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Western Environmental Law Center

February 29, 2016

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Submitted via email: Bari.Schreiner@ecy.wa.gov

Re: Petition to Amend the Instream Flow Rule for the Spokane River & Spokane Valley Rathdrum Prairie (SVRP) Aquifer, WAC 173-557.

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Dear Ms. Schreiner,

This Petition to Amend the Instream Flow Rule for the Spokane River is being submitted on behalf of the Center for Environmental Law & Policy (CELP), American Whitewater, and Sierra Club (collectively "Petitioners"). Specifically, Petitioners ask Ecology to amend the minimum instream flows established in WAC 173-557-050 because the summer low flows of 850 cfs below Monroe Street Dam and 500 cfs at Greenacres from June 16-September 30 do not protect wildlife, fish, scenic, aesthetic, recreation, water quality and other environmental values, nor does the rule comply with other laws protecting the waters of the state.[1]

The Washington State Legislature has recognized the importance of establishing minimum water flows to protect "fish, game, birds or other wildlife resources, or recreational or aesthetic values" when it is in the public interest to do so.[2] Petitioners agree with Ecology that it is in the public interest to establish minimum instream flows for the Spokane River as a means to protect "Washington state interests in the water resources of the Spokane River."[3]

However, the summer flows that Ecology adopted in WAC 173-557-050 are not supported by science and are far too low to protect the beautiful Spokane River for present and future generations. Specifically, the summer low flows: (1) do not protect recreation and aesthetics; (2) do not protect the Spokane River fisheries; (3) ignore future impacts of inchoate water rights in Washington and Idaho; (4) fail to account for how climate change will affect instream flows; (5) impose unreasonable costs on the recreational boating industry; and (6) violate Ecology's fiduciary responsibilities as manager of our state's water resources under the Public Trust Doctrine. Petitioners respectfully request that Ecology grant the petition and commence a rulemaking process to amend the Spokane River Instream Flow Rule to bring the rule into compliance with the law and current science by establishing higher summer flows that protect all instream water values.

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[1] Petitioners are asking Ecology to amend the low instream flows set for June 16-September 30 (850 cfs and 500 cfs), not the October 1-March 31 flows (1700 cfs) or the April 1-June 15 flows (6500 cfs).
[2] RCW 90.22.010.
[3] WAC 173-557-010(2)(d).

I. Petitioners

The Center for Environmental Law & Policy was founded by University of Washington Law School Professor Ralph W. Johnson in 1993 to serve as a voice for public interest water resource management and preservation in Washington State. Professor Johnson recognized that water belongs to all of us, and that the Public Trust Doctrine should be used to protect this precious resource for humans, wildlife, and life itself. His scholarship on the Public Trust Doctrine has since provided the foundation for innumerable legal actions to protect each citizen's right to clean water flowing in our rivers and streams. True to Professor Johnson's vision, CELP has improved water laws in Washington State and protected rivers and streams throughout Western Washington and the Columbia River.

CELP's mission is to protect and promote stewardship of the Washington's freshwater resources – the rivers and aquifers – through public education, public agency advocacy, policy reform, and public interest litigation. The core of CELP's work is based on the concept of the public trust doctrine – our waterways are held in trust by the state to ensure public access and use for navigation, environmental protection, recreation and aesthetics. CELP has been involved with the Spokane instream flow process since 1999, serving on the WRIA 55/57 Watershed Planning Unit ("WPU") until 2002, when the WPU elected to defer instream flow making until the WRIA 54 WPU was prepared to go forward. CELP representatives then served on the WRIA 55/57/54 Instream Flow Subcommittee for several years. CELP has also met with ERO staff on several occasions, formally and informally, to discuss Spokane flow matters. On November 7, 2014, CELP submitted comments on Ecology's draft Instream Flow Rule for the Spokane River and those comments, and all attachments, are incorporated herein by reference.

American Whitewater is a national non-profit 501(c)(3) organization that works to protect rivers throughout the United States. Founded in 1954, American Whitewater has approximately 5,800 individual members and 100 local-based affiliate clubs, representing thousands of whitewater paddlers across the nation. American Whitewater's mission is to conserve and restore America's whitewater resources and to enhance opportunities to enjoy rivers safely. As a conservation-oriented paddling organization, American Whitewater has a significant, long-standing interest in the Spokane River. A

significant percentage of American Whitewater members reside in the greater Spokane area, a short distance from the Spokane River and the remarkable recreation values it has to offer. During the autumn of 2014, during the public comment period, American Whitewater designed and administered a boater preference survey to identify flows that protect recreation values for the Monroe to Nine Mile reach of the Spokane River. On November 7, 2014, American Whitewater submitted comments on Ecology's draft Instream Flow Rule for the Spokane River, which are incorporated herein by reference.

Sierra Club is a national non-profit 501(c)(3)/(c)(4) organization with a mission to protect, explore and enjoy the planet. The local Sierra Club group, the Upper Columbia River Group, has been a longstanding advocate to preserving the natural and public resource values of the Spokane River, and has worked on Spokane watershed issues as varied as water quality, dam relicensing, Superfund and toxics cleanup, upper watershed (forest) protection, and watershed planning and water resources. Sierra Club provided comments on the draft WRIA 55/57 Watershed Plan and instream flow recommendations, and approximately 1,800 Sierra Club members commented on the draft instream flow rule which is the subject of this petition.

II. Name of Agency Responsible for Administering the Rule

The Washington Department of Ecology ("Ecology") is the agency authorized to promulgate, and therefore amend, the Instream Flow Rule for the Spokane River. There are numerous sources of statutory and regulatory authority directing and authorizing Ecology to amend the provisions of WAC 173-557. *See, e.g.*, RCW 90.54; RCW 90.22; RCW 90.82; RCW 90.03; RCW 90.44; RCW 90.42; RCW 18.104; RCW 43.27A; RCW 43.21A; and the Public Trust Doctrine.

III. Factual Background

A. The Hydrology of the Spokane River Basin

Petitioners ask Ecology to amend the instream flow rule for the Spokane River because the rule does not establish minimum instream flows that take into account the existing and future conditions of the Spokane River basin. The Spokane River is a treasured natural wonder uniquely

located in the backyard of Eastern Washington's urban center, the city of Spokane. As recognized by Ecology, "the Spokane River is central to both the area's economy and its sense of community."[4]

> The Spokane River is located in the northern Idaho and eastern Washington with a drainage area of 17,200 km2 []. It rises from Lake Coeur d'Alene, Idaho and flow west through the Spokane Valley until reaching Spokane, WA. The elevation of the basin increases from west to east and the upper forested catchments receive higher precipitation. The general climate in this area is warm and dry in summer (mean temperature 16°C, total precipitation in winter is 130mm), while cold and moist in winter (mean temperature -3.4°C, total precipitation during winter is 328mm). The average annual total precipitation is 878 mm and average annual mean temperature is 6.2°C. More than 2/3 of the precipitation (319 mm) is received in the winter as snow. The average annual evaporation is 420 mm that is approximately 49% of the average annual precipitation.[5]

The Spokane River is remarkable not only for the water that you see flowing through the river channel, but also for the water that lies below. "The sole source of water for most people in Spokane County, Washington, and Kootenai County, Idaho, is a large deposit of gravel, cobbles, and boulders containing high-quality water called the Spokane Valley-Rathdrum Prairie (SVRP) aquifer, also commonly known as the Rathdrum-Spokane aquifer."[6] The aquifer, which was discovered in 1895, serves as a source of surface water to the Spokane River:

> The aquifer, known as the Spokane Valley Rathdrum Prairie aquifer (SVRP), is extending from Lake Pend Oreille, Idaho to

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[4] Ecology, Concise Explanatory Statement, Chapter 173-557 WAC, Water Resources Management Program for the Spokane River & Spokane Valley Rathdrum Prairie Aquifer & Amendment to WAC 173-555-010, Ecology Publication No. 15-11-001 (January 2015) ("Ecology Response to Comments") at 6.

[5] Xin Jin and Venkataramana Sridhar, Impacts of Climate Change on Hydrology and Water Resources in the Boise and Spokane River Basins (Boise State Univ. ScholarWorks, 4-12-12) (**Exhibit 1**) at 199.

[6] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 2.

> Spokane, Washington. It is the "sole water aquifer" for its 500,000 population and the aquifer is heavily extracted due to rapid growth in the region and its area is 830 km2 covering the two states. There are a number of lakes surrounding this aquifer that serves as the sources for recharge in addition to precipitation. A series of flooding occurred during the last Glacial Age and made the soil in SVRP primarily unconsolidated coarse-grained sands, gravels, cobbles and boulders with relatively high hydraulic conductivity (Barber et al, 2009). As a result, there is a strong surface water and groundwater interaction between this aquifer and the Spokane River. Reach gains and losses are interlacing from Post Falls, Idaho to Spokane, WA.[7]

Several scientific studies have confirmed that there is a strong hydrologic connection between the Spokane River and the groundwater contained within the Spokane Valley-Rathdrum Prairie Aquifer.[8] "Water from adjacent lakes, mountain streams, the Spokane River, and precipitation flows through these flood deposits supplying the SVRP aquifer."[9] The aquifer is also recharged by water from irrigation, inflow from upland bedrock watersheds, and effluent from septic systems.[10] In certain parts of the Spokane River, water seeps out from the bottom of the river and into the aquifer and these "losing reaches of the Spokane River are the largest recharge source to the SVRP aquifer,"[11] totaling about 43% of the aquifer's inflow.[12] "The amount of water that recharges the SVRP aquifer is lowest in the summer and highest in the spring when the snow melts."[13] All of the water from the aquifer eventually discharges into the Spokane and Little

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[7] Xin Jin and Venkataramana Sridhar, Impacts of Climate Change on Hydrology and Water Resources in the Boise and Spokane River Basins (Boise State Univ. ScholarWorks, 4-12-12) (**Exhibit 1**) at 199.
[8] Hsieh, et al., Ground-Water Flow Model for the Spokane Valley-Rathdrum Prairie Aquifer, Spokane County, Washington, and Bonner and Kootenai Counties, Idaho, USGS Scientific Investigations Report 2007-5044 (2007), *at* http://pubs.usgs.gov/sir/2007/5044/ (last visited February 22, 2016).
[9] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 2.
[10] *Id*. at 11.
[11] *Id.* at 11, 12.
[12] *Id.* at 14.
[13] *Id.* at 11.

Spokane Rivers, which flow into Lake Spokane.[14]

And the flow between the Spokane River and the aquifer goes both ways. The United States Geological Survey ("USGS") conducted an extensive study documenting the fact that the Spokane River is recharged by the Spokane Valley Rathdrum Prairie Aquifer.[15] In fact, parts of the Spokane River "get a significant amount of water from the SVRP aquifer,"[16] almost 60% of the aquifer's outflow.[17] Ultimately, all aquifer water, unless intercepted by water withdrawal wells, ends up as surface flow in the Spokane River. Ecology has recognized that "[u]nderstanding the hydraulic relationship between the Spokane Valley Rathdrum Prairie Aquifer (SVRPA) and the Spokane River is one of the key elements in water resource management in the region."[18]

Recognizing the aquifer's high susceptibility to pollution, the U.S. Environmental Protection Agency (EPA) designated the SVRP aquifer as a "sole source aquifer" in 1978, giving the aquifer additional legal protections.[19] The aquifer's vulnerability to contamination is due to the fact that "[n]o continuous clay or silt layers exist across the SVRP aquifer to keep contaminants from the surface moving down into the SVRP aquifer."[20]

The science is revealing that the Spokane River is experiencing a "low flow trend," with the possible causes being identified as climate change, water use pattern changes, municipal pumping increases, and reservoir

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[14] *Id.*
[15] *Id.*; *see also* Ecology, Spokane River Temperature Profile, Barker Road to Plantes Ferry Park, September 2005, Ecology Publication No. 06-11-005 (February 2006) at iii ("While the results of this profile confirm the Spokane River is recharged by the Spokane Valley Rathdrum Prairie Aquifer beginning near the location of Sullivan Road, data suggests the most significant volume of discharge of aquifer water to the river occurs near Mirabeau Park.").
[16] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 12.
[17] *Id.* at 14.
[18] Ecology, Spokane River Temperature Profile, Barker Road to Plantes Ferry Park, September 2005, Ecology Publication No. 06-11-005 (February 2006) at 1.
[19] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 2.
[20] *Id.* at 11.

operations (Post Falls Dam).[21] Indeed, Spokane River flows during summer months have been dropping over the last 125 years," with average seven-day low flows dropping from 1800 cfs to 1141 cfs from 1890-2015.[22] Ecology has found that "[s]ince the mid-1980s, summer low flows in the river drop below the minimum flow established in the new rule about every other year, on average."[23]

Flows in the Spokane River have been continuously monitored since 1891 at the "Spokane gage," which is just downstream of the Monroe Street dam, and which is the control point for the river reach that is the subject of this petition. Very recent, seven-day low flows in the summer period have averaged 1141 cfs, with a range of between 679 and 1268 cfs for the years 2008-2015.[24]

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[21] Tung Nguyen & Heather Baxter, The Spokane River: Low Flow Trends and Modeling Under A Changing Environment (June 10, 2014) (**Exhibit 2**) at 5. The "low flow trend" is not unique to the Spokane River and was exhibited throughout Washington rivers during the summer of 2015. The USGS is "currently taking measurements from hundreds of streams and rivers across the western United States [including Washington] as part of a low flow study." USGS, Low 2015 Snowpack and River Flows Studied to Provide Insight Into Future Droughts, *available at* http://www.usgs.gov/newsroom/article.asp?ID=4318#.VhVCS6ZeHab (last visited October 8, 2015). The USGS is undertaking this study in part because "'This year's warmer, drier weather provides a preview of how future droughts may impact water resources in the study area . . . .'" *Id.*

[22] Expert Report of Professor Scholz (**Exhibit 3**) (Scholz Report) at 5.

[23] Letter from Gene Drury (Ecology Water Resources Program) to Mr. Ty Wick re: Ground Water Application No.'s G3-28396, G3-29100 and G3-30313 (January 28, 2016) (**Exhibit 4**)

[24] The 7-day low flow statistic is "based on an annual series of the smallest values of mean discharge computed over any 7-consecutive days during the annual period." Risley, J., et al, Calculating Flow-Duration and Low-Flow Frequency Statistics at Stream-Flow Gaging Stations in Estimating Flow-Duration and Low-Flow Frequency Statistics for Unregulated Streams in Oregon, U.S. Geological Survey, SIR 2008-5126, Rev. 1.1 *at* http://pubs.usgs.gov/sir/2008/5126/section3.html (last visited February 22, 2016).

Figure 1. Seven-day low flows, Spokane River at Spokane gage, 1890-2007.

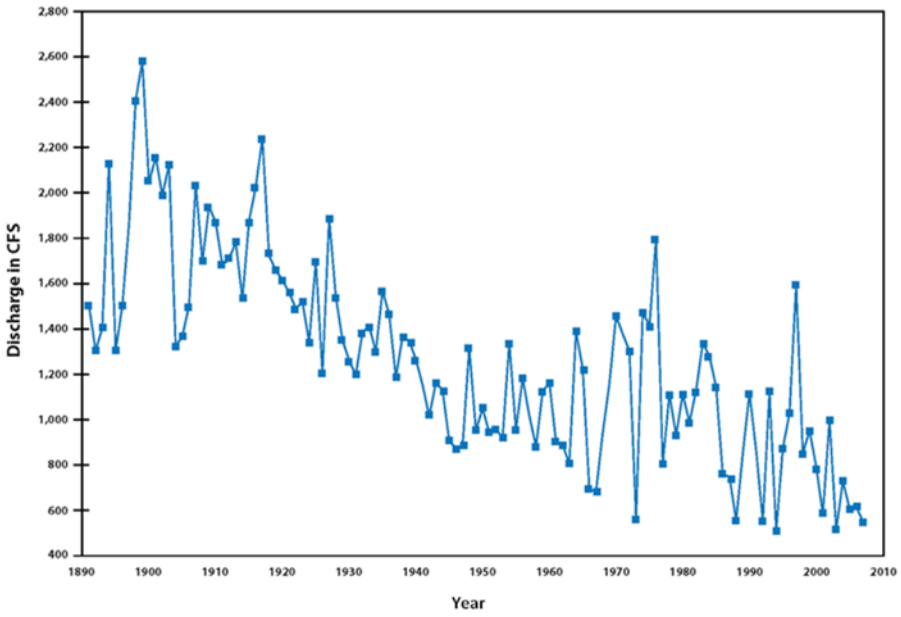

Figure 2. Discharge (7-day low flow) between 1 June and 31 October of the Spokane River at Monroe Street (1890 – 2007) USGS gage # 12422500 has decreased from 1890 to present from an average of about 1,800 (1,300 --- 2,600) CFS before 1920 to about 800 (600 – 1000) CFS from 1998 – 2007.

In the early 1990s, Ecology finally acknowledged that Spokane River flows were declining in the summer and the agency stopped issuing new groundwater rights from the aquifer.[25] More recently, Ecology has communicated with individuals who have submitted applications to withdraw groundwater from the Spokane Valley-Rathdrum Prairie Aquifer and stated that "Ecology has determined that water is not available for the issuance of new consumptive water rights to withdraw water from the SVRPA unless the new uses can be interrupted during low flow periods or the new uses are offset by an Ecology-approved mitigation plan."[26] Water use data shows that "[g]enerally people use more water than is returned to the SVRP aquifer, so there is a net loss."[27] Instream flows in the Spokane

[25] Ecology Response to Comments at 2.
[26] Letter from Gene Drury (Ecology Water Resources Program) to Mr. Ty Wick re: Ground Water Application No.'s G3-28396, G3-29100 and G3-30313 (January 28, 2016) (**Exhibit 4**)
[27] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 11.

River are highly dependent upon the amount of water in the aquifer. Studies have shown that "[p]umping from the SVRP aquifer can lower the amount of groundwater that seeps into the Spokane River in the gaining reaches, which reduces river flow. The closer a well is located to the gaining reach, or the greater the pumping rate, the larger the reduction will be."[28]

Low flows in the Spokane River affect both water quality and river ecology.[29] Specifically, "[e]xtremely low flows in developed areas lead to algal blooms and fish kills" and "[l]ow flows and nutrient loads are regulated to maintain stream health."[30] Therefore, there are many reasons to protect higher levels of instream flows in the Spokane River.

B. Development of the Spokane River Instream Flow Rule

The legislature created Watershed Planning Units (WPUs) "to develop a more thorough and cooperative method of determining what the current water resource situation is in each water resource inventory area of the state and to provide local citizens with the maximum possible input concerning their goals and objectives for water resource management and development."[31] Finding that "the local development of watershed plans for managing water resources . . . serves vital interests by placing it in the hands of people," state law provides WPUs the option to consider and develop instream flows for adoption into rule.[32] To do so, the planning unit must achieve unanimity (as defined in statute) in its recommendations for instream flows.[33]

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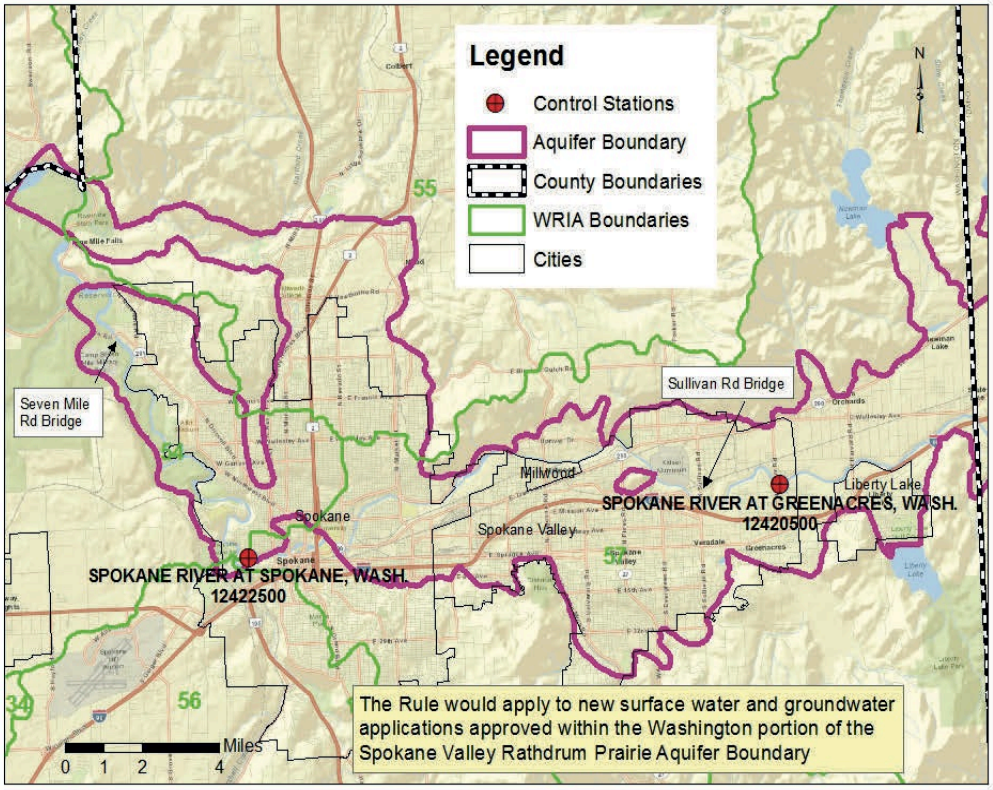
[28] *Id*. at 12.
[29] Baxter, et al., Impacts of Future Changes on Low Flow in a Highly Connected River-Aquifer System: A Case Study of the Spokane River & the Spokane Valley-Rathdrum Prairie Aquifer (March 25, 2015) (**Exhibit 5**) at 4.
[30] *Id.*
[31] RCW 90.82.005.
[32] RCW 90.82.080.
[33] RCW 90.82.080(1)(a)(ii) ("The department must attempt to achieve consensus and approval among the members of the planning unit regarding the minimum flows to be adopted by the department. Approval is achieved if all government members and tribes that have been invited and accepted on the planning unit present for a recorded vote unanimously vote to support the proposed minimum instream flows, and all nongovernmental members of the planning unit present for the recorded vote, by a majority, vote to support the proposed minimum instream flows.").

