

MEMORANDUM

Project No.: 140129

April 16, 2015

To: Mike Hermanson – Spokane County Utilities

cc: Rob Lindsay – Spokane County Utilities

From: Carl Einberger, LHG, Aspect Consulting, LLC
Dan Haller, PE, Aspect Consulting, LLC

Re: **Summary of Policy Advisory Group Meeting #2 (1/15/15)**
Little Spokane Water Banking Feasibility Study

Background

Spokane County (the County), in conjunction with Stevens and Pend Oreille Counties, is evaluating the use of a water bank to address existing and potential regulatory constraints on existing and new water use, in Water Resource Inventory Area (WRIA) 55, the Little Spokane Watershed.

Considerable uncertainty exists regarding the future legal, regulatory, and policy environment that regulation of water resources in WRIA 55 will be subject to. In response to this uncertainty, the County is pursuing a water banking feasibility study to explore options for providing more certainty to existing and new water uses in the basin.

As part of this process, the County has convened a Policy Advisory Group (PAG) to allow interagency and stakeholder coordination and evaluation of alternatives for water banking in the watershed. Aspect Consulting LLC (Aspect) has been engaged by the County to provide consulting services for the Little Spokane Water Banking Feasibility Study. Aspect has been coordinating and moderating PAG meetings for the County.

Overview of Meeting Agenda

The second PAG meeting for this Feasibility Study occurred on January 15, 2015, at the Riverside Fire Station (Spokane Fire District 4). The following agenda was covered in the meeting, with supporting presentation materials.

- Overview of Work Conducted since PAG #1 Meeting
- Next Steps and Decision Points for PAG and Ecology
- Review of Incentives for Bank Participation
- Demand Evaluation
- Supply Evaluation/Other Bank Seeding
- Closing, Expectations for PAG Meeting #3

PAG Attendees

A list of PAG members present at PAG Meeting #2 follows:

April 16, 2015

Mike Hermanson – Spokane County Utilities
Rob Lindsay – Spokane County Utilities
Todd Mielke, Spokane County
Wes McCart, Stevens County
Karen Skoog, Pend Oreille County
Keith Stoffel, Department of Ecology
Rusty Post, Department of Ecology
Ty Wick, Spokane County Water District #3
Dick Price, Stevens PUD
Susan McGeorge, Whitworth Water District
Mike Lithgow, Pend Oreille County Community Development
Erik Johansen, Stevens County Land Services
Linda Kiefer, Avista

Dan Haller and Carl Einberger of Aspect, and Cynthia Carlstad of Carlstad Consulting, attended in their roles as the County's consultants on this project. Dan served as the moderator of the meeting, and Dan, Carl, and Cynthia led portions of the meeting discussion.

Meeting Summary

Prior to the meeting, Aspect distributed a Technical Memorandum to the PAG summarizing a water banking demand evaluation for WRIA 55, a water rights supply assessment, and water transfer framework considerations. Aspect also prepared a PowerPoint presentation to guide the meeting discussion (attached). Key topics addressed in the discussion are summarized below, and additional information can be found in the attached presentation:

- The project schedule was discussed, including planned future deliverables
- The goals of the PAG meetings and Little Spokane Water Banking Feasibility Study were discussed.
- Aspect reviewed the approach for the Feasibility Study, and the ongoing schedule status for additional PAG meetings and study deliverables. Topics to be addressed through technical memorandums and the final Feasibility Study include:
 - Legal, Regulatory, and Policy Framework
 - Streamflow and Water Transfer Framework
 - Future Water Demand Evaluation
 - Potential Availability of Water Rights
 - Water Market Evaluation
 - Proposed Bank Management Structure

(Since the time of January 15th PAG meeting, additional tasks associated with water right analysis, an appraisal level study of a potential Pend Oreille watershed water transfer into the Little Spokane, and additional meetings have been added to the study).

- Aspect reviewed key PAG decisions anticipated as the study moves forward:
 - Banking with consumptive or total use
 - One-bucket or multi-bucket management

MEMORANDUM

Project No.: 140129

April 16, 2015

- Approach to temporal challenges matching supply and demand
 - Inclusion and risk management of out-of-kind mitigation
 - Priority of demand sectors
 - Geographic priority
 - Early action items to pursue for next phase

- Water banking incentives were discussed, including the current hold on new water rights permits, potential changes or clarifications to Ecology interpretation of instream flow rules, potential regulation of exempt wells, and the ability to provide a permitted sources of new water.

- Updates to the Spokane County Demand Model to extend it into the entire watershed, including Pend Oreille and Stevens Counties, were discussed. The key focus of this work was to provide a basis for anticipated demand should a water bank be pursued. The approach for the evaluation was explained to the PAG, including:
 - Inputs from Pend Oreille and Stevens County on growth and land use changes
 - Compilation and assessment of water rights issued after the WRIA 55 Instream Flow Rule was adopted
 - Evaluation of pending water right applications
 - Review of water system plans and projections, and input from purveyors
 - Consideration of water bank influences on water use practices

- Conclusions from the demand evaluation were also summarized, including total forecasted new demand for single family homes from 2015-2040, estimates of pre- and post-rule exempt wells, public water system forecasts, demand from interruptible water rights, and the total estimated potential water bank demand.

- Potential basin management alternatives were discussed, including managing to a single gage or multiple locations, consumptive use bank accounting, and out-of-kind mitigation applicability and uncertainty. Temporal considerations, including addressing non-irrigation season seeding, were also discussed.

- Water bank seeding, including both in-kind and out-of-kind approaches, was discussed. Seeding options considered include
 - Acquisition of water rights
 - Interbasin transfers (Pend Oreille)
 - Storage (reservoirs, SAR, ASR)
 - Conservation
 - Restoration of instream and riparian habitat

- An overview of WRIA 55 hydrogeology and the distribution of basin fill versus bedrock was presented.

- Existing pre-rule irrigation water rights and claims greater than 200 ac-ft/yr were discussed, including details on the vetting process underway and the distribution and ranking of water rights.

