water use, then research historic use
- Compare all Water Right Attributes
- Consider provision compliance

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Whatcom Water Week

Water Right Attributes

CLAIMANT NAME:	Kelley-Lowery Ditch Company COURT CLAIM NO. 01392 (A) 02909
Certificate Number:	S4-83219-J
Subbasin:	19 Lower Naches
Source:	Naches River
Use:	Irrigation of 568.71 acres, which includes frost protection and spray water, and stock water
Period of Use:	March 1 through October 31
Quantity:	11.5 cubic feet per second; 2843.55 acre-feet per year for irrigation, including frost protection and spray water; 0.02 cubic foot per second, 2 acre-feet per year for stock water; 19.5 cubic feet per second for conveyance
Priority Date:	June 30, 1872
Point of Diversion:	175 feet south and 500 feet east of the west quarter corner of Section 4, being within the NWASWA of Section 4, T. 14 N., R. 17 E.W.M.
Place of Use:	That portion of the SW4SW4 of Section 2 lying southwesterly of the Lowery Ditch; AND the SW4, the SW4NW43E4, the SH3E4 of Section 3; AND the SE4SE4NW4, the NE4NE4NW4, and that portion of the E4SE4 lying northeasterly of the Naches River, Section 4; AND that portion of the NE4 of Section 10 lying northeasterly of the Naches River; AND that portion of the NW4 of Section 11 lying southwesterly of the Lowery Ditch, that portion of the SW4 of Section 11 lying northeasterly of the Naches River, the NW4SE4, the SH3E4, and the SW4SW4NE4 of Section 11; AND the NW4NW4 of Section 13; AND that portion of the NE4 of Section 14 lying northeasterly of the Naches River; ALL being with T. 14 N., R. 17 E.W.M., Yakima County.
Limitations Of Use:	Parcel No. 17-14-03 43002 (Shareholder No. 16), which is 0.69 acres in size, uses both Kelley-Lowery and Wapatox Ditch Company water. The total water supply for this parcel shall not exceed the amount of water which can be beneficially used on the number of acres listed.

Priority Date

- Source
- Purpose of Use
- Period of Use
- Annual Quantity; Instantaneous Quantity
- Point of Diversion/Withdrawal
- Place of Use
- Provisions

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Whatcom Water Week

How to Calculate Acreage?

Easiest Tools:



- Google Earth Pro (Free): maps place of use, draws polygon, measurements, and shows water use over time i.e., seasons and years
- Earthpoint.us (\$50 per year = full use): calculates acreage using Google Earth files; Township, Range, Section Coverage

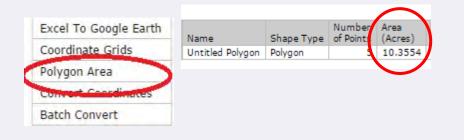


Steps to Calculate Acreage

- 1. Review aerial files in GE
- 2. Determine extent of irrigation
- 3. Use "Add Polygon" and draw polygon(s) around place of use
- 4. Review date range with "Show historical imagery"

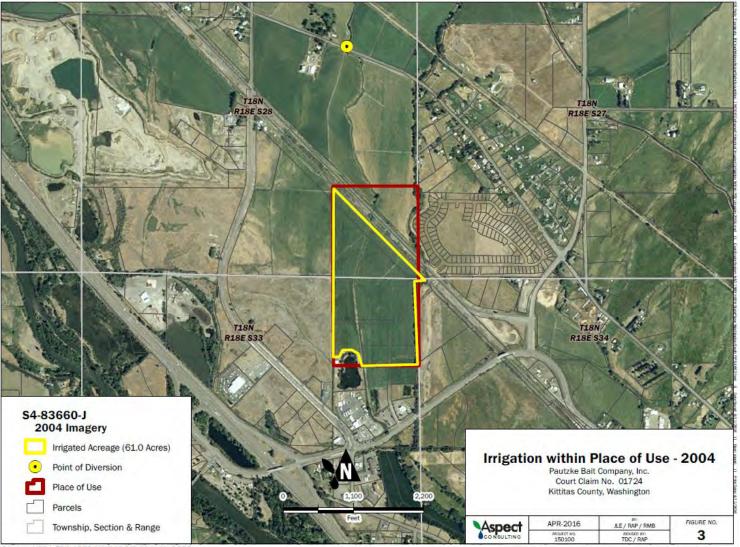


- 5. Copy polygon/.kml file (ctrl+c) in GE
- 6. **Open Earthpoint.us**
- 7. Click "Polygon Area"
- 8. Paste (ctrl+v) polygon/.kml file
- 9. Get acreage