Figure 2. Map of the Washington Side of the Spokane River-Rathdrum Prairie Aquifer.



The Little Spokane-Middle Spokane (WRIA 55-57) Watershed Planning Unit was convened in 1999 and elected to attempt to develop and recommend instream flows for the Spokane River. The WRIA 55-57 WPU considered instream flow recommendations for the Spokane River, and convened an Instream Flow Work Group jointly with the Lower Spokane (WRIA 54) Watershed Planning Unit. In the Watershed Management Plan, the Planning Unit recognized the extraordinary recreational values of the Spokane River:

> The Spokane River provides excellent whitewater boating opportunities with both river runs and park-and-play areas. Access to most play areas or river reaches is relatively easy and, in most cases, just minutes from downtown Spokane. In

addition, paddlers can enjoy the whitewater resources for the vast majority of the year.[34]

The Planning Unit found that "[a]dditional whitewater opportunities would be increase[d] by providing Post Falls flow data online, by improving access at some sites, by adjusting releases within the 2,000 to 5,000 cfs range to meet the preferred flows, or by providing additional recreational releases during summer months."[35] The committee and the WPUs were unable to reach consensus as defined in and required by statute, even though there appeared to be agreement that higher flows in the summertime would increase recreational boating opportunities.

Figure 3. WRIA 54 & 57 WPU Instream Flow Proposals.[36]

Table 2b. Minimum Instream Flow Proposals at Spokane Gage from the Work Group.

Date	State of Washington Caucus (Ecology and WDFW)	Spokane County	City of Spokane Environmental Programs	Environmental and Recreation Communities	Vera Water District
Oct. 1 – Dec. 31	1100 cfs	-	780 cfs	-	-
Jan. 1 – March 31	1100 cfs	-	1100 cfs	-	-
April 1- May 15	3000 cfs (pending revision)	-	2700 cfs	-	-
May 16 - June 15	3000 cfs (pending revision)	-	2300 cfs	-	-
June 16 – Sept. 30	850 cfs	850 cfs	565 cfs	1350 cfs	600 cfs

In the face of this non-consensus, the decision on instream flows defaulted to the Department of Ecology and Department of Fish & Wildlife.[37] Pursuant

[34] Little Spokane River & Middle Spokane River Planning Unit, Watershed Management Plan (adopted January 31, 2006), *at* http://www.ecy.wa.gov/programs/wr/rules/images/pdf/spokane/WRIA5557-wsplandraft2005.pdf (last visited February 22, 2016) at 40.
[35] *Id.*
[36] Recommendations for summer season flows at the Spokane gage ranged from 1,350 cfs to 565 cfs. See WRIA 54-57 Instream Flow Work Group, Instream Flow Recommendations Memo (June 9, 2008) at 6, Table 2b, *at* http://www.ecy.wa.gov/programs/wr/rules/images/pdf/spokane/WRIA545557IFWrkGrpRecom-060908.pdf (last visited February 22, 2016).
[37] RCW 90.82.080(5).

to this statutory directive, Ecology consulted with WDFW and eventually issued joint recommendations for instream flows.[38] As discussed at length in Section IV(B) (Fisheries), this consultation process involved significant compromise of WDFW's initial recommendations and little to no consideration of aesthetic and recreation flows.

While the history of the inability of the WRIA 57-55 and 54 WPUs to achieve consensus is well-established, the Spokane River Instream Flow Rule states that the WRIA 57 and 54 "watershed plan recommendations [are] a consideration in determining the public interest in water resource management for the Spokane River" and that "[t]he [watershed] plan recommendations were approved by the Spokane area watershed planning units."[39] However, it is important to clarify that (with the exception of the Greenacres (Barker Road) flow, which is not a subject of this petition to amend the rule), the WRIA 54 and 57 WPUs failed to make recommendations regarding instream flows for the Spokane River. The Department of Ecology should acknowledge that the instream flows ultimately adopted in the rule were not the product of WPU recommendations, but rather were negotiated and developed by state agencies in accordance with RCW 90.82.080(5).

C. The Spokane River Is An Aesthetically Pleasing Recreation Resource.

The Spokane River has long been considered an aesthetic and recreation asset to the local community and visitors alike. As the Olmstead brothers reported in 1913:

> "Nothing is so firmly impressed on the mind of the visitor to Spokane, as regards its appearance, as the great gorge into which the river falls near the center of the city. It is a tremendous feature of the landscape and one which is rarer in a large city than river, lake, bay or mountain. Any city should

[38] Department of Ecology & Department of Fish & Wildlife, Memo re Lower Spokane River Minimum Instream Flow Recommendations (January 14, 2008) (**Exhibit 6**). Note that the state recommendations regarding spring flows at the Spokane gage was subsequently revised. See WAC 173-557-050 Table 2.
[39] WAC 173-557-010(3).

> prize and preserve its great landscape features, inasmuch as they give it individuality.[40]

There are a number of parks and protected areas along the Spokane River, all of which offer different recreation opportunities, including scenic views of the river.[41] The recreation use of the Spokane River is well documented, with popular activities including swimming, sightseeing, picnicking, hiking, fishing, nature/wildlife viewing, and boating.[42] The Spokane River is "highly valuable to the Spokane community, as demonstrated by land designations, recreation facility development, and numbers of recreation users."[43]

There have also been studies related to the aesthetics of instream flows in the Spokane River. As part of the Federal Energy Regulatory Commission (FERC) relicensing process for the Spokane Falls Hydroelectric Project, two flow-aesthetic studies were conducted to evaluate different flows at Upper Spokane Falls. More recently, Petitioner CELP created a flow-aesthetics photo data base that contains photographs of different levels of instream flow taken from thirty-seven Key Observation Points (KOPs) along the Spokane River.[44] No formal aesthetic flow study has been done using the 37 KOPs, but review by experts shows that "[c]hanges in flow are more noticeable at sites with steeper gradients and boulders," "changes in flow are more noticeable at shallow sites with gravel bars or riffles," and "flows that cover the bottom of the channel are likely to be rated more acceptable than those which expose channel features."[45] The 850 cfs established as the "minimum flow in summer and fall provides little aesthetic diversity, exposes a low flow 'bathtub ring' at scenic locations such as Bowl and Pitcher, and may produce notably lower aesthetic evaluations compared to higher flows."[46]

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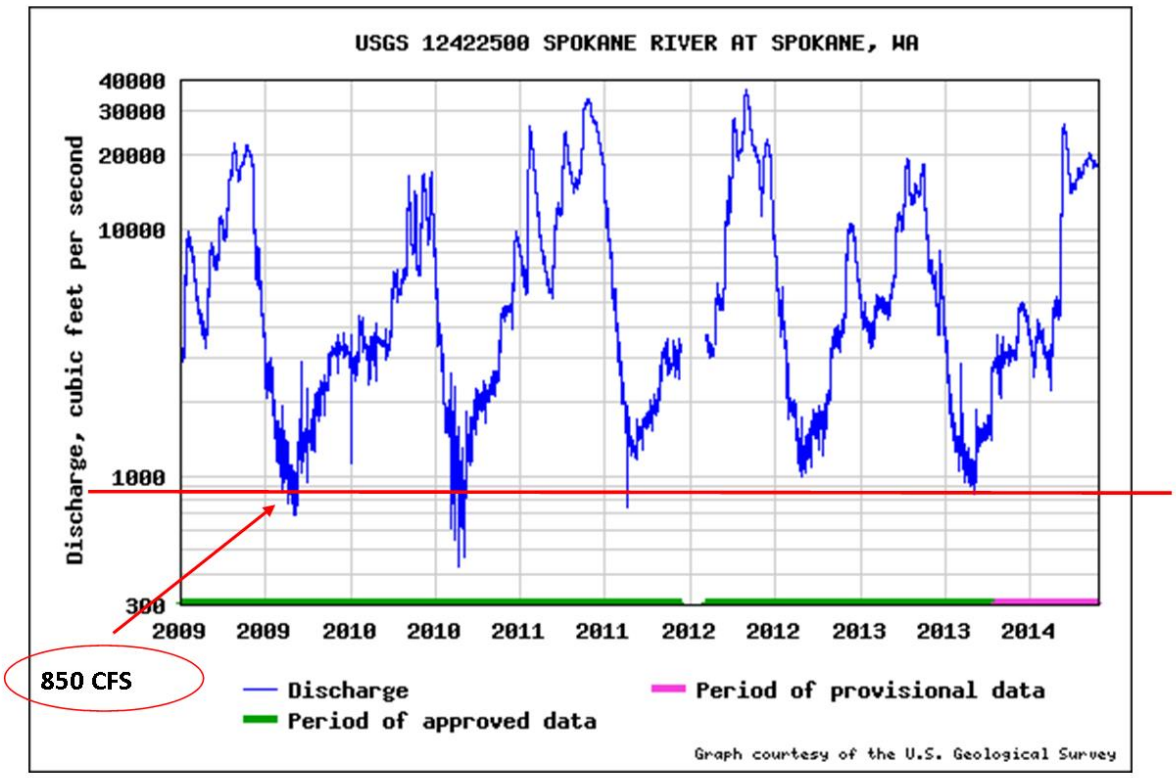
[40] Whittaker & Shelby, Confluence Research & Consulting, Middle Spokane River: Protecting Recreation & Aesthetic Flows (February 22, 2016) ("CRC Report") (**Exhibit 7**) at 24.
[41] *Id.* at 24-25.
[42] *Id.*
[43] *Id*. at 25.
[44] Declaration of John Osborn (**Exhibit 8**).
[45] *Id.* at 26.
[46] *Id.* at 34.

D. The Relationship Between Avista FERC License & Spokane River Flows.

In recent years, Spokane River 7-day low flows in the summer period have averaged 1141 cfs, with a range of between 679 and 1268 cfs for the years 2008-2015. *See* Figure 4.

Figure 4. Seven-day low flows, Spokane River at Spokane gage, 2009-2014.



This range of flow is important because it reflects an *increase* in minimum flow discharge from Post Falls dam in Idaho, as required by Avista Corporation's FERC license and Idaho 401 Certification. Specifically, the Post Falls dam minimum discharge increased from 300 cfs to 600 cfs (or 500 cfs in low flow years).[47] The Spokane River Instream Flow Rule does not protect flows that exceed 850 cfs at the Spokane gage that occur between June 16 and September 30. Thus the increased discharge at Post Falls dam is not protected in Washington during normal and high flow years.

[47] Federal Energy Regulatory License for Post Falls Dam at ¶¶ 34, 41, 57, 92(4), 144, and p. 110 ¶¶ 1(A)(3) & (4).

E. Existing & Future Threats to the Spokane River.

The importance of setting instream flows for the Spokane River that protect all instream values cannot be overstated given the numerous demands being placed on the river now and in the future. In setting instream flows in the rule, Ecology misperceives the realistic threats to maintaining healthy flows in the Spokane River. In describing the function of the regulatory instream flow rule, Ecology states:

> They are not standards to which the state intends to "manage down." They are minimum standards the community can use from which to "manage up." Henceforth, the community has a yardstick with which to measure proposals for water management: proposed new uses of water, conservation actions, etc. Increased flows are not prohibited by this rule.[48]

However, the instream flows set by rule should represent the standard for what constitutes a healthy river. It is unrealistic to assume that flows in excess of what is protected by the rule will remain in the river, given the numerous demands for water that exist in the Spokane River watershed now, and to an even greater extent, in the near future. Moreover, it is nonsensical to assume that an entity other than Ecology has the authority or inclination to "manage up" to a higher standard than what Ecology adopts in the instream flow rule. Only Ecology serves as the trustee for water resources in the state and only Ecology has the statutory directive to protect, and where possible enhance, instream flows.

The fact is that the Spokane River is experiencing a decreasing trend in flow that will only be exacerbated by climate change, population growth, beneficial use of inchoate water rights, issuance of water rights in Idaho, and future water withdrawals. Even though Ecology is currently taking the position that it will not issue consumptive or non-mitigated water rights to applicants seeking to withdraw water from the aquifer and the river, policies can and do change depending on the way the political winds blow. In addition, it is plausible that an applicant that is denied a water right to withdraw water from the Spokane River or the Spokane Valley-Rathdrum Prairie Aquifer could appeal Ecology's decision and seek use of the water

[48] Ecology Response to Comments at 6.

that is available for only a certain percentage of time.[49] New water rights would drive natural flows, which presently do exceed 850 cfs in some years, to the point where 850 cfs is the maximum flow every year. Ecology needs to account for these likely contingencies by setting a summer minimum flow that is higher than what the agency believes is the absolute lowest flow possible to prevent the killing of fish.

Because the aquifer that feeds the Spokane River underlies both Washington and Idaho, the amount of flow that Ecology protects in this rule will likely determine how much Washington is entitled to in the event there is a lawsuit or compact regarding the interstate allocation of water in this watershed. It is imperative that Ecology acknowledge the actual threats currently facing the Spokane River and the Spokane Valley-Rathdrum Prairie Aquifer and amend the rule to adopt higher summer minimum flows that ensure the protection and enhancement of all instream values and that serve as a buffer to ensure that the river is protected not only today, but when these increasing threats come to fruition as well.

IV. Legal Basis to Amend the Spokane River Instream Flow Rule.

A. APA Requirements for Rule Amendment.

"Any person" may petition an agency requesting amendment of "any rule."[50] Within 60 days after submission of a petition, the agency must either deny the petition or initiate rulemaking proceedings under RCW 34.05.320.[51] A petitioner for amendment is encouraged to discuss factors including, but not limited to:

(a) Whether the rule is authorized;
(b) Whether the rule is needed;

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[49] As an example of Ecology's policies on issuance of new water rights in water-short basins, in August 2015, Ecology issued several new water rights in the Nooksack River watershed that, because of low flows in that basin, will likely be interrupted eight years out of ten. *See, e.g.,* Department of Ecology, Report of Examination No. S1-28773 at 3 (minimum flow condition) and 12-13 (Figs. 2 and 3 depicting minimum flows and frequency at which those flows are not met) (6-24-15) (**Exhibit 9**). Spokane River low flow trends are similar to those in the Nooksack River.

[50] RCW 34.05.330.

[51] RCW 34.05.330(1).

(c) Whether the rule conflicts with or duplicates other federal, state, or local laws;
(d) Whether alternatives to the rule exist that will serve the same purpose at less cost;
(e) Whether the rule applies differently to public and private entities;
(f) Whether the rule serves the purposes for which it was adopted;
(g) Whether the costs imposed by the rule are unreasonable;
(h) Whether the rule is clearly and simply stated;
(i) Whether the rule is different than a federal law applicable to the same activity or subject matter without adequate justification; and
(j) Whether the rule was adopted according to all applicable provisions of law.[52]

Petitioners believe that several of these factors justify amendment of the Spokane River Instream Flow Rule, WAC 173-557, specifically that alternatives to the rule exist that will serve the same purpose at less cost, the rule does not serve the purposes for which it was adopted, it imposes unreasonable costs on businesses, and it was not adopted in accordance with all applicable provisions of law.

B. Ecology's Statutory Obligation to Protect & Enhance Instream Flows in the Spokane River for ALL Uses.

The Washington Department of Ecology is the only state agency charged with protecting the waters of the state. In creating the Department of Ecology, the Legislature made the following findings:

> The legislature recognizes and declares it to be the policy of this state, that it is a fundamental and inalienable right of the people of the state of Washington to live in a healthful and pleasant environment and to benefit from the proper development and use of its natural resources. The legislature further recognizes that as the population of our state grows, the need to provide for our increasing industrial, agricultural, residential, social, recreational, economic and other needs will place an increasing responsibility on all segments of our society to plan, coordinate, restore and regulate the utilization of our natural resources in a manner that will protect and conserve our

[52] RCW 34.05.330(4).

clean air, our pure and abundant waters, and the natural beauty of the state.[53]

To fulfill these policies, the Legislature established the Department of Ecology and conferred upon the agency "the authority to manage and develop our . . . water resources in an orderly, efficient, and effective manner and to carry out a coordinated program of pollution control involving these and related land resources."[54] Ecology has several specific responsibilities as manager of the state's water resources, including (1) the supervision of public waters within the state; (2) the determination of streams, springs and other sources of water supply; and (3) the obligation to make "recommendations for legislation as the director deems advisable for the better control and development of the water resources of the state."[55] Ecology has the authority to "undertake studies dealing with all aspects of environmental problems involving land, water, or air . . . ."[56]

In Washington, "[i]t is the policy of the state to promote the use of the public waters in a fashion which provides for obtaining maximum net benefits arising from both diversionary uses of the state's public waters and the retention of waters within streams and lakes in sufficient quantity and quality to protect instream and natural values and rights."[57] The Legislature has made it clear that "all waters within the state belong to the public."[58] For that reason, "[e]xpressions of the public interest will be sought at all stages of water planning and allocation decisions."[59]

Ecology's statutory responsibility to manage waters of the state includes a mandate to protect instream flows. In fact, recognizing the importance of maintaining instream flows, the Legislature adopted the Minimum Water Flows and Levels Act.[60] Under this Act, Ecology is authorized to "establish minimum water flows or levels for streams, lakes or other public waters for the purposes of protecting fish, game, birds or other

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[53] RCW 43.21A.010.
[54] RCW 43.21A.020.
[55] RCW 43.21A.064.
[56] RCW 43.21A.130.
[57] RCW 90.03.005.
[58] RCW 90.03.010.
[59] RCW 90.54.020(10); *see also* RCW 90.22.010 (authorizing Ecology to establish minimum flows "whenever it appears to be in the public interest to establish the same.").
[60] RCW 90.22.

wildlife resources, or recreational or aesthetic values of said public waters whenever it appears to be in the public interest to establish the same."[61] Ecology can also establish minimum flows when requested by the Department of Fish and Wildlife to protect fish, game or other wildlife resources or on its own accord "to preserve water quality."[62] Only Ecology is given the exclusive authority to "establish minimum flows and levels or similar water flow or level restrictions for any stream or lake of the state."[63] When setting instream flows, Ecology "shall, during all stage of development [of] . . . minimum flow proposals, consult with, and carefully consider the recommendations of, the department of fish and wildlife, the department of [commerce], the department of agriculture, and representatives of the affected Indian tribes."[64]

The legal significance of instream flows set by rule cannot be overstated. Once enacted by rule, minimum instream flows constitute appropriations with priority dates of their effective date of establishment.[65] And while minimum instream flows set by rule are not retroactive, "[n]o right to divert or store public waters shall be granted by the department of ecology which shall conflict with" the instream flows set by rule.[66] Indeed, any water right permits issued after adoption of the instream flow rule "shall" be conditioned on the minimum instream flow requirements.[67]

The Washington Supreme Court has long recognized the legal significance of establishing and protecting instream flows. In *Postema v. Pollution Control Hearings Bd.*, the Court recognized that "[o]nce established, a minimum flow constitutes an appropriation with a priority date as of the effective date of the rule establishing the minimum flow."[68] The

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[61] RCW 90.22.010.
[62] RCW 90.22.010.
[63] RCW 90.03.247.
[64] RCW 90.03.247.
[65] RCW 90.03.345; *but see* RCW 90.82.080(2)(a) ("Notwithstanding RCW 90.03.345, minimum instream flows set under this section for rivers or streams that do not have existing minimum instream flow levels set by rule of the department shall have a priority date of two years after funding is first received from the department under RCW 90.82.040, unless determined otherwise by a unanimous vote of the members of the planning unit but in no instance may it be later than the effective date of the rule adopting such flow.").
[66] RCW 90.22.030.
[67] RCW 90.22.247.
[68] 142 Wn.2d 68, 81, 11 P.3d 726 (2000) (citing RCW 90.03.345).

Postema decision characterizes the only exception to the general rule of protecting instream flows set by rule as "narrow," and notes that the law requires that such exceptions "'shall be authorized only in those situations where it is clear that overriding considerations of the public interest will be served.'"[69] The Court held that "Ecology is required to protect surface waters in order to preserve the natural environment, in particular 'base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values.'"[70]

More recently, in 2013, the Washington Supreme Court reiterated "a minimum flow set by rule is an existing water right that may not be impaired by subsequent withdrawal or diversion of water from a river or stream. The exception in RCW 90.54.020(3)(a) is a *narrow* exception, not a device for wide-ranging reweighing or reallocation of water through water reservations for numerous future beneficial uses."[71] The Court described the reason why the Legislature authorized Ecology to set minimum instream flows:

> Although there were no "minimum flows or levels" or "base levels" to begin with, as time passed and the state's population increased demands on water resources also increased. While appropriative beneficial uses of water frequently remove water from the stream or lake, many other uses require that stream flows be maintained, including fish production, recreation, navigation, and power production. Growing, competing demands for water led to a number of new laws over time, and among these are acts and statutes designed to further the goal of retaining sufficient water in streams and lakes to sustain fish and wildlife, provide recreational and navigational opportunities, preserve scenic and aesthetic values, and ensure water quality.[72]

The Court went on to hold that Ecology's amended Instream Flow Rule for the Skagit River was invalid because it made 27 reservations of water for out-of-stream uses that would impair minimum flows set by rule and did not

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[69] 142 Wn.2d at 81 (quoting RCW 90.54.020(3)(a)).
[70] *Id.* at 94-95 (quoting RCW 90.54.020(3)(a).
[71] *Swinomish Indian Tribal Comm'y v. Wash. Dep't of Ecology*, 178 Wn.2d 571, 585, 311 P.3d 6 (2013).
[72] *Id*. at 591-92.

qualify under the narrow exception for "overriding considerations of the public interest."[73]

Instream flows for a variety of instream uses including aesthetics and recreation are not only protected under the Water Code, the Water Resources Act, and the Minimum Instream Flow Act, but by the Washington water quality standards as well. Designated uses of Washington waters include, "[s]almonid spawning, rearing and migration; primary contact recreation; domestic, industrial, and agricultural stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values."[74] "Aesthetic values" of water constitute a "general criteria" for "recreational use," which is "designated for protection in fresh surface waters of the state."[75] Aesthetic use is also an independent, and separate "designated use" that must be protected under state water quality laws.[76] Therefore, under the Washington water quality laws, aesthetics are both a "designated use" and a "general criteria," both of which must be protected by Ecology.