MEMORANDUM

Project No.: 140129

April 16, 2015

- Surface water storage studies conducted in earlier investigations were reviewed. In general, these studies concluded that cost vs. benefit and physical constraint considerations did not indicate that this would be a preferred option for bank seeding.
- The potential for obtaining a water right for diversion from the Pend Oreille watershed into the Little Spokane was discussed. Several points were emphasized:
 - The much lower frequency of potential curtailment in the Pend Oreille relative to the Little Spokane watershed would make this a more reliable source option
 - Flows in the Pend Oreille River at Newport are typically several orders of magnitude greater than flows at the Elk gage in WRIA 55.
 - The proximity of the headwaters of the Little Spokane to the Pend Oreille River at Newport, and relatively short conveyance distance and elevation changes are favorable for project feasibility
 - A rigorous cost benefit analysis is needed to further assess this option
- Open discussion among the PAG was conducted during and at the end of the meeting. Key discussion points included:
 - The next PAG meeting was slated for May 27, 2015. The PAG expressed the need for an additional PAG meeting prior to release of the draft Feasibility Study.
 - Additional water rights review of a broader spectrum of rights, including water rights below 200 ac-ft/yr was suggested.
 - There was overall support for pursuing more investigation of the Pend Oreille as a source for water bank seeding. Ecology (Keith Stoffel) suggested that a water right application be submitted in the short term, to establish a priority date and avoid having to process other applications that may be filed.
 - Consideration should be given to how interruptible rights and consumptive use are addressed in the demand analysis.
 - Consider leasing of agricultural rights, rather than purchasing, as an alternative. In addition, some PAG members expressed a preference to avoid prime agricultural lands for water right purchases.
 - The question of how much mitigation will be needed in WRIA 55 tributaries in addition to mainstem bank seeding and mitigation remains an unresolved issue.
- The meeting was adjourned, with the next meeting planned for May 27, 2015 (an additional PAG meeting has now been scheduled for April 29, 2015.)

Attachments:

Attachment 1 – PAG Meeting #2 PowerPoint Presentation

C:\Users\ceinberger\Desktop\LSWB PAG Meeting 2 summary.docx



WRIA 55, PAG Meeting #2

Little Spokane River Basin Water Bank Feasibility Study

January 15, 2015

Presented by



with

Carlstad Consulting

Cascadia Law Group

Washington State University

PAG Meeting #2 Agenda

- Overview of Work Conducted since 1st Meeting
- Next Steps and Decision Points for PAG and Ecology
- Review of Incentives for Bank Participation
- Demand Evaluation
- Supply Evaluation/Other Bank Seeding
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WRIA 55 PAG Workplan

Meeting 1 (October 15, 2014):

- Accept operating guidelines
- Understand regulations/risk
- Define banking preferences
- Agree on demand approach

Meeting 2 (January 15, 2014):

- Demand Evaluation
- Supply Evaluation
- Bank Seeding Options

Meeting 3 (May 27, 2015):

- Market conditions
- Review bank pros/cons
- Recommended next steps
- Advisory vote to move forward on further implementation

Technical Memorandums

- Prior to PAG Meeting 1:
 - Legal, Regulatory, and Policy Framework
- Prior to PAG Meeting 2:
 - Streamflow and Water Transfer Framework
 - Future Water Demand Evaluation
 - Potential Availability of Water Rights
- Prior to PAG Meeting 3:
 - Draft Feasibility Report and Implementation Plan (including Water Market Evaluation)

Key PAG Decisions

- Banking with consumptive or total use
- One-bucket or multi-bucket management
- Approach to temporal challenges matching supply and demand
- Inclusion and risk management of out-of-kind mitigation
- Priority of demand sectors
- Geographic priority
- Early action items to pursue for next phase

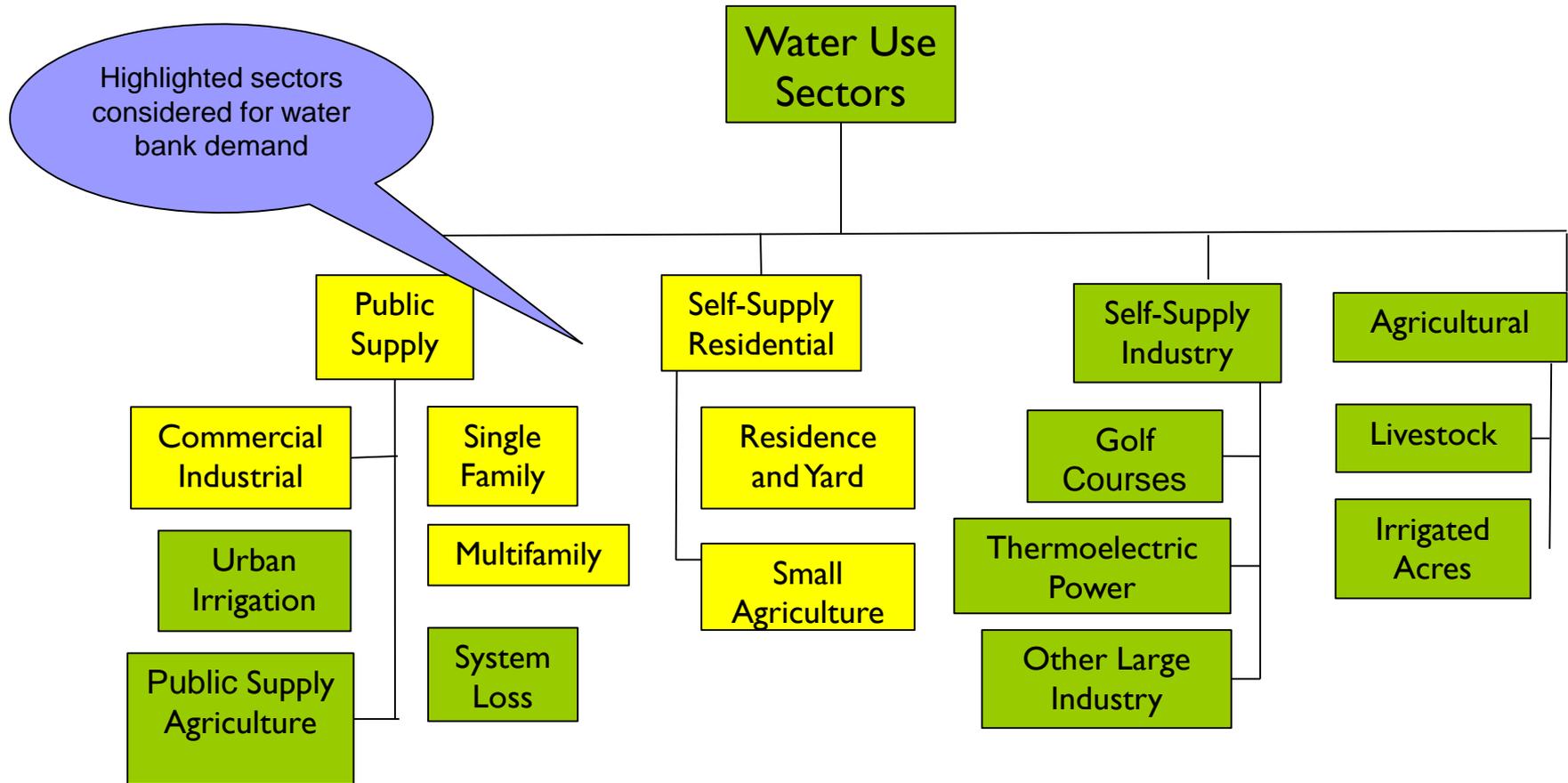
Water Banking Incentives

- Current hold on new water rights permits
- Potential changes/clarification to Ecology interpretation of instream flow rules
- Potential regulation of exempt wells
- Source of permitted water for new rural subdivisions/cluster developments
- Campbell and Gwinn consistency

