



CLEAN, FLOWING WATERS FOR WASHINGTON

The Center for  
**Environmental Law & Policy**

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PO Box 47600  
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Dear Ms. Sawabini:

The Center for Environmental Law and Policy appreciates this opportunity to provide comments<sup>1</sup> on the Washington Department of Ecology's Proposed Amendments to WAC 173-501 (the "Proposed Rule"), and the associated "Rule Supporting Document."

CELP believes that the Proposed Rule fails to meet the requirements of the 2018 Streamflow Restoration Act (RCW 90.94) and would be vulnerable to challenge should it become effective. There are significant flaws in the assumptions used to calculate projected new permit-exempt water use, which would lead to a failure to provide adequate water to offset these uses. The projects identified as sources of offset water are in many cases very uncertain to be carried out or to generate the projected water offsets, and in some cases have not been demonstrated to be feasible. Perhaps of greatest concern, the reliance on a "Rule Supporting Document" (RSD), which appears to have no binding force or effect, to ostensibly meet the statute's requirements that water use be offset and a "Net Ecological Benefit" for the watershed be produced provides no assurance that any of the projects identified would ever be carried out. Further, the adaptive management program as described appears to be wholly ineffective. Both the Proposed Rule and the RSD wholly ignore the likely effects of climate change, which will predictably alter both water use and water availability patterns. CELP suggests that the better approach would be to make compliance with RCW 90.94.020's offset requirement a condition for the continued availability of new permit-exempt water use. This would not only ensure that new water use be offset, as the Legislature commanded, but would provide the opportunity to correct for climate change effects.

**Water quantity and quality in the Nooksack Basin (WRIA 1) is already consistently and significantly impaired.**

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<sup>1</sup> These comments were developed with the research assistance of the University of Washington Regulatory Environmental Law & Policy Clinic.

That current instream flows are inadequate to support the salmon and steelhead uses is not new information. In carrying out its duties under the Endangered Species Act, the National Marine Fisheries Service has stated that poor habitat productivity, not harvest, is the primary factor preventing chinook rebuilding in the Nooksack.<sup>2</sup> NMFS' review of implementation of its Chinook Recovery Plan indicated that salmon habitat has continued to decline.<sup>3</sup> More recently, the Lummi Nation and Nooksack Tribe have identified inadequate instream flows as a factor limiting salmon production in the Nooksack basin.<sup>4</sup> Ecology's RSD also acknowledges that minimum instream flow levels are often not met. For example, minimum instream flows are not met more than 50% of the time in July and more than 60% of the time in August and September.<sup>5</sup> As discussed in detail later in these comments, climate change will exacerbate poor instream flow conditions and high stream temperatures. In short, even absent further development and consumptive use of water, salmon habitat conditions in the Nooksack basin are dire and growing worse. There is no more room for additional risk to salmon and their habitat. Accordingly, Ecology must take a risk-averse approach at every step of its analysis and decision-making. Unfortunately, Ecology's Proposed Rule for the Nooksack fails to reflect a reasonable consideration of the risks that face salmon as well as basin residents with senior water rights and other beneficial uses.

**RCW 90.94.020 requires that new permit-exempt water use be offset through water-for-water mitigation.**

In enacting RCW 90.94, the Legislature attempted to create a "this-for-that scheme" that provides flexibility for permit-exempt uses but does not unilaterally or significantly reduce the many longstanding protections of the water code for instream resources. The statute calls for Ecology to work with initiating governments to review existing watershed plans to:

- identify the *potential impacts* of permit-exempt well use;
- identify evidence-based conservation measures; and
- identify projects to improve watershed health.<sup>6</sup>

The statute requires that "initiating governments *must* update the watershed plan to include recommendations for projects and actions that *will* measure, protect, and enhance instream resources and improve watershed functions that support the recovery of threatened and endangered

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<sup>2</sup> See NMFS, Proposed Evaluation of and Pending Determination on a Resource Management Plan (RMP), Pursuant to the Salmon and Steelhead 4(d) Rule, Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component (NMFS Tracking No. F/NWR/2010/06051) (December 14, 2010) at 69.

<sup>3</sup> See NMFS, Puget Sound Chinook Salmon Recovery Plan – 2011 Implementation Status Assessment Final Report, 2011, at 43 (Habitat quality continuing to decline. Current habitat protection tools generally the same as those that failed to forestall ESA listing).

<sup>4</sup> See Treaty Tribes of Western Washington, 2016 State of Our Watersheds at 81 (continued development of permit-exempt wells conflicts with the guidance of the Chinook Recovery Plan); See *also id.* at 143-45 (discussing impacts of climate change on hydrograph and stream temperatures) available at: <https://nwifc.org/publications/state-of-our-watersheds/>

<sup>5</sup> See Washington Department of Ecology, Draft Rule Supporting Document for Amendment to Chapter 173-501 WAC Instream Resources Protection Program - Nooksack Water Resource Inventory Area (WRIA) 1 (Publication 19-11-093 (November 2019) at 19, Figure 3.1 (hereinafter "Rule Supporting Document" or "RSD").

<sup>6</sup> RCW 90.94.020(2) (emphasis added).

salmonids.”<sup>7</sup> Further, “[a]t a minimum, the watershed plan must include those actions that the planning units determine to be *necessary* to offset *potential impacts* to instream flows associated with permit-exempt domestic water use.”<sup>8</sup> Recognizing that “potential impacts” may ensue due to further new permit-exempt well development, the Legislature mandates that Ecology and local governments must identify measures that are necessary to offset or otherwise prevent those potential streamflow impacts from being realized in the Nooksack basin. This is not a recipe for allowing impairment of instream flows; rather, this is a recipe for giving Ecology and local governments additional tools to prevent impairments.

Where some of the flexibility, and associated heartburn, comes in is with the statute’s allowance for projects that provide offsets within the same basin or tributary, but not necessarily at the location where impacts are felt.<sup>9</sup> Even so, the statute provides that watershed plans must include those actions that the planning unit believes are necessary to offset potential consumptive impacts to instream flows.<sup>10</sup> In addition, the statute authorizes planning units to include additional projects and measures in watershed plans that result in protecting or improving instream resources over and above *potential consumptive use impacts*.<sup>11</sup> In fact, in order to adopt a watershed plan – or a rule in lieu of a watershed plan – Ecology “*must determine* that actions identified in the watershed plan, after accounting for new projected uses of water over the subsequent twenty years, *will* result in a net ecological benefit to instream resources within the water resource area.”<sup>12</sup>

Ecology recognizes that it has a mandatory duty to only approve watershed plans, or adopt rules, that offset consumptive use impacts and achieves net ecological benefits.<sup>13</sup> It also recognizes that the more water use allowed, the greater the risk to instream resources, and the greater cost of projects and other conservation actions needed to offset the consumptive use and achieve net ecological benefits.<sup>14</sup> Unfortunately, Ecology’s proposed WAC 173-501-065 and -70 fail to implement the Legislature’s directive to assure that consumptive use impacts are fully offset and achievement of NEB.

**The Proposed Rule violates the scheme of RCW 90.94 by failing to assure the required water offset or Net Ecological Benefit, and therefore exceeds the agency's statutory authority.**

In enacting RCW 90.94, the Legislature sought to break the perceived development logjam stemming from the *Hirst* decision<sup>15</sup> by introducing new flexibility into the process of issuing building permits.