The case law has made it clear that Ecology has a legal responsibility to protect aesthetic and recreational values in water when exercising its delegated statutory authority, whether setting instream flows or otherwise. The Pollution Control Hearings Board (PCHB) has recognized Ecology's obligation to protect aesthetic values when certifying that a project is compliant with state water quality standards. "Aesthetic enjoyment, which is a characteristic use, includes enjoyment of beauty."[77] Furthermore, "aesthetic enjoyment can be through sight, smell, tough, and taste and is also a form of recreation."[78] Washington law recognizes "sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, [like] recreation."[79]

"Recreational use" is a characteristic use designated under the state's

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[73] *Id*. at 602.
[74] WAC 173-201A-200(2)(a)(ii).
[75] *Id.*
[76] WAC 173-201A-200(4).
[77] *Snoqualmie Indian Tribe v. Ecology, PSE*, PCHB No. 03-156 (Final Findings of Fact, Conclusions of Law and Order) (April 7, 2004) at 28.
[78] *CELP, et al. v. Ecology, et al.*, PCHB No. 12-082 (Findings of Fact, Conclusions of Law & Final Order) (As Amended Upon Reconsideration) (Aug. 30, 2013) at 25.
[79] *Dep't of Ecology v. PUD No. 1 of Jefferson County*, 511 U.S. 700, 719 (1994); *see also* WAC 173-201A-200.

water quality classification scheme and is described as encompassing "aesthetic enjoyment."[80] A "state may impose minimum instream flow conditions as part of 401 water quality certifications where necessary to enforce a designated use and conform to state and federal anti-degradation policies."[81] In spite of the Legislature's clear directive to protect and enhance all instream values, including aesthetics and recreation, Ecology failed to do so when adopting the Spokane River Instream Flow Rule and amendment of the rule is justified for the reasons set forth below.

i. Ecology Must Protect ALL Instream Values.

The Instream Flow Rule must be amended because the instream flows established in WAC 173-557-050, specifically the low summer flows of 500 and 850 cfs, neither protect nor enhance aesthetic and recreational values in violation of Washington law. In its Response to Comments supporting issuance of the Spokane River Instream Flow Rule, Ecology explains the need for the rule:

> Instream resources that need protection in the mainstem Spokane River include Redband Trout, Mountain Whitefish, and all aquatic species that require water for habitat. Additional resources and beneficial uses include: water quality, riparian habitat, wildlife, recreation such as fishing, rafting, kayaking, boating and swimming, and the scenic and aesthetic value of the river.[82]

While Ecology recognized that the Spokane River "is a key element of recreational activities, such as floating, fishing, wading, sightseeing, or simply enjoying the riparian corridor," Ecology concedes that the rule was designed to protect fish habitat, not to optimize aesthetic and recreational values.[83] Ecology made this determination based upon its narrow, and incorrect, interpretation of its legal obligations when setting instream flows:

> RCW 90.03.247 grants the Department of Ecology exclusive authority to establish minimum flows. Minimum flows are

[80] WAC 173-201A-030(5)(b)(v).
[81] *Pend Oreille County*, 146 Wash.2d at 811.
[82] Ecology Response to Comments at 2.
[83] *Id.* at 6.

> established "*for the purposes of protecting fish, game, birders or other wildlife resources**, or** recreational or aesthetic values*" (RCW 90.22.010, emphasis added). Under 90.22 Ecology is not required to establish minimum flows for fish **and** recreational values or aesthetic values. The department has some discretion and leeway in the process.[84]

However, Ecology's authority to set minimum instream flows is circumscribed by its other legal obligations as manager, or trustee, of the state's water resources. When Ecology exercises its authority to establish minimum instream flows, it must do so in a manner that protects and enhances aesthetic and recreational values, even if the goal of the rule is to protect fish:

> The quality of the natural environment shall be protected and, where possible, enhanced as follows: (a) Perennial rivers and streams of the state shall be retained with base flows necessary to provide for preservation of wildlife, fish, *scenic, aesthetic and other environmental values*, and navigational values. Lakes and ponds shall be retained substantially in their natural condition.[85]

The legislature's use of the term "shall" indicates that it did not give Ecology the discretion, when acting to establish instream flows or otherwise, to select an instream flow that does not protect or enhance base flows for scenic, aesthetic and other environmental values.[86] But that is exactly what Ecology did here. (For a discussion on how the summer low flows impair recreational and aesthetic values, see section IV(A), below). In its response to comments Ecology admits as much:

> The department has chosen not to establish instream flow values based on those recreational needs expressed during the

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[84] *Id.* at 7.

[85] RCW 90.54.020(3) (emphasis added); *see also* RCW 90.54.020(1) (defining beneficial uses of state waters as including the "preservation of environmental and aesthetic values.").

[86] *Wash. State Coal. for the Homeless v. DSHS*, 133 Wn.2d 894, 907-08, 949 P.2d 1291 (1997); *Ecology v. PUD No. 1 of Jefferson Cnty.*, 121 Wn.2d 179, 189, 849 P.2d 646 (1993) ("We are required to interpret the words of a statute in accordance with their usual and ordinary meaning.").

> FERC process or any other process including this comment period. The department regards the minimum permissible flow consistent with legislative intent as the lowest flow capable of protecting and preserving instream values, in this case native fish populations.[87]

The legislature did not condone this "race to the bottom" approach. Indeed, there is nothing in the law allowing Ecology to protect the "lowest flow capable of protecting and preserving instream values." To the contrary, the law clearly commands Ecology to not only protect the quality of the natural environment, but to "enhance," when possible, the natural environment by retaining base flows in Washington waters that are necessary to preserve "wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values."[88] Ecology has previously recognized the need to set instream flows in a protective manner, as opposed to lower flows that can be met most of the time. Not only are higher flows generally more protective of fish, but "[i]f an instream flow was set at a frequently achievable dry year level, additional water could be allocated *making the rare dry year normal.*"[89] Ecology's decision to set flows for fish, to the detriment of recreation and aesthetics, is a legal error that justifies amendment of the Spokane River Instream Flow Rule.

Furthermore, the use of the term "and" in RCW 90.54.020(3)(a) makes it clear that Ecology, when setting instream flows, must protect *all* instream values, including "wildlife, fish, scenic, aesthetic *and* other environmental values," not just one of these values to the detriment of others. Rather, when establishing instream flows, Ecology must engage in a balancing process to ensure that acceptable flows for one value do not conflict with other values. Ecology must select the instream flow that optimizes all protected uses.

The Washington Supreme Court has recently confirmed that Ecology must protect all instream uses when setting instream flows. In describing the legislative intent of Washington's instream flow program in *Swinomish,* the Court recognized:

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[87] Ecology Response to Comments at 8.
[88] RCW 90.54.020(3).
[89] Jim Pacheco, Ecology Natural Resource Scientist, Instream Flow Science (August 27, 2014) (**Exhibit 10**) at 24 (emphasis added).

> the Water Resources Act of 1971, discussed below, explicitly contemplates the value of instream resources for future populations: 'Adequate water supplies are essential to meet the needs of the state's growing population and economy. At the same time *instream resources and values must be preserved and protected so that future generations can continue to enjoy them.*'[90]

The PCHB has also endorsed this legal interpretation in explaining Ecology's responsibility to optimize and balance conflicting uses in the water quality context:

> To find reasonable assurance that the Project will be operated in a manner that does not violate water quality standards for any designated use, the level of protection for the uses must be balanced. The Guidance properly recognizes that flows for aesthetics must be integrated with needs for fish and other values, and "accommodation among uses will likely be necessary because it is unlikely that any flow can simultaneously optimize the needs of all uses." In balancing the instream flow requirements, the flows protective of aesthetic values must be balanced with the requirement to assure the Project does not operate in violation of the numeric water quality standards for the aquatic life use categories of salmonid spawning, rearing, and migration.[91]

Similarly here, when establishing minimum instream flows for the Spokane River, Ecology does not have the discretion to "choose[] not to establish instream flow values based on those recreational needs expressed during the FERC process or any other process including this comment period" simply because the agency believes (incorrectly as discussed in section IV(B), below) that the instream flow will protect and preserve native fish populations.[92] Ecology admits that flows that protect aesthetic and recreational values were "rejected as the primary basis for establishing instream flows" and this approach is illegal.[93]

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[90] 178 Wn.2d at 587 (citing RCW 90.54.010(1)(a)).
[91] *CELP, et al. v. Ecology, et al.*, PCHB No. 12-082 at 25.
[92] Ecology Response to Comments at 8.
[93] *Id.*

ii. Flows For Fish Do Not Automatically Protect Flows for Recreation & Aesthetics.

Even though Ecology rejected recreation flows as a basis for the instream flow rule, Ecology nonetheless claims that the instream flow levels adopted by the rule "will preserve wildlife, scenic, aesthetic, and other environmental values in the Spokane River, in accordance with RCW 90.54.020."[94] There is no basis for that conclusion and Ecology cannot have it both ways. Ecology has a legal obligation to protect and enhance *all* instream values and uses, including aesthetics and recreation, when setting the minimum instream flows and it admits that it failed to comply with its statutory mandate by setting flows only for fish.

Ecology asserts that basing instream flows on fisheries needs is acceptable, because fish serve as an "indicator species" for other instream values, including aesthetics, water quality, navigation and recreation. Ecology's instream flow science webpage asks, "How are instream flow levels determined? You will find that a lot of discussion centers on fish needs. This is because fish are considered an "indicator species" – if the fish are doing well, then generally other instream resources [defined as "fish and wildlife, aesthetics, water quality, navigation, livestock watering and recreation"] are too."[95] This approach is incorrect, for several reasons.

First, "indicator species" is a term of art.[96] An indicator species may be used to illustrate a problem with a particular environmental parameter. For example, salmonid species can sometimes serve as indicators for whether an instream flow is too low for salmonids and associated aquatic species.[97] "Indicator species" do not substitute, however,

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[94] *Id.*

[95] Ecology, The Science Behind Instream Flows, *at* http://www.ecy.wa.gov/programs/wr/instream-flows/isfsci.html (last visited February 16, 2016).

[96] "An indicator species is an organism whose presence, absence or abundance reflects a specific environmental condition. Indicator species can signal a change in the biological condition of a particular ecosystem, and thus may be used as a proxy to diagnose the health of an ecosystem." Encyclopedia of Puget Sound, Indicator Species, *at* https://www.eopugetsound.org/articles/indicator-species (last visited February 16, 2016).

[97] World Wildlife Fund, Global Species Programe: How WWF Classifies Species, *at* http://wwf.panda.org/about_our_earth/species/flagship_keystone_indicator_definition/ (last visited February 16, 2016).

for non-biological values or resources that also require protection. "[C]are must be exercised in using indicator species. Judging an ecosystem based on the response of a single indicator species might be like taking a pulse on a patient and immediately prescribing a treatment without a) further examination, b) other indicators such as blood pressure, or c) knowledge of the patient's past medical history."[98]

As illustrated in section IV(A) below, instream values other than fisheries (such as aesthetics and recreation) can be assessed using different types of scientific methodologies. If water quality is a concern (as it is in the Spokane), Ecology's water quality program assesses the necessary flow to dilute pollution using a 7Q10 analysis.[99] As is evident here, selecting an ultra-low flow for Redband Trout (e.g. 850 cfs) comes at the expense of flows for whitewater recreation and aesthetic values. The instream flow for fisheries needs adopted into the Spokane rule should not be used as an "indicator" for other instream uses, such as aesthetics and recreation, especially in light of information showing that the summer low flows do not protect, let alone enhance, recreation and aesthetics.

iii. The Law Requires Protection, Not Mere "Consideration," of Recreation Flows.

The law does not authorize Ecology to merely "consider" recreational flows.[100] As discussed above, Ecology has an affirmative legal obligation to protect, and where possible enhance, aesthetic and recreational uses when setting instream flows. Petitioners do not suggest that Ecology must establish minimum flows that protect recreation and aesthetics to the detriment of fish, but rather that Ecology must select a minimum flow that optimizes to the extent feasible all legally protected uses. The flows

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[98] Encyclopedia of Puget Sound, Indicator Species, *at* https://www.eopugetsound.org/articles/indicator-species (last visited February 16, 2016).

[99] Ecology, Water Quality Program Permit Writer's Manual, Ecology Publication No. 92-109 (Rev. January 2015) at 205, Table 13.

[100] Ecology Response to Comments at 8 ("Choosing to not use sole recreational flow criteria to establish flows in an instream flow rule is different than not considering them. They were considered by the department and rejected as the primary basis for establishing instream flows."). There is nothing in the law that allows Ecology to prioritize one value as "primary" over another. Ecology's approach in this regard implies that there are secondary or tertiary bases for setting an instream flow rule. Nothing in the law allows that approach.

established in the Instream Flow Rule for the Spokane River do not protect, let alone enhance aesthetic and recreational values of the Spokane River.

In the rulemaking process, Ecology failed to conduct any scientific analysis to determine what minimum instream flows would protect aesthetic and recreational values, thereby making it impossible for Ecology to appropriately balance all relevant interests. Ecology acknowledges that "it is the responsibility of a regulatory agency, when faced with a need to develop standards for a water body, to ensure that not only are they protective of all users, but that they are based upon the best available information."[101] Ecology contends that it "considered the recreational, aesthetic, and navigational values arguments for protecting the Spokane River at multiple stages throughout the process which culminates in establishing these instream flows for the river."[102] Ecology also states that it considered the aesthetic and recreational instream flow issues by "read[ing] the Whitewater Paddling Study conducted under the FERC process [Avista's relicensing process for the Spokane River hydroelectric projects (Berger, 2004)], listened to many river users, and reviewed the anecdotal observations, opinions, and photos submitted by whitewater enthusiasts and others."[103] Ecology's "consideration" of the issue, however, does not fulfill its statutory responsibility to gather the best scientific information available to fulfill its statutory obligation to protect affirmatively aesthetic and recreational flows in the Spokane River.[104]

To fulfill its legal obligations, Ecology should have made an objective assessment of what flows are needed to protect aesthetic and recreational values. Only when Ecology has that information can it integrate the flows needed for fish and other values to come up with an appropriate and legally compliant minimum instream flow. In the water quality certification context, the PCHB has made it clear that "[t]he aesthetic flows must be determined independently . . . and thereafter integrated, as Ecology's

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[101] Ecology Response to Comments at 6.
[102] *Id*.
[103] *Id*. at 26.
[104] Ecology recognizes that "it is the responsibility of the regulatory agency, when faced with a need to develop standards for a water body, to ensure that not only are they protective of all users, *but that they are based upon the best available information.*" *Id.* at 6 (emphasis added).

guidance provides, with needs for fish and other values."[105] It should be no different here.

iv. Aesthetic & Recreation Flows Can & Should Be Scientifically Studied & Assessed.

Optimal and acceptable instream flows that protect and enhance aesthetic and recreational values are something that can and should be scientifically assessed as part of the development of an instream flow rule. In the development of the Spokane River Instream Flow Rule, Ecology has ignored the scientific field of aesthetic/recreation flow research that is and has been used by the agency when setting minimum instream flows as part of 401 certifications and in other contexts. In its Response to Comments, Ecology stated, "[a]esthetic appeal is among the most subjective of criteria, and a wide range of flows are seen as scenic to various people."[106] But that viewpoint is contradicted by the agency's own guidance document recognizing the scientific means to evaluate, and establish, aesthetic and recreational flows:

> Shelby (1992) found a curvilinear relationship between instream flow and recreational benefits; that is, the quality of the recreation typically increases with increases in instream flow up to a point, and then decreases with further increases in flow. The graphical depiction of this relationship is referred to as a suitability curve.
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> A user-based survey provides an excellent means to get qualitative responses from the user community regarding river conditions. It also offers the opportunity to query users about other aspects of the recreational opportunity in addition to instream flow. A user-survey approach could be combined with other assessment methods as well.

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[105] *CELP, et al. v. Ecology, et al.*, PCHB No. 12-082 (Findings of Fact, Conclusions of Law and Final Order (As Amended Upon Reconsideration)) (August 30, 2013). While this statement was made in the context of a 401 Certification, it applies equally here given Ecology's similar legal obligation to protect a multitude of instream values when establishing instream flows by rule.

[106] Ecology Response to Comments at 33.

Recreation

A comprehensive recreational flow study can accomplish the following objectives:

- Describe the resource.
- Determine which resource attributes are important to each subcategory of recreation use.
- Describe the hydrology – proposed, existing, and pre-project.
- Describe the relationship between flows and physical conditions in the project setting.
- Evaluate flow needs for specific opportunities (e.g. boating type, skill level).
- Integrate flow needs for various opportunities.
- Develop strategies to protect/provide flows.

See Instream Flows for Recreation: A Handbook on Concepts and Research Methods, 1993.[107]

These scientific methods have been used by Ecology[108] and endorsed by the PCHB. For example, in an appeal of a 401 Certification for the Enloe Hydroelectric Project, after finding that "[t]he record does not provide sufficient evidence to determine an instream flow level" which would protect both aesthetics and fish, the Board ordered Ecology to conduct an aesthetic flow study to gather the necessary information.[109] In the federal and state licensing of Avista's Upper Falls and Monroe Street dams on the Spokane River, Ecology imposed an aesthetic flow requirement as part of

[107] Ecology, Water Quality Certifications for Existing Hydropower Dams, Guidance Manual, Ecology Publication No. 04-10-022 (March 2005) at 54.
[108] *See, e.g.*, Letter from Ecology to Federal Energy Regulatory Commission re: Sunset Falls, Skykomish River Hydropower Project P-14295, Aesthetic Flows (March 30, 2015) (**Exhibit 11**) ("A modified [aesthetic/recreation] study using flows described in the above paragraph is needed in order for Ecology to make a decision on flows less than those in WAC 173-507. This should also involve the use of two focus groups using the newer flow images: one consisting of property owners, non profits, and regulators and another using a non-biased group – tourist types who are just there to see the falls, inform participants of the visual range of flows prior to asking for their assessment; then reconsider how the videos are ordered.").
[109] *CELP, et al. v. Ecology, et al.*, PCHB No. 12-082 at 28, 33-34.

the 401 Certification process, and Ecology staff directly participated in a science-based study to determine the appropriate aesthetic flow.[110] Ecology did the same thing in the relicensing of the Snoqualmie Falls Hydroelectric Project. Therefore, it is arbitrary for Ecology to claim in the instream flow rule-making context that an aesthetic/recreation flow study is not appropriate or needed to set minimum instream flows for the Spokane River.

v. 850 cfs Does Not Protect or Enhance Aesthetics & Recreation.

When the scientific work is performed to identify what instream flows would protect and enhance recreational and aesthetic values, it becomes clear that 850 cfs does not pass muster. Specifically, the rule "does not protect the existing diversity of boating experiences, particularly at rapids, gravel bars, or attractions with in-channel geologic features. Similarly, the 850 cfs minimum flow in summer and fall provides little aesthetic diversity, exposes a low flow 'bathtub ring' at scenic locations such as Bowl and Pitcher, and may produce lower aesthetic evaluations than higher flows."[111]

Attached as Exhibit 7, and hereby incorporated by reference, is a Spokane River Instream Flow Assessment prepared by recreation and aesthetic flow researchers Doug Whittaker and Bo Shelby entitled, Middle Spokane River: Protecting Recreation & Aesthetic Flows. This report documents the extensive amount of recreation and aesthetic information that is available to Ecology.[112] In spite of Ecology's claims to the contrary, "*there is little evidence that Ecology carefully reviewed the [recreation and aesthetic flow] information. If they did, the final instream flow rule does not reflect what the information shows.*"[113] One major omission is Ecology's failure to take into account the flow recommendations from whitewater and

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[110] Federal Energy Regulatory Comm., Order Issuing New License, Project No. 2545-091 at App. B, pp. 123-25, 127 FERC ¶ 61,265 (June 18, 2009), *at* https://www.avistautilities.com/environment/spokaneriver/license/Documents/license.pdf (last visited February 24, 2016); CH2MHill, Aesthetic Spill Pilot Test Report for the Spokane River Project No. 2545, Technical Report Prepared for Avista Corp. (November 2010) (**Exhibit 12**).

[111] Confluence Research & Consulting, Middle Spokane River: Protecting Recreation & Aesthetic Flows (February 2016) ("CRC Report") (**Exhibit** 7) at 4.

[112] *Id*. at 8-10.

[113] *Id.* at 14.

fishing guides, and other members of the public.[114] Ecology should have analyzed this information in a scientific manner when determining what flows are protective of aesthetic and recreational values.

"Studies of flows for recreation/aesthetics have been conducted for over twenty-five years on hundreds of rivers in several different decision settings (including dam relicensing, 401 water quality certification hearings, federal dam operations management, state and federal water rights adjudications, and navigability adjudications.)"[115] The CRC report provides a summary of the scientific literature on flow-recreation or flow-aesthetic studies and how those studies can and should be used to inform Ecology's decision to set appropriate flows in the Spokane River Instream Flow Rule.[116] In summary, "[r]ecreation flow studies ask standardized direct questions that allow people who use the river to evaluate flows, or to specify flows that provide specific attributes or opportunities."[117]

For the Spokane River, there is a tremendous amount of existing information that Ecology should have used when determining what flows would protect and enhance recreation and aesthetics.[118] This information shows "that higher flows are generally preferred over lower ones, and flows that cover the bottom of the river channel are a starting point for acceptable evaluations."[119] This information contradicts Ecology's finding that minimum flows for fish will automatically protect aesthetic and recreation values.