Demand Evaluation

- Identify potential water bank customers
- Determine potential magnitude of demand
- Examine geographic distribution
- Consider how existence of a water bank may influence water use practices

How We Considered Types of Demand



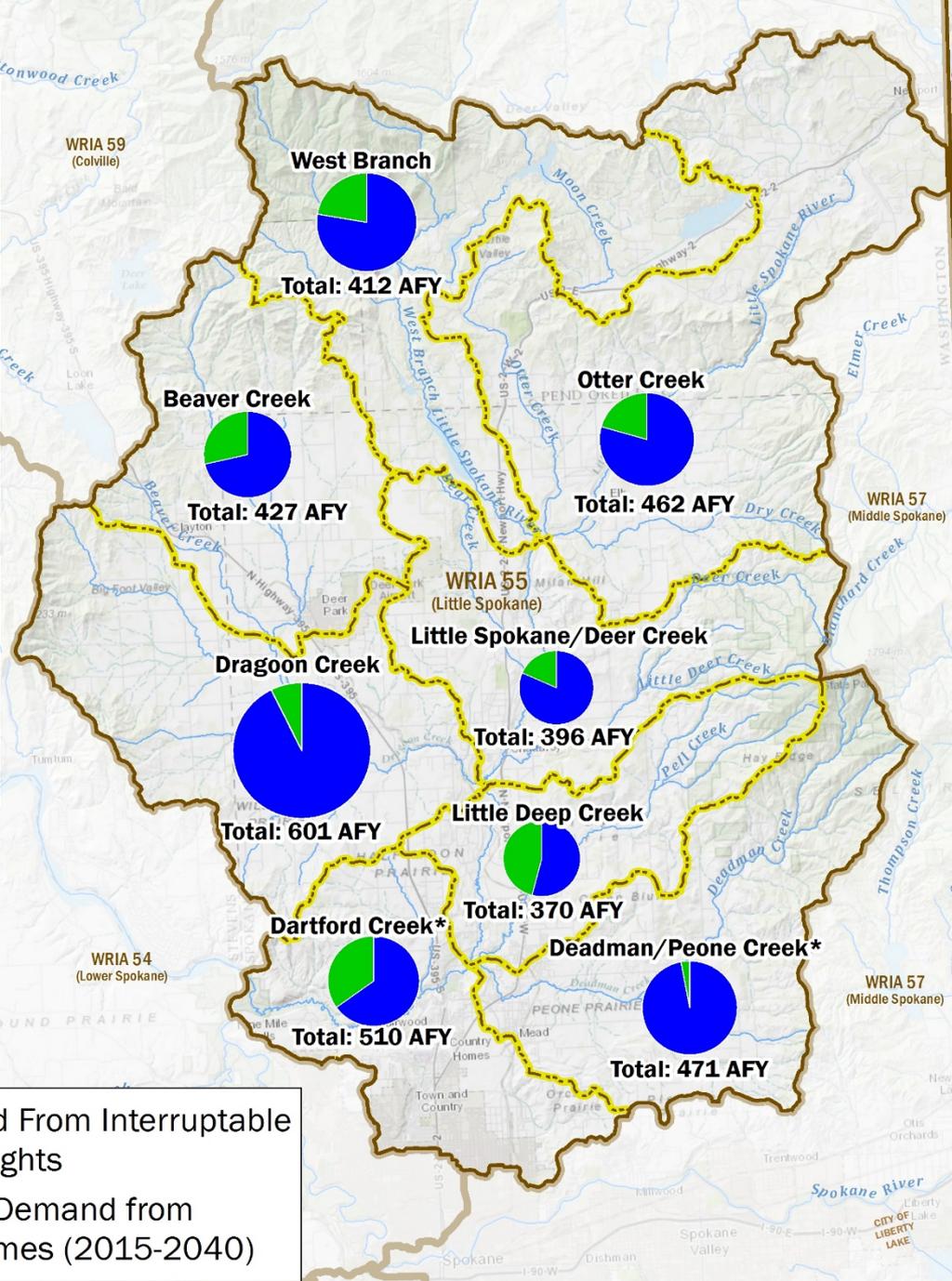
Approach to Demand Evaluation

- Use Spokane County Water Demand Forecast Model to predict future demand for self-supplied residential and number of permit exempt wells
- Input from Pend Oreille and Stevens County on growth and land use changes
- Compile and assess water rights issued after Instream Flow Rule adopted
- Compile and assess water right applications
- Review public water system plans and projections, input from purveyors
- Consideration of water bank influences on water use practices

Incentives for Self Supplied Residential to Buy From Water Bank

- Most self supplied homes use permit exempt wells
 - May not be considered secure water supply by home lenders
 - Could be regulated if determined to impact instream flow
- Post-Instream Flow Rule homes with water rights
 - Surface water rights – restricted to indoor use for periods during most years
 - Groundwater rights – could be restricted to indoor use if determined to impact instream flow

Geographic Distribution of Potential Future Water Demand for Self Supplied Homes with Permit Exempt Wells and Interruptible Surface Water Rights



Note that water quantities are gross usage, and would likely be reduced to consumptive use if purchased through a water bank.