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<sup>7</sup> *Id.* at (4)(a) (emphasis added).

<sup>8</sup> *Id.* at (4)(b) (emphasis added).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* (emphasis added).

<sup>12</sup> *Id.* at (4)(c) (emphasis added); *see also Id.* at (7)(a) (If a watershed plan is not adopted in the Nooksack watershed by the February 2019 deadline, Ecology must adopt rules for the WRIA that meet the requirements of this section).

<sup>13</sup> *See e.g.*, Washington Department of Ecology, Streamflow Restoration Policy and Interpretative Statement, POL 2094 at 6 (7/31/19): “Watershed plans must identify projects and actions necessary that at a minimum, offset the consumptive use of new groundwater permit-exempt domestic withdrawals over the planning horizon and achieve NEB.” *See also id.* at 12.

<sup>14</sup> *See* RSD at 14.

<sup>15</sup> *Whatcom Cty. v. Hirst*, 186 Wn.2d 648, 381 P.3d 1 (2016).

First, the Legislature authorized “*potential impacts on a closed water body*” and “*potential impairment of instream flows*,” stemming from new domestic permit-exempt wells through compliance with the requirements of the Act.<sup>16</sup> Second, the Legislature provided that local governments could issue building permits before watershed plans and rules were adopted and restoration actions implemented, so long as certain requirements were met, such as recording relevant water supply restrictions on titles, fee collection, and the number of building permits and subdivision approvals were counted and reported to Ecology.<sup>17</sup> Clearly, allowing development to proceed in flow-limited basins before instream flow protection and restoration plans are developed, let alone implemented, dramatically increases the level of risk to instream resources. However, while the Legislature was willing to risk “potential impacts” and “potential impairment” of flows,<sup>18</sup> it created a system intended to assure that the “potentials” never become reality.

First, the statute contemplates “potential impacts” but then mandates that local governments and/or Ecology adopt consumptive use offsets and other actions to achieve net ecological benefit thereby avoiding those potential impacts. While impacts are “potential,” local governments *must* update their watershed plans to include recommendations for projects and actions that measure, protect, and enhance instream resources. Qualifying projects *must* be specifically designed to enhance streamflows.<sup>19</sup> The watershed plan *must* include those actions that the planning units determine to be necessary to offset potential impacts to instream flows. The highest priority actions *must* include replacing the quantity of consumptive water use during the same time as the impact in and in the same basin or tributary.<sup>20</sup> Further, the statute directs that, prior to adoption of an updated watershed plan, Ecology *must* determine that actions identified in the watershed plan, after accounting for new projected uses of water for the next 20 years, *will* result in a net ecological benefit to instream resources within the WRIA.<sup>21</sup>

In sum, the Legislature has crafted a statute intended to provide additional flexibility to local governments to better enable them to both (a) continue approving domestic development proposals that rely on new domestic permit-exempt wells for a water supply while also; (b) providing the tools, flexibility, suggestions, and wise planning requirements needed to both offset impacts and result in a net ecological benefit thereby supporting salmon recovery and protecting senior water rights.

Unfortunately, as reflected by Ecology’s Proposed Rule for the Nooksack basin, Ecology has taken the flexibility provided by the Legislature and ignored the Legislature’s clear intent that the statute be implemented in a manner that results in offsetting consumptive use impacts and assuring that net ecological benefit is actually achieved over the next 20 years. It is a virtual certainty that new permit-exempt withdrawals will significantly increase water use in WRIA 1. But there is nothing in Ecology’s proposed WAC 173-501-065 that even acknowledges that consumptive use offsets and achievement

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<sup>16</sup> RCW 90.94.020(1) (emphasis added).

<sup>17</sup> See RCW 90.94.020(5).

<sup>18</sup> Interestingly, the one place in the statute where actual impacts to instream resources are arguably authorized is RCW 90.94.090 (establishing the Joint Legislative Taskforce on water resource mitigation and authorizing five pilot projects to assess the efficacy of mitigation sequencing and various mitigation proposals).

<sup>19</sup> RCW 90.94.020(4)(a) (emphasis added).

<sup>20</sup> *Id.* at (4)(b) (emphasis added).

<sup>21</sup> *Id.* at (4)(c) (emphasis added).

of net ecological benefit are required to allow new domestic withdrawals, let alone provides any assurance that offsets and ecological benefits will occur. It is not enough to merely identify *possible* projects, that *might* be carried out, in the RSD. The RSD is not enforceable, would not be incorporated into the Washington Administrative Code, and does not establish binding law. The Proposed Rule, as it stands, asymmetrically grants new rights with the full power of law while relegating the statutorily required offsets to mere non-binding advice in a non-binding supporting document.

In the RSD, Ecology justifies its position by declaring:

RCW 90.94.020 does not require that there be an obligation on any party to ensure that plans, or projects and actions in those plans or associated with rulemaking, are implemented. Furthermore, the law does not predicate the issuance of building permits on the implementation of watershed plans or any projects and actions in those plans.<sup>22</sup>

Really? Does Ecology really think that it is fully implementing its authorities by not holding either itself or local governments accountable for implementing the actions that local governments and/or Ecology honestly believe are necessary to offset potential consumptive use impacts and achieve net ecological benefit? Ecology is quick to note that the statute does not directly condition issuance of building permits with implementation of consumptive use offsets, other conservation measures, and habitat enhancements. However, there is nothing in the statute that prohibits a local government from developing a watershed plan or Ecology from adopting a rule that directly links issuance of building permits depending upon new domestic permit-exempt wells to implementation of conservation measures, consumptive use offsets, and habitat enhancements. Such an approach would actually implement both the letter and the spirit of RCW 90.94, rather than leaving instream flow protection and enhancements as unimplemented options.

Once adopted, Ecology's Proposed Rule will create hard, permanent, recorded property rights to consume water in watersheds where senior instream flow rights are already not being met. To preserve the balance the Legislature intended – flexibility to allow additional development supported by new domestic permit-exempt wells in return for consumptive use offsets *and* additional actions/projects resulting in water offsets and net ecological benefits -- the rule itself must contain requirements for achieving offsets and net ecological benefits in a timely manner. The current Proposed Rule fails to meet these key obligations.

**The list of proposed projects in its current form, as located in the RSD, does not remedy the Proposed Rule's deficiency.**

Even if the Proposed Rule did ensure that the projects listed in the RSD would be funded, this suite of projects falls far short of meeting the statute's requirements. Ecology portrays its list of 13 watershed

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<sup>22</sup> RSD at 49. See also *id.* at 40: “[T]he listing of a project herein does not obligate Ecology to fund a project or the project proponent to carry out the project (see Ecology’s POL-2094). Therefore, neither the completion of projects nor the attainment of their anticipated results is guaranteed. However, the inclusion of multiple projects vetted for pertinence and feasibility provides reasonable assurance that projected consumptive use from new domestic permit-exempt withdrawals will be offset and that NEB will be achieved. Ecology will encourage project proponents and advocates to work towards completing the projects and will use incentives through the grant funding provided under the law.”

projects<sup>23</sup> as having a high likelihood of implementation and having one or more of the following attributes: “an advantageous location in the watershed; likelihood for achieving offset and/or NEB; existing funding for the project provided by Ecology; existing funding provided by another entity; partner willingness; and, overall feasibility.”<sup>24</sup> Unfortunately, many of these projects are uncertain to occur, have overstated benefits, or are intended to restore salmon habitat and water quality rather than serve as mitigation for future domestic permit-exempt wells. Moreover, by placing them in the RSD and failing to create a firm linkage between project implementation and compliance with its Proposed Rule, Ecology virtually assures water offsets (if they occur at all) will lag behind new development of permit-exempt wells.