And by selecting a low flow of 850 cfs, Ecology has eliminated a substantial number of aesthetic and recreational opportunities presently available on the Spokane River. CRC has found that "[t]here are a diversity of boating opportunities available from about 500 cfs to 15,000 cfs" which "provide different types of opportunities in different craft for users with different skill levels."[120] "Other general riverside recreation (e.g. camping,

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[114] *Id.*
[115] *Id.* at 15.
[116] *Id.* at 16-18.
[117] *Id.* at 18.
[118] *Id.*
[119] *Id.*
[120] *Id.* at 34.

hiking, biking, picnicking, and fishing) is enhanced by a diversity of flows in the river through the season."[121]

There is also new information that Ecology can use to amend the Instream Flow Rule so that it establishes a flow that protects and enhances recreation and aesthetics, while also protecting other instream values. Attached as Exhibit 8 is a set of matched aesthetic photographs from thirty-seven Key Observation Points (KOPs) along the Spokane River taken in both 2014 and 2015. These photographs "provide descriptive information about how conditions change at pool, riffle, and rapid locations. A subset of these photos can and should be systematically evaluated by 1) experts, 2) a panel of recreation users, 3) stakeholders, or 4) a general public sample to provide quantitative flow preferences."[122] What is clear is that "[w]ithout recognizing findings from existing studies, or conducting additional analysis, it is unclear how Ecology can assure their fish-based instream flows adequately protect recreation and aesthetic values."[123]

Upon analysis of the existing and new information regarding recreation and aesthetics, "[r]esults show that Ecology's instream flow rule substantially reduces the number and quality of boating opportunities in a typical recreation season."[124] Specifically:

- Existing conditions provide 214 days of higher quality boating (flows above 1,000 cfs). Ecology's rule reduces that by 50% (107 days are at 850 cfs, providing lower quality trips that can only be used by smaller craft).
- Existing conditions provide 68 days of more challenging boating (over 10,000 cfs) that Ecology's rule eliminates (the highest protected flow is 6,500 cfs).
- Existing conditions provide 146 days of technical and standard trips. Ecology's rule reduces that by 26% to 107 days.

Therefore, Ecology's current instream flow rule does not protect, let alone enhance, recreation and aesthetic opportunities on the Spokane River.

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[121] *Id.*
[122] *Id.* at 18.
[123] *Id.*
[124] *Id.* at 23.

C. The Spokane River Instream Flow Rule Violates Ecology's Legal Obligation to Protect & Enhance Instream Flows for Fish.

Redband Trout are an important and highly valued native fish species in the Spokane River. In assessing stream flows as part of the Instream Flow Rule, Ecology studied the needs of two native fish species, Redband Trout and Mountain Whitefish, and selected flows on the lowest end of the spectrum of annual flows in the river. Based on historic productivity of these fisheries, protecting higher flows would not harm Redband Trout or Mountain Whitefish. Because the study of trout and whitefish did not include site-specific data on fish preferences, and because of the unique geomorphology of the Spokane River, the flows adopted into the Spokane River rule are not high enough to protect the native fisheries. Ecology should perform additional studies that include three-dimensional characterization of fish use of the river, along with evaluation of insect habitat (food sources for the fish) and temperature parameters in order to ascertain what minimum flows would protect and enhance the Spokane River fishery.

i. Spokane River Native Fisheries Can Tolerate Higher Flows.

a. Spokane River Redband Trout Are An Important Fishery

The Spokane River is home to a population of native interior Columbia River Redband Trout (*Oncorhynchus mykiss* var. *gairdneri*) with limited hybridization from Little Spokane River Hatchery Rainbow Trout.[125]

[125] Scholz, Allan T., Ph.D., Letter to Washington Department of Ecology (2-24-16) at 14("Scholz Report").

Figure 5. Spokane River Redband Trout (Photo: Michael Visintainer).

Redband Trout are a highly valued fishery in the Spokane River, prized by fly fishers and emblematic of the now-extirpated salmon fisheries that were a food and economic resource for the Spokane Tribe and other regional Native American tribes.[126] Spokane River Redband Trout are in decline, with population numbers plummeting in certain reaches of the Spokane River.[127] Causes of decline include de-watering of redds, predation, and low stream flows.[128]

b. Spokane Redband Trout Will Not Be Harmed By Flows Higher Than 850 cfs.

In support of this petition, Prof. Allan T. Scholz, retired Professor of Biology at Eastern Washington University has prepared a report detailing the relationship between the native Columbia River Redband Trout that occupy the Spokane River and the river's hydrology.[129] Prof. Scholz is

[126] *Id.* at 5-7.
[127] *Id.* at 11-12.
[128] *Id.*
[129] *See generally* Sholz Report.

author of a multi-volume treatise on fisheries in Eastern Washington and is one of the foremost authorities on the topic of eastern Washington native fisheries, including Spokane River Redband Trout.[130] In his first conclusion, Prof. Scholz notes that:

> *Flows that exceed 850 CFS will not harm, and in fact, almost certainly will improve survival of native Columbia River Redband (Rainbow) Trout (Oncorhynchus mykiss gairdneri) and Mountain Whitefish (Prosopium williamsoni).*[131]

Washington Department of Fish and Wildlife (WDFW) biologist Hal Beecher, Ph.D., agrees with Prof. Scholz. Dr. Beecher is the recently retired WDFW biologist who worked with the Department of Ecology on developing a recommendation for Spokane River flows. Dr. Beecher, in an e-mail exchange with Prof. Scholz, stated:

> *The conclusions from the model interpretation have never been that maintaining a natural flow regime (nor even a modification thereof) is detrimental. The proposed [850 cfs] flows are not perceived by me as enhancement, rather as a floor.*[132]

Dr. Beecher reviewed all fisheries comments submitted on the draft rule, and drafted responses. In response to a comment on the draft Spokane River rule that "high flows do not hurt fish," Dr. Beecher stated:

> *I concur that NATURAL higher flows would not be detrimental to the fish . . .* [133]

For reasons unknown, it appears that this comment was deleted from the final Ecology Response to Comments. These statements are consistent with other statements Dr. Beecher made during the instream flow selection process. Dr. Beecher gave presentations to the WRIA 55-57 Watershed Planning Unit during the 10-plus years it took to arrive at an instream flow

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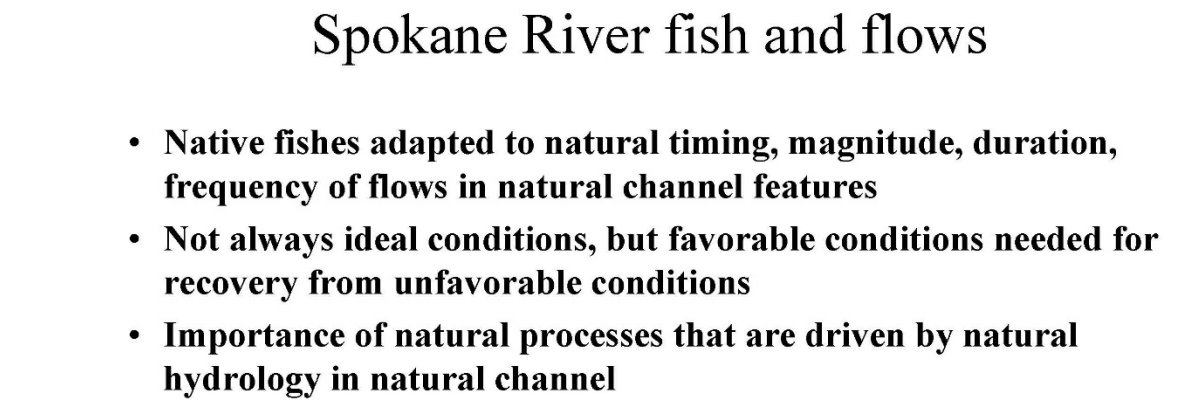
[130] Prof. Allan T. Scholz Curriculum Vitae (2015) (**Exhibit 2A**).
[131] Scholz Report at 5.
[132] E-mail exchange between Allan Scholz, Hal Beecher and Rachael Osborn (Oct. 22-27, 2014) ("Scholz-Beecher E-mail") (**Exhibit 13**).
[133] Ecology, Draft Responses to Comments at 13 (undated) (emphasis in original).

recommendation. A slide from one presentation given by Dr. Beecher in June 2008 is representative of his position over the years.[134]

Figure 6. WDFW presentation on high flows in the Spokane River (WDFW 2008).



The reason that fish biologists familiar with the Spokane River know that summer season (rearing) flows higher than 850 cfs will not harm native fish is because historically, Redband Trout and Mountain Whitefish thrived when the river had much higher flows than present-day flows. "[T]he Spokane River [] formerly produced prodigious numbers of resident trout,"[135] and it did so when summer flows were much higher. Far from a theoretical analysis, this represents real-world confirmation that higher flows are suitable and appropriate for Redband Trout and Mountain Whitefish. Ecology's Response to Comments indicate that protection of Redband Trout and Mountain Whitefish was the single factor upon which the agency based its decision regarding the quantity of instream flows. However, amending the Spokane River rule to protect higher summer flows in the years they are available will not cause harm to native fish and is necessary to fulfill Ecology's legal responsibilities to protect, and enhance were possible, all instream values.

[134] Beecher, Hal, Spokane River Fish & Flows (modified June 8, 2008) (**Exhibit 14**).
[135] Scholz Report at 7-8.

ii. The 850 cfs Summer Flow is Not Optimal For Redband Trout

The 850 cfs flow adopted in the Spokane River instream flow rule for the reach below the Monroe Street dam is likely insufficient to protect native fisheries and other aquatic life in the Spokane River. As discussed above, historic flows in the Spokane River supported substantial populations of salmon, steelhead, and trout.[136] The likely reason for this was because of food abundance and cool water temperatures.[137] According to Prof. Scholz, flow of 850 cfs at the Spokane gage significantly reduces riffle habitat from that which was available under the historic flow regime. Loss of riffle habitat affects aquatic insect production. Lower flows are also less conducive to dislodging insects into the river current. These factors reduce the amount of prey available to Redband Trout populations. Less prey means fewer fish and less growth.[138] As flows decrease, water temperatures may increase, reducing available habitat for Redband Trout, which require water temperatures from 12 to 18° C for survival, depending on available habitat and food sources.[139]

Lower flows also concentrate fish into smaller spaces, increasing predation as well as competition for food supply.[140] As discussed in Section IV(A) (Recreation & Aesthetic Flows), when flows at the Spokane gage fall below 1300 cfs, rocks emerge across the river. *See* Figure 6.

[136] Scholz Report at 5-8.
[137] *Id.* at 8-11.
[138] *Id.* at 8-9 and 9-11.
[139] *Id.* at 20-21.
[140] *Id.*

Figure 7. Devil's Toenail Key Observation Point at 1050 cfs.

The deep pools and crevices where trout like to hide are substantially reduced and the fish are necessarily crowded into increasingly small spaces. Meanwhile heron and osprey are cruising above. Predation is observable. The fishery is not protected, let alone enhanced at these low flows.

iii. The IFIM Study Relied Upon By Ecology is Flawed & Does Not Provide Credible Scientific Support for the 850 cfs Instream Flow.

a. IFIM Background

To determine instream flows for the Monroe-Nine Mile reach of the Spokane River, Ecology and WDFW utilized a fisheries habitat model called Instream Flow Incremental Methodology (IFIM). The basic function of IFIM is described in Prof. Scholz' report at 31-33 and is incorporated by reference herein. As Ecology's FAQ on the topic describes it, "IFIM is a

series of computer-based models, which calculate how much fish habitat you gain or lose as you increase or decrease flow."[141]

The first step is called Physical Habitat Simulation or PHABSIM. The biologist first selects representative transects or cross-sections of the river to map out their geomorphology and other physical features, including how much of the riverbed is covered at different flows.[142] Once physical data is collected, there are three methods by which the amount of fish habitat can be assessed, ranging from theoretical to a site-specific method involving collection of additional field data.[143]

It should be noted that, although PHABSIM is a good and frequently used tool for assessing flow-habitat relationships, it is not a perfect tool. As the Washington Supreme Court noted in a case involving instream flow setting on the Dosewallips River on the Olympic Peninsula, PHABSIM does not assess all factors that may affect appropriate flows for fish.[144] Ecology agrees, noting that "[a]t certain flows, such as extreme low flows, other variables such as food supply (aquatic insects) and predators (birds, larger fish, etc.) may be of overriding importance to fish survival and production."[145] As described below, that is the case with respect to the summer season flows below Monroe St. dam that were adopted into the Spokane River rule.

b. Spokane River Habitat Curves & Site-Specific Data

Generally, the IFIM study method was developed for smaller, shallow streams where one-dimensional modeling captures most of the habitat used by fish. For larger and deeper rivers, such as the Spokane, it is more difficult to assess fish habitat potential absent site-specific data that provides

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[141] WA Dept. of Ecology, Frequently Asked Questions on IFIM, Publ. No. Q-WR-95-104 at p. 1 (rev. Feb. 2010) ("IFIM FAQ") *at* https://fortress.wa.gov/ecy/publications/documents/qwr95104.pdf (last visited 2-24-16).
[142] Instream Flow Council, Instream Flows for Riverine Resources Stewardship at pp. 214-220 (2002) (**Exhibit 15**).
[143] Scholz Report at 31-33.
[144] *PUD No. 1 of Jefferson County v. Dept. of Ecology*, 121 Wn.2d 179, 201-04 (1993) (finding that biologists should be conservative in their estimation of flows that will best protect the fishery in light of the inherent uncertainty associated with the PHABSIM).
[145] IFIM FAQ at pp. 1-2.

a three-dimensional evaluation of fisheries use of the river.[146] Ecology's IFIM study for the Spokane River relied on habitat curves that were not tailored to the Spokane River. In particular, the study relied on generic habitat suitability curves that were developed for streams and rivers that are smaller and shallower than the Spokane.[147] Dr. Beecher agreed, noting that the Redband Trout IFIM suitability criteria:

> . . . are based on mean column velocity based on wadeable (or at least snorkelable) stream, but, as you imply, do not reflect the depths common in the Spokane.[148]

To determine optimal flows for fish, the study should have, but did not, involve collection and analysis of Spokane-specific data. Site-specific data should be used because the Spokane River is geomorphologically unique, including its basalt substrate and limited gravels. Assumptions about uniform distribution of fish, based on studies in smaller rivers, are not appropriate for establishing biologically based flows in the Spokane River.[149] Had Ecology and WDFW collected Spokane River-specific field data, it likely would have resulted in selection of higher instream flows to protect Redband Trout.[150]

c. Spring Spawning Flows

Ecology has placed much emphasis on the time and detail spent evaluating spring spawning flows for Redband Trout below Monroe Street dam. The fisheries section of the Response to Comments repeatedly mentions "four independent science-based instream flow studies."[151] But only one of those studies addressed summer season flows below Monroe St. dam. The fact that the April-June spawning and incubation flows were well-studied is irrelevant to the validity of the summer season flows. Indeed, the time and effort spent on site specific data related to spring season spawning flows illustrates just how little effort was spent on studying the summer season flows. That spawning and incubation flows were well-studied is also

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[146] *Id.* at 33-34 (citing Hal Beecher personal communications).
[147] *Id.* at 34-35.
[148] Scholz-Beecher e-mail at 2.
[149] *Id.* at 34-35.
[150] *Id.* at 35-36.
[151] Ecology Response to Comments at 6, 7, 8, 12, 15, 16, 18, 23, 34, 41, 45, 46, 49, 54, 61, 62-65, 68, 72-73, 76-77, 141, 143.

irrelevant to assessing whether the July-September flows protect and enhance fish. As Prof. Scholz succinctly notes:

> *[S]pawning and incubation flows in the spring can be undone if the fish are unable to survive the low summer flow period because the minimum flows are too low.*[152]

iv. The IFIM Should Have Assessed Temperature & Aquatic Insect Parameters

a. Temperature Parameter

As Ecology acknowledges, water temperature is a key factor in the fitness and survival of Redband Trout.[153] The IFIM temperature model should have been incorporated into the Spokane River IFIM analysis, but it was not.[154] Incorporating the temperature parameter is especially important in light of climate change (discussed below in section IV(C)), which will contribute to further increases in water temperature in the Spokane River.

b. Aquatic Insect Parameter

IFIM studies focused solely on suitability of fish habitat cannot predict fish abundance if the fish are food limited, as may be the case in the Spokane River because of low flows that concentrate the fish into smaller geographic areas. "The IFIM should also have included more target species, especially two or three aquatic insects that are important in salmonid diets, such as mayflies, caddisflies, stoneflies, or chironomids," which are affected by reduction of riffle habitat (and serve as important food prey for trout and whitefish).[155]

In sum, native Spokane River Redband Trout and Mountain Whitefish evolved and adapted to much higher summer season flows than are now present in the river. It is not credible to suggest that the lowest flows on record are the best flows for these fisheries. Should Ecology elect to adopt a higher flow into the rule, it will not harm native fish.

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[152] Scholz Report at 35.
[153] *Id.* at 9-11.
[154] *Id.* at 32 (citing Theurer et al 1984).
[155] *Id.* at 8-9, 36.

D. The Spokane River Summer Flow Must Accommodate Future Impacts of Inchoate Water Rights in Washington and Idaho.

As discussed above, instream flows established by rule have a priority date as of the date of rule adoption. For the Spokane River instream flow rule, that date is February 27, 2015. Pursuant to the prior appropriation doctrine, all valid Washington water rights with a priority date pre-dating the instream flow priority date may be exercised without being affected (i.e., interrupted or curtailed) by the instream flow rule. Only water rights issued after adoption of the rule will be conditioned on compliance with the minimum flows set by rule.

i. Present Water Use in Washington

As Ecology is aware, there are hundreds of water rights in the Middle Spokane watershed that pre-date the Spokane River Instream Flow Rule. Total quantities allocated have been estimated at 294,000 acre-feet/year for permits and certificates, and 319,000 acre-feet per year for claims.[156] It is presumed that these rights, to the extent they are not relinquished and are otherwise valid, will not be affected by the Spokane River instream flow rule as they predate the rule.

ii. Inchoate Washington Water Rights

Among the many water rights that pre-date the WRIA 57 rule, approximately 18 municipal water suppliers hold water rights about half of which have not yet been put to beneficial use. The Washington Supreme Court has held that municipal water supply certificates, although unused, remain valid.[157] Figure 7 indicates that as of 2005, more than half of the municipal water rights held in WRIA 57 are inchoate (presently unused), for a total of 152,223 acre-feet.[158]

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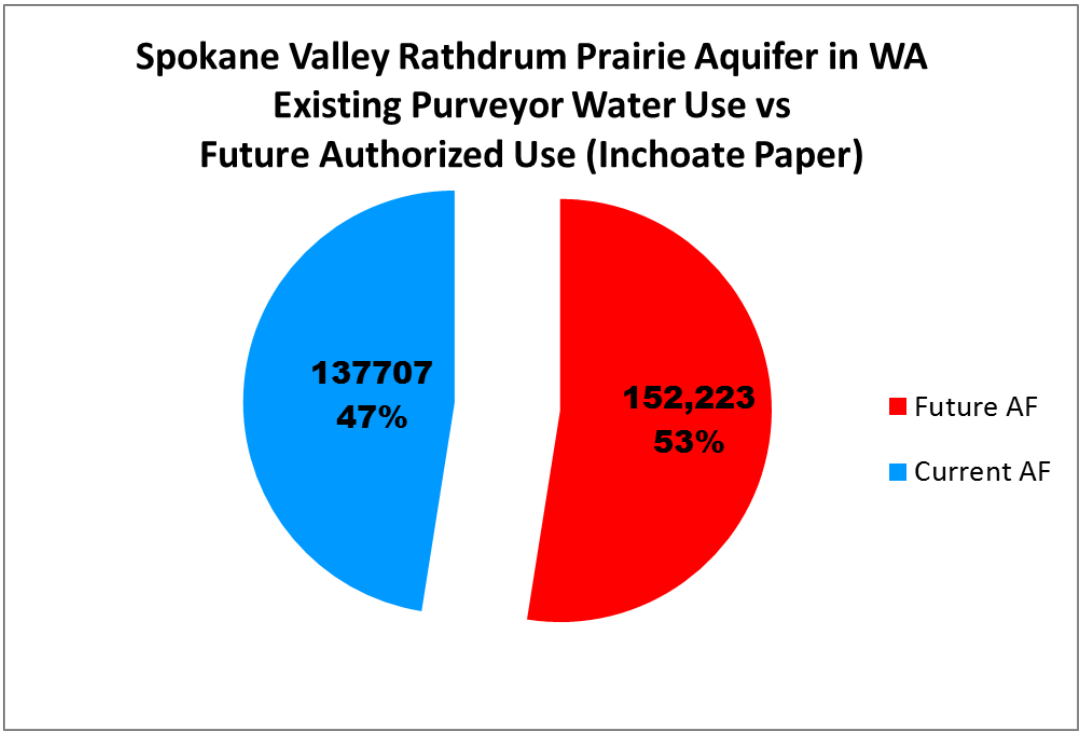
[156] WRIA 55/57 Watershed Plan (adopted by Spokane County on January 31, 2006), *at* http://www.spokanewatersheds.org/files/documents/WRIA-55-57-Watershed-Management-Plan-Final-1-31-06.pdf (last visited February 28, 2016) at 22, Table 2.I.F.

[157] *Lummi Indian Nation v. State of Washington*, 170 Wn.2d 247 (2010); *Cornelius v. Washington Dept. of Ecology*, 182 Wn.2d 574 (2015).