- Possible Demand From Interruptible Surface Water Rights
- Forecasted New Demand from Self Supplied Homes (2015-2040)

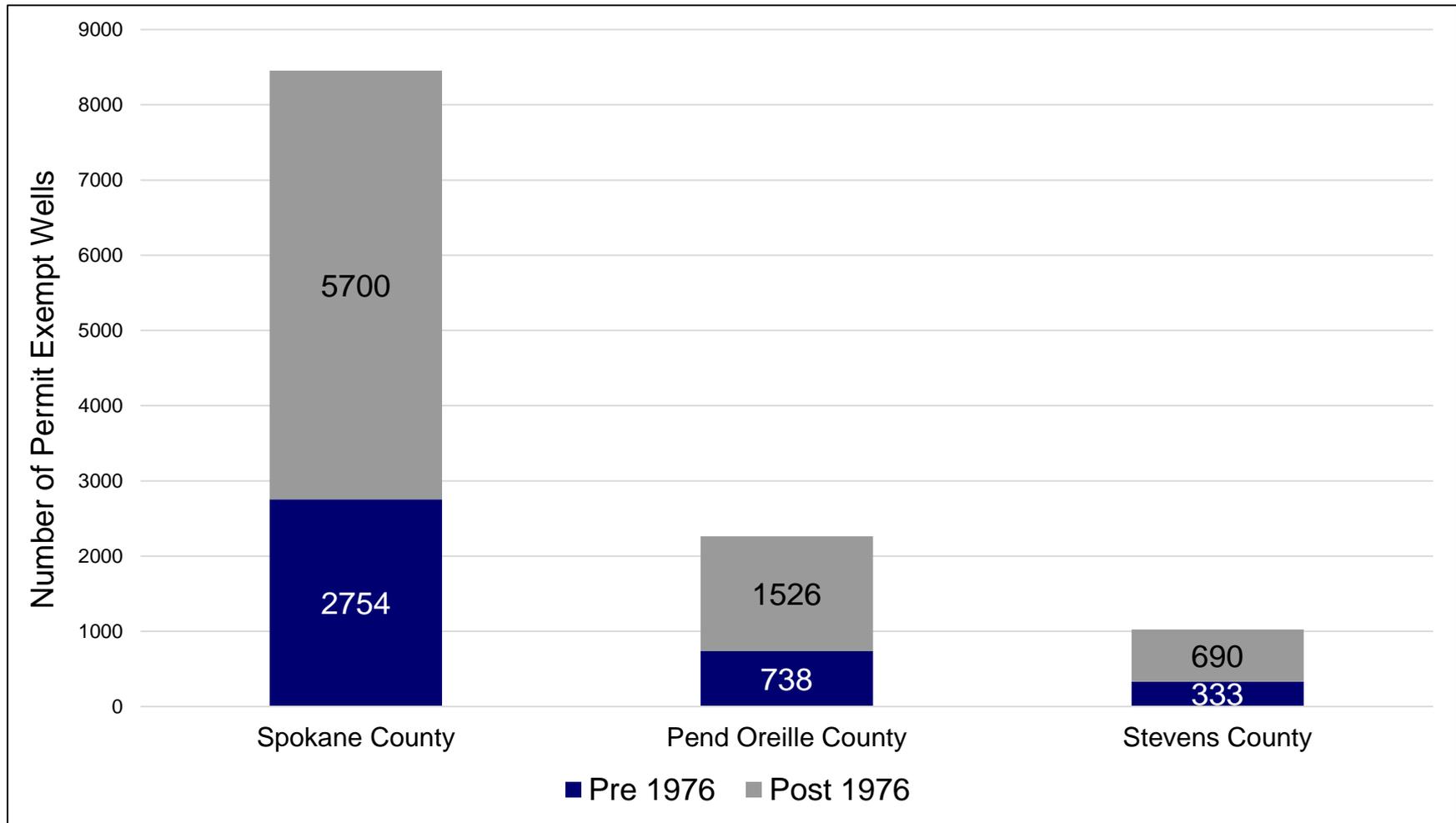
Estimated Distribution of New Single Family, Self-Supplied Residence Water Demand, 2015-2040

Watershed Administrative Unit	Forecasted New Demand (ac-ft /yr)	New Single Family Residences
Beaver Creek	305	392
Dartford Creek	332	403
Deadman Creek/ Peone Creek	457	582
Dragoon Creek	557	573
Little Deep Creek	200	205
Little Spokane/ Deer Creek	323	385
Otter Creek	367	351
West Branch	320	235
Total	2862	3126

Estimated Monthly Increase in Water Use for New Single-Family, Self-Supplied Residences in WRIA 55, 2010 - 2040 (Acre-Feet)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2010	217	196	217	210	1,025	1,271	1,743	1,744	1,220	815	210	217	9,081
2015	254	229	254	246	1,207	1,497	2,053	2,055	1,437	959	246	254	10,692
2020	269	243	269	260	1,278	1,585	2,175	2,177	1,522	1,015	260	269	11,321
2025	284	256	284	274	1,351	1,676	2,300	2,302	1,609	1,073	274	284	11,966
2030	298	269	298	288	1,422	1,765	2,422	2,424	1,694	1,129	288	298	12,596
2035	309	279	309	299	1,477	1,833	2,516	2,517	1,759	1,172	299	309	13,077
2040	320	289	320	310	1,531	1,900	2,608	2,610	1,823	1,215	310	320	13,553
Total New Demand Forecasted Between 2015 and 2040													
	66	59	66	64	323	403	555	555	386	256	64	66	2,862

Estimate of Pre- and Post-Basin Plan Permit Exempt Wells in WRIA 55



Public Water System Review

Public Water System		Water Right Annual Excess/Deficiency Based on Existing Consumption (af)	Projected Water Right Annual Excess/Deficiency by 2030 (af)
Spokane County Water District No. 3			
	Pine River Park	182	Same as existing
	Riverview Hills	-11	Same as existing
	Chattaroy Hills ¹	233	Same as existing
Stevens PUD			
	Clayton	239	224
	Chattaroy Springs West	28.9	26.9
	Riverside	296.2	282.2
	Halfmoon Ranchos	25	20
	River Park Estates ²	31	21
	Denison	16	12
Deer Park		1654	961 ³
Riverside Village Mobile Home Park		29.07	0.23
Whitworth Water District #2⁴		13,132	12,336 ⁵
Diamond Lake Water and Sewer District		Request pending	Request pending
Granite Shores Water and Sewer District		Request pending	Request pending
<p>Notes:</p> <p>¹This system transferred to Whitworth Water District in 2014.</p> <p>²The source for this system is Spokane Valley Rathdrum Prairie aquifer groundwater.</p> <p>³Projection is for 2026.</p> <p>⁴Total for 27 different water rights as reported in the Water System Plan.</p> <p>⁵Projection is for 2028.</p>			