### **Comments and concerns related to specific projects.**

**Project #1: Dairy Waste Processing/Treatment** – This is a pilot project that currently has funding. It is estimated to produce 13.4 acre-feet per year, but the water is owned by Whatcom PUD#1. Described as a temporarily funded pilot project, this project lacks a commitment to provide water in perpetuity, as is necessary to offset future consumptive use likely to be perpetual. In addition, no evidence is provided that the water owner is willing to dedicate the water as a permanent offset for future consumptive use. Accordingly, the record fails to show that this project has a high probability of continuation in perpetuity. Having noted those concerns, it bears mention that this project does appear to be an example of providing real water for offsets.

**Project #2: Bertrand Augmentation** – While the RSD characterizes this project as being a source of water to offset future permit-exempt wells, this project is listed as a potential Puget Sound Partnership Action Agenda salmon recovery project.<sup>25</sup> To date, it doesn’t appear that the Partnership has funded it. It is noteworthy that the Partnership characterizes the project as a feasibility study to occur between 2020-2022:

Conduct a feasibility analysis for approximately three potential partners to transfer from surface to groundwater and outline the potential costs of each project. For each of the potential partner[sic], the individual plans will include an analysis of the value to stream flow enhancement and cost effectiveness. A cost-share program will be offered to each interested landowner estimated at 50%-75%, capped at a maximum. The maximum amount will be developed based on the feasibility analysis per project partner.<sup>26</sup>

Based on its description of the project, it appears that there is not enough information for the Partnership to estimate how much stream flow enhancement this project will yield in perpetuity. Accordingly, it would appear to be premature and uncertain for Ecology to assume that this project will yield 170.4 acre-feet per year.

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<sup>23</sup> RSD at 41.

<sup>24</sup> *Id.* at 39.

<sup>25</sup> See Puget Sound Partnership Action Agenda Fact Sheet found at: <https://actionagenda.pugetsoundinfo.wa.gov/Project/FactSheet/13033> (accessed January 14, 2020).

<sup>26</sup> *Id.*

This project also raises a larger issue; what is the relationship between salmon habitat recovery projects and projects designed to offset the impacts of future development of domestic permit-exempt wells? CELP has raised this issue before and has been assured by Ecology staff that projects funded through money directed to salmon habitat restoration projects would not be used in the NEB analysis required by RCW 90.94. Salmon habitat restoration projects funded under any program other than RCW 90.94 are intended to recover salmon habitat, not to mitigate for new development, and must not be considered in Ecology's NEB analysis. To take salmon habitat restoration actions and use them as mitigation for future development raises Pacific Northwest-wide issues, undermines treaty rights with Indian tribes, and regional and federal efforts to recover ESA-listed salmon and steelhead.

Based on the information provided by the Puget Sound Partnership and Ecology, this project is a salmon habitat restoration project whose benefits are so uncertain that a feasibility study has been determined necessary. Accordingly, it should not be included in Ecology's NEB calculations.

Project #8: MAR -- North Fork Site – This is a managed aquifer recharge proposal that Ecology has identified. This project appears to be at the stage of possibly a good idea, rather than being ready for use in offsetting water withdrawals. Ecology states, *inter alia*, that “[t]his storage opportunity has not been critically evaluated nor have any discussions taken place with any landowners and further investigations are necessary. There is no current project proponent, but Ecology expects to work with the community to identify a proponent.”<sup>27</sup> If no discussions with landowners have taken place, there has been no critical evaluation, and there is no project proponent, it is difficult to see how Ecology could rationally determine that this project has a high likelihood of going forward, will produce 200 acre-feet of water per year, and will endure in perpetuity. This project cannot currently be considered as contributing to consumptive use offsets or NEB within the next 20 years.

Project #19: Skookum Creek Restoration – The stated purpose of this project is salmon habitat restoration. The land has already been purchased by the Whatcom Land Trust. No description of the project that we have found, including that provided by Ecology, indicates that there is any intent for any of the project benefits to be used for mitigating the impacts of future development of permit-exempt wells. The following is an excerpt of the Whatcom Land Trust's February 6, 2019 press release announcing the purchase of the land along Skookum Creek:

Whatcom Land Trust announces the purchase of a riparian forest in a major tributary watershed of the South Fork Nooksack basin from Weyerhaeuser. The Skookum Creek Conservation Corridor acquisition will permanently protect 1,400 acres of riparian forest and uplands to improve salmon habitat, watershed health, landscape connectivity and recreation opportunities for Whatcom County....

“The Skookum Creek Conservation Corridor is a long-term visionary project for the Land Trust,” according to Rich Bowers, Whatcom Land Trust Executive Director, “a key to what can be in the next 100 to 200 years regarding clean, cold water, healthy salmon habitat, eventual old growth, connected wild places, and a buffer against a changing environment.”

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<sup>27</sup> RSD at 43.

Skookum also represents strong, local support and understanding for the value of local land conservation and stewardship, with nearly all funding coming from private sources, and with financial support from more than 600 community members involved with the permanent protection of natural resources important to the quality of life available in Whatcom County.

There is no indication that this project is intended to mitigate for future development. Nor is there any evidence that this project will produce 1,449 acre-feet of water per year (or, indeed, any other amount) that can be used to offset consumptive use from future domestic permit-exempt wells. While restoration of riparian areas will likely result in more stable year-round flows in the watershed, additional instream flows aren't even one of the listed benefits of the project. In addition, it is likely that a significant portion of the ecological benefits of this project will take more than 20 years to accrue. In sum, this is a project that is not intended to be used as an offset for future consumptive use, nor is there any evidence that it will produce any significant amount of water. Unless and until the project proponent indicates a desire to dedicate some portion of project benefits to offset potential impacts from future consumptive use, this project should not be on Ecology's list.

Project #19G: Wetland Restoration, Enhancement/Creation – This is a Nooksack Tribe project that is funded by National Estuary Program funds. The purpose of these funds is generally to restore water quality. It is not clear that these funds can be used to fund mitigation for future development rather than restoration projects. There is no indication that the Nooksack Tribe has agreed to use the benefits of this project -- originally intended to promote wetland enhancement and creation, water quality improvements, and vegetation restoration -- as mitigation for future development of permit-exempt wells. Accordingly, this project should not count towards Ecology's water offset and net ecological benefit obligations.

Project #21: Stewart Mountain SF Nooksack Conservation – Ecology has chosen not to include benefits from this project in its offset/NEB analysis because most of the benefits probably won't be realized within the 20-year planning period. We agree that it would be inappropriate to count this project. Since the project does not count, it is a mystery why it is included at all. Also, it is not clear that the project proponent has chosen to assign project benefits to mitigation of impacts stemming from future development of permit-exempt wells.

