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TESTIMONY TO THE AG AND NATURAL RESOURCE COMMITTEE

January 15, 2010

Mr. Chair, Members of the Committee, Ladies and Gentleman. My name is Teren MacLeod. I am chair of the Government Affairs Committee of the Jefferson County Association of Realtors®, and their representative on the WRIA-17 Planning Unit. I am testifying today on behalf of the Washington Realtors®, particularly in regard to rural counties and issues. Thank you for your consideration of this bill.

The enabling legislation in 1945 for 90.44.050 in part was created to allow for small sustainable agriculture on rural lands not served by a public water system. This has allowed for the rural areas to support small niche agriculture on rural residential lands, a growing trend that is now supporting local Farmer's Markets, and helping people to realize their dream of creating a sustainable rural lifestyle. The current instream flow rule adopted in WRIA-17 closes down the opportunity for future agriculture in our "bread basin," the Chimacum sub-basin. We were told by Ecology during the rule-making process, over and over again, that existing wells would not be affected in any way, specifically in regard to metering and investigation of water use. Many said, "we hear you, Ecology, but we don't believe you." That question remains to be answered.

We need this bill to pass to give assurance to existing property owners that their permit-exempt water rights and beneficial uses are intact. It is a fact used by Ecology that up to 87% of the water used from permit-exempt wells can recharge the aquifer. There are no facts to suggest, in our areas, that permit-exempt wells are compromising water availability, to the eco-system, or to senior water right holders. We have been told by hydrologists that use of a deep well in some areas can actually augment stream flows.

Our rural character rests in our capability to produce local food to feed ourselves, especially as we face economic uncertainties. Living on a peninsula, that reality becomes even more concerning. We ask that you secure existing permit-exempt uses with this bill, so that we have some certainty in the future beneficial use of our lands.

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**Preliminary Cost Benefit,
Maximum Net Benefit
and
Least Burdensome Analyses**

**Chapter 173-517 WAC
Water Resources Program for the Quilcene–Snow
Watershed**

Water Resources Inventory Area (WRIA) 17

May, 2009

09-11-014

*Download this report from the Department of Ecology's Web Site at
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*If you need this publication in another format, please call the Water Resource Program at
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Table of Contents

1. CONCLUSIONS	1
Conclusion Summary	1
Quantified Values	1
Unquantified Values	1
Maximizing the Net Benefits.....	2
2. PURPOSE OF THIS ANALYSIS	2
3. REASON FOR THE PROPOSED RULE	3
4. SCOPE OF ANALYSIS	4
Baseline for Analysis	4
5. COMPARISON OF CURRENT CONDITIONS TO THE PROPOSED RULE ..4	
A. Setting Instream Flows (Establishing Instream Flow Rights)	5
Proposed Rule.....	5
Baseline	5
Primary Change:	5
B. Closing Subbasins to Future Withdrawals	6
Proposed Rule:.....	6
Baseline:	6
Primary Change:	7
C. Establishing Reserves of Water for Future Use	7
Proposed Rule:.....	7
Baseline:	8
Primary Change:	8
D. Establishing a Conservation Standard	8
Proposed Rule.....	8
Baseline	9
Primary Change	9
E. Restriction on Outdoor Irrigation in Chimacum Subbasin	9
Proposed Rule.....	9
Baseline	9
Primary Change	9
6. ANALYSIS OF COSTS AND BENEFITS	10
Time Horizon	10