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Steps to Calculate Acreage



Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2003

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Steps to Calculate Acreage



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Water Right Quantities

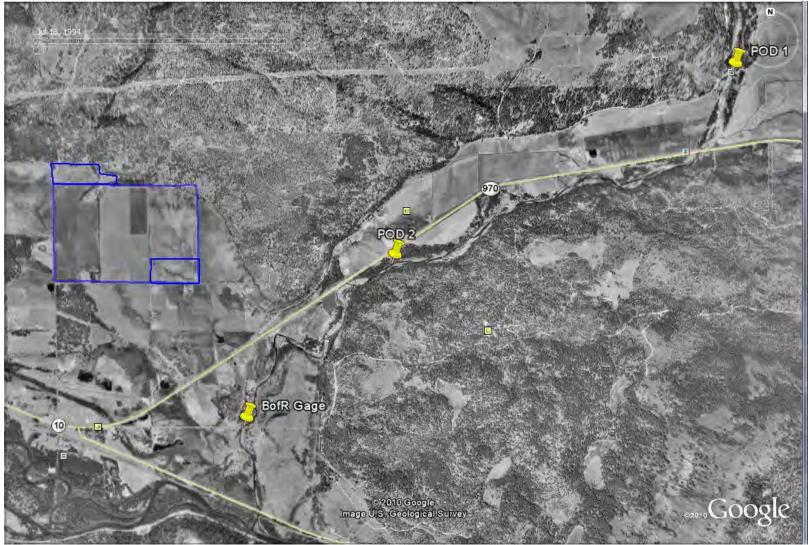


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Multiple Line of Evidence Approach:

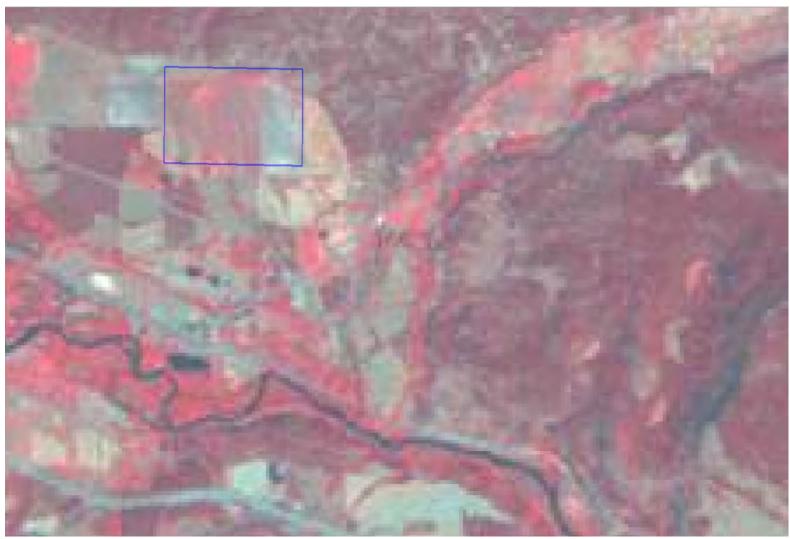
- Aerial Photographs
- Landsat Imagery
- Capacity and Run-Time Data
- Power Meter Data (WAC 173-173-160)
- Crop Water-Use Estimates
 - Washington Irrigation Guide
 - Ecology's GUID-1210
- Farm Records
- Affidavits





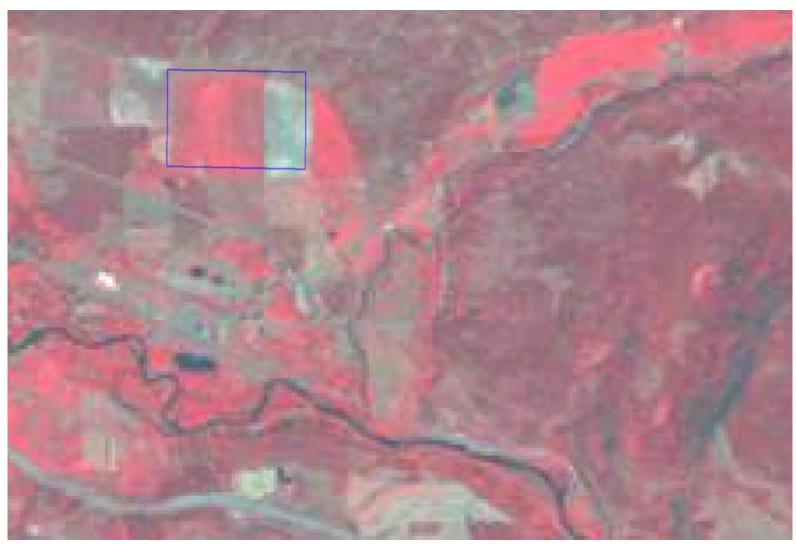
August 1998

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August 1998

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July 1998

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What is the Irrigation Water Budget?