[158] This chart was prepared by John Covert, Hydrogeologist, Department of Ecology Water Resources Program in support of the WRIA 55-57 Watershed Plan as required by

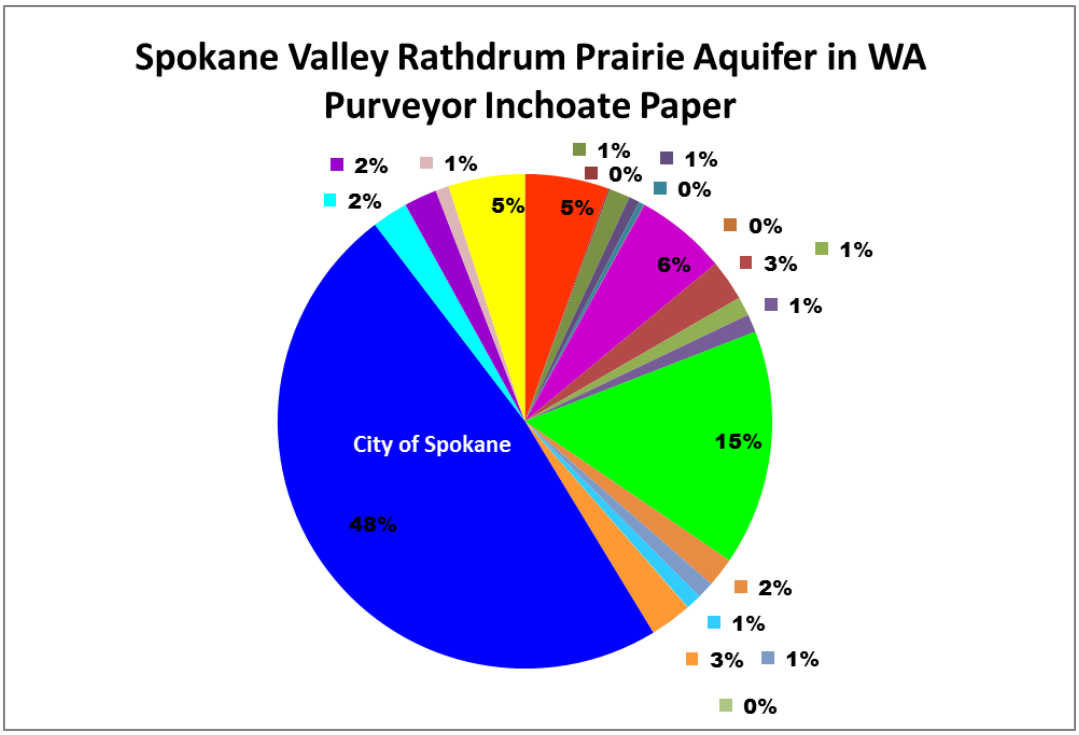
Figure 8. SVRP Aquifer in WA – Existing Purveyor Water Use vs. Future Authorized Use (Dept. of Ecology 2005).



Of the 152,000 acre-feet of total water rights issued, Figure 8 shows that approximately 48% of the inchoate rights (referred to as "Purveyor Inchoate Paper") in WRIA 57 are held by the City of Spokane.

RCW 90.82.048, and which was submitted for approval in 2005 and adopted by Spokane County in 2006.

Figure 9. WRIA 57 Municipal Water Rights Not Yet Exercised (Dept. of Ecology 2005).



In 2014, purveyors pumped about the same amount as was pumped in 2005.[159] See Table 1. That means that approximately 150,000 acre-feet of inchoate, presently unused water rights remain available to Washington purveyors in WRIA 57. These rights have priority dates that pre-date the Spokane River instream flow rule, and may validly be exercised in the future by the water right holders, without being conditioned on compliance with the flows set by rule. The consequence of this would be that flows would further decrease in the Spokane River, making it more likely that flows will frequently fall below the minimum flows established in the rule.

Table 1 provides Year 2014 water usage data for purveyors holding about 75% of the inchoate rights shown in Figure 8.

[159] 2005 was declared a "drought year" and Spokane water pumpage was likely higher than normal that year. *See* Washington Dept. of Ecology, 2005 Drought Response, Ecology Publication No. 06-11-001 (Feb. 2016).

Table 1. Select Washington WRIA 57 Purveyors 2014 Pumpage.

Purveyor	Year: Pumpage (gallons)	Source
City of Spokane	2013-14: 22,275,619,000	City of Spokane, Report on Drinking Water, p. 7 (April 2015) (based on Oct.-Sept. water year)
Consolidated Irrigation Dist.	2013-14: 2,468,363,513	Consol. Irr. Dist. 19, WUE Annual Performance Report 2014 (6-18-15) (based on Oct.-Sept. water year)
Liberty Lake Water & Sewer	2014: 1,090,125,196	Annual Drinking Water Quality Report (2014)
Modern Electric	2013-14: 1,900,020,000	Pers. Comm., Bryan St. Clair, Water Resource Mgr. (2-22-16) (based on Oct.-Sept. water year)
Spokane Water District #3	2014: 2,511,779,000	Pers. Comm.,Ty Wick, Mgr. (2-16-15)
Vera Water & Power	2014: 3,400,000,000	Vera W&P Annual Drinking Water Quality Report (2014)
Whitworth Water District	2014: 3,070,571,960	WWD Newsletter Newsletter, Issue 27 (May 2015), including 2014 Consumer Confidence Report
	Total: 36,716,478,669 (112,679 acre-feet)	

iii. Present Water Use in Idaho

Water users in the Rathdrum Prairie area of Idaho have withdrawn an average of 85,000 acre-feet of groundwater per year for in-home domestic, commercial, irrigation, and industrial needs between 2009 and 2013.[160] According to the Idaho Water Resources Research Institute (IWRRI), this represents an increase of 11,000 acre-feet per year over 2010 estimates. The increase is attributed to population growth (see Section 2.h, infra) and data uncertainty.[161]

As set forth in CELP's comments on the draft rule, the Idaho Department of Water Resources has issued or registered claims for 835 cfs of groundwater rights in Idaho's Basin 95, authorizing pumping from the

[160] Idaho Water Resources Research Institute, Rathdrum Prairie Future Water Demand, App. B: Rathdrum Prairie Aquifer 2014 Demand Update (Nov. 2014) (**Exhibit 16**).
[161] *Id.*

SVRP Aquifer in Idaho.[162] Actual usage under these rights is not currently known, but will be established in the Northern Idaho Adjudication currently underway in Idaho state court.[163]

iv. Idaho Inchoate Water Rights

In addition to existing rights, five Rathdrum Prairie Idaho water purveyors have applied for eight new water rights to serve "reasonably anticipated future needs" (RAFN).[164] RAFN water needs have been assessed using a 30-year planning horizon that addresses population growth in the Coeur d'Alene-Spokane River basin.[165] RAFN applications are eligible for licensing (equivalent to a water rights certificate in Washington) even though the water rights are not yet put to beneficial use.[166] The timing of the Rathdrum Prairie RAFN filings was explicitly intended to precede adoption of the Spokane River rule (i.e., 2-27-15), and Idaho purveyors believe that these water rights have priority over the instream flows set forth in the

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[162] Osborn, R.P., "Spokane Valley-Rathdrum Prairie Aquifer Idaho Water Rights Report" and Spreadsheet (October 2015) (**Exhibit 17**).

[163] *See, e.g., In Re: the General Adjudication of the Rights to the Use of Water from the Coeur d'Alene-Spokane River Basin Water System*, Case No. 49576, Commencement Order for the Coeur d'Alene-Spokane River Basin General Adjudication (Idaho 5th Judicial District, 11-12-08), *at* https://www.idwr.idaho.gov/WaterManagement/NorthIdAdju/CourtDocs/PDFs/20081112_Commencement_Order.pdf (last visited February 22, 2016).

[164] Idaho Code (IC) §42-202B(8) ("Reasonably anticipated future needs" refers to future uses of water by a municipal provider for municipal purposes within a service area which, on the basis of population and other planning data, are reasonably expected to be required within the planning horizon of each municipality within the service area not inconsistent with comprehensive land use plans approved by each municipality. Reasonably anticipated future needs shall not include uses of water within areas overlapped by conflicting comprehensive land use plans); *see also* Table X-2.

[165] Idaho Water Resources Research Institute, Rathdrum Prairie Aquifer Future Water Demand, IWRRI Report No. 201404 (rev. April 2015) (**Exhibit 18**).

[166] See IC §42-219 ("A license may be issued to a municipal provider for an amount up to the full capacity of the system constructed or used in accordance with the original permit provided that the director determines that the amount is reasonably necessary to provide for the existing uses and reasonably anticipated future needs within the service area and otherwise satisfies the definitions and requirements specified in this chapter for such use . . . ").

rule.[167] The applicant names, quantities requested, and date of application are set forth below in Table X-2.

Table 2.[168] Idaho Rathdrum Prairie RAFN Water Right Applications.

Name	Quantity Requested (cfs)	Date of Application
North Kootenai Water District (Hillside)	10.29	1-15-15
North Kootenai Water District (Rimrock)	12.22	12-11-14
North Kootenai Water District (Twin Lakes)	2.82	1-15-15
North Kootenai Water District (Chilco)	6.67	1-15-15
Hauser Lake Water Assn.	3.53	2-20-15
Greenferry Water & Sewer Dist.	4.63	2-19-15
Remington Water District	32.0	2-19-15
Avondale Water District	25.21	2-19-15
Total Quantities Requested	97.37	

IWRRI also performed a "gap analysis" comparing projected Year 2045 needs of all major municipal purveyors in the Rathdrum Prairie area of Idaho with current water rights held by purveyors.[169] As shown in Figure 9,

[167] Remarks of Bob Haynes, former Northern Idaho Regional Director, Idaho Dept. of Water Resources, Keynote Speaker at WA-AWRA Eastern Washington Conference on Rural Water Availability, April 9, 2015, Spokane. Contrast this position with that of Washington state law, which gives priority to instream flows adopted into rule over earlier priority water right applications. RCW 90.03.247.

[168] *See* **Exhibit 19** (IDWR RAFN applications).

[169] Idaho Water Resources Research Institute, Rathdrum Prairie Future Water Demand, App. C: RPA RAFN Water Right Gap Analysis (rev. 4-2-15) (**Exhibit 20**); Solomon, M. "Rathdrum Prairie Aquifer Future Water Demand," Powerpoint presentation (May 2015) (**Exhibit 21**).

the gap analysis indicates a total future need of 47 cfs for Maximum Day Demand (MDD) and 151 cfs based on Peak Hour Demand (PHD).

Fig. 10. Idaho Water Right Gap Analysis (IWRRI 2015).

Water Right Gap Analysis						
Provider	Maximum Water Right (cfs)	2045 MDD (cfs)	Additional Water Right Requirement Based on MDD (cfs)	2045 PHD (cfs)	Additional Water Right Requirement Based on PHD (cfs)	Storage (MG)
Remington	5.90	14.45	8.55	27.35	21.45	~
Hauser Lake	4.90	6.18	1.28	12.58	7.68	~
Greenferry	2.05	6.68	4.63	13.19	11.14	~
Avondale	19.09	16.98	-2.11	32.60	13.51	~
Rathdrum	16.90	21.12	4.22	41.47	24.57	1.0
East Greenacres	97.90	29.64	-68.26	54.16	-43.74	0.325
North Kootenai	28.20	57.39	29.19	106.02	77.82	~
Ross Point	16.31	25.05	8.74	39.68	23.37	1.0
Hayden Lake	24.00	16.31	-7.69	25.82	1.82	~
Post Falls	38.89	24.66	-14.23	40.07	1.18	6.25
Coeur d'Alene	60.98	49.53	-11.45	73.70	12.72	6.0
Total	**315.12**	**267.99**	**-47.13**	**466.64**	**151.52**	**12.25**

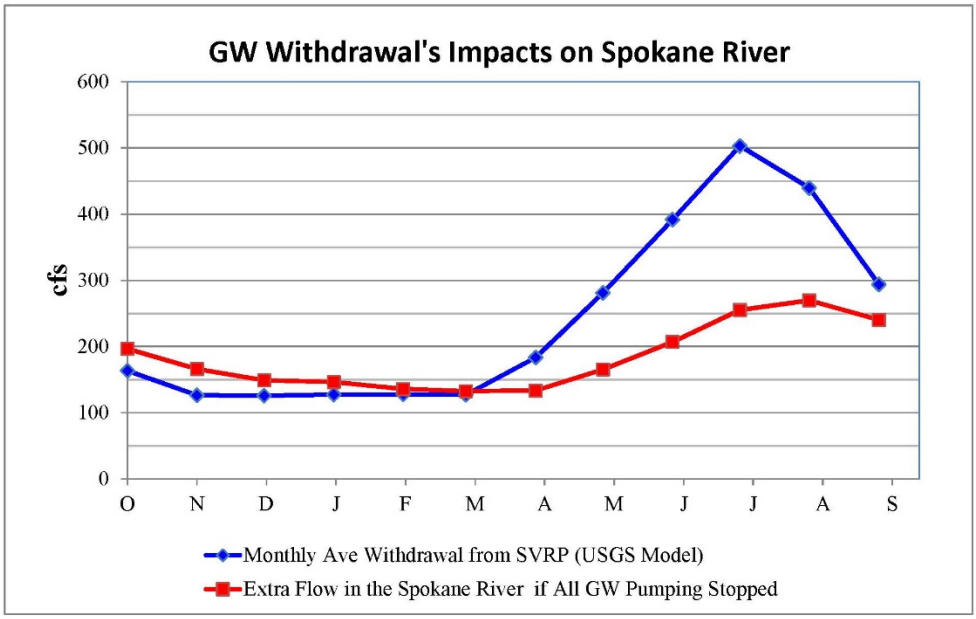
v. Impacts of Pumping Washington & Idaho Water Rights on the Spokane River

As discussed above, pumping from the SVRP Aquifer depletes instream flows in the Spokane and Little Spokane Rivers. Almost all SVRP groundwater eventually flows to these two rivers, unless intercepted by wells.[170] The Department of Ecology used the Bi-State Aquifer Model to evaluate the impact on Spokane River instream flows if one could "turn off" groundwater pumping from the SVRP Aquifer in both states (approximately 500 cfs at the apex of summer pumping). The model demonstrated an approximate 270 cfs benefit to the Spokane River at the Spokane gage. Figure 9 illustrates this exercise, showing the impacts of *current*

[170] Kahle, Sue C. and J.R. Bartolino, Hydrogeologic Framework and Groundwater Budget of the Spokane Valley-Rathdrum Prairie Aquifer, Spokane County and Bonner and Kootenai Counties, Idaho, USGS SIR 2007-5041 at pp. 24-25 (2007) (**Exhibit 22**); Drost B.W. and H.R. Seitz, Spokane Valley – Rathdrum Prairie Aquifer, Washington and Idaho, USGS Open File Report 77-829 (1978) *at* http://wa.water.usgs.gov/projects/svrp/publications.htm (last visited February 24, 2016).

groundwater pumping on Spokane River flows at the Spokane gage. Peak impacts occur within about one month.[171]

Figure 11. Current Groundwater Withdrawal Impacts on Spokane River Flow (Dept. of Ecology n.d.).



The specific locations of impacts from groundwater pumping are demonstrated in Figure 11. This figure provides a series of pie charts that show where and in what amounts, water pumped from wells at various

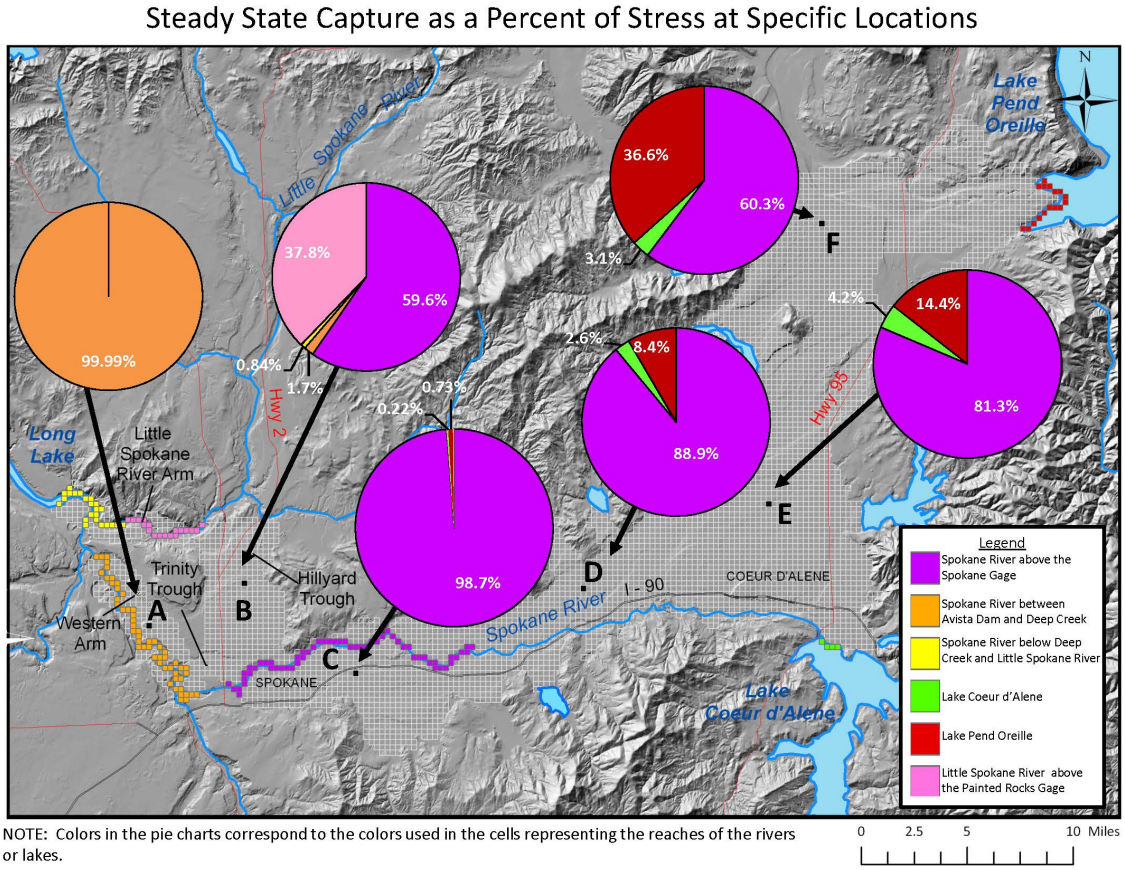
[171] Covert, J.J., Washington Dep't of Ecology (**Exhibit 23**). Mr. Covert's transmittal notes explain this important graph:

> [This graph] shows the monthly average groundwater pumping that is input into the USGS Bi-state model and the additional flow that would be in the Spokane River at the Spokane gage if all groundwater pumping in the model is turned off . . .
>
> Peak summer pumping rate is ~500 cfs and the peak additional flow that would be in the river if there was no pumping within the model domain [is] ~270 cfs. There is a lag time of ~ one month in the peak values.
>
> The data from the model run without [groundwater] pumping indicates that 76% of the impact is to the river at the [Spokane] gage and the remaining 24% is to other surface water bodies in the system.

John Covert, transmittal e-mail (10-5-15) (**Exhibit 24**). *See also* WRIA 54 & 57 Instream Flow Recommendation Work Group, Dec. 11, 2007 Draft Meeting Summary V.2 at p. 2 ("Bi-State Aquifer Model Run Report") (1-18-08) (**Exhibit 25**).

locations depletes flow in the Spokane and Little Spokane Rivers.[172] In Idaho, groundwater pumping also induces recharge from Lake Coeur d'Alene and Lake Pend Oreille, but the majority of water impacts manifest as depletions in the Spokane River, in Washington.

Figure 12. Steady State Capture of Groundwater Pumping at Various SVRP Locations. (IWRRI 2008).



NOTE: Colors in the pie charts correspond to the colors used in the cells representing the reaches of the rivers or lakes.

Not only does almost all water in the SVRP Aquifer flow to the two rivers, but it does so very quickly. The Spokane River is highly transmissive, with water moving at a velocity of up to 60 feet per day. As the pumping-versus-

[172] S.L. Taylor, B.A. Contor, G.S. Johnson, and G. Moore, "Developing Zones of Homogenous Response for the Spokane Valley-Rathdrum Prairie Aquifer Model" (IWRRI 2008) and S.L. Taylor, B.A. Contor and G.S. Johnson, "Spokane Valley-Rathdrum Prairie Aquifer Response Function Effects Spreadsheet" (IWRRI 2008) (**Exhibit 26**).

flows graph (Fig. X-4) illustrates, the depleting impacts of groundwater pumping are felt in the river within weeks.[173]

vi. Future Water Use in the Spokane-Coeur d'Alene Region

Population in Spokane County, Washington and Kootenai County, Idaho has grown substantially over time, and is projected to increase.[174]

Table 3. Current and projected population in the Spokane River basin.

County	2010 Population[175]	2014 or 2015 Population	Projected Population
Spokane County	471,221	488,310[176]	2040 High: 762,387[177] 2040 Medium: 592,969 2040 Low: 501,621
Kootenai County	138, 494	147,326[178]	2025 High 207,000, 2025 Medium: 191,500[179]

[173] Kahle, et al, supra; Drost & Seitz, *supra*.
[174] Some parts of both Spokane and Kootenai Counties lie outside the Spokane River basin, however most of the population of the two counties are within the Spokane watershed.
[175] U.S. Census Bureau data, *at* http://www.census.gov/popest/data/counties/asrh/2014/PEPSR6H.html (last visited February 22, 2016).
[176] WA Office of Financial Management, *at* http://www.ofm.wa.gov/pop/april1/ofm_april1_population_final.pdf (last visited February 22, 2016). 2015 population estimates for the Cities of Spokane, Spokane Valley and Liberty Lake are 316,000.
[177] See WA Office of Financial Management, Washington State Growth Management Population Projections for Counties, *at* http://www.ofm.wa.gov/pop/gma/projections12/projections12.asp (last visited February 22, 2016).
[178] U.S. Census Bureau, *at* http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk (last visited February 22, 2016); *see also* EWU Community Indicators, Kootenai County Population and Growth Rate (**Exhibit 27**).

Population growth estimates are inherently uncertain, but it is reasonable to assume that by 2040, population will increase in the Spokane-Coeur d'Alene region by between 100,000 and 200,000 people. This growth will lead to a commensurate increase in demand for water. It is therefore reasonable to anticipate that municipal water suppliers in Washington and Idaho will increase their use of their inchoate water rights over present-day pumping levels. Ecology can and should take this into account when setting instream flows for the Spokane River. Otherwise, the flows set by rule will not be protective of all instream values for present and future generations.

vii. Impacts of Pumping Future Water Demand in Washington & Idaho on the Spokane River at the Spokane Gauge During Summer

The future withdrawal of presently unused water rights in Washington, and proposed RAFN rights in Idaho, will cause substantial depletions of instream flows in the Washington portion of the Spokane River. Prior to abandoning efforts to recommend an instream flow as part of the WRIA 54/55/57 Watershed Planning process, Spokane County evaluated the impacts on instream flow that will be caused by SVRP pumping to meet future regional demand.[180] Four scenarios were evaluated, three based on official projections of population increases in 2025, and one based on full pumping of inchoate water rights in Washington state. Figure 12 shows the results of the modeling and they are alarming. Year 2025 population (and water demand) increases in Idaho and Washington will result in an average 8.3% decrease in flows. Full use of inchoate rights in Washington will result in a 25.8% decrease in flows [181]

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[179] See Kootenai County Comp Plan, Chapter 4, Fig. 2 (2010) *at* http://www.kcgov.us/departments/planning/compplan5/04%20Population.pdf (last visited February 22, 2016).