Discounting Future Values	11
Probable Costs	11
Restrictions on Future Permitting	11
Permit-Exempt Water Restrictions and the Conservation Standards.....	12
The Cost of Restricting Outdoor Use	13
The Social Cost of Restrictions on Permit-Exempt Well Use	13
Metering	15
Implementation Costs	15
Public Meeting for Out of Subbasin Water Use	15
Cost Summary	16
The Probable Benefits	16
Protection of Instream Resources	17
THE PROPOSED INSTREAM FLOW RULE PROTECTS FISH IN AT LEAST THREE DISTINCT WAYS INCLUDING:.....	17
Protecting Flow and Habitat Restoration Investments.....	19
Water availability without the reserves.....	20
Additional allocations of water available from three reserves.....	20
Improved Water Management	22
Rainwater Catchment Benefits	23
Recreation Benefits.....	23
Non-Use Benefits	23
Total Probable Benefits	24
D. Summary of the Cost Benefit Analysis	24
7. MAXIMUM NET BENEFIT ANALYSIS.....	24
Reason for a Maximum Net Benefit Analysis	24
Restrictions on the Analysis.....	25
Highest Value Analysis.....	25
Water Management Improvements	26
Overriding Consideration of Public Interest.....	26
8. LEAST BURDENSOME ANALYSIS	27
9. REFERENCES	29
APPENDIX 1. MAPS	31
APPENDIX 2. HYDROGRAPHS	33
APPENDIX 3. RULE SUMMARY	34

**APPENDIX 4. DETERMINING SIZES OF RESERVES OF WATER FOR WRIA
17 SUBBASINS.....39**

**APPENDIX 5. POTENTIAL ENVIRONMENTAL EFFECTS RESULTING FROM
THE WRIA 17 INSTREAM FLOW RULE49**

APPENDIX 6. RESTORATION PROJECT COSTS WRIA 1767

APPENDIX 7. PENDING APPLICATIONS FOR WRIA 17.....69

1. Conclusions

The Department of Ecology (Ecology) has determined that the probable benefits of the proposed rule greatly exceed the probable costs. Further, Ecology has determined that the proposed rule maximizes the net benefits to the people of Washington State.

Conclusion Summary

- The rule is likely to generate the maximum net benefits available under the law from the reserves that provide a reliable supply of water for population growth through 2025.
- The setting and protection of instream flows and establishing of reserves protects in-stream and out of stream uses in the watershed.
- The benefits associated with establishing the reserves outweigh the costs, including:
 - The probable costs to ecosystems, aesthetics, and cultural ceremonial values.
 - The costs of using and managing the reserves.
- The rule is the least burdensome option for those who must comply.

Quantified Values

- The quantified benefit estimate exceeds \$32 million through 2025.
- The quantified cost of the rule is estimated to be \$3.3 million through 2025.

Unquantified Values

- Impacts of climate change that may affect expected benefits by modifying hydrologic regime and impacting both in-stream and out-of-stream uses.
- Changes to the local economy from the effects of the global economy that may reduce or increase benefits.
- Protected and improved water quality that may occur because of protected flows.
- Improved certainty on how to secure future water rights (new appropriations).

- Allowing rain catchment for onsite use.
- Reduced risks of impairment on existing wells because of conservation standards for exempt wells.

Ecology has determined that the benefits associated with this proposed rule exceed probable costs. Ecology does not believe that the unquantified values will offset the net benefits.

Maximizing the Net Benefits

The proposed rule contains the combination of reserves most likely to maximize net benefits.

Revised Code of Washington (RCW) 90.54.020(3)(a) generally prohibits Ecology from allowing withdrawals of water from surface waters or groundwater that conflict with stream flow needs protected by instream flows. “Instream flows” are stream flow levels set in rule that create a water right to protect in-stream values.

Ecology may authorize water withdrawals in conflict with instream flows when it is clear that it would serve the overriding considerations of the public interest (OCPI). A finding of OCPI allows Ecology to resolve the conflict between the two planning objectives of meeting the needs of people and of the environment. Where public benefits clearly outweigh public losses, OCPI allows Ecology to make some water available for growth when the harm to the instream flow right is minor.

The maximum net benefit analysis (Section 7) considers the public benefits gained by the reserves and any harm to public resources (both discussed in Section 6). In general, the reserves promote growth in economic sectors while protecting the remaining in-stream resources.