Sources of ET data

- WSU Irrigation Bulletin
 - □ 39 crops; 1948 1973

Washington Irrigation Guide

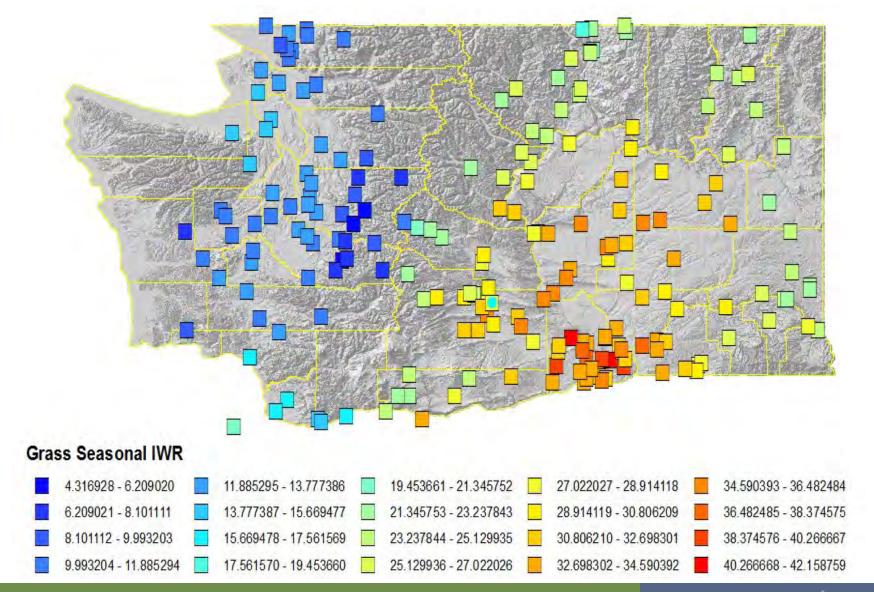
- □ 60 crops; 1951 1980
- Published in 1985, supplemented in 1997
- SCS Blaney-Criddle Modified method and FAO 24 Blaney-Criddle method
- Still in use today

AgWeatherNet (WSU)

- IT77 automated weather stations
- Limited data history (5 to 20 years)
- Current Update to the Washington Irrigation Guide (WSU)

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What is the Irrigation Water Budget?

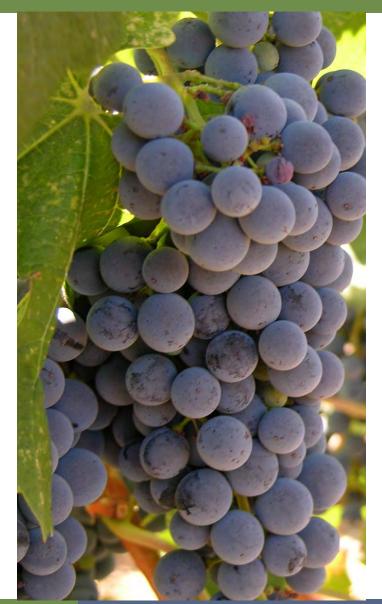


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What is the Irrigation Water Budget?

Limitations of ET

- ET is the theoretical maximum uptake of the plants based on the model assumptions
 - WIG and Bulletin data sets increasingly outdated
 - WIG based on "average" conditions
 - Statewide coverage of monitoring locations incomplete (but getting better...)
 - □ AgWeatherNet
 - Recent study by WSU during WIG Update
- Plants can use < Max ET with no change in yield
 Deficit irrigation
- ET doesn't tell you what the farmer actually did
 - □ Site-specific conditions



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Policies and Procedures

POL 1210 – Evaluation of Changes to Enable Irrigation of Additional Acreage or the Addition of New Purposes of Use to Existing Water Rights

"...a water right may be approved if...there will be no increase in Annual Consumptive Quantity (ACQ); there will be no impairment of other water rights."