Project #23: Middle Fork Porter Creek Phase 4 Project – The project sponsor is the Lummi Nation. To the best of our knowledge, the Lummi Nation has contributed around \$230,000 and the Salmon Recovery Funding Board may have contributed around \$420,000, perhaps to other aspects of this project.<sup>28</sup> It is likely that the SRFB funds and the Lummi Nation funds were intended to support salmon recovery. Again, because of the salmon recovery purposes of some aspects of this project, Ecology needs to be clear about what benefits, if any, can legitimately be allocated to mitigation of future development of permit-exempt wells.

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<sup>28</sup> See project descriptions online at: <http://hws.ekosystem.us/project/360/80501#>, accessed January 14, 2020. For additional information, see PRISM site at:

<https://secure.rco.wa.gov/prism/search/projectsnapshot.aspx?ProjectNumber=17-1261>, accessed January 14, 2020. The project descriptions make it clear that the SRFB thought this was a salmon habitat recovery project.



Of the remaining projects in Ecology's Table 6.1, Project #46NG -- WRIA 1 Conservation Program has unknown benefits and therefore cannot contribute to offsets or NEB. Project #28 -- Storage Projects Including Gravel Pits -- proposes to flood four gravel pits as a means of recharging aquifers. The project has no proponent and therefore cannot legitimately be treated as a project that is likely to be implemented. The following projects do not appear to have the defects that the previously mentioned projects do, but all of them appear to need a lot of work before they come on line: Project #24 Birch Bay/Blaine Deep Wells; Project #26 Lower Nooksack SW to GW Conversion Projects; Project #44 PUD No. 1 Vista Road Project; and Project #45 PUD No. 1 lake Terrell/Coastal Drainages. Ecology's record is devoid of information about how long it is estimated that it will take before any of these projects come online and begin to deliver offsets and ecological benefits. Impacts to instream resources will become actual, rather than potential, if offsets are not developed and implemented in a timely manner while local governments are issuing building permits in drainages where minimum instream flows are often not being met.

After reviewing the project information provided by Ecology, we conclude that a substantial portion of Ecology's "highly likely" projects either can't be used as offsets or have grossly overstated offsets. Rather than around 1,464 acre-feet per year of water offsets in the South Fork Nooksack, the actual number is somewhere between 0 and 15 acre-feet per year. There are no offsets in the Sumas, North Fork, Lake Whatcom, or Coastal South basins. At best, the Middle Fork has around 11 acre-feet of offsets per year. Accepting Ecology's remaining numbers at face value, eventually there will be 819 acre-feet per year of offsets in the Coastal North basin, 139 acre-feet per year in the Coastal West basin, and 598 acre-feet per year in the Lower Nooksack basin.<sup>29</sup> It is unknown when, if at all, these offsets may occur, and consequently it is not possible to assess when or if NEB would result. Nor do there appear to be commitments by any of the project proponents to maintain the projects in perpetuity. Thus, Ecology cannot meet its obligation under RCW 90.94.020(4)(c) to affirmatively find that the actions called for (or more accurately, *not* called for) by its Proposed Rule will result in a net ecological benefit to instream resources within WRIA 1.

Ecology dealt with the issue of uncertain water benefits much more realistically in its adoption of the Watershed Plan Amendment for the Nisqually Basin (WRIA 11). There, Ecology conducted a thorough and appropriately skeptical review of the water offset projects proposed.<sup>30</sup> In cases where the actual streamflow benefit that would be produced was uncertain, Ecology either assumed that only a portion of the predicted streamflow benefits would actually occur, or in some cases declined to consider any streamflow benefits from a given project.

As one example, in evaluating the Nisqually plan, Ecology declined to consider any offset amount as resulting from the Eatonville ASR project due to concerns over the project's viability.<sup>31</sup> This is in stark contrast to the approach chosen here, where Ecology assumed that a theoretical MAR project in the

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<sup>29</sup> This adds up to 1,556 acre-feet per year. This is less than half the 3,767 acre-feet per year of offset that Ecology has claimed in Table 6-1.

<sup>30</sup> In evaluating the WRIA 11 Plan, Ecology generated a document that provided a technical review of the proposed projects. See Washington Department of Ecology, Technical Review of Nisqually Watershed Response to the 2018 Streamflow Restoration Act (RCW 90.94) – January 16, 2019 Addendum to the Nisqually Watershed Management Plan, updated January 29, 2019 (hereinafter "Nisqually Review").

<sup>31</sup> Nisqually Review at 21-2

North Fork Nooksack would produce 200 acre-feet per year of offset water even though a site has not been fully identified, no discussions with landowners have occurred, and the project has no proponent.

The Skookum Creek project presents an even more egregious example. Despite no explanation whatsoever of how this project would generate the estimated streamflow benefits (see discussion, *supra*), Ecology credited the full projected amount of offset water. In the WRIA 11 plan, on the other hand, Ecology assumed that forest conservation management projects would produce either a fraction of the predicted streamflow benefits or none at all.<sup>32</sup>

**Ecology's calculations of the likely amount of consumptive use are not as conservative as would be prudent.**

As discussed above, Ecology's assumption that consumptive use offsets will assure that summer groundwater pumping will not result in further depletion of late summer low flows cries out for verification. Another assumption is that future domestic permit-exempt well users will adhere to the assumed pumping limits, particularly the limit of lawn/garden sizes to no larger than 1/12 acre (0.083 acre). This is an important assumption because the vast majority of domestic consumptive use comes from outdoor watering.<sup>33</sup> Outdoor watering is assumed to be 80% consumptive, whereas indoor domestic consumptive use is assumed to be 10% consumptive (when the house is hooked up to a septic tank).<sup>34</sup>

The Nooksack watershed consultants modeled scenarios that ranged from indoor use only to 5000 gpd indoor use and irrigation of half an acre. Total consumptive use ranged from 33 acre-feet per year to 12,421 acre-feet per year. The Nooksack watershed planners eventually settled on a figure of 647 acre-feet per year as being a good planning estimate for consumptive use over the next 20 years.<sup>35</sup> In contrast, based upon its selection of 156 gpd for indoor use and 1/12 acre of outdoor watering, Ecology estimated that all the new growth would result in just 260 acre-feet per year – less than half the watershed's estimate of future annual use. Ecology then applied its 150% safety factor and its estimate of future annual use went up to 390 acre-feet per year – still much less than the watershed's estimate.<sup>36</sup> In developing a "maximum use" estimate, Ecology used the 500 gpd indoor use estimate but did not change its assumption that no one would irrigate more than 1/12 of an acre – even though the average lawn and garden size was found to be a 0.28 of an acre and even though there is no provision in the Proposed Rule for enforcing the limits by either local governments or Ecology.<sup>37</sup> This is not conservative and will likely result in underestimating actual future consumptive groundwater use.

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<sup>32</sup> Nisqually Review at 25.

<sup>33</sup> "Outside lawn and garden watering accounts for roughly 95 percent of all consumptive water uses associated with new home water uses." RSD at 23.