Pending New Water Right Applications in WRIA 55

Record Number	Document Holder	Purpose of Use	Priority Date	Quantity Requested	Source	Comments
G3-28396	Spokane Cnty Water District No 3	Domestic Multiple	10/01/1987	5500 gpm, 730 ac-ft/yr	Wells (5)	Intended to supercede other rights for Mead service area
G3-30073	Whitworth Water District 2	Municipal	10/11/1994	5000 gpm	Well	Well to be located in Home Acre Tract 1st Addition
G3-30313	Spokane Cnty Water District No 3	Municipal	06/01/1995	2000 gpm	Wells (2)	Intended to serve 1585 homes
G3-30161	Whitworth Water District 2	Municipal	04/13/1998	5000 gpm	Well	To serve Systems 8 & 9; 3400 homes
G3-30261	Leonard	Domestic Multiple, Irrigation	03/25/1999	1800 gpm	Existing well	Irrigation is for golf course; 8 homes or other commercial structures associated with golf course
G3-30508	Riverbluff Land Company LLC	Municipal	02/28/2006	600 gpm	Wells (4)	150 connections requested; related to superceding Groundwater Certificat No. G3-21440C.
G3-30714	Stevens Cnty PUD 1	Municipal	07/28/2014	150 gpm	2 wells	Need additional instantaneous quantity for existing Chattaroy Springs Public Water System

Total Estimated Potential Water Bank Demand in WRIA 55

Category / Watershed Subbasin	Dartford Creek	Deadman Creek/ Peone Creek	Little Deep Creek	Little Spokane/ Deer Creek	Dragoon Creek	Beaver Creek	West Branch	Otter Creek	Total
Forecasted New Demand (ac-ft /yr) from Self Supplied Homes (2015-2040)	332	457	200	323	557	305	320	367	2861
Possible Demand from Interruptible Surface Water Rights	178	14	170	73	44	122	92	95	788
Possible Demand from Pending Water Right Applications	All pending new applications are located in these two WAUs. Annual quantities not determined, but may likely 4000-5000 ac-ft / year								
Totals without new applications	510	471	370	396	601	427	412	462	3649
Totals with new applications									7555-8555

Conclusions

- Water bank demand could be significant if current trend toward regulation of permit exempt wells use continues
- Self supplied demand is distributed throughout the watershed, with a few concentrations such as Sacheen Lake
- Public supplied demand is concentrated in the lower watershed, and also potentially higher quantity due to population density

Conclusions – Influence on Water Use Practices

Establishment of a water bank is likely to influence water use practices in WRIA 55. Increased new development may occur because of clarity and security of water supply. Having to pay for water in increments is likely to motivate increased water conservation.

DUNGENESS WATER EXCHANGE TIERED WATER BANK PACKAGES			
Package Description	Indoor Use¹	Outdoor Use	Price
Indoor Only Package	150 gpd (average)	-	\$1,000
Indoor with Basic Outdoor Package	150 gpd (average)	2,500 square feet of lawn (approx. 50 x 50 feet)	\$2,000
Indoor with Extended Outdoor Package	150 gpd (average)	5,625 square feet of lawn (approx. 75 x 75 feet)	\$3,000
Stock Water – 5 Animal Limit	-	60 gpd (average)	\$1,300
Stock Water – 10 Animal Limit	-	120 gpd (average)	\$1,800
Stock Water – 15 Animal Limit	-	180 gpd (average)	\$2,200
¹ Indoor water use increments are based on consumptive use for homes served by a sanitary sewer system.			

Basin Management Approaches

- “One Bucket”
 - Yakima Basin – Managed to Parker Dam and Total Water Supply Available
- Wenatchee Basin reservation
 - Consumptive use; Accounting based on critical low flow month (Sept)
 - Habitat projects and instream flow augmentation sufficient for basin-wide management.
- “One Molecule”
 - Drop for drop mitigation (Dungeness)
- Applicability/uncertainty for use of Out-of-Kind Mitigation

Consumptive Water Use Calculator

Consumptive Water Use Calculator

Percentage of Water Consumed by Rule

Water Use	% Consumed
In-house Use with a On-site Septic System	30%
In-house Use Hooked up to a Sanitary Septic System	20%
Outdoor Use (Irrigation)	90%

How Much Water Do I need?

In-House Use	Number of Connections	Amount of water per Connection (gallons per day) *
In-house Use with a On-site Septic System	1	350
In-house Use Hooked up to a Sanitary Septic System	0	350

Outdoor Use	Number of Square Feet	Number of Acres	Amount of water per acre (ac-ft)**
Irrigation	500	0.011	1.89

* This value is a default value based on Dept of Health minimum service requirements.

** This value is based on an irrigation requirement for pasture/turf in the Cle Elum area and an irrigation efficiency of 80% consistent with WAC 173-539A.

TOTAL CONSUMED

Consumptive Water Use (ac-ft)
0.118
0.000

Consumptive Water Use (ac-ft)

0.019

Total Consumptive Water Use (ac-ft)

0.137

The total consumptive water use is based on the assumptions in WAC 173-539A

TOTAL USE

Water Use (ac-ft)
0.392
0.000

Water Use (ac-ft)

0.022

Total Water Use (ac-ft)