PRO 1210 – Calculating and Applying the Annual Consumptive Quantity (ACQ)

"...required to determine that the ACQ under a water right proposed for a change to add acreage to an irrigation right or to add purposes of use is no greater after the change."

GUID 1210 – Determining Irrigation Efficiency and Consumptive Use

"...provide guidance to water resource staff for: 1) Determining irrigation efficiency; and 2) Determining consumptive use associated with irrigation."

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Ecology GUID 1210

Using the Guidance Document to Determine Efficiency:

- Determine <u>Actual</u> Use, then <u>Calculate</u> Efficiency
 - Metering Data
 - Power Data
 - □ Irrigation Schedule
 - (Flow x Time)
 - Adjudicated Water Rights*

- Ea = CIR / Total Water Use
 - CIR from WIG Total Water Use from Actual Data*
- Assume Efficiency, then Estimate Use
 - □ CIR (WIG) / Ea
 - Status Quo for Permit Writers

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Ecology GUID 1210

Method		Application Efficiency, Ea $(\%)^2$		%Total Evaporated	% Total Use Consumed	Return Flow
		Range	Average, Ea _{avg}	%Evap	%CU, Average ³	%RF, Average ⁴
Surface:	Graded Furrow	50-80	65	5	70	30
	w/ tailwater reuse	60-90	75	5	80	20
	Level Furrow	65 - 95	80	5	85	15
	Graded Border	50 - 80	65	5	70	30
	Level Basins	80 - 95	85	5	90	10
	Flood	35 - 60	50	5	55	45
Sprinkler:	Periodic Move (Handline)	60 - 85	75	10	85	15
	Side Roll (Wheelline)	60 - 85	75	10	85	15
	Moving Big Gun	55 - 75	65	10	75	25
	Solid-Set-Overtree	55 - 80	70	15	85	15
	Solid SetUndertree	60 - 85	75	10	85	15
1. N. T. A	Pop-Up Impact	60 - 85	75	10	85	15
Center-Pivot	Impact heads w/end gun	75 - 90	80	15	95	5
	Spray heads w/o end gun	75 - 95	90	10	100	0
	LEPA ⁵ w/o end gun	80 - 98	92	5	97	3
Lateral-Move	Spray heads w/hose feed	75 - 95	90	10	100	0
	Spray heads w/canal feed	70 - 95	85	10	95	5
Microirrigation:	Trickle/Drip	70 - 95	88	5	93	7
	Subsurface Drip	75 - 95	90	0	90	10
	Microspray	70 - 95	85	10	95	5

Table 1: Summary of Application Efficiency Ranges, Consumptive Use, and Return Flows¹

 Calculate the actual water use from water meter data, power meter, or run-time data. In the absence of such data, the TIR (total irrigation requirement) = CIR / Ea, where CIR is the crop irrigation requirement from the WIG (Appendix B) and Ea is the case-specific application efficiency above.

2. %Evap is the portion of the total irrigation requirement that is evaporated due to factors other than crop ET.

3. Select appropriate %CU based on type of irrigation system. If calculated Ea is greater or less than Eaavg, then %CU = Ea + %Evap. CU = TIR x %CU.

4. Select appropriate %RF based on type of irrigation system. If calculated Ea is greater or less than Eaavg, then %RF = 100 - %CU. RF = TIR x %RF

5. Low Energy Precision Application.

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Estimating Instantaneous Rate (Qi)



Pump Curves

- Irrigation System Demands
- Comparison with Water Duties
- Pumping Tests
- Well Log
 - Well Construction
 - Geologic Interpretation
 - Driller's Test
- Instantaneous vs. Average Rate

What to Do with the Unexpected?

- What if a provision is not met?
- What if further changes have occurred?
- What if property ownership has changed?

Tools may include assignments, change applications, extensions, and other options.



Fixing what can be Fixed!

- Water right allows for 40 acres to be irrigated
- 40 acres ARE irrigated
- But 5 of the acres are outside of POU
- Consider a POU change



Fixing what can be Fixed . . .