<sup>34</sup> *Id.*

<sup>35</sup> *Id.* at 24.

<sup>36</sup> *Id.* at 24-25.

<sup>37</sup> *Id.* at 25-26.

**The supporting document’s analysis of projected consumptive water use in WRIA 1 is inadequate because it fails to account for the impacts of climate change.**

Climate change will affect many aspects of water use in the years ahead, both within the 20-year analysis period required by RCW 90.94(4)(c), and the effectively permanent duration of the recordable water rights at stake in this rulemaking. Ecology’s RSD prudently recognizes the “inherent uncertainty” in making the assumptions that go into projecting future consumptive water uses.<sup>38</sup> We support Ecology’s principle of accounting for all reasonably predictable variables in projecting future uses and then adding a 50% safety factor to plan for uncertainty. However, many forthcoming effects of climate change are a virtual certainty.<sup>39</sup> Therefore, they should be included in the consideration of reasonably predictable variables in making the baseline consumptive water use projections, rather than relying on the safety factor to account for inherent uncertainty as well as the reasonably modeled impacts of climate change on well water demand.

Washington State’s Integrated Climate Response Strategy, created by Ecology with assistance from the University of Washington Climate Impacts Group, states that “[c]limate change has already altered and will continue to alter the snowpack and streamflows in the Western United States, affecting where, when, and how much water is available for all uses.”<sup>40</sup> The Strategy also states that projected climate change impacts include: rising temperatures, declining snowpack and loss of natural water storage, changes in seasonal streamflow, higher drought risk, competition for scarce water resources, reduced water quality, and increased winter flooding.<sup>41</sup> Models show that WRIA 1 will be significantly impacted by climate change.<sup>42</sup> This is especially concerning considering the Nooksack River already struggles to meet minimum instream flows consistently, especially during the summer months.<sup>43</sup> The UW Climate Impacts Group produced a set of models predicting specific impacts to the Nooksack basin.<sup>44</sup> The analysis predicts an average temperature increase of 2.2 degrees Celsius in winter and 3

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<sup>38</sup> Washington Department of Ecology, *Draft Rule Supporting Document: Amendment to Chapter 173-501 WAC Instream Resources Protection Program - Nooksack Water Resource Inventory Area (WRIA) 1* (Nov. 2019) at 13, available at <https://fortress.wa.gov/ecy/publications/documents/1911093.pdf>.

<sup>39</sup> See generally University of Washington Climate Impacts Group, *Maps of Climate and Hydrologic Change for the Nooksack River Watershed* (Dec. 2017), available at <https://cig.uw.edu/wp-content/uploads/sites/2/2018/02/03-Physical-Drivers-Report.compressed.pdf>.

<sup>40</sup> Washington State Department of Ecology, *Preparing for Climate Change: Washington State’s Integrated Climate Response Strategy*, Department of Ecology (Apr. 2012) at 103, available at <https://fortress.wa.gov/ecy/publications/publications/1201004.pdf>.

<sup>41</sup> *Id.* at 103-109.

<sup>42</sup> University of Washington Climate Impacts Group, *Maps of Climate and Hydrologic Change for the Nooksack River Watershed* (Dec. 2017), available at <https://cig.uw.edu/wp-content/uploads/sites/2/2018/02/03-Physical-Drivers-Report.compressed.pdf>.

<sup>43</sup> Washington State Department of Ecology, *WRIA 1 Draft Rule Supporting Document* at 19 (Figure 3.1 shows the high frequency at which minimum in-stream flows are not met).

<sup>44</sup> University of Washington Climate Impacts Group, *Maps of Climate and Hydrologic Change for the Nooksack River Watershed* (Dec. 2017) at 5, available at <https://cig.uw.edu/wp-content/uploads/sites/2/2018/02/03-Physical-Drivers-Report.compressed.pdf>.

degrees Celsius in summer, for the period beginning in 2040.<sup>45</sup> Winter precipitation is expected to increase by 10% while summer precipitation declines by 21%.<sup>46</sup> April 1 snowpack water content levels are expected to drop by nearly half.<sup>47</sup> Summer water deficits (the gap between soil moisture available and the amount needed for crops) will increase substantially.<sup>48</sup> This is particularly concerning because water demand is significantly higher in summer across the region.<sup>49</sup> The change from snow to rain in winter, along with reduced summer rainfall, will have measurable impacts on water availability across streamflows in WRIA 1.<sup>50</sup> These impacts are projected to occur within WRIA 1's 20-year planning horizon and must be taken into account when planning for the watershed.

### **Consumptive Use Analysis Must Include Anticipated Climate Change Conditions**

As written, the Proposed Rule along with its Supporting Document fails to consider likely effects of climate change in estimating consumptive use of permit-exempt groundwater. The Proposed Rule does include some provisions that are wise in the face of a changing climate, but these do not go far enough. While the 500 gallon per day limit is an improvement over the 3,000 gallons per day allowed by RCW 90.44.050, it should be noted that even 500 gallons per day is significantly greater than nationwide average water use.<sup>51</sup> With many rivers in WRIA 1 regularly below the minimum instream flow limits as it is, the 3,000 gallon limit is untenable. We also support the Proposed Rule's outdoor irrigation limit of 1/12 acre. Outdoor water consumption is a significant driver of water use and the overwhelming driver of consumptive use.<sup>52</sup> The agency must dedicate resources to ensuring that these limits are followed, particularly because they underpin the consumptive use calculation. If new homes do not comply with these figures or they are not enforced, the consumptive use calculation used to generate the RSD will not represent the actual impact to the watershed. We suggest that water use from new permit-exempt wells should be metered, in order to determine how much water is actually being used.

The RSD includes a 50% safety factor on top of the consumptive use estimate, in order to "address the inherent uncertainty" behind each assumption. CELP strongly feels that this is a prudent strategy. However, climate change is likely to introduce substantial additional uncertainties in water use. Specifically, the consumptive use estimate is flawed because it does not consider how climate change will impact population migration, irrigation needs, and evaporation rates. Because of these omissions, the actual consumptive use figure is very likely larger than represented in the supporting document. Simply adding a percentage on top, without analyzing an essential factor, is inadequate even if well-

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<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at 10-11.

<sup>47</sup> *Id.* at 12.

<sup>48</sup> *Id.* at 14.

<sup>49</sup> Stephan Jilk, *Climate Change & Water Supply In the Nooksack Basin*, PUD No.1 of Whatcom County, available at <http://whatcomwin.org/presentations/NooksackBasin.pdf>.

<sup>50</sup> Guallime Mauger, *Climate Change What Does it mean for Ag in Whatcom*, UW Climate Impacts Group, available at [https://www.whatcomcounty.us/DocumentCenter/View/31565/3-GMauger\\_FLIP\\_20171101?bidId=](https://www.whatcomcounty.us/DocumentCenter/View/31565/3-GMauger_FLIP_20171101?bidId=).

<sup>51</sup> Environmental Protection Agency, *Indoor Water Use in the United States* (2008), available at <https://19january2017snapshot.epa.gov/www3/watersense/pubs/indoor.html>.