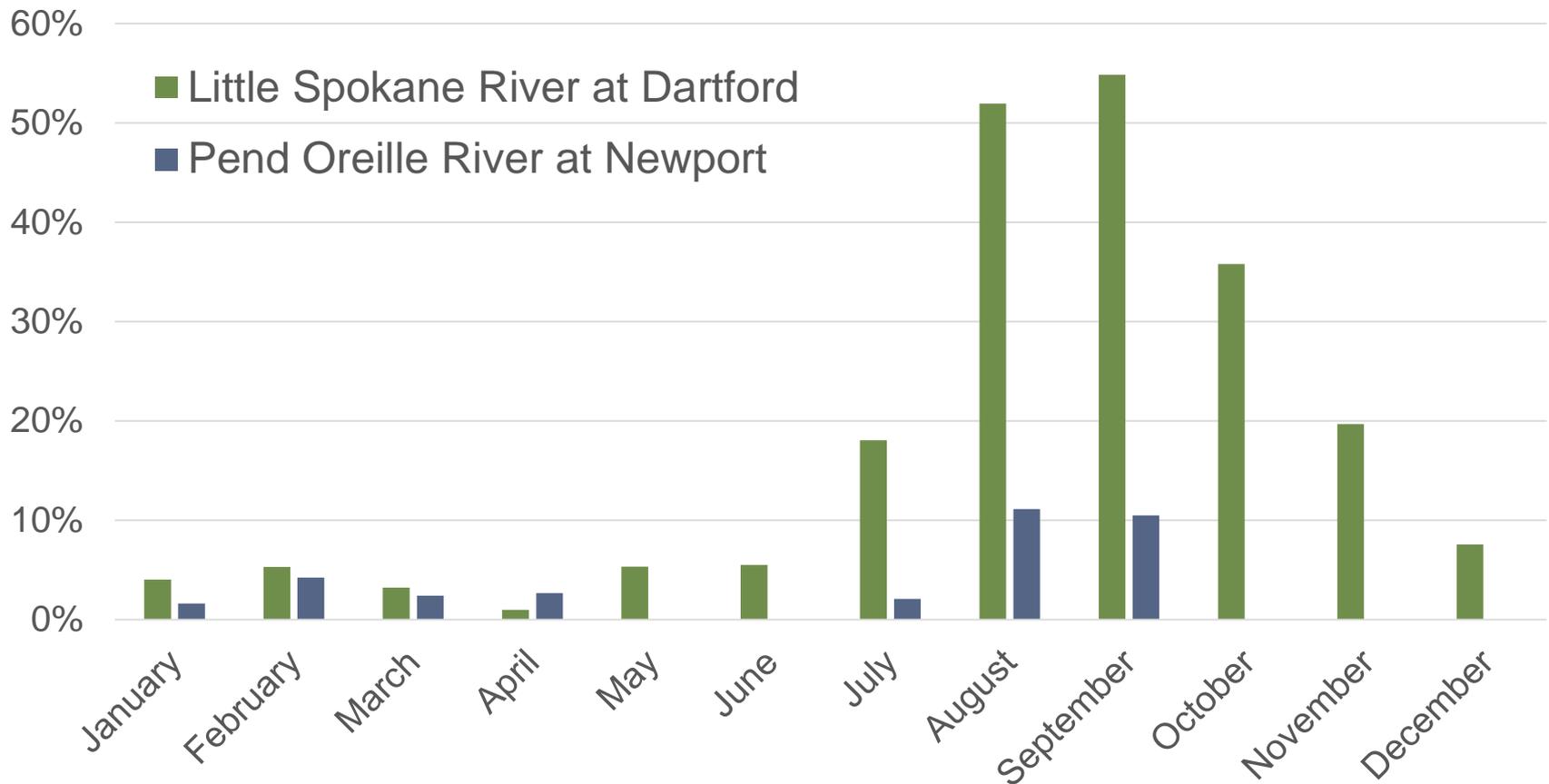
0.414

Total water use is the quantity of water required for the project.

Temporal Considerations

- Amount and nature of non-irrigation season bank seeding
 - Water storage projects (surface and subsurface)
 - Interbasin transfers (Pend Oreille River)
- Lag effects associated with groundwater/surface water interaction
 - Groundwater withdrawals and return flows
 - Effected by depth of wells; distance from surface water, local geology

Frequency Below Base/Curtailment Flows

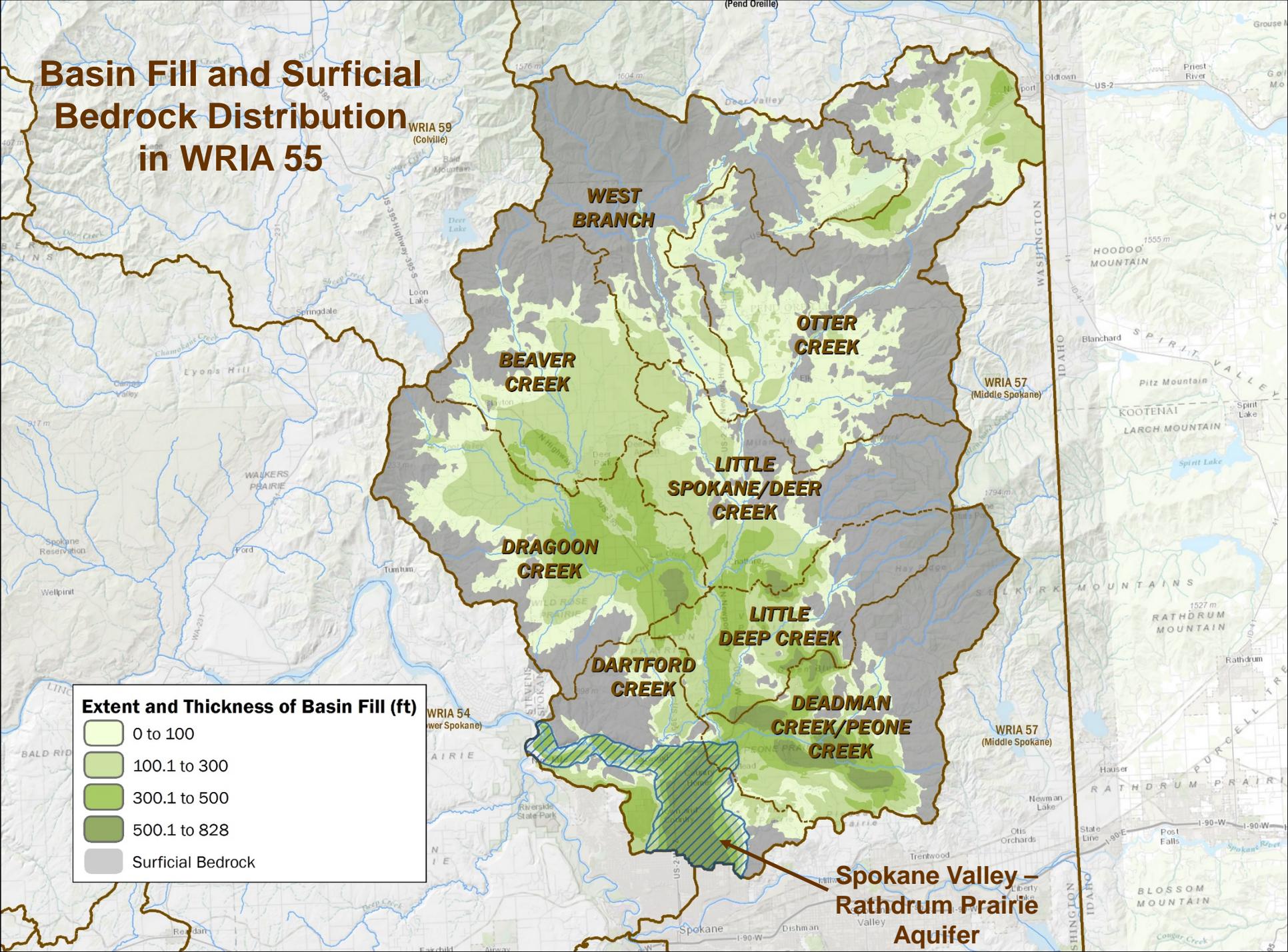


Note: Percentage of Days in which a 7 Day Moving Average of Mean Daily Flow did not Meet Base Flow/Curtailment Flow, 1993 - 2013