[180] Spokane County Water Resources, Technical Memorandum to Spokane River Instream Flow Work Group re: SVRP Model Run-ID/WA Growth Comparison (April 29, 2008) (**Exhibit 28**).

[181] *Id.* An earlier effort arrived at the same results. To assess full pumping, the Watershed Plan utilized Spokane County's model (MIKE-SHE), which due to technical limitations could evaluate only 91% of full pumping. Nonetheless, the model concluded that future pumping of inchoate rights would lead to an "average reduction in Spokane River discharge at Spokane [of] 150 cfs with a maximum during the mid to late summer of about 250 cfs." Spokane County, Watershed Management Plan, Water Resources Inventory Areas 55 & 57 (adopted January 31, 2006), *at*

Figure 13. Modeled Impacts of Future SVRP Groundwater Pumping on Spokane River Flow at the Spokane Gage (Spokane County 2008).[182]

Comparison of Modeled Spokane River Flows in Response to Growth in Idaho and Washington

Year	Original Model Scenario (cfs)	57% Growth in Idaho		29% Growth in WA		57% growth in ID & 29% Growth in WA		Inchoate Rights excercised in WA	
		Flow (cfs)	% reduction	Flow (cfs)	% reduction	Flow (cfs)	% reduction	Flow (cfs)	% reduction
1991	1335	1319	1.2%	1270	4.8%	1254	6.0%		
1992	789	772	2.1%	722	8.4%	705	10.6%		
1993	1796	1781	0.8%	1739	3.2%	1724	4.0%		
1994	445	428	3.7%	372	16.3%	356	20.0%		
1995	1180	1164	1.4%	1117	5.3%	1101	6.7%		
1996	1225	1208	1.3%	1157	5.5%	1141	6.9%		
1997	1865	1850	0.8%	1797	3.6%	1782	4.5%		
1998	1155	1139	1.4%	1083	6.2%	1067	7.6%		
1999	1913	1896	0.9%	1846	3.5%	1829	4.4%		
2000	1084	1067	1.5%	1021	5.8%	1004	7.4%	844	22.15%
2001	671	654	2.4%	601	10.3%	585	12.8%	449	33.04%
2002	1334	1316	1.3%	1267	5.1%	1251	6.3%	1097	17.77%
2003	680	662	2.6%	630	7.3%	617	9.3%	457	32.77%
2004	1264	1243	1.7%	1179	6.7%	1181	6.6%	1045	17.32%
2005	714	693	2.9%	627	12.2%	628	12.0%	487	31.77%
Average Percent Reduction			**1.75%**		**6.96%**		**8.34%**		**25.80%**

According to the Spokane County report, because of distance and timing of groundwater flow, the impacts of pumping in Idaho are approximately one-quarter of the impacts arising from pumping in Washington.

viii. The Spokane River Instream Flow Rule Should Be Revised Upward to Account for Future Impacts of Existing Inchoate Water Rights

For these reasons, Petitioners request that Ecology revise upward the adopted instream flow of 850 cfs at the Spokane gage during middle to late summer months, in view of the impacts that the future exercise of presently inchoate water rights will have on Spokane River instream flows over time. According to two studies using two models, the exercise of Washington inchoate rights is expected to further deplete instream flows at the Spokane

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http://www.spokanewatersheds.org/files/documents/WRIA-55-57-Watershed-Management-Plan-Final-1-31-06.pdf (last visited February 28, 2016) at 31.

[182] Impacts of groundwater pumping increase disproportionately in low flow years, because "[l]ow flow years are often accompanied by greater than average pumping, thus having a larger impact on flows. Also low flow years may correspond with an earlier peak aquifer level which leads to less water available in the aquifer to supplement flows in August." Mike Hermanson, Spokane County Water Resources Project Manager, pers. Comm. (2-22-16).

gage by an average of 200-250 cfs during mid to late summer.[183] The exercise of Idaho municipal water permits will likely reduce instream flows at the Spokane gage by 20 cfs by 2025. Ecology could and should have assessed the impact of the exercise of these *existing* water rights on summer season flows at the Spokane gage. The impact on flow attributable to future exercise of existing rights should have been considered when selecting and adopting instream flows into rule.

Petitioners' request is based in part on new information that was not previously available to Ecology when it originally promulgated the Spokane River Instream Flow Rule. The new information includes the Washington Supreme Court decision in *Cornelius v. Washington State University*, which held that inchoate water rights such as those held by SVRP municipalities, are valid water rights that are not subject to relinquishment or abandonment even in the face of nonuse.[184] In addition, the Idaho "reasonably anticipated future need" applications were filed in December 2014 and January 2015, after the closure of the comment period for the draft Spokane Rive Instream Flow Rule.

Petitioners recognize that the Spokane River Instream Flow Rule cannot impact pre-existing rights, but Ecology's legal obligations to protect and, where possible, enhance instream values when setting instream flows by rule requires the agency to take into account the impacts of these existing rights on instream flows. Indeed, assuming for argument's sake that 850 cfs is the appropriate flow for fisheries (it is not, for reasons discussed elsewhere in this petition), Ecology should have adopted an instream flow that takes into account future reduction of up to 300 cfs based on exercise of inchoate rights in Washington and Idaho. What this means is that Ecology should have set the summer flows at 1150 cfs to account for the inchoate water rights and protect flows of 850 cfs for fish.

E. Ecology Failed to Account for Climate Change When Setting Minimum Instream Flows

Ecology failed to take climate change into account when establishing instream flows for the Spokane River. Ecology stated that the rule "cannot be used to mitigate for climate change impacts," but that is a fallacy and

[183] *Id.*
[184] *Cornelius v. Washington Dept. of Ecology*, *supra*.

unsupported by the law.[185] Specifically, Ecology disregarded how the climate is changing and how that change will affect instream flows now and in the future. When asked by commenters to set flows that account for climate change, Ecology responded:

> Climate change is an important topic. The instream flow rule does not control the hydrograph of the river. It does not require nor control the release of water from storage. It cannot be used to mitigate for climate change impacts. An instream flow establishes the flow levels in the river that must be protected from future new withdrawals of water. It is used to notify junior water users who are interruptible to the senior instream flow right that they need to stop exercising their rights, or to determine the amount of mitigation required, if the flows in the river drop below the instream flow listed in the rule.[186]

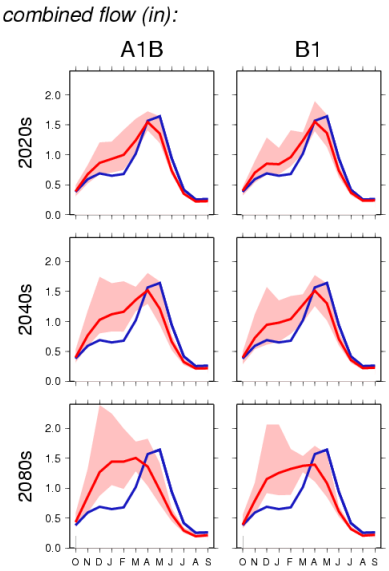
Ecology completely misses the point and its response confirms that it failed to take climate change into account when setting flows for the Spokane River. It is important to recognize that setting high enough minimum instream flows is perhaps the *only* way to protect instream flows from future climate impacts. There is no other mechanism for Ecology to ensure that the river contains sufficient water to protect all instream uses now and in the future. By setting an appropriate instream flow that accounts for the fact that flows are declining and will be getting warmer in the future, that amount of water that is protected in the rule will not be subject to future withdrawal. Therefore, when establishing the instream flow, Ecology must consider what flows will be necessary to protect instream values in the future, not simply today. It failed to do so in the existing rule.

Studies performed by the University of Washington Climate Impacts Group "indicate that the SVRP aquifer area could experience higher temperatures along with wetter fall and winter months and drier spring and summer months. These changes mean increased irrigation and additional withdrawals from the SVRP aquifer. The additional withdrawals would increase the amount of consumptive use and decrease summer flows in the

[185] Ecology Response to Comments at 75.
[186] Ecology Response to Comments at 75.

Spokane River."[187] Studies have shown that "climate changes will decrease Spokane River low flows."[188] Indeed, the hydrograph of the river is expected to change significantly between now and 2080. *See* Figure 12.

Figure 14. Predicted Climate Change Effects on Spokane River Flow.[189]



Climate change will affect the timing and availability of the water resources of the Spokane River and the hydrologically connected groundwater that feeds the Spokane River. "The hydrology of the Pacific

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[187] The Spokane-Valley-Rathdrum Prairie Aquifer Atlas (2015 edition), *at* http://www.SVRPaquiferAtlas.org (last visited February 8, 2016) at 16.

[188] Baxter, et al., Impacts of Future Changes on Low Flow in a Highly Connected River-Aquifer System: A Case Study of the Spokane River & the Spokane Valley-Rathdrum Prairie Aquifer (March 25, 2015) (**Exhibit 4**) at 23.

[189] University of Washington Climate Impacts Group, Site Specific Data, Spokane River at Spokane, *at* http://warm.atmos.washington.edu/2860/products/sites/?site=6031 (last visited February 22, 2016) ("Combined monthly average total runoff and baseflow over the entire basin expressed as an average depth (Units: in). This variable is a primary component of the simulated water balance, and is one of the primary determinants of streamflow. *Blue line shows the simulated historical values, light red bands show the range of all hybrid delta scenarios for the future time period and emissions scenario (10 GCMs). Dark red lines show the ensemble average for the hybrid delta future projections.").* "A1B" and "B1" are two different possible future economic scenarios that make different predictions regarding future CO_2 emissions. *See* University of Washington Climate Impacts Group, Final Report for the Columbia Basin Climate Change Scenarios Project (2010) at Ch. 4-4, *at* http://warm.atmos.washington.edu/2860/report/ (last visited February 29, 2016).

Northwest (PNW – which typically includes the Columbia River basin and watersheds draining to the Oregon and Washington coasts) is particularly sensitive to changes in climate because of the role of mountain snowpack on the region's rivers."[190] Ecology has clearly described the impacts of climate change on state water resources:

> Climate change will increase the variability – widening the range – of future supply and demand of water. As climate change shifts the timing and volume of streamflow and reduces snowpack, lower flows during the summer will make it more difficult to maintain an adequate supply of water for communities, agriculture, and fish and wildlife. Lower summer flows and higher stream temperatures will continue to degrade our water quality and place further stress on salmon.[191]

"A changing climate affects the balance of precipitation falling as rain and snow and therefore the timing of streamflow over the course of the year."[192] Alarmingly, "[s]ummer streamflow is projected to decrease by -34 to -44% on average for Washington State by the 2080s (2070-2099, relative to 1970-1999)."[193] Research has been done to characterize the impact of climate change in the Spokane River basin.[194] A recent study was done:

> to simulate the future hydrology and water resources of the Boise River and Spokane River basins using the climate model projections and more specifically our approach includes the

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[190] Elsner, et al., Implications of 21st Century Climate Change for the Hydrology of Washington State (**Exhibit 29**) at 70.

[191] Ecology, Preparing for a Changing Climate: Washington State's Integrated Climate Response Strategy (April 2012), *at* http://www.ecy.wa.gov/climatechange/ipa_responsestrategy.htm#REPORT (last visited February 22, 2016) at Chapter 7, p. 101-102.

[192] Elsner, et al., Implications of 21st Century Climate Change for the Hydrology of Washington State (**Exhibit 29**) at 70.

[193] University of Washington Climate Impacts Group, State of Knowledge Report, Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers (December 2013), *at* http://cses.washington.edu/db/pdf/snoveretalsok816lowres.pdf (last visited February 22, 2016) at 6-3.

[194] Xin Jin and Venkataramana Sridhar, Impacts of Climate Change on Hydrology and Water Resources in the Boise and Spokane River Basins (Boise State Univ. ScholarWorks, 4-12-12) (**Exhibit 1**).

> methods 1) to downscale the climate model outputs and understand the future trends in precipitation and temperature for a suite of climate models 2) to quantify the timing and magnitude of peak flows and low flows by deriving the basin hydrologic parameters with a thorough calibration 3) to analyze and evaluate the hydrological components by decade for both the basins.[195]

This study found that "the chosen climate models showed a rise in temperature (0.31° C to 0.42° C/decade for Spokane River . . .) and an increase in annual precipitation (4.7% to 5.8% for Spokane River . . .) over a period of next five decades between 2010-2010 . . . ."[196]

Hence, the Spokane River is "expected to have increased streamflows during the peak flow season . . . and decreased flows in the summer."[197] In fact, transient rain-snow watersheds such as the Spokane River basin are expected to experience "substantial impacts by the 2020s," with the basin predicted to transition to rain dominant by 2080.[198] Ecology must not only take into account this critical information when establishing minimum flows for the Spokane River, it must set flows using a buffer that will protect instream values for future generations and reduce the risk of future stream flows that will be deadly to fish.

"[S]hifts in seasonal streamflow in these regions toward higher winter flow and lower summer flow have strong implications for water management."[199] Ecology has recognized that "[o]ur current management systems for water are designed around past patterns of temperature and precipitation. Preparing for and adapting to the impacts of climate change

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[195] *Id*. at 2.
[196] *Id*. at 6.
[197] *Id.*
[198] Elsner, et al., Implications of 21st Century Climate Change for the Hydrology of Washington State (**Exhibit 1**) at 100; University of Washington Climate Impacts Group, State of Knowledge Report, Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers (December 2013) at 6-4 ("Low summer streamflow conditions are projected to become more severe in about 80% of watersheds across Washington State. Rain dominant and mixed rain and snow basins show the greatest and most consistent decreases in minimum flows, while changes for snow dominant basins are smaller.").
[199] Elsner, et al., Implications of 21st Century Climate Change for the Hydrology of Washington State (**Exhibit 1**) at 70.

will require new management approaches that take into account how future conditions are likely to change."[200] Specifically, Ecology has recommended that the agency "[i]ncorporate climate change realities – recognizing that past hydrological data are no longer a reliable guide to project future conditions – into agency decision-making to . . . *Adopt instream flows for fish habitat and ecological purposes.*"[201] As part of this work, Ecology emphasized the importance of pursuing management actions that serve to "increas[e] streamflows for fisheries and improv[e] habitat conditions."[202] This policy acknowledges Ecology's responsibility to not only protect, but enhance instream resources. However, by setting the flows so low in the Spokane River Instream Flow Rule (i.e. the lowest flow possible for fish in the present day), Ecology has done just the opposite.

Put simply, due to the increase in air temperatures caused by climate change, 850 cfs in 2050 will be substantially warmer than 850 cfs in 2015. Ecology states that "[t]emperature in the river is a complex issue, and at this time there is not sufficient data to permit any specific conclusions about habitat."[203] Yet, it is disingenuous at best for Ecology to claim that the 850 cfs flows is protective of the fishery resource for future generations when aquifer inflow to the river will be substantially less in 2050 or 2080.

To fulfill its responsibilities as manager of the state's water resources, Ecology must establish instream flows that take into account the future hydrograph, as opposed to the 2015 hydrograph. Doing so will enable Ecology to fulfill its strategy to "implement water conservation and efficiency programs to reduce the amount of water needed for irrigation, municipal, and industrial users and to improve basin-wide water supply."[204] This is so because all future water right decisions that impact Spokane River flows will be conditioned on compliance with the Instream Flow Rule. While the rule cannot be used to change past water right decisions, the Spokane River Instream Flow Rule is a water right that may not be impaired by later issued water rights.[205] By protecting science-based instream flows

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[200] Ecology, Preparing for a Changing Climate: Washington State's Integrated Climate Response Strategy (April 2012), Chapter 7 at 102.
[201] *Id*. at 112.
[202] *Id*. at 114.
[203] Ecology Response to Comments at 20.
[204] *Id*. at 116.
[205] RCW 90.03.247; *Swinomish Indian Tribal Cmty v. WA Dept. of Ecology*, 178 Wn.2d 571, 593, 311 P.3d 6 (2013) ("[A] minimum flow or level cannot impair existing water

that account for a warming climate, Ecology will simultaneously encourage water conservation and efficiency programs because the rule will reflect the scientific reality that no water is available in the Spokane River to allocate for out-of-stream uses.

The need for flows higher than 850 cfs during the summer months to serve as a buffer for climate change is highlighted by the existing temperature data gathered for the Spokane River.

> Stream temperatures are projected to increase in response to warming and decreases in summer streamflow. Projections for 124 stream temperature locations across the state find that more sites will experience temperatures that elevate stress for adult salmon. Many will experience thermal tolerances for the entire summer season by 2080 (2070-2099), despite rarely being in excess of these temperatures in the recent past.[206]

"Water temperatures in the Spokane River are the product of numerous factors. Major influences include air temperature, Coeur d'Alene Lake temperature, solar input, total flow, and ground water input."[207]

Models that incorporate historic climate and stream flow data for the Spokane River have been used to simulate aquifer flow dynamics.[208] One "model has been used to study aquifer dynamics, artificial recharge, and pumping relocation scenarios."[209] Work is currently underway "to model and forecast combined climate change and human pumping effects on Spokane River low flows."[210] While this work is not yet complete, it is already understood that climate change impacts include both changes in recharge

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rights and a later application for a water permit cannot be approved if the water right sought would impair the minimum flow or level.").

[206] University of Washington Climate Impacts Group, State of Knowledge Report, Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers (December 2013) at 6-3.

[207] Ecology, Spokane River Temperature Profile, Barker Road to Plantes Ferry Park, September 2005, Ecology Publication No. 06-11-005 (February 2006) at 1.

[208] Baxter, et al., Impacts of Future Changes on Low Flow in a Highly Connected River-Aquifer System: A Case Study of the Spokane River & the Spokane Valley-Rathdrum Prairie Aquifer (March 25, 2015) (**Exhibit 4**) at 8.

[209] *Id.* at 7.

[210] *Id.* at 9.

and changes in streamflow[211] and that "climate changes will decrease low flows, exacerbating the current problem."[212] Therefore, when setting instream flows, Ecology must take climate change into account and set higher flows that will ensure that instream flows will be protected not only today, but for future generations as well.

F. Ecology Failed to Properly Consider Costs Imposed by the Rule and its Impacts on Business.

Before adopting a proposed Rule, an agency must "[d]etermine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs *and the specific directives of the statute being implemented*."[213] It must also determine that the rule is the least burdensome alternative for those required to comply with it which will achieve the general goals and objectives of the rulemaking.[214] Ecology's analysis of the proposed Rule was deficient in both of these aspects.

i. The Rule Imposes Unreasonable Costs on the Recreational Boating Industry, Which Were Not Considered by Ecology.

The Spokane River is a critically important resource both for recreationalists and for the businesses which they support. By adopting ultra-low flows, the instream flow becomes the "ceiling" (rather than the floor), the Rule will ultimately guarantee that summer flows will not exceed the 850 cfs level. Declarations from operators of recreation-dependent businesses (submitted as **Exhibits 30-32**) demonstrate that by protecting flows only below this level, the Rule will adversely affect their ability to operate and impose extraordinarily burdensome costs on the industry.

John Wilmot of FLOW Adventures, a rafting and kayaking company based in Spokane, states that at flows around 850 cfs commercial rafting is of low quality, including at places such as the scenic Riverside State Park

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[211] *Id*. at 12.
[212] *Id.* at 14.
[213] RCW 34.05.328(1)(d).
[214] RCW 34.05.328(1)(e).

and the Bowl and Pitcher/Devil's Toenail rapids.[215] In his experience, at flows at or below 850 cfs, FLOW Adventures would be unable to rent rafts to self-guided parties or to operate its kayaking school.[216]

Another river outfitter, Peter Grubb of ROW Adventures, also states that he is unable to operate whitewater trips on the Spokane River, as well as a popular evening "whitewater & wildlife" trip option, at the low summer flows protected by the rule.[217] Mr. Grubb relates that his direct revenue from rafting the Spokane River in 2014 was approximately $56,000, approximately 63% (or $35,280) of which was from whitewater trips which the Rule would potentially eliminate.[218]

Finally, Sean Visintainer, owner of the Silver Bow Fly Shop in Spokane Valley, states that his employees guide fishing clients on the Spokane River approximately 110 days per year at $395/day.[219] At 850 cfs the flow is low enough that his clients are likely to choose other activities over fishing.[220] Mr. Visintainer estimates that his business lost approximately 40 guiding days in 2015 due to the low flows in the river, which were below 850 cfs for 60-plus days.[221] At the $395/day figure, this was a loss of $15,800.

Revenue lost by these and similar business as a result of the low flows established in the Rule would have real consequences in terms of employment and economic development in the Spokane area. Mr. Visintainer typically employs four guides, five retail employees, and two fly fishing instructors.[222] If the low flows envisioned by the Rule were to become the norm (which is likely if Ecology does not amend the rule to increase the minimum flows protected), he would have to reduce staff and it would become "very difficult to market and grow" his business.[223] Mr.

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[215] Declaration of John Wilmot (February 29, 2016) ("Wilmot Decl.") (**Exhibit 30**) at ¶ 11; *Id.* at ¶ 12.
[216] *Id.* at ¶ 13; *Id.* at ¶ 17.
[217] Declaration of Peter Grubb (February 29, 2016) ("Grubb Decl.") (**Exhibit 31**) at ¶ 11.
[218] *Id*. at ¶ 6.
[219] Declaration of Sean Visintainer (February 28, 2016) ("Visintainer Decl.") (**Exhibit 32**) at ¶ 5.
[220] *Id*. at ¶ 13.
[221] *Id*. at ¶ 15.
[222] *Id*. at ¶ 3.
[223] *Id.* at ¶ 16.

Grubb maintains an office in Spokane with two full-time employees specifically to handle his business in the Spokane area, and employs additional guides and support staff (including a full-time driver) during the summer season.[224] Mr. Wilmot typically employs five to six guides/drivers in the summer season.[225] All of these jobs are dependent on adequate river flows to operate rafting, kayaking, or fishing trips.