<sup>52</sup> Environmental Protection Agency, *How We Use Water* (2018), available at <https://www.epa.gov/watersense/how-we-use-water>.

intentioned. Furthermore, the RSD asks the safety factor to do too much. The safety factor cannot both capture the inherent uncertainty behind the factors that Ecology considered *and* incorporate the factors the agency failed to consider. A few specific instances where climate change must be considered when calculating consumptive use are discussed below.

## Crops and Irrigation

First, the methodology makes no account of how water use in lawns or gardens might be affected by climate change. Warmer weather is likely to yield additional winter crops, longer growing seasons and an accompanying increase in water usage.<sup>53</sup> The Department of Ecology has previously acknowledged that crop changes may occur due to climate change.<sup>54</sup> Yet, the Department fails to consider this in the calculations underlying the Proposed Rule. This omission is potentially significant. Ecology notes that outdoor watering is largely ‘consumptive use’, and makes up 95% of total household consumptive use, meaning water that doesn’t directly return to groundwater. This means that outdoor watering is the most significant source of household water consumption, and errors in calculating outdoor can’t simply be written off as easily captured by the safety margin.

A local gardening guide suggests starting most crops in early May to avoid frost.<sup>55</sup> If WRIA 1 residents start maintaining gardens or crops from April to October, instead of May to September because climate change extended the growing season, the extra two months of watering could significantly increase household water usage for those two months. This omission is magnified because climate change is expected to cause summer rainfall to decline by roughly 20%.<sup>56</sup> As the crops change and the growing seasons lengthen, there will be less rain at crucial times to feed those crops. The Proposed Rule takes some steps to begin enforcing water limits should drought conditions occur, but largely fails to analyze the foreseeable impact of climate change.

Second, the outdoor consumptive use estimates in the Supporting Document rely on irrigation figures that are over twenty years old.<sup>57</sup> Twenty-year-old figures cannot be accurate forecasts for water usage because Washington has already become hotter and is expected to continue to get hotter in the future.<sup>58</sup> As a result, the RSD’s calculation of water demand doesn’t account for the likelihood that demand for water has *already* increased over the baseline due to reduced precipitation, increased evaporation of water due to heat changes, and the changing nature of crops and plants themselves. A consultant, RH2, conducted a technical review of consumptive use for WRIA 1 which

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<sup>53</sup> Stöckle, et al. *Evaluating opportunities for an increased role of winter crops as adaptation to climate change in dryland cropping systems of the U.S. Inland Pacific Northwest*, Climatic Change (2018) 146: 247, Available at <https://doi.org/10.1007/s10584-017-1950-z>.

<sup>54</sup> Department of Ecology, *Preparing for Climate Change: Washington State’s Integrated Climate Response Strategy* (2012) at 125, available at <https://fortress.wa.gov/ecy/publications/documents/1201004.pdf>.

<sup>55</sup> Bellingham Food Bank, *Growing Guide* (2013), available at [http://www.bellinghamfoodbank.org/wp-content/uploads/Growing\\_Guide\\_2014.pdf](http://www.bellinghamfoodbank.org/wp-content/uploads/Growing_Guide_2014.pdf).

<sup>56</sup> University of Washington Climate Impacts Group, *Maps of Climate and Hydrologic Change for the Nooksack River Watershed* (2017) at 11, available at <https://cig.uw.edu/wp-content/uploads/sites/2/2018/02/03-Physical-Drivers-Report.compressed.pdf>.

<sup>57</sup> Department of Agriculture Natural Resources Conservation Service, *Washington Irrigation Guide* (1997).

<sup>58</sup> University of Washington Climate Impacts Group, *Climate Change in the Pacific Northwest* (2019) available at <https://cig.uw.edu/learn/climate-change/>.

explicitly stated “Changes in climate since the issuance of the WIG [Washington Irrigation Guide] are not considered.”<sup>59</sup> This review goes on to state that changes in temperature and precipitation since the WIG was issued could cause some water use figures to be underestimated.<sup>60</sup> We agree. The impact of climate change on irrigation is not trivial. The EPA estimates that over half of outdoor watering is wasted, in part due to evaporation.<sup>61</sup> However, both Ecology and RH2 assume that only 10% of irrigated water will evaporate.<sup>62</sup> The evaporation rate will increase if temperatures increase in WRIA 1, as they are predicted to.<sup>63</sup> For example, a California drought manual suggests that up to 20-25% of irrigated water may be lost to evaporation.<sup>64</sup> There are a number of factors behind the efficiency of irrigation systems, but the RSD, and in turn the Proposed Rule, fails to consider how increased temperatures and drought will impact irrigation.

## Population Growth

Climate change may fuel additional population growth in the Pacific Northwest.<sup>65</sup> However, there is substantial uncertainty. Modeling future migration is difficult because the climate is only one factor among many that determines a choice to move. Income, economic security, social ties, age and economic opportunity play major roles in the choice to relocate.<sup>66</sup> Research suggests that migration to the PNW may be increased by climate change.<sup>67</sup> While more information is needed to make a numeric prediction of climate change fueled population growth, a regional symposium report stressed the need to build flexibility into current long term planning, particularly in regard to water resources.<sup>68</sup> Despite local uncertainties, there is high confidence that climate change will fuel migration generally. The World Bank predicts that climate change will displace 143 million people by 2050 across Africa, Southeast Asia, and Latin America.<sup>69</sup> Migrants from Latin America may very well head north to the United States. Within the United States, some speculate the Pacific Northwest will attract displaced people.<sup>70</sup> At a minimum, any rule adopted must acknowledge this possibility and prepare for it. Instead of preparing for this contingency, however, the Proposed Rule and RSD omit any discussion of the risk. The RSD adopts population growth figures from the County’s Comprehensive Planning Process. The County’s comprehensive plan in turn relied on a consultant’s

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<sup>59</sup> Andrew Dunn & Adam Neff, *WRIA 1 Consumptive Use Technical Review*, RH2 Engineering (2018) at 15.

<sup>60</sup> *Id.*

<sup>61</sup> Environmental Protection Agency, *When It’s Hot* (2018), available at <https://www.epa.gov/watersense/when-its-hot>.

<sup>62</sup> Andrew Dunn & Adam Neff, *WRIA 1 Consumptive Use Technical Review*, RH2 Engineering (2018) at 16.

<sup>63</sup> Environmental Protection Agency, *Climate Impacts on Water Resources* (2017), available at <https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-water-resources.html>.

<sup>64</sup> California Drought Preparedness, *Summer Lawn Conservation Tips*, available at <http://www.cadroughtprep.net/images/06bill Inserts.pdf>.

<sup>65</sup> Allison Saperstein, *Climate Change, Migration, and the Puget Sound Region: What We Know and How We Could Learn More*, University of Washington Climate Impacts Group (2015).

<sup>66</sup> Whitely Binder et. al., *The Winds of Change? Exploring Climate Change-driven Migration and Related Impacts in the Pacific Northwest: Symposium Summary*, Portland State University Population Research Center & University of Washington Climate Impacts Group (2016) at 10.

<sup>67</sup> *Id.* at 13.

<sup>68</sup> *Id.* at 14.

<sup>69</sup> See World Bank, *Groundswell: Preparing for Internal Climate Migration* (2018) at 11.