The sizes of the reserves are adequate to meet future domestic demands for the following 16 years, while limiting habitat loss. Ecology determined the specific reserve amounts through careful data review and negotiations between technical staff from the state departments of Ecology and Fish and Wildlife (see Appendix 4 for reserve allocations).

Ecology and local counties will track and account for all withdrawals made from the reserves. This includes uses under water right permits and uses that are permit-exempt. This strategy will likely benefit the future in-stream resources in the Quilcene-Snow watershed.

2. Purpose of this Analysis

Ecology is obligated under Chapters 90.82, 90.22, and 90.54 RCW to set and protect instream flows at levels needed to protect fish and other environmental values. Rule setting instream flows may also include strategies or provisions for future out-of-stream water uses. Ecology has proposed this rule, Chapter 173-517 WAC in order to fulfill these obligations. The economic analysis described in this document is part of the rule-making process.

Ecology is issuing this preliminary joint Cost Benefit Analysis (CBA) and Least Burdensome Alternative Analysis, under Chapter 34.05 RCW, and Maximum Net Benefit Analysis (MNB), under RCW 90.54.020 (2). Ecology will use the information from these analyses to ensure that the proposed rule is consistent with legislative policy. Ecology has also developed and issued a Small Business Economic Impact Statement (SBEIS) as part of its rule-making process.

3. Reason for the Proposed Rule

At this time, WRIA 17 does not have a rule in place. To better manage water resources in WRIA 17, Ecology, Department of Fish and Wildlife, and local stakeholders recommended that Ecology adopt, through rule, a new water resource management program that includes:

- Setting instream flow levels in the watershed to protect existing water users and aquatic resources, including habitat for threatened and endangered salmonids.
- Closing most subbasins to new year-round withdrawals.
- Establishing water reserves to provide a reliable water supply through 2025 for population growth in closed areas.
- Specifying conditions for accessing the water reserves to better manage limited supplies.
- Establishing conservation standards for new permit-exempt well withdrawals.
- Allowing rain catchment for onsite water use.

The proposed instream flows are designed to be protective of salmon habitat. This makes less water available for future out-of-stream uses during low-flow portions of the year (typically July 1 through October 31). To provide a reliable, year-round supply of water for future uses, it is necessary to reserve water to be available even when the instream flows are not met. To do this, RCW 90.54.020(3)(a) requires that Ecology determine that the reserve would serve the Overriding Considerations of the Public Interest.

Water uses begun after Ecology adopts the instream flow rule are junior water rights with respect to these flows. Unless mitigated to offset their impact on flows, these junior uses

may be interrupted when instream flows are not met. Water rights established prior to the instream flows are senior uses and are not subject to the flows.

The proposed reserves allow permit-exempt uses, including small group domestic uses. In one subbasin (the Big Quilcene), the reserve gives a municipal system more access to reliable water supplies, consistent with RCW 90.54.020(8). These reserves will enable local governments to make findings of water availability for new construction, as a required under the Growth Management Act (GMA). The proposed reserves are created for each subbasin where instream flows would be set.

The proposed reserves ensure a year-round, reliable water supply for new domestic and some commercial uses to meet expected demands through 2025. They are divided by subbasin and county. Future users from the reserves could obtain their water from either groundwater or surface water sources.

4. Scope of Analysis

This document contains the preliminary Cost Benefit Analysis (CBA), Maximum Net Benefits Analysis (MNBA), and a Least Burdensome Alternative Analysis.

- The CBA measures the probable costs and benefits of the proposed rule against current operating conditions under the existing legal structure.
- The MNBA evaluates whether the proposed rule maximizes the net benefits for the citizens of the state.
- The Least Burdensome Alternative Analysis must show that the proposed rule is the least burdensome option for those required to comply with the rule.

Baseline for Analysis

The baseline is the current legal framework governing the management of water resources within the watershed. Baseline conditions include current water management practices in the basin, and other applicable water resource laws and court cases.