- Water Right allows for 100 acres of which you own 20 acres
- Consider an Admin. Division to subdivide water right
- Consider where the POW is and if other changes are needed



Water Right Holder "Musts"

- Know your water right portfolio
- Know your water use
- Match your water use to your water rights
- Ensure water is fully used and documented every 5 years
- If water is not fully used, use temporary donations or relinquishment exemptions to eliminate risk
- Know what water rights are worth

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Consider Beneficial Use Assessment

Single document that includes:

- Support for all water right attributes
- Copy of water right documents
- Photographs
- Supporting information water use estimates, copies of manuals, descriptions of water conveyance systems.

Tyson D. Carlson, LHG, CWRE

tcarlson@aspectconsulting.com 509-895-5923



Aspect Consulting, LLC Bainbridge Island - Bellingham - Portland - Seattle - Wenatchee - Yakima



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September 13, 2023

Preparing for the Adjudication: Administrative Tools Water Right Changes and Transfers



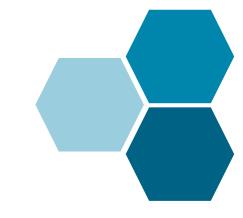
Whatcom Water Week 2023

Andrew B. Dunn



Outline

- Administrative Tools
 - Splitting Water Rights
 - Assigning Applications and Permits
 - Showing of Compliance for additional/new wells
 - Claim Amendments
- Water Right Changes and Transfers
- Cost Reimbursement Program
 - How it works

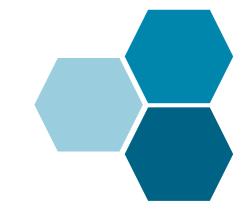




Administrative Tools

- Administrative Split
- Documenting Permit Ownership
- Showing of Compliance with RCW 90.44.100(3)
- Claim Amendment





Administrative Split

Voluntarily Dividing Up a Water Right Between Multiple Owners



Water Resources Program Request for Administrative Confirmation of Division of a Water Right

Complete the information required, attach referenced documents, and forward to the appropriate regional office address shown on the back of this form.

WATER RIGHT INFORMATION:

Water Right Certificate Number:

Name on Certificate:

<u>https://apps.ecology.wa.gov/publications/SummaryPages/ECY07088.html</u>



Administrative Split

• What needs to be decided?

DESCRIPTION OF DIVISION OF THE WATER RIGHT AMONG PROPERTY OWNERS

(Note: For more than 2 property owners, attach additional pages as necessary).

Property Owner No. 1:

Property Owner Name:	Telephone No.:	
Property Owner Address:		
City:	State:	Zip:
Tax Parcel Numbers Owned within Authorized Place of Use:	Authorized Source:	
Share of Quantity Instantaneous (Qi), [gpm or cfs]:	eous (Qi), [gpm or cfs]: Share of Quantity Annual (Qa), [acre	
Share of acreage irrigated:	Authorized purpose(s) of use:	

Check one of the following:

- The authorized point of diversion is on my property and will continue to be used.
- The authorized point of diversion is not on my property, but I have entered into a shared use agreement with the owner
 - of the authorized diversion point.
- The authorized point of diversion is not on my property, and I plan to construct a new diversion point on my property. I plan to file a change application or submit a showing of compliance form to Ecology to cover this change in the point of diversion. I understand that if I plan to use the water for a different purpose or in a different location than described above, I must file a change application with Ecology.

Date:

Administrative Split - Easy

Jones	Smith
Brown	Stevens

Attribute	Certificate	Jones (A)	Smith (B)
Wells	2	1	1
POU	80 acres	40 acres	40 acres
Irr. Acres	80 acres	40 acres	40 acres
Qi	240 gpm	120 gpm	120 gpm
Qa	160 afy	80 afy	80 afy



Administrative Split – More Complex

Jones	Smith
Brown	Stevens

Attribute	Certificate	Jones (A)	Smith (B)
Wells	1	Shared or Add Well?	1
POU	80 acres	40 acres	40 acres
Irr. Acres	40 acres	? acres	? acres
Qi	240 gpm	? gpm	? gpm
Qa	80 afy	? afy	? afy



Application/Permit Ownership

- Applications and Permits are <u>Personal Property</u>
- Use the following form to inform Ecology who the owner is:



Water Resources Program

Assignment of Application or Permit to Appropriate or Store Water (To change the ownership of an application or permit)

A NON-REFUNDABLE \$50.00 FEE MUST ACCOMPANY THE FILING OF THIS FORM One Assignment per Application/Permit

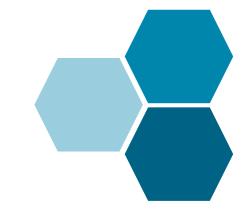
<u>https://apps.ecology.wa.gov/publications/summarypages/ecy040161.html</u>



Assignment Form

- Full or Partial Assignment
- If partial, decide on how it will be split up.
- Parties sign in front of a notary







When can I drill replacement or additional wells without having to file a change application?