<sup>70</sup> See Cliff Mass, *Will the Pacific Northwest be a Climate Refuge Under Global Warming?* (2014), available at <https://cliffmass.blogspot.com/2014/07/will-pacific-northwest-be-climate.html>.

technical analysis which does not mention climate change, let alone prepare for it.<sup>71</sup> The risk of climate change fueled migration must be considered in the consumptive use figure in the first instance. It would be appropriate to consider this issue when determining the appropriate “safety factor” to be used in deciding how much offset water must be provided.

**The supporting document’s net ecological benefit analysis is inadequate because it fails to account for the effects of climate change on the ecological baselines in the basin.**

While the projects proposed for achieving net ecological benefits (NEB) will be of some help in restoring the already significantly degraded conditions for aquatic species in the watershed,<sup>72</sup> Ecology has not provided assurance that the worsening effects of climate change on ecosystems within WRIA 1 have been accounted for in the NEB determination.<sup>73</sup> Ecology relies on 2011 studies from WDFW to determine which areas within the watershed would benefit most from restoration projects, but does not explain whether those studies account for climate change over the coming 20 years or beyond.<sup>74</sup> The RSD’s NEB determination is inadequate because it does not explain if or how it has taken climate change into account.

As Ecology knows, climate change will increase stress on nearly all aspects of aquatic ecosystem functions in the coming years.<sup>75</sup> Moreover, increased development and climate migration could exacerbate these effects due to their impact on water quality and quantity.<sup>76</sup> As effects of climate change materialize in the watershed, the entire ecological baseline will shift due to factors including changed hydrograph timing and resulting sediment transport alterations, water chemistry changes, and increases in temperature.<sup>77</sup> Ecology also does not consider the possibility that climate change may cause upstream locations and projects that benefit them to diminish in value by becoming inaccessible to fish and other species due to low flows or high temperatures downstream.

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<sup>71</sup> BERK, *WHATCOM COUNTY POPULATION AND EMPLOYMENT PROJECTIONS AND URBAN GROWTH AREA ALLOCATION TECHNICAL MEMO* (2013), available at <https://www.whatcomcounty.us/DocumentCenter/View/4677/Population-and-Employment-Projections-and-UGA-Allocations---Phase-I-Technical-Report-PDF?bidId=>.

<sup>72</sup> See WRIA 1 Watershed Joint Board, *2010 State of the Watershed Report* (Jun. 2011) at 9-11 (Discussing how meeting established in stream flows is already a challenge and how several species of fish in WRIA 1 have seen a decline in the past decades), available at <https://drive.google.com/file/d/1DCSpPR2-Q05zV8K2T8IMTPi1ZcPoQlfs/view>.

<sup>73</sup> Washington State Department of Ecology, *Final Guidance for Determining net Ecological Benefits* (Jul 2019) at 14 available at <https://fortress.wa.gov/ecy/publications/documents/1911079.pdf>.

<sup>74</sup> Washington State Department of Ecology, *WRIA 1 Draft Rule Supporting Document* at 65-67.

<sup>75</sup> Washington State Department of Ecology, *Preparing for Climate Change: Washington State’s Integrated Climate Response Strategy*, Department of Ecology (Apr. 2012) at 67-71, available at <https://fortress.wa.gov/ecy/publications/publications/1201004.pdf>.

<sup>76</sup> See WRIA 1 Watershed Joint Board, *2010 State of the Watershed Report* (Jun. 2011) at 6-10).

<sup>77</sup> See Oliver Grah & Jezra Beaulieu, *The effect of climate change on glacier ablation and baseflow support in the Nooksack River basin and implications on Pacific salmonid species protection and recovery* (2013) at 11, available at [https://nooksacktribe.org/wp-content/uploads/2019/09/Grah\\_Beaulieu\\_2013.pdf](https://nooksacktribe.org/wp-content/uploads/2019/09/Grah_Beaulieu_2013.pdf); See also University of Washington Climate Impacts Group, *Adapting to Climate Change* (Apr. 2016) at 12-17, available at [https://cig.uw.edu/wp-content/uploads/sites/2/2014/11/Adapting-to-Change-booklet\\_final.pdf](https://cig.uw.edu/wp-content/uploads/sites/2/2014/11/Adapting-to-Change-booklet_final.pdf); See also Nooksack Tribe Natural and Cultural Resources Department, *Climate Change*, available at (<https://nooksacktribe.org/departments/cultural-resources/water-resources/climate-change/>).

Higher summer stream temperatures and reduced flow are projected to exceed tolerance levels and increase lethal stream conditions for salmon and other cold-water species in the Nooksack River.<sup>78</sup> Without restoration of riparian shade, maximum water temperatures in the Nooksack river during summer low-flow conditions could increase by between 3.4 to 5.9 degrees C by the 2080s.<sup>79</sup> Even with the restoration of full system potential riparian shading, these temperatures are expected to increase by between 1.1 and 3.6 degrees C.<sup>80</sup> In conjunction with these temperature increases, the percent of stream miles in which critical condition water temperatures exceed lethal levels for salmonids is expected to increase from the current 18% to between 60% and 94% by the 2080s.<sup>81</sup> Increasing stream temperatures can create migration barriers for migratory fish and can kill cold water species.<sup>82</sup> This is of particular importance to salmon, who migrate back to the stream where they were born to spawn.<sup>83</sup> Due to climate change, salmon could become unable to migrate to their home-stream to spawn, or may die prematurely in the process as a result of higher temperatures. Because temperatures are projected to increase as a result of climate change, a determination that there will be NEB must take these considerations into account.

As adverse stream conditions such as high temperatures, low flows, and altered chemistry continue to worsen due to climate change, upstream habitats may become functionally inaccessible. While the headwater and upstream locations of many proposed projects are of high value under current conditions, Ecology has not shown with certainty that they will remain high value in a climate altered future. There is no analysis showing that improved upstream habitats will remain connected to the downstream reaches as migratory fish and other organisms require. If salmon and other species are unable to reach the benefited habitats due to heat barriers or low flows that occur below the benefited habitats as a result of climate change, then Ecology cannot certify that NEB has been achieved. This is especially important when considering the ecological impacts of drilling new permit exempt wells: as the number of permit-exempt wells increases, surface water availability is reduced, harming salmon at all stages of their lifecycle.<sup>84</sup> This issue emphasizes the importance of maintaining streamflows rather than relying on non-water strategies for providing ecosystem benefit.

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<sup>78</sup> See Oregon Climate Change Institute, *Climate Change in the Northwest: Implications for our Landscapes, Waters, and Communities* (2013) at 213, available at <http://cses.washington.edu/db/pdf/daltonetal678.pdf>; See Washington State Department of Ecology, *Preparing for Climate Change: Washington State's Integrated Climate Response Strategy* (Apr. 2012) at 18.

<sup>79</sup> Washington Department of Ecology, *South Fork Nooksack River Temperature Total Maximum Daily Load* (June 2018) at 175, Available at <https://fortress.wa.gov/ecy/publications/documents/1810021.pdf>.

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> Washington State Department of Ecology, *Preparing for Climate Change: Washington State's Integrated Climate Response Strategy* (Apr. 2012) at 22.