Water Bank Seeding

- In-Kind (water for water)
 - Acquisition of water rights
 - Interbasin transfers (Pend Oreille)
 - Storage (reservoirs, SAR, ASR)
 - Conservation
- Out-of-Kind (habitat focused)
 - Restoration of instream and riparian habitat

Basin Fill and Surficial Bedrock Distribution in WRIA 55



WEST BRANCH

BEAVER CREEK

OTTER CREEK

LITTLE SPOKANE/DEER CREEK

DRAGOON CREEK

LITTLE DEEP CREEK

DARTFORD CREEK

DEADMAN CREEK/PEONE CREEK

Extent and Thickness of Basin Fill (ft)

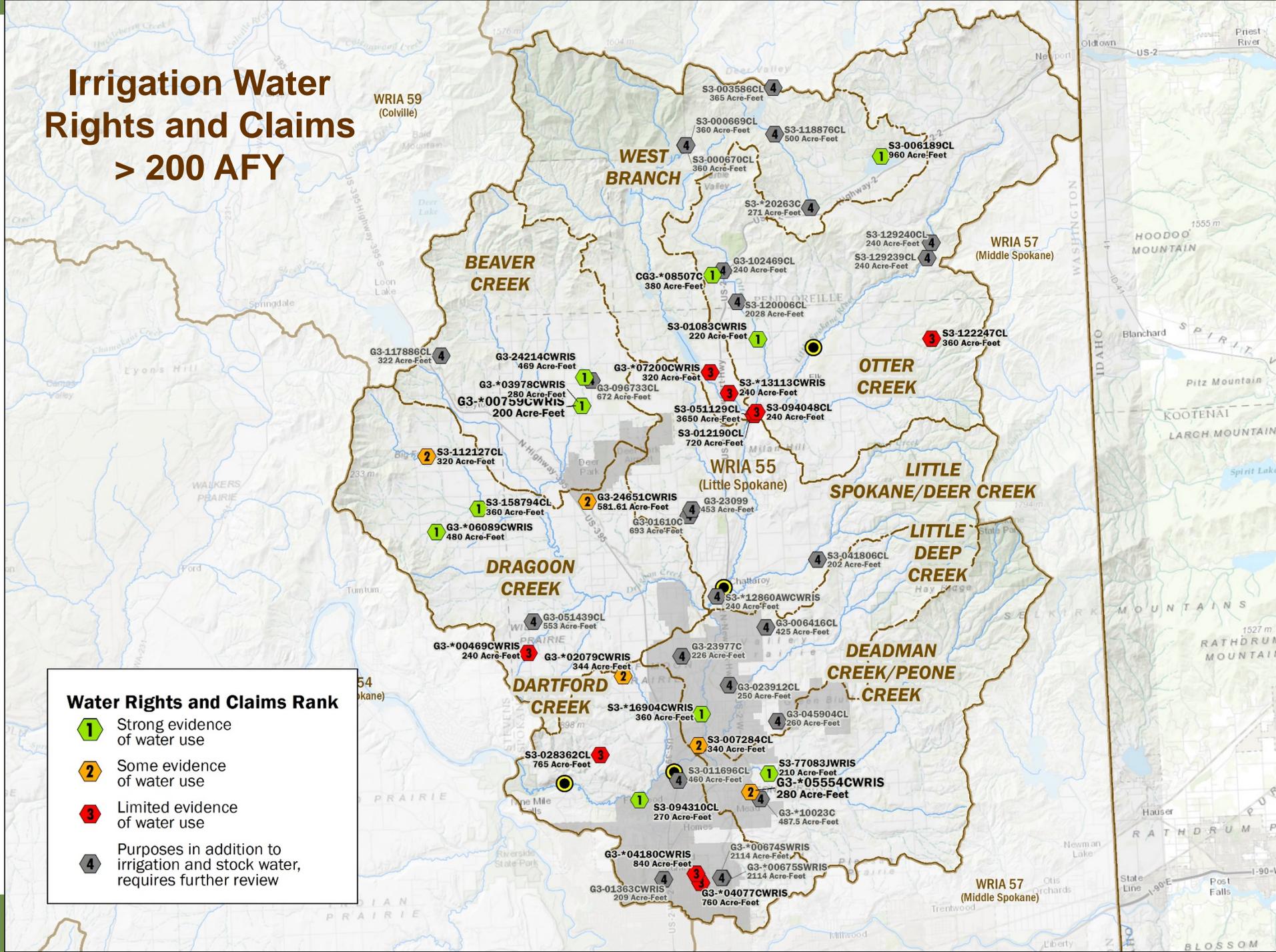
- 0 to 100
- 100.1 to 300
- 300.1 to 500
- 500.1 to 828
- Surficial Bedrock

Spokane Valley - Rathdrum Prairie Aquifer

Irrigation Water Rights and Claims > 200 AFY

Water Rights and Claims Rank

- 1** Strong evidence of water use
- 2** Some evidence of water use
- 3** Limited evidence of water use
- 4** Purposes in addition to irrigation and stock water, requires further review



Summary of Pre-Rule Irrigation Water Rights

Rank	Document Type	Acre-Feet/Year	Acres Irrigated
1	Adjudicated Certificate	210	70
	Certificate	2,389	745
	Claim	1,590	170
<i>Subtotal (Rank 1)</i>		<i>4,189</i>	<i>985</i>
2	Certificate	1,206	496
	Claim	660	165
<i>Subtotal (Rank 2)</i>		<i>1,866</i>	<i>661</i>
3	Certificate	2,400	690
	Claim	2,325	585
<i>Subtotal (Rank 3)</i>		<i>4,725</i>	<i>1,275</i>
4	Certificate	6,808	1,964
	Claim	7,477	1,206
<i>Subtotal (Rank 4)</i>		<i>14,285</i>	<i>3,170</i>
Total of Ranks 1 and 2		6,055	1,646
Total of Ranks 1, 2, and 3		10,780	2,921
Total of Ranks, 1, 2, 3 and 4		25,065	6,091