In addition to direct employment by the outfitters, the Rule has the potential to negatively impact tourism in the Spokane area. Mr. Wilmot estimates that 60-65% of his clients are from outside the Spokane area and that they may come to Spokane, or extend their stays in Spokane, specifically to run the river.[226] Mr. Grubb states that approximately half of his clients are from out of town.[227] Mr. Visintainer states that approximately 40% of his clients are from outside Spokane.[228] He has worked with Visit Spokane, local hotels, and the Parks & Recreation Department to market Spokane area recreation to tourists.[229]

While it is difficult to estimate the dollar value of this potential tourist spending (i.e., hotels, meals, etc.), the river-dependent businesses clearly have an economic impact beyond their direct revenues that Ecology must consider as part of the rulemaking process. By adopting a "rock bottom" minimum flow that reduces opportunities for water-dependent recreation on the Spokane River, the Rule imposes unreasonable costs on the businesses providing guiding and outfitting services as well as having indirect effects on tourism in the area.

ii. The Cost-benefit Analysis was Deficient in Ignoring Costs Imposed on Recreational Businesses.

When adopting a rule, an agency is to "determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented."[230] Here, one of the statutes

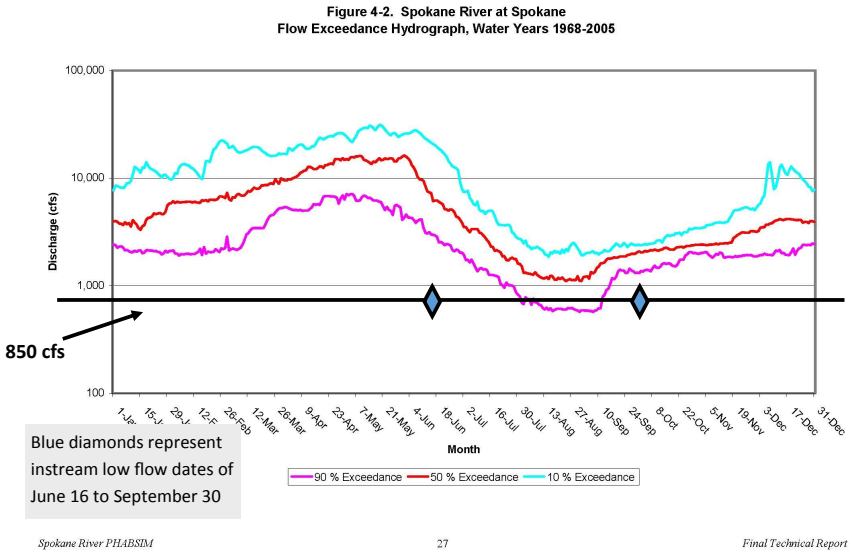
[224] Grubb Decl. at ¶ 5.
[225] Wilmot Decl. at ¶ 8.
[226] Wilmot Decl. at ¶ 9.
[227] Grubb Decl. at ¶ 9.
[228] Visintainer Decl. at ¶ 9.
[229] *Id.* at ¶ 9.
[230] RCW 34.05.328(1)(d).

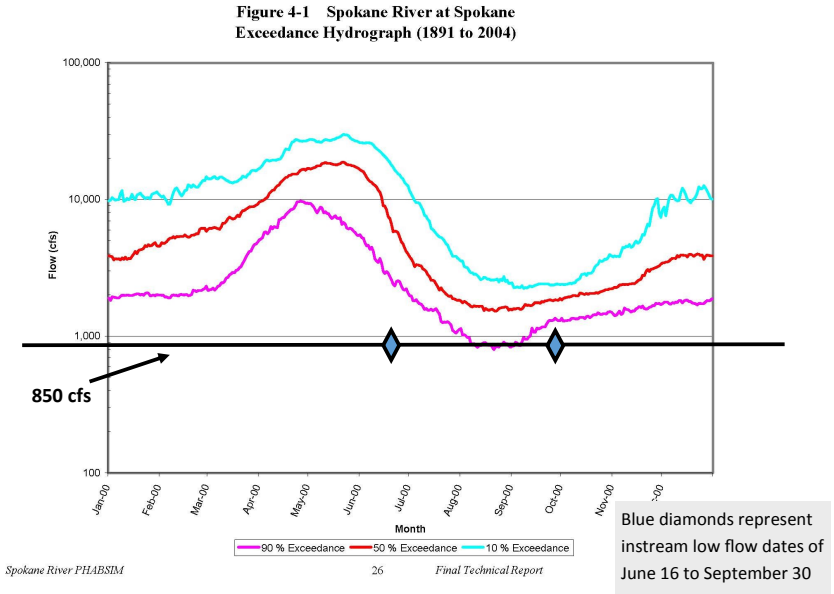
being implemented is RCW 90.54.020, which provides that "[p]erennial rivers and streams of the state *shall* be retained with base flows necessary to provide for preservation of wildlife, fish, *scenic, aesthetic and other environmental values, and navigational values*."[231] The "specific directives" that Ecology must take into account therefore include preservation of scenic and navigational values. The text of the Rule itself recognizes this obligation; the purpose of the Rule is stated as to "[e]stablish instream flow levels necessary to protect wildlife, fish scenic, aesthetic, recreation, . . . [and] navigational values."[232] Hence, the "qualitative and quantitative benefits and costs" to be considered before adopting the Rule must include benefits and costs related to navigational and recreational values.

While Ecology appears to recognize that these values should have been considered in its analysis of the Rule's costs and benefits, it wholly failed to do so. The Final Cost-Benefit and Least Burdensome Alternative Analyses (CBA) examines only four categories of costs: costs associated with streamflow gauging, the increased cost of changing/transferring water rights under the Rule, Ecology's costs for managing compliance, and the cost to mitigate certain new permit-exempt water uses.[233] There is no discussion of the costs related to lost recreational business or opportunities, however. At present, streamflows are higher than 850 cfs for much or all of the summer in most years.[234] In fact, 850 cfs is below even the 90% exceedance curve for much of July and October.[235]

[231] RCW 90.54.020(3)(a) (emphasis added).
[232] WAC 173-557-010(2)(a).
[233] Final Cost-Benefit and Least Burdensome Alternative Analyses, Chapter 173-557 WAC, Water Resources Program for the Spokane River and Spokane Valley Rathdrum Prairie Aquifer and Amendment to WAC 173-555-010, Washington Department of Ecology Publication No. 15-11-005 (2015) ("CBA"), at 11-12.
[234] *See* Figure 13 (Flow exceedance curves).
[235] *Id.*

Figure 15. Spokane River Flow Exceedance Curves from PHABSIM.





By allowing for such a large reduction in streamflows for much of the summer and fall recreation season, the Rule represents a change from

baseline that greatly reduces the opportunities for fishermen, kayakers, canoeists, and rafters to use the river, and therefore reduces the expected revenues from small businesses which provide guiding services and rentals or sales of fishing, kayaking, rafting, and canoeing equipment on the Spokane. The reduction in recreational boating and tourism revenue is unquestionably a cost imposed by the Rule that should be considered. Ecology's cost-benefit analysis (CBA), however, failed to consider these costs.

The CBA compared the effects of adopting the Rule compared to the baseline condition (not adopting a Rule), over a 20-year time horizon, based on certain costs and benefits identified by Ecology. The benefits considered were:[236]

- Compliance with RCW 90.22.010 and RCW 90.54.020
- Provide a baseline for making water availability determinations.
- Reduced uncertainty regarding impairment of senior water rights by water right applications
- Protect Washington State's interests in any interstate water rights conflict.
- Reduced legal and administrative costs ($6M - $15M).

In addition to these enumerated benefits, Ecology stated under the title "Recreational and aesthetic benefits" that:

> Flows protected by the rule will be available to support recreational uses and aesthetic values in the free flowing stretches of the Spokane River. Late summer uses will be consistent with those of other controlled rivers in the intermontane west. Fisheries resources will be protected.[237]

The costs of the Rule were identified as:

- Expense of operating the gage at Greenacres.
- Costs to businesses of paying for changes and transfers to water rights.
- Costs of compliance and enforcement (by entities such as Spokane County).

[236] CBA at 13-4.
[237] *Id.* at 15.

- Cost to mitigate for use of permit-exempt wells.[238]

No category of costs addresses the costs to recreational businesses due to lost sales or business opportunities. The likely costs of implementing this rule should include the economic impacts on recreation and boating described here. As discussed above, the likely costs to the recreational businesses alone due to reduced streamflows (even without considering effects on other recreational users or indirect economic effects on tourism) are of the same order of magnitude as all of the costs that *were* considered, combined.[239] Despite ignoring the costs that the Rule imposes on recreation-dependent businesses and the larger recreational community, Ecology cites the "recreational and aesthetic benefits" that would allegedly stem from "[f]lows protected by the Rule."[240] If the effects on recreational users are to be counted on the benefits side of the ledger, surely the costs imposed on them by the Rule should also be addressed as well.[241]

iii. Alternatives to the Rule Exist that Would Serve the Same Purpose at Less Cost.

Before adopting a "significant legislative rule" as defined in RCW 34.05.328(5), an agency must determine that the rule is the least burdensome alternative for those required to comply with it which will achieve the general goals and objectives of the rulemaking. RCW 34.05.328(1)(e). The Spokane River Rule fails to meet this requirement, as the low summer flow that it specifies imposes very significant costs on river-dependent

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[238] *Id.* at 11-12

[239] Ecology estimated total costs, over the 20-year period and reduced to present value, of $550,800 to $670,800. CBA at 12. Mr. Grubb of ROW Adventures stated that whitewater trips, which the Rule's 850 cfs flow would potentially eliminate, represented $35,280 in 2014 (63% of $56,000; see Grubb Dec. at ¶ 6). Mr. Visintainer of Silverbow Fly Shop estimated that his employees guide fishing clients on the Spokane River approximately 110 days per year (at the $395/day figure he cites, this would be approximately $43,450 annually), and that at 850 cfs, his clients are likely to choose other activities. Visintainer Dec. at ¶5; *id*. at ¶ 13. As an example, he reports that his business lost approximately 40 guiding days (approximately $15,800 in revenue) due to the low flows in 2015 (which were admittedly below 850 cfs for part of the summer). *Id.* at ¶15. While Mr. Wilmot of FLOW Adventures did not cite specific dollar figures, he indicated that a large fraction of his business would be untenable at 850 cfs. Wilmot Dec. at ¶¶ 13-15; *id.* at ¶ 17.

[240] CBA at 15.

[241] RCW 34.05.328(1)(d).

recreational businesses and independent recreationalists, which could readily be mitigated through adoption of an alternative rule with higher summer instream flow.

A higher summer instream flow would mean that periods of higher flows would be protected, and periods of low water that reduce recreation and aesthetic opportunities would be minimized. As the recreational users stated in their Declarations, a higher flow during summer would be beneficial to their businesses. The CBA does not argue that an increase in the summer minimum flows protected by the rule would have any effect on any of the costs that Ecology did identify (gaging costs, professional services relating to applications for new or changed water use, monitoring compliance, and mitigation of permit-exempt well use). Finally, there is no evidence that higher streamflows would be in any way detrimental to fish.

iv. The Small Business Economic Impact Statement is Deficient Because it Ignores Significant Costs on Recreational Businesses.

If a Rule imposes "more than minor" costs on small business, Ecology must perform an analysis of these impacts and prepare a Small Business Economic Impact Statement (SBEIS).[242] The SBEIS must "consider, based on input received, whether compliance with the rule will cause businesses to lose sales or revenue."[243] Where it is "legal and feasible in meeting the stated objectives of the statutes on which the rule is based," the agency is to "reduce the costs imposed on small business."[244]

For the Spokane River Instream Flow Rule, Ecology did prepare an SBEIS that expressly states that one of its purposes is to evaluate whether the proposed rule "could cause businesses to lose sales or revenue."[245] This document is grossly deficient, as its analysis considered only the costs that the Rule might impose on certain consumptive users of water, and ignored any costs imposed on other types of businesses, such as recreational

[242] RCW 19.85.030(1)(a).
[243] RCW 19.85.040(1).
[244] RCW 19.85.030(2).
[245] Small Business Economic Impact Statement, Chapter 173-557 WAC, Water Resources Program for the Spokane River and Spokane Valley Rathdrum Prairie Aquifer and Amendment to WAC 173-555-010, Washington Department of Ecology Publication No. 14-11-005 (2014) ("SBEIS") at 5.

boaters.[246] The only costs to business that are assessed are possible costs of professional services relating to new appropriations of water, or to permit changes or transfers of water use.[247]

Ecology contends "only new appropriators of water or future changes and transfers are required to comply with the proposed rule."[248] This ignores the obvious fact that any business that is dependent on water in the Spokane River is forced to deal with the consequences of the rule (in effect, they have no choice but to "comply" with it). Ecology further states that the only category of business that would be affected by the Rule is water supply and irrigation systems, despite having received comments from numerous river-dependent businesses concerned over the proposed Rule's potential to severely impact their business and revenues.[249]

By excluding the direct loss of revenue that the 850 cfs instream flow would cause to recreation-dependent businesses such as rafting companies, Ecology fails to properly consider the impact on small businesses in this industry.[250] Ecology then improperly concluded "there would not be any impacts on small business revenue." [251] This determination was made with no consideration of the costs to recreation-dependent businesses, and in particular with no discussion of how the Rule would affect their revenues. This is contrary to RCW 19.85.040 that explicitly directs Ecology to consider whether businesses would lose sales or revenue. In fact, not only does the SBEIS completely ignore the effect that a reduction in streamflows could have on recreation-dependent businesses, but it actually makes the claim (with no supporting evidence or discussion) that setting an instream flow will "protect existing small businesses such as fishing guides, rafting companies, tourism related businesses, and waterfront restaurants."[252]

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[246] *Id.* at 7.
[247] *Id*. at 2-4.
[248] *Id* at 5.
[249] *Id.* at 7
[250] Several commenters made exactly this point in their comments on the proposed Rule, all of which are incorporated herein by reference. *See, e.g.,* Comments from American Whitewater (Ecology Response to Comments at 157), FLOW Adventures (*Id*. at 179), ROW Adventures (*Id.* at 220), Samantha Mace (*Id.* at 203), David Monthie (*Id.* at 209), and Out There Monthly (*Id.* at 215).
[251] SBEIS at 5.
[252] *Id.* at 7.

G. The Low Summer Flows Do Not Fulfill Ecology's Responsibilities Under the Public Trust Doctrine

The Public Trust Doctrine is an ancient legal doctrine that secures for future generations of citizen beneficiaries a healthful and pleasant environment. The Doctrine imposes an affirmative and mandatory duty on the State to prevent substantial impairment to the state's essential natural resources, including water.[253] The Public Trust Doctrine is also an expression of fundamental constitutional rights held by present and future generations preserved in the Washington state constitution.[254]

The State of Washington has repeatedly reiterated its role as trustee of the state's essential natural resources, including the waters of the state. Under the Constitution, "[t]he state of Washington asserts its ownership to the beds and shores of all navigable waters in the state up to and including the line of ordinary high tide, in waters where the tide ebbs and flows, and up to and including the line of ordinary high water within the banks of all navigable rivers and lakes."[255] The Washington Supreme Court has interpreted this declaration of ownership as having "partially encapsulated"[256] the Public Trust Doctrine.[257] In Washington's seminal public trust case, the court held "that the sovereignty and dominion over this state's tidelands and shorelands, as distinguished from title, always remains in the state and the state holds such dominion *in trust* for the public."[258] Most recently, a Washington court recognized, "the State has a

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[253] *See Caminiti v. Boyle*, 107 Wn.2d 662, 670, 732 P.2d 989 (1987)*; Ill. Cent. R.R. v. Illinois*, 146 U.S. 387, 453 (1892) (prohibiting government management of trust resource in a way that results in "substantial impairment of the public interest in" the resource)

[254] *Citizens for Responsible Wildlife Mgmt. v. State*, 124 Wn.App. 566, 577, 103 P.3d 203 (2004) (Quinn-Brintall, C.J., concurring) ("But the sovereign's duty to manage its natural resources recognized in the public trust doctrine is not time limited, and the primary beneficiaries of the sovereign's exercise of its public trust are those who have not yet been born or who are too young to vote. Thus, the sovereign authority to regulate natural resources is circumscribed by its duty to manage natural resources well for the benefit of *future* generations. And when the sovereign exercises this authority, by executive order, legislative enactment or public initiative, the tenets of the public trust doctrine must be satisfied.").

[255] Wash. Const. art. XVII, § 1.

[256] Use of the term "partially encapsulated" infers that the public trust doctrine exists in other parts of Washington law as well.

[257] *Rettkowski v. Ecology*, 122 Wn.2d 219, 232, 858 P.2d 232 (1993).

[258] *Caminiti v. Boyle*, 107 Wn.2d 662, 669, 732 P.2d 989 (1987) (emphasis added).

constitutional obligation to protect the public's interest in natural resources held in trust for the common benefit of the people of the State."[259]

The state has exerted sovereign dominion and control over a variety of natural resources, rendering those resources subject to the protections of the Public Trust Doctrine as well. For example, "all waters within the state belong to the public . . . ."[260] The Legislature has also declared that "[w]ildlife, fish, and shellfish are the property of the state" and state agencies "shall preserve, protect, perpetuate, and manage the wildlife and food fish, game fish, and shellfish in state waters and offshore waters . . . in a manner that does not impair the resource."[261] Finally, under the Washington Clean Air Act, "[a]ir is an essential resource that must be protected from harmful levels of pollution. Improving air quality is a matter of statewide concern and is in the public interest."[262] The Public Trust duty includes not only the prevention of substantial impairment to the resource, but the duty to affirmatively protect the resource as well.[263]

The Washington Supreme Court has found "the duty imposed by the public trust doctrine falls to the State, not any particular agency thereof."[264] But while the ultimate sovereign responsibility to protect and prevent substantial impairment to the trust lies with the State, because it is constitutionally-grounded, state agencies must comply with the mandates of the Public Trust Doctrine when exercising delegated statutory authority.[265] Moreover, the legislature has the authority to delegate management

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[259] *Foster et al. v. Ecology,* No. 14-2-25295-1 SEA (Order Affirming The Department of Ecology's Denial of Petition for Rulemaking) (King County Superior Court) (November 19, 2015) at 8.
[260] RCW 90.03.010.
[261] RCW 77.04.012.
[262] RCW 70.94.11
[263] *See, e.g., Postema v. Pollution Control Hearings Bd.*, 142 Wn.2d 68, 94-95, 11 P.3d 726 (2000) (quoting RCW 90.54.020(3)(a)) ("Ecology is required to protect surface waters in order to preserve the natural environment, in particular 'base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values.'").
[264] *Rettkowski*, 122 Wn.2d at 232.
[265] RCW 34.05.570(4); *Foster et al. v. Ecology,* No. 14-2-25295-1 SEA (Order Affirming The Department of Ecology's Denial of Petition for Rulemaking) (King County Superior Court) (November 19, 2015) at 7 ("Washington courts have found this provision [Wash. Const. art. XVII, § 1] requires the State through its various administrative agencies, to protect trust resources under their administrative jurisdiction.").

responsibility over trust resources to particular state agencies, with the expectation that the state agencies will act in accordance with the requirements of the trust. The Public Trust Doctrine, therefore, imposes an affirmative duty upon the Washington Department of Ecology, as the agency with delegated authority to manage and protect the waters of the state, to take action to protect the resource for present and future generations. This includes actions designed to protect and enhance instream flows, given the significance of water flows to the viability of instream resources. "The Public Trust Doctrine mandates that the State act through its designated agency to protect what it holds in trust," and that includes the waters of the state.[266]

Ecology, as the state agency with delegated authority to protect and, where possible enhance, instream values, has a fundamental responsibility to protect instream flows in a manner that fulfills its fiduciary responsibilities as trustee of the state's water resources. By adopting a low instream flow of 850 cfs from June 16-September 30 that neither protects nor enhances the fishery, recreation and aesthetics (as described above), Ecology has failed to fulfill its responsibilities under the Public Trust Doctrine to protect and manage appropriately the Spokane River. Moreover, Ecology's decision to set such lows flows will lead to substantial impairment of the river in light of the inchoate water rights that can be put to use and how climate change will be affecting instream flows.[267]

It is important to note that Petitioners are not asking Ecology to use the Public Trust Doctrine as a means to go above and beyond Ecology's delegated statutory authority. Rather, when exercising its existing statutory authority to set instream flows, Ecology must establish flows that protect public trust resources for present and future generations and prevent substantial impairment to the resource. Both RCW 90.54.020(3) and RCW 90.22 mandate the protection of instream flows for navigation and fisheries,

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[266] *Foster et al. v. Ecology,* No. 14-2-25295-1 SEA (Order Affirming The Department of Ecology's Denial of Petition for Rulemaking) (King County Superior Court) (November 19, 2015) at 8.

[267] *Rettkowski v. Dep't of Ecology*, 122 Wn.2d 219, 858 P.2d 232 (1993) ("The [Public Trust] doctrine prohibits the State from disposing of its interest in the waters of the state in such a way that the public's right of access is substantially impaired, unless the action promotes the overall interests of the public.").

(uses traditionally protected by the Public Trust Doctrine)[268] as well as other uses such as environmental quality, recreation and aesthetics.[269] Both of these statutes embody constitutionally-reserved public trust principles and Ecology cannot exercise its authority in a manner that operates to substantially impair the resource or destroy the public's interest in the continued viability of the resource. RCW 90.54.020(3) and RCW 90.22 are similar in purpose to the Shoreline Management Act[270] because both statutes are designed to protect public access and use of navigable waterways for present and future generations. The Washington Supreme Court has held "that the requirements of the 'public trust doctrine' are fully met by the legislatively drawn controls imposed by the Shoreline Management Act of 1971, RCW 90.58."[271] That was because the Shoreline Management Act was designed to "promote and enhance the public interest" and "protect[] against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life, while protecting generally public rights of navigation and corollary rights incidental thereto."[272] Similarly here, the instream flow statutes (RCW 90.54.020(3) and 90.22) must be interpreted and applied in a manner that protects and enhances the public's interest in the waters of this state.