<sup>83</sup> See U.S. Geological Survey, *How do salmon know where their home is when they return from the ocean?* (accessed Jan. 13, 2020), available at [https://www.usgs.gov/faqs/how-do-salmon-know-where-their-home-when-they-return-ocean-1?qt-news\\_science\\_products=0#qt-news\\_science\\_products](https://www.usgs.gov/faqs/how-do-salmon-know-where-their-home-when-they-return-ocean-1?qt-news_science_products=0#qt-news_science_products); see also Scientific American, *How do spawning fish navigate back to the very same stream where they were born?* (Jan. 2009), available at <https://www.scientificamerican.com/article/how-do-spawning-fish-navigate-back/>.

<sup>84</sup> Northwest Treaty Tribes, *State of Our Watersheds: Wells Deplete Water Resource for Salmon* (Sept. 2016), available at <https://nwtreatytribes.org/state-watersheds-wells-deplete-water-resource-salmon/>.



Ecology also asserts that ecological benefits upstream will flow downstream without providing any evidence or analysis that this is true or likely in a climate altered future.<sup>85</sup> It is certain that stream flows and temperatures will be altered as a result of climate change within the 20 year planning horizon.<sup>86</sup> Therefore, it is necessary for Ecology to provide evidence showing that ecological benefits will actually flow downstream to justify their assumption that upstream restoration projects will provide a NEB to the watershed as a whole.

**The adaptive management proposal in its current form, located in the RSD, does not remedy the Proposed Rule's deficiency.**

Ecology can and should put adaptive management requirements in rule, rather than relegating them to the RSD (which Ecology maintains is unenforceable). The Legislature clearly anticipated that Ecology and local governments would actively measure the resources they are managing. Watershed plans *must* be updated to include recommendations for projects and actions that *will measure*, protect, and enhance instream resources and improve watershed functions that support the recovery of threatened and endangered salmonids.<sup>87</sup> The Legislature explicitly listed stream gaging and groundwater monitoring as potential watershed plan actions.<sup>88</sup> Data gathering and monitoring are key components of adaptive management and while it may be reasonable to set forth the specific data collection provisions in the [non-binding] watershed plan or RSD, the actual rule adopted needs to include the obligation to actually do the adaptive management.<sup>89</sup>

Unfortunately, it does not appear that the proposed adaptive management program – even if it were implemented – would actually collect data regarding how well instream resources and groundwater are being managed.<sup>90</sup> Ecology's adaptive management program encourages Whatcom County and project implementers to simply rely on estimates for their Five Year reports:

One of the most challenging aspects of the Five-Year Self-Assessments will be *estimating* the quantity of flow benefit realized through project implementation. *In most cases, the estimates used will be the same as those provided in this rule supporting document, which are based on a series of outcome assumptions.* Depending on the progress of individual projects, the entity or entities implementing the project may choose to update the flow benefit *estimates*, based on conditions and circumstances encountered.<sup>91</sup>

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<sup>85</sup> Washington State Department of Ecology, *WRIA 1 Draft Rule Supporting Document* at 60.

<sup>86</sup> Floodplains by Design, *Climate Change in the Nooksack River* (last accessed Jan. 12, 2020) available at [http://www.floodplainsbydesign.org/wp-content/uploads/2018/09/FbD\\_Nooksack-climatechange\\_web.pdf](http://www.floodplainsbydesign.org/wp-content/uploads/2018/09/FbD_Nooksack-climatechange_web.pdf).

<sup>87</sup> RCW 90.94.020(4)(a) (emphasis added).

<sup>88</sup> *Id.*

<sup>89</sup> It will be hard to get local governments and project implementers to do adaptive management when Ecology chooses to make it optional: "The adaptive management approach in this document is prepared with implementation in mind. However, RCW 90.94.020 does not require that there be an obligation on any party to ensure that plans, or projects and actions in those plans or associated with rulemaking, are implemented. Furthermore, the law does not predicate the issuance of building permits on the implementation of watershed plans or any projects and actions in those plans." RSD at 49.

<sup>90</sup> See RSD at 49-51. Project implementation monitoring is not the same as monitoring groundwater movement.

<sup>91</sup> RSD at 51 (emphasis added).

How does one adaptively manage a resource if, instead of collecting data, one simply relies on estimates and/or assumptions made *prior to project implementation*? Ecology needs to design an adaptive management program that will indicate whether offsets and NEB are being achieved. The requirement to implement that adaptive management program needs to be part of Ecology's adopted rule.

Ecology needs to examine more closely its assumption that the new wells' depletion effects are a steady-state equivalent at the subbasin and WRIA scales and therefore depletion effects are not greater during the high water use/low flow time of the year.<sup>92</sup> The Nooksack Tribe conducted modeling based on a different assumption – that depletion effects are not steady state – and came up with different results than Ecology.<sup>93</sup> We did not see any analysis or consideration of the Tribe's analysis in Ecology's RSD. Even though Ecology has chosen to rely on a USGS model, the USGS seems to think that more work is needed to verify how groundwater will respond to shrinkage of glaciers. It is seeking funding from the Puget Sound Partnership to test three models. It appears that Ecology's steady-state assumption may not be as risk averse as Ecology suggests.<sup>94</sup>

Ecology has no real remedy for the possibility that not enough offset projects take place or that withdrawals occur at a faster rate than offsets. Ecology needs a firm adaptive management program that enables it to manage such situations through such tools as providing notice to the basin of insufficient offsets, temporarily halting the exempt well program, and reopening rulemaking to lower recordable water allowances under the Proposed Rule.

In conclusion, Ecology's statement that "[t]he combination of the high likelihood of project completion and the adaptive management mechanism provide Ecology with a reasonable assurance that the projects will meet the offset requirement and achieve NEB during the planning horizon"<sup>95</sup> does not withstand close scrutiny.

## Conclusions

In enacting RCW 90.94, which allows for essentially unbridled growth using permit-exempt wells, the Legislature created a significant threat to streamflows and the salmon that they support. Fortunately, RCW 90.94 also contains provisions designed to mitigate for that threat and to take steps towards restoring and improving instream ecology. Those provisions require Ecology to adopt rules that meet the statute's requirements, including identifying and providing water to offset new permit-exempt well use as well as other restoration projects. Unfortunately, the Proposed WRIA 1 Rule Amendments, in their present form, fail to meet these obligations and would be vulnerable to challenge. CELP suggests that, rather than relying on an unenforceable Rule Supporting Document, Ecology should redraft the Proposed Rule to contain meaningful provisions that will ensure RCW 90.94's goals of streamflow protection and restoration are met.

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<sup>92</sup> See RSD at 26-28 (discussion of groundwater pumping depletion effects).

<sup>93</sup> Coe, T., Gabrisch, G., Kuhlman, K., Ross, A., Grah, O. Technical Memo Assessing the Ecological Effects of WRIA 1 Watershed Plan Update (12/5/2018).

<sup>94</sup> See <https://actionagenda.pugetsoundinfo.wa.gov/Project/FactSheet/12916>, accessed January 14, 2020.

<sup>95</sup> RSD at 39.

Again, we appreciate the opportunity to provide input on this Proposed Rule. Feel free to contact me if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink that reads "Trish Rolfe". The signature is written in a cursive, flowing style.

Trish Rolfe  
Executive Director