Pre-Rule Irrigation Water Rights vs. Demand

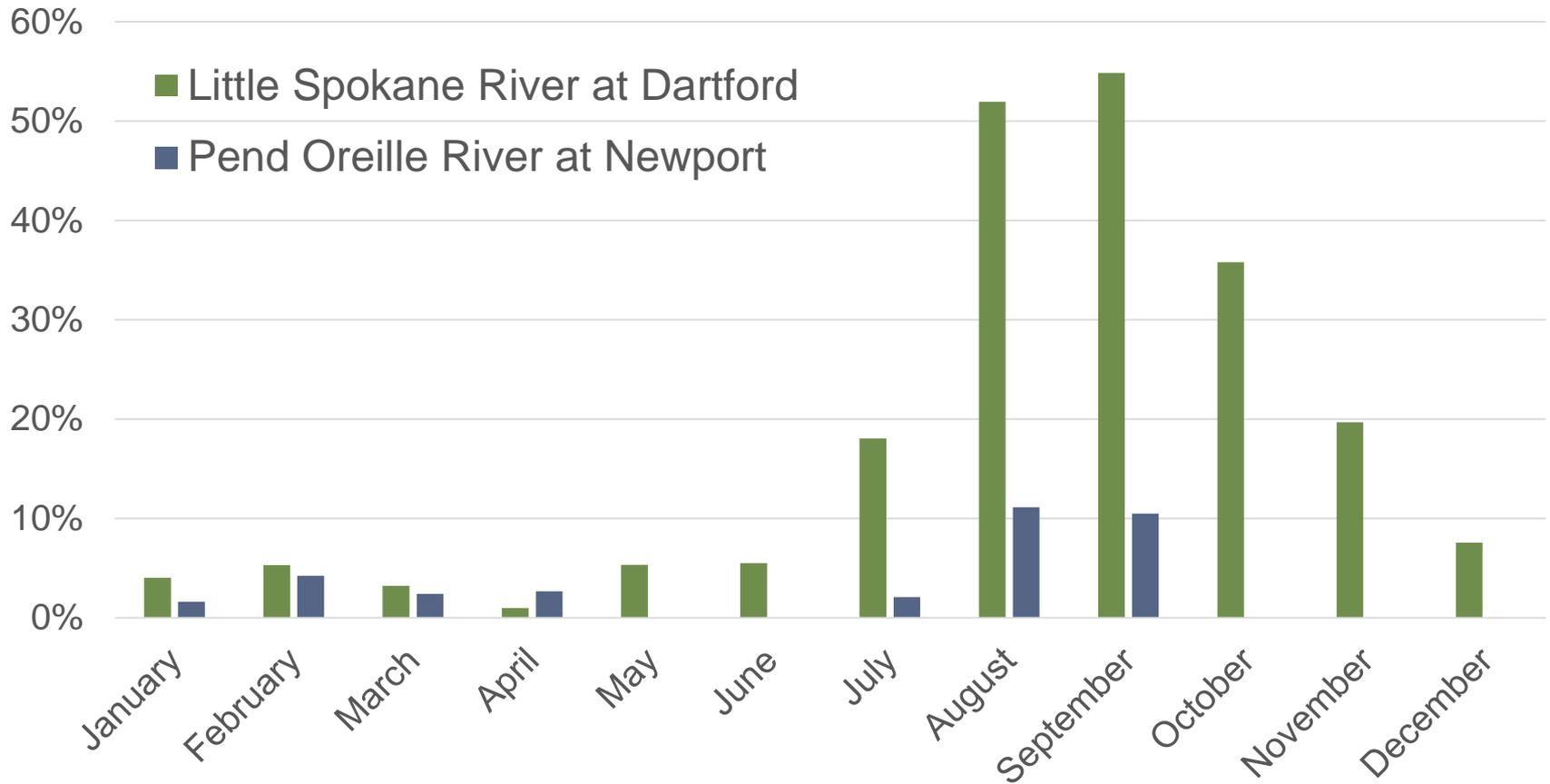
Subbasin	Volume (Acre-Feet/Year)						
	Rank 1	Rank 2	Rank 3	Rank 4	Total of Rank 1 and 2	Total of Ranks 1 through 4	Total New Demand (from Table 8)
Beaver Creek	270	344	2,365	4,897	614	7,876	510
Dartford Creek	210	280	0	488	490	978	471
Deadman Creek/Peone Creek	360	340	0	1,161	700	1,861	370
Dragoon Creek	0	0	0	1,588	0	1,588	396
Little Deep Creek	840	902	240	553	1,742	2,535	601
Little Spokane/Deer Creek	949	0	0	994	949	1,943	427
Otter Creek	960	0	560	1,856	960	3,376	412
West Branch	600	0	4,970	2,748	600	8,318	462
Total	4,189	1,866	8,135	14,285	6,055	28,474	3649

Note: Total New Demand is taken from Table 8, and excludes possible total demand from pending water right applications

Surface Water Storage

- Buck and Beaver Creek dam studies
 - \$5,400/af and \$8,600/af
 - 4,750 af and 1,930 af of storage
- Natural lake storage limited by development – Eloika Lake considered best
- Wetland restoration studies
- Revising existing dams not considered feasible (lack of sufficient storage)

Frequency Below Base/Curtailment Flow



Note: Percentage of Days in which a 7 Day Moving Average of Mean Daily Flow did not Meet Base Flow/Curtailment Flow, 1993 - 2013

Preliminary Pend Oreille Evaluation

- Curtailment flows are 7,700 cfs
 - WDFW recommendation, Ecology provision
- 200 feet of elevation gain, 3 miles of conveyance
- Assumptions:
 - 1,500 homes, 175 gpd consumptive, 0.4 cfs year round
 - \$5M, \$100K O&M, \$3,350/home, \$70 annually
- Rigorous cost/benefit analysis necessary

Next Steps -Key PAG Decisions

- Banking with consumptive or total use
- One-bucket or multi-bucket management
- Approach to temporal challenges matching supply and demand
- Inclusion and risk management of out-of-kind mitigation
- Priority of demand sectors
- Geographic priority
- Early action items to pursue for next phase

WRIA 55 PAG Workplan

Meeting 1 (October 15, 2014):

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Open Discussion