The few cases interpreting the scope of Ecology's authority under the state's water right permitting statutes are not relevant to Ecology's responsibilities to set instream flows in a manner that fulfills the mandates of the Public Trust Doctrine. In those three water right appeals,[273] Washington courts found that the Public Trust Doctrine was not "germane to resolving the issues" raised in the case and stated in dicta that Ecology's duty to issue

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[268] *Caminiti*, 107 Wn.2d at 669 ("The *jus publicum* interest as expressed in the English common law and in the common law of this state from earliest statehood, is composed of the right of navigation and the fishery.").
[269] *Id.* ("More recently this *jus publicum* interest was more particularly expressed by this court in *Wilbour v. Gallagher*, 77 Wn.2d 306, 316, 462 P.2d 232 (1969) as the right 'of navigation, together with its incidental rights of fishing, boating, swimming, water skiing, and other related recreational purposes generally regarded as corollary to the right of navigation and the use of public waters.'").
[270] RCW 90.58.
[271] *Caminiti*, 107 Wn.2d at 670.
[272] *Portage Bay-Roanoke Park Comm'ty Coun. v. Shorelines Hearings Bd.*, 92 Wn.2d 1, 4, 593 P.2d 151 (1979).
[273] *Rettkowski*, 122 Wn.2d at 232; *R.D. Merrill v. PCHB*, 137 Wn.2d 118, 134 (1999); *Postema*, 141 Wn.2d 68 (2000).

water rights comes exclusively from the Water Code.[274] All three cases involved enforcement and permitting of water rights and are limited to that context. Furthermore, Petitioners are not asking Ecology to go beyond its statutory mandates to set appropriate instream flows for the Spokane River. When deciding the water right cases, the courts did not overrule decisions applying the Public Trust Doctrine in the shoreline or aquatic lands management context. Because Ecology's statutory authority to set instream flows is analogous to the Shoreline Management Act, the agency has an affirmative responsibility to set instream flows that protect and enhance all instream values of the Spokane River in order to comply with both RCW 90.54.020(3), RCW 90.22 *and* the Public Trust Doctrine. For that reason, Ecology must increase the summer low flows set in the Spokane River Instream Flow Rule.

H. By Adopting Such Low Summer Flows, Ecology Has Violated State-Wide Instream Flow Policies.

The method that Ecology used to select the Spokane River instream flow for fish contradicts long-standing state policies relating to instream flows and fisheries protection.

i. River Variability is Normal.

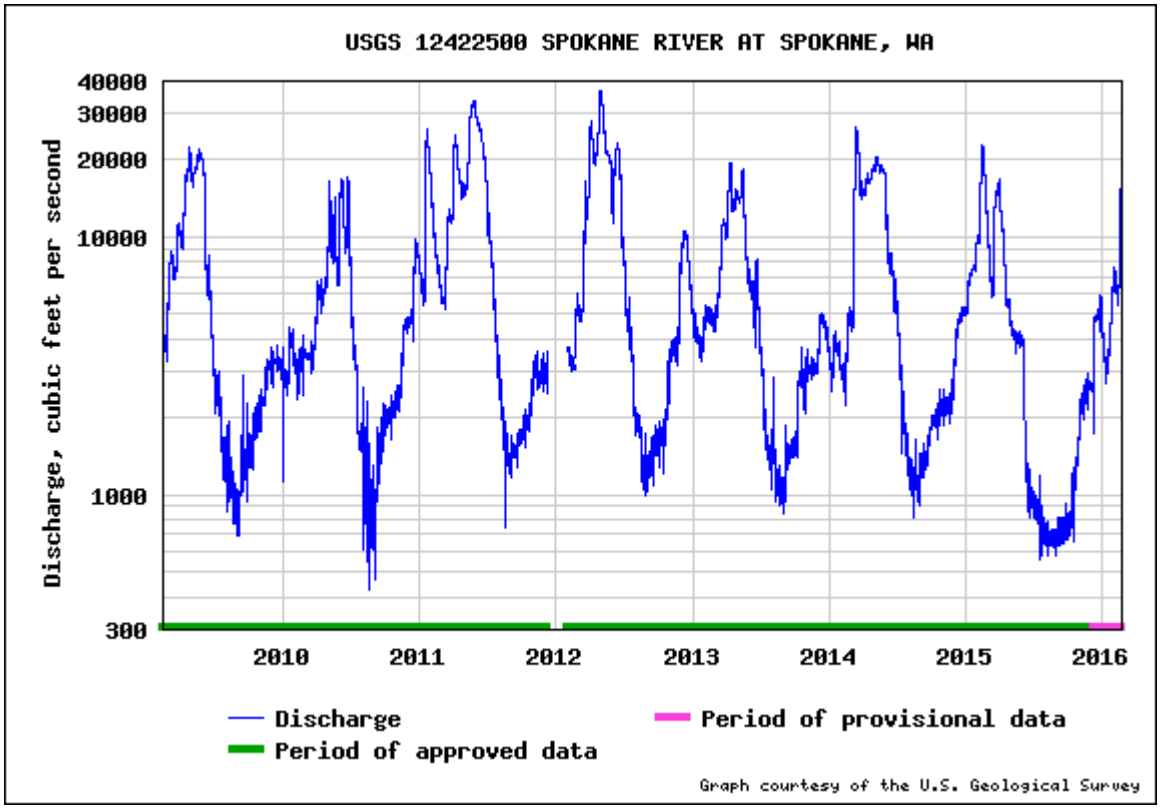
It is reality that stream flows are variable according to each year's precipitation and other weather factors. In some years flows are high, while in some years they are low.[275] This variability is strongly present in the Spokane River, where spring season flows (as measured at the Spokane gage) can approach and exceed 20,000 cfs, but summer flows dip below 850 cfs, as they did in the 2015 drought. *See* Figure 14, below.

High flows that occur only once in ten years, called the "10% exceedance flow," produce a variety of ecological benefits. In particular, 10% exceedance flows that occur during the "low flow" seasons promote salmonid (trout) rearing and growth. They also have a positive correlation with temperature and dissolved oxygen, which in turn, benefits cold-water

[274] *Rettkowski*, 122 Wn.2d at 232-33.
[275] U.S. Geological Survey, Changes in Streamflow Timing in the Western United States In Recent Decades, Fact Sheet 2005-3018 (March 2005), *at* http://pubs.usgs.gov/fs/2005/3018/pdf/FS2005_3018.pdf (last visited February 28, 2016).

salmonid fisheries such as those in the Spokane River.[276] For the past seven years, summer flows have ranged from above 1,000 cfs to near 500 cfs. See Fig. 15. Yet, under the Spokane River Instream Flow Rule, only flows at 850 cfs or less are protected.

Figure 16. Spokane River Annual Flows as Measured at Spokane Gage, 2009-2016 (partial) (USGS).



ii. Ecology & WDFW Recognize the Importance of High Flows.

In setting instream flows pursuant to RCW 90.54 and 90.22, Ecology typically works with WDFW to select flows that recognize and protect the variability of river hydrology.[277] The two agencies routinely recognize the

[276] Caldwell, B., Protection of low flow periods critical for fish production (undated*), at* http://www.ecy.wa.gov/programs/wr/instream-flows/Images/pdfs/flowfish/isf_fishflows_caldwell.pdf (last visited February 28, 2016)..
[277] RCW 90.03.247.

ecological benefits of high flows and seek to protect those benefits when selecting instream flows. According to Ecology:

- "To address the needs of the many different species that depend on adequate stream flows, water managers try to ensure there is sufficient water in the stream at different times of year. State law is clear that instream flows must be set at levels that protect and preserve fish and other instream values over the long-term. Some years of higher flows are necessary to support healthy fish runs, so instream flows establish month-by-month levels that include these higher flows."
- "If the instream flow number is high relative to the average stream flow in the stream in the summer, this does not mean that the instream flow number is wrong. Rather it means that the stream will provide more fish habitat in wet years than in dry ones. *Protecting the occasional "good water year" is needed to preserve a healthy population of fish.* If we want to protect the habitat available in those good wet years, then the instream flow needs to be set at that higher flow level."
- "An instream flow is not the lowest amount of water that has occurred in the stream according to stream flow records. State law is clear that instream flows are to protect and preserve fish and other instream resources *over the long-term*.
    - If an instream flow is set at an extremely low number so it can always be achieved during the summer, then we can expect:
        - New water rights will be issued by Ecology.
        - The salmon population should drop as stream flow and available habitat drops.
        - Eventually the fish population would collapse."
- "If the instream flow number is high relative to the average stream flow in the summer, this does not mean that the instream flow number is wrong. Rather *it is a red flag that signals the fish have barely enough water to survive*, and no surplus water is available for new water rights if fish and instream resources are to be protected."[278]

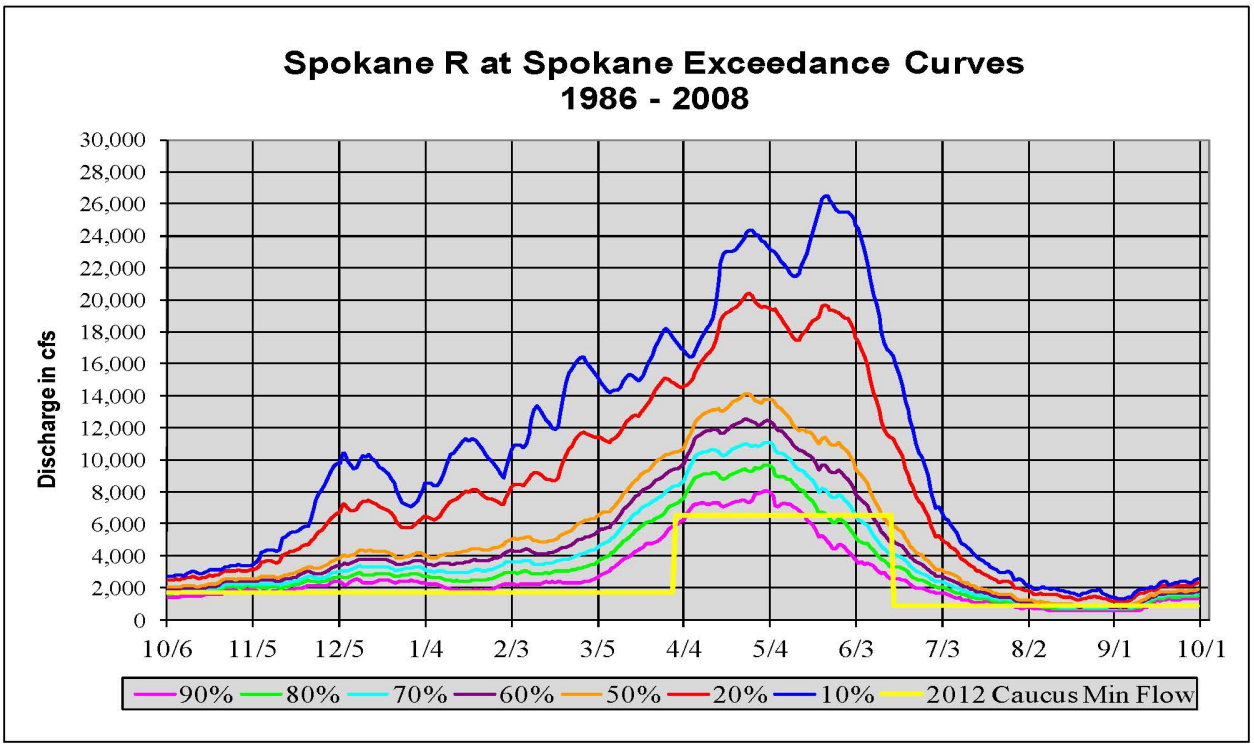
[278] WA Dept. of Ecology, Intro to Instream Flows and Instream Flow Rules, *at* http://www.ecy.wa.gov/programs/wr/instream-flows/isf101.html (last visited February 22, 2016).

It is state policy to adopt instream flows that protect high flows that may occur only infrequently (i.e., 10% exceedence flows).[279]

iii. The Spokane River Summer Flow is an Unprecedented Ultra-Low "90 Percent Exceedance Flow."

For the period June 16-September 30, Ecology adopted an instream flow for the Spokane River that is a true "minimum flow," i.e., is likely to be met or exceeded between 50 to 90% (or more) of the time. *See* Figure 15. In so doing, however, Ecology violated state instream flow policies. It should be noted that the exceedance curves in Figure 15 are based on an averaging of flows between 1986 and 2008, and include neither historic flow data (when flows were much higher) nor post-2009 data when minimum discharges from Post Falls dam increased. In other words, Ecology has adopted flows that are lower than all but 10% of the lowest flows on record for the Spokane River.

Figure 17. Spokane River Exceedance Flow Graphs (WDFW 2008).



[279] *Id.*

V. Description of Proposed Rule Amendment

For the reasons set forth above, the adopted summer instream flows of 850 and 500 cfs neither protect nor enhance instream resources of the Spokane River. Furthermore, it appears that Ecology selected the 850 cfs flow, not based upon science, but solely to be consistent with the minimum discharge requirements adopted in the 401 Certification for the Spokane River Hydroelectric Project. In that 401 Certification order:

> Avista shall operate the Monroe Street and Upper Falls facilities as provided in this condition to discharge the following minimum flows as measured at the Spokane River at Spokane Gage (USGS 12422500) during the specified times of the year:
>
> June 16-September 30 850 cfs
>
> October 1-March 31 1100 cfs
>
> The minimum discharge flows included in this condition are based on recommended flows necessary to protect rainbow trout and mountain whitefish habitat.

However, it is not proper for Ecology to unilaterally adopt the instream flow requirements established in a 401 Certification when implementing its statutory authority to set instream flows by rule. "Bypass flow requirements as conditions in a water quality certificate do not reflect or establish an applicant's proprietary right to water, but 'merely determines the nature of the use to which that proprietary right may be put under the Clean Water Act.'"[280] Instead, Ecology should utilize the best scientific information available and evaluate what flows are needed to protect and enhance *all* instream uses in the Spokane River in order to strike the appropriate balance among those uses.

[280] *Public Utility Dist. No. 1 od Pend Oreille County v. State Dep't of Ecology*, 146 Wn.2d 778, 817, 51 P.3d 744 (2002) (quoting *Pub. Utility Dist. No. 1 of Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 721 (1994)).

A. Recommended Fisheries Flow

According to Professor Scholz, the instream flow for the Spokane River summer season below Monroe Street dam should be a minimum of 1800-2800 cfs. This target is based on historic flow data and biological needs of trout and whitefish species.[281] The Spokane River rule's target flows should be tied to biological objectives, including keeping summer water temperatures low, protecting riffle habitat, and maintaining appropriate flows to dilute pollution.[282] Additional monitoring stations are needed to assess flow and temperature throughout the length of the river and best determine fish habitat needs.[283]

The instream flow should be amended to separately quantify the two sources of water that contribute to Spokane River instream flows, i.e., water releases from Lake Coeur d'Alene and the discharge of the Spokane-Rathdrum Aquifer to the Spokane River.[284] Because most Spokane River water right applications seek access to groundwater, the instream flow rule should quantify the contribution of (colder) groundwater to instream habitat for fisheries. These two sources have vastly different temperatures during the summer months and therefore contribute differently to fisheries habitat. Using temperature as a measurement of flow has precedent: the Chamokane Creek water right adjudication targets temperature as primary indicator of correct flow for that stream, which is a tributary of the Spokane River.[285] This approach could be used in the Spokane River as well.

B. Recommended Recreation & Aesthetic Flow

As discussed above, the summer low flows of 850 cfs established by the rule do not protect, let alone enhance, recreation and aesthetic values of the Spokane River. As part of its report, Confluence Research & Consulting "developed two illustrative alternatives based on existing recreation and aesthetic information that apply the different principles to the Middle

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[281] Scholz Report at pp. 7-8.
[282] *Id.* at 22-23.
[283] *Id.* at 22-23.
[284] *Id.*
[285] *U.S. v. Anderson*, Dckt. No. 3643, Judgment, at p. 4, ¶ 5 (9-12-79) ("This reserved right is decreed to the extent of at least 20 cfs of water . . . together with such additional water . . . as is necessary to maintain at all times the water temperature below [Chamokane] Falls at 68° F or less.") (**Exhibit 33**).

Spokane."[286] Under the first alternative, Ecology could utilize a "trigger-based claim" that "applies whenever the natural regime provides that flow, not just during a specified time period. For example, with triggers at 1,000 and 1,500 cfs, a trigger claim would protect 1,000 cfs whenever available flows are between 1,000 and 1,500 cfs, but if flows exceed 1,500 cfs, that amount is protected."[287] Using the information available on recreation boating, the following flows could serve as an example of a trigger-based claim:

- 1,000 cfs (minimum acceptable boating flow for small craft)
- 1,500 (optimal technical boating at mid-point of the range)
- 2,000 (start of acceptable standard boating)
- 5,000 (optimal standard boating, mid-point of the range)
- 10,000 (start of acceptable challenging boating)
- 15,000 (optimal challenging boating, mid-point of the range)[288]

These flows are merely an example of alternatives and "[o]ther thresholds based on boating or aesthetic information could be developed if additional studies were conducted."[289]

The second alternative for Ecology to consider is a "percentage-based claim" that provides Ecology with "the ability to protect more days of different recreation or aesthetic opportunities in years when flows are available, with greater diversity between the threshold flows (just like a natural hydrograph). The claim doesn't require predictions about timing of flows, it naturally adjusts to protect more days and flows in wet years and less in dry years, and a known percentage is always available for out-of-stream use."[290]

VI. Conclusion

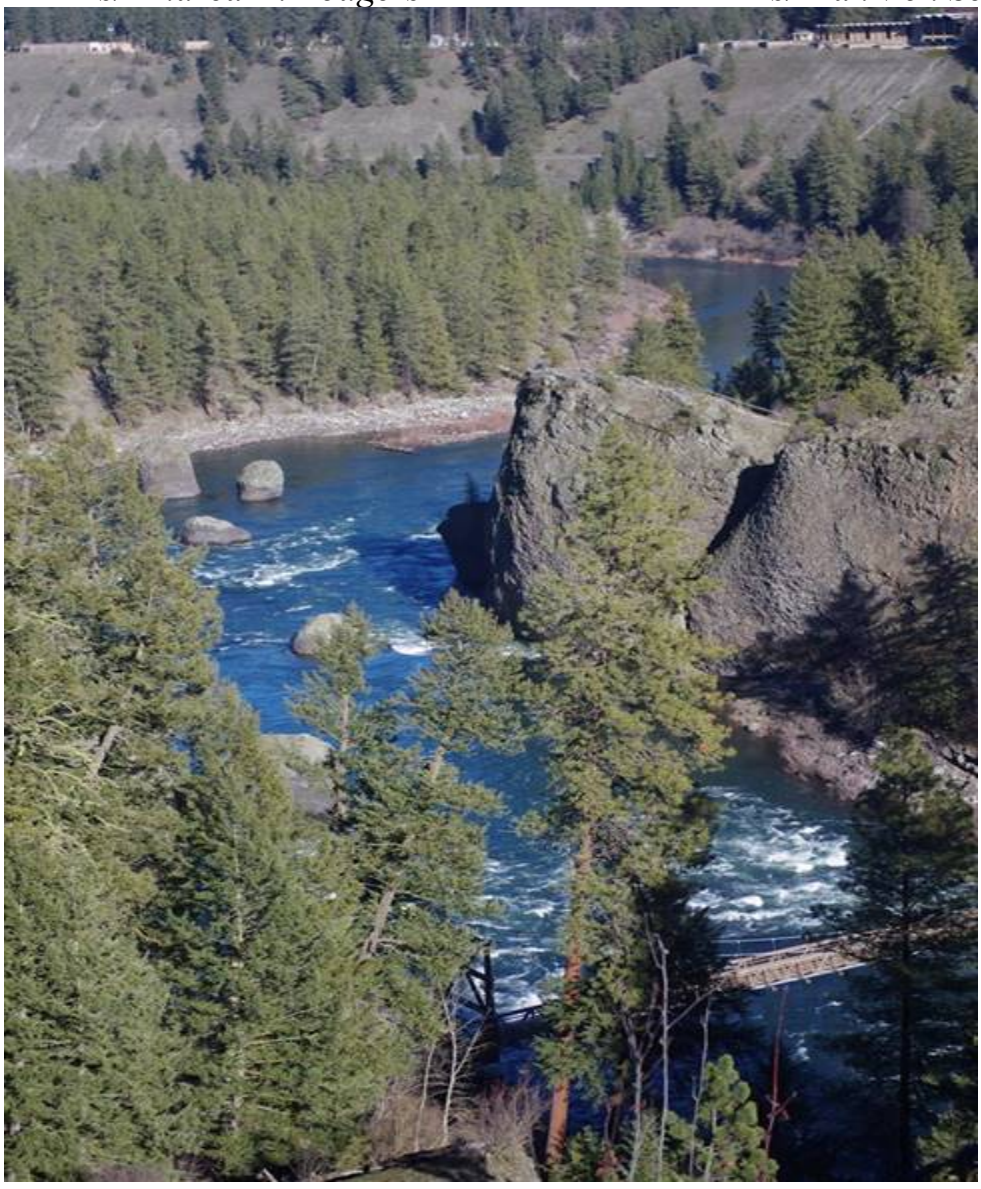
Ecology is presented with an extraordinary opportunity to protect the Spokane River for present and future generations in the face of daunting environmental stresses caused by factors such as climate change and future

[286] CRC Report (**Exhibit** 7) at 28.
[287] *Id.* at 30.
[288] *Id.* at 30.
[289] *Id.*
[290] *Id.* at 32-33.

water demand. We respectfully ask that Ecology carefully consider the best available scientific information when establishing regulatory instream flows for the river. The information clearly supports higher flows during the summer season to protect all instream values, including fish, recreation and aesthetics. Petitioners respectfully request that Ecology initiate rulemaking proceedings to amend the Instream Flow Rule, WAC 173-557-050, for the Spokane River in accordance with RCW 34.05.320.

Sincerely,

s/ Andrea K. Rodgers *s/ Dan Von Seggern*



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