5. Comparison of Current Conditions to the Proposed Rule

This section describes how the proposed rule would affect citizens in the watershed compared to the current conditions of the baseline

The comparison in this section addresses the following major elements of the rule:

- A. Setting instream flows [WAC 173-517-090].

- B. Closing subbasins to future withdrawals [WAC 173-517-100].
- C. Establishing reserves of water for future use, and specifying conditions of use for access to the water reserves [WAC 173-517-150].
- D. Establishing conservation standards for new permit exempt well use [WAC 173-517-120]
- E. Restriction on outdoor irrigation in Chimacum subbasin [WAC 173-517-150(7)].

The following analysis shows that setting instream flows, the formal closures, the reserves, and the conservation standards are the most significant changes from existing conditions. The analysis in this report will focus on the reserves, and quantify the costs and benefits associated with the allocation of the reserved water. Appendix 3 contains a summary of these changes as they apply to specific sections of Chapter 173-517 WAC.

A. Setting Instream Flows (Establishing Instream Flow Rights)

Proposed Rule

The proposed rule sets instream flows for 13 rivers and streams in WRIA 17. Once the rule takes effect, instream flows become water rights. As water rights, Washington water law protects instream flows from impairment by new water right uses (except for uses eligible for the reserves) and future water right changes and transfers.

Baseline

Under the Water Resources Act of 1971, Ecology has a legal obligation to maintain surface water at flows sufficient to protect and, where possible, enhance rivers and streams in the state. Ecology issued 124 permits and certificates for water right applications filed since 1980. Essentially, the issuance of all surface water and groundwater rights ended in the late 1990s throughout all subbasins and the coastal groundwater management area in WRIA 17. Ecology last issued a surface water right in 2000 and a groundwater right in 1998 in the watershed. This is because technical review of applications indicated that further diminishing streamflows would not be protective of fish, and groundwater withdrawals would impact stream flow. One water right application is currently being processed through a cost recovery agreement with the applicant.

Primary Change

The proposed instream flows do not fundamentally change the current situation. Setting instream flows does not affect existing water rights or put water back into the streams. Ecology currently approves water right applications in the watershed only when there is sufficient mitigation or conditions to protect stream flows. Establishing instream flows as water rights does help protect existing flows and any future restored flows by adopting current limits into rule. Once the rule is in place, this same requirement for offsetting impacts to surface waters for new appropriations will still apply.

B. Closing Subbasins to Future Withdrawals

Proposed Rule

The proposed rule closes most surface waters and groundwater to new withdrawals (including permit-exempt groundwater use¹) in some areas (WAC 173-517-100). In closed areas, there are eight exceptions to the closure to allow access to new water rights (WAC 173-517-110):

- (1) The proposed use is non-consumptive.
- (2) The proposed surface water appropriation would not have an adverse effect on any of the surface waters closed in WAC 173-517-100.
- (3) The proposed groundwater withdrawal is located in a coastal management area or where the proponent can show it would not adversely affect any of the surface waters closed in WAC 173-517-100.
- (4) The applicant chooses to submit a mitigation plan as defined in WAC 173-517-030 (8), and such plan is approved by Ecology.
- (5) The proposed water appropriation qualifies as an interruptible use and meets the criteria in WAC 173-517-140.
- (6) The proposed water appropriation qualifies for the reserves established and conditioned in WAC 173-517-150.
- (7) The proposed water appropriation is for an environmental restoration project and meets the criteria in WAC 173-517-200.
- (8) The proposed use relies on rainwater collected from the rooftop of a structure that serves another primary purpose, and all rainwater is used on site.

The rule further limits future water right permits to amounts that protect natural high-flow stream functions. These functions include moving sediment, creating and maintaining aquatic (water) and riparian (near-stream) habitat, and allowing fish migration.

New users in closed areas could also rely on the change or transfer of existing water rights.