- When the new well will be located in the same legal description as the original public notice (usually quarter-quarter section, but not always)
- Submit a Showing of Compliance with RCW 90.44.100(3) form
- Only applicable for ground water permits and certificates, <u>not for</u> <u>claims</u>.





$+^{1/4}_{mile}$		
NW	NE 40 ac.	NE
sw	SE	
sw		SE

Legal Notice State of Washington Office of Supervisor of Water Resources, Olympia

NOTICE OF GROUND WATER RIGHT APPLICATION NO. 3843

TAKE NOTICE:

That King County Water District No. 75 of Seattle, Washington, on January 19, 1955, filed application for permit to withdraw public ground waters through a well situated within the NE% of NW¼ of Section 4, Township 22 N., Range 4 E., W. M., in King County, in the amount of 750 gallons per minute, subject to existing rights continuously, each year for the purpose of domestic supply for community.

Any objections must be accompanied by a two dollar (\$2.00) recording fee and filed with the State Supervisor of Water Resources within thirty (30) days from March 10, 1955.

Witness my hand and official seal this 11th day of February. 1955. (Seal) M. G. WALKER,

State Supervisor of Water Resources. (Publish: March 3, 10, 1955.)



DEPARTMENT OF ECOLOGY

Showing of Compliance with RCW 90.44.100(3)

Water Right Certificate or Permit Number:

Parcel tax identification number:

Landowner(s) name:

Part of complying with RCW 90.44.100(3) is for the project proponent to notify the Department of Ecology (Ecology) that the statutory criteria of RCW 90.44.100(3) have been satisfied. Please attach (to this document) the water well report for the additional or replacement wells and any additional information you have to support your affidavit.

https://apps.ecology.wa.gov/publications/summarypages/ecy04074.html



Claim Amendment

• Amending a water right claim to fix a ministerial error

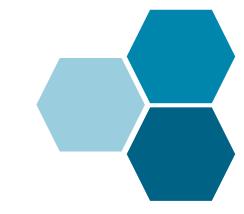


Water Resources Program

Amendment to Water Right Claim

Water Right Claim Registry No.	
Please attach a copy of your Water Right Claim to this form and return with the required \$50.00 fee to:	Department of Ecology Cashiering Unit PO Box 47611 Olympia, WA 98504-7611

https://apps.ecology.wa.gov/publications/SummaryPages/ECY0406.html





Claim Amendment

- Amending a water right claim to fix a ministerial error
 - Error estimating the quantity
 - Ministerial error in information provided on claim form
- All requests must be supported by evidence
- Ecology guidance on claim amendments:
- <u>https://apps.ecology.wa.gov/publications/documents/2011066.pdf</u>





Water Right Change Applications

- Things you generally can change:
 - Point of Withdrawal/Diversion
 - Place of Use
 - Purpose of Use
- Things you generally cannot change:
 - Priority Date
 - Instantaneous Rate
 - Annual Volume
 - Source
 - Provisions



Water Right Change Applications

- Can only change a water right that has been maintained through beneficial use or sufficient cause for non-use.
- Tentative determination will be performed as part of this process. Similar in nature to the review that will be done by the adjudication court and Ecology during the adjudication.



Water Right Change Applications

- Currently, the only way to have a change application processed is by utilizing the Cost Reimbursement Program.
- Timeline
 - Minimum of 1 year
- Cost
 - Minimum of \$10K



Cost Reimbursement

- Paying for a decision, not necessarily an approval.
- Using a consultant from Ecology's pool to process your water right application.
 - The consultant is under contract with you directly.
 - You will enter into a Cost Reimbursement Agreement(CRA) with Ecology.
 - You select a consultant from the pool.
 - Paying for Ecology's review of the consultant's work.
 - Paying for defense of any appeals.



Cost Reimbursement

- Prime Consultants in the Pool
 - Aspect Consulting, LLC
 - GeoEngineers, Inc.
 - Groundwater Solutions, Inc.
 - Landau Associates, Inc.
 - Mott MacDonald, LLC (aka Pacific Groundwater Group)
 - RH2 Engineering, Inc.
 - Robinson-Noble, Inc.
 - Water & Natural Resource Group, Inc.





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Q&A PANEL

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