Baseline

Under current conditions, new water rights are very difficult to obtain because of administrative closures throughout the basin. In most areas, new appropriations will impact surface waters and consequently new water users must either:

- (1) Provide adequate mitigation,

¹ In the state Ground Water Code, the “ground water permit exemption” allows for certain uses of small quantities of ground water; including domestic, industrial, stockwatering, and non-commercial irrigation of less than one-half acre of land. RCW 90.44.040, *See also* Washington Attorney General Opinion (2005 Op. Atty Gen. Wash. No. 17).

- (2) Show that water comes from a source that does not impact flow-limited bodies of surface water,
- (3) Connect to a public water supplier, or
- (4) Change or transfer an existing water right, which they own, buy, or lease.

If eligible, these water users may secure water under the groundwater permit exemption (RCW 90.44.050). Although exempt from permitting, these uses remain subject to all other state water laws. They are subject to regulation (where use is interrupted) in the future if they impair senior water rights.

Ecology currently issues temporary water rights for small-scale environmental restoration projects and allows emergency water use for fire suppression.

Primary Change

The closures with exceptions provided for environmental and other out-of-stream uses are generally consistent with current regulatory and administrative practice and do not require analysis.

Although the closures would affect permit-exempt uses that are currently under no special use restriction, such change is offset by the reserves that provide an uninterrupted supply for permit-exempt uses (see “Establishing Reserves of Water for Future Use” section below). The combined effect of closing areas to permit-exempt uses while providing water under the reserves creates no net change from current regulatory practice (allowing new permit exempt well use in areas with administrative closures).

C. Establishing Reserves of Water for Future Use

Proposed Rule

The proposed rule would create reserves of water intended to meet the community’s needs for the next 16 years of projected growth. Ecology creates these allocations through a determination that the reserves would serve the Overriding Consideration of the Public Interest (OCPI), as required by RCW 90.54.020(3)(a). The OCPI determination is necessary for new year-round withdrawals to occur in these subbasins, as they would impair flows needed for environmental in-stream values during low flow months.

The reserves were recommended by the Department of Fish and Wildlife and Ecology (See Appendix 4). Water in the reserves would allow a non-interruptible water right for those that qualify. The reserves will be distributed on a subbasin basis. Within each subbasin, a specific amount of water would be available for mostly domestic and other permit-exempt uses.

New permit-exempt well use may not occur where an existing municipal water supplier can provide service. Permit-exempt uses from the reserves must comply with the reserve criteria in WAC 173-517-150.

Baseline:

Prior to the rule, no reserve has been established through an OCPI determination in these subbasins. Permit-exempt users currently withdraw water as authorized by local law and RCW 90.44.050.² Although exempt from permitting, exempt wells remain subject to all other state water laws and could be regulated in the future if they impair senior water rights.

Primary Change:

Residential, small systems, and some commercial users are all gaining a reliable water supply (uninterruptible) through reserves in the proposed rule (See Appendix 4). Reliable water supplies allocated in the reserves would not be available without the provisions in this rule.

As under the current baseline, an applicant could forgo use of the reserves and secure water through other means (such as providing full mitigation, having an interruptible supply, or demonstrating that water comes from a source that does not impact flow-limited bodies of surface water).

The reserves provide water at least over the next 16 years for new wells that meet the conservation standards and other conditions of use for the reserves in WAC 173-517-120 and -150. The rule requires potential well users to hook-up to a public water purveyor when possible.

The reserves provided for exempt wells will result in no net change over the remaining timeframe of this analysis. The primary changes for permit exempt well use are the conservation standards that limit water use for permit exempt wells, and the restriction on outdoor irrigation as a condition of use of the reserve in the Chimacum subbasin.

The reserves established under the proposed rule also make water available for new permitted water rights in the Big Quilcene, Little Quilcene and Thorndyke subbasins. Dependable, uninterrupted water supply for new water rights in these subbasins would not be available without the proposed rule. This available water is a benefit. The cost of this portion of the reserved water is any loss of habitat.

D. Establishing a Conservation Standard

Proposed Rule

The proposed rule establishes a conservation standard for new permit-exempt wells of a maximum withdrawal of 500 gallons per day (gpd) and an average use of no more than 350 gpd. This applies across the entire Quilcene-Snow watershed. For group domestic

² In the state Ground Water Code, the “ground water permit exemption” allows for certain uses of small quantities of ground water; including domestic, industrial, stockwatering, and non-commercial irrigation of less than one-half acre of land. RCW 90.44.040, *See also* Washington Attorney General Opinion (2005 Op. Atty Gen. Wash. No. 17).

use, the conservation standards apply to each residence, up to a maximum of 5,000 gpd for the entire group.

Exceptions to this proposed standard are:

- Up to 5000 gallons per day could be used for commercial agriculture in the Quimper, Miller, Salmon, and Big Quilcene subbasins.
- Up to 3000 gallons per day could be used for commercial agriculture in the Snow Creek subbasin.
- Permit-exempt wells could not be used for irrigation of lawn or gardens without mitigation in the Chimacum subbasin.

Baseline

The current conditions are based on RCW 90.44.050, which allows withdrawals of groundwater without obtaining a water right:

- For stock-watering purposes.
- For the watering of a lawn or of a noncommercial garden not exceeding one-half acre in area.
- For single or group domestic use in an amount not exceeding 5,000 gpd.
- For an industrial purpose in an amount not exceeding 5,000 gpd.

Primary Change

The proposed rule would limit new permit-exempt well use to 500 gallons per day maximum use and 350 gallons per day average use, with some exceptions as noted above. Accurate data on exempt well use in the Quilcene-Snow watershed is not available. However, it is likely that some new permit-exempt well users would withdraw more than 500 gallons per day if not limited by this proposed rule.

E. Restriction on Outdoor Irrigation in Chimacum Subbasin

Proposed Rule

The proposed rule would restrict use of the reserved water in the Chimacum subbasin to domestic permit-exempt well use and would not allow outdoor irrigation. This restriction on outdoor irrigation would no longer apply when an alternative water supply or mitigation strategy for the subbasin is implemented.

Baseline

The current conditions are the same as the baseline for the conservation standards, and are based on RCW 90.44.050.

Primary Change

The proposed rule would generally only allow use of the reserved water in the Chimacum subbasin for indoor domestic use. The proposed rule would not allow use of reserved

water in this subbasin for outdoor irrigation. Funds have been granted to the WRIA 17 Planning Unit to investigate mitigation strategies for the Chimacum subbasin.

6. Analysis of Costs and Benefits

This cost-benefit analysis is provided under RCW 34.05.328(d).

The analysis concludes 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 statutes being implemented.

The cost-benefit analysis includes quantitative information where available, and qualitative information where reliable values for estimating the costs and benefits are not available.

Time Horizon

The costs and benefits associated with the rule depend on the time horizon used in the analysis. For the proposed rule, the cost-benefit analysis uses a 20-year horizon in order to analyze the costs and benefits (2006-2025). Because of this, much of the quantified values start upon rule adoption, which we anticipate by the end of 2009. The reasons are:

- The reliability of the probable benefits and costs estimations are determined by the accuracy of our forecast into the future. Forecasts that use a shorter period are more reliable. Longer periods would significantly increase the uncertainty, and may result in misleading conclusions.
- Ecology considered the water needs of both fish and people when determining reserve quantities for all subbasins in the affected portion of WRIA 17. Specifically, Ecology's goal was to develop reserve amounts that will have little or no impact on the long-term sustainability of fish populations, while at the same time meeting water supply needs of additional households expected through 2025.
- Changes in water management policy are inevitable. Advances in science, population shifts, and changes in technology influence water management policy and create a dynamic process. The need for this rule is a direct result of such changes. Historical evidence shows that changes in how we manage water can be large.

No rule can solve all future problems. Therefore, it is likely that this rule will receive further amendments in the future. The expected lifetime of this rule is 20 years (from 2006), though it may be much shorter or longer.

Discounting Future Values

We must discount the value of benefits and costs accruing in the future. Future costs and benefits are not as valuable as current costs and benefits even when adjusted for inflation.

Ecology uses a real discount rate of three percent for water resource related projects to discount future dollars.³ For the selected 20-year span, this means the remaining 16 annual inflation-adjusted payments of \$1 are currently worth \$12.56. This is equivalent to multiplying the sum of the 16 annual increments by 0.785 (12.56/16).

Probable Costs

Ecology has based the evaluation of the costs and benefits on analysis and comparison of water right management in WRIA 17 without the rule and after the effective date of the rule if the rule is adopted. The proposed rule's probable costs include:

- Restrictions on future permitting.
- Restrictions on permit exempt wells, the conservation standards, and outdoor irrigation in Chimacum subbasin.
- Ecological Costs
- Metering.
- Rule implementation costs.
- Public meeting for out of subbasin water use

Restrictions on Future Permitting

The draft rule language proposes to close most of the rivers and streams in the WRIA from any additional appropriations.

Under state law, flows sufficient to support game fish and food fish populations must be maintained at all times in the streams of this state. The Washington Department of Fish and Wildlife (WDFW) reviews applications to determine if approving the proposed withdrawal would compromise game and food fish populations. If there is a concern that an allocation of water might adversely impact fish, WDFW recommends that Ecology not issue the right or that any allocation granted be conditioned on minimum flows. In most cases, Ecology accepts WDFW's recommendation and conditions the right to protect flows.

Because of the concerns expressed by the Department of Fish and Wildlife and the historic Department of Game, Ecology has issued very few water rights in the watershed

³ For each year 1998 - 2008, we calculated the real rate by subtracting annual inflation from the nominal rate for water. These real rates were then averaged to calculate the 3% real interest rate as an average expectation for the future. Inflation rates as paid out on I bonds came from today's values at http://www.treasurydirect.gov/indiv/research/indepth/ibonds/res_ibonds_iratesandterms.htm. Nominal rates for water projects were obtained today at <http://www.economics.nrcs.usda.gov/cost/discounrates.html>.

in recent years. Many of the streams in WRIA 17 have been “administratively closed” for many years. The last new groundwater right was issued in 1998, and the last new surface water right was issued in 2000.

The proposed rule formalizes administrative closures that have been in place for many years. Without the rule, most new appropriations that do not fall under the permit exemption of RCW 90.44.05 need an approved migration plan to offset impacts to surface waters. After the rule is in place, the same mitigation plans would still be needed for most new appropriations. There is no social cost associated with WRIA 17 being formally “closed” since there is no actual effect on future permitting.

Permit-Exempt Water Restrictions and the Conservation Standards

The water right exemption from a permit requirements in RCW 90.44.050 refers to:

“any withdrawal of public ground waters for stock-watering purposes, or for the watering of a lawn or of a noncommercial garden not exceeding one-half acre in area, or for single or group domestic uses in an amount not exceeding five thousand gallons a day, or as provided in RCW [90.44.052](#), or for an industrial purpose in an amount not exceeding five thousand gallons a day”

The proposed rule divides the Quilcene-Snow watershed into reserve management areas and coastal ground water management areas. In both areas, Ecology primarily provides groundwater for future domestic uses, although other uses are eligible.

The proposed rule establishes a conservation standard for new permit-exempt well use. The conservation standard is 500 gallons per day maximum use and 350 gallons per day average use across the entire Quilcene-Snow watershed for new permit exempt wells. For group domestic use, the conservation standard applies to each residence, up to a maximum of 5,000 gpd for the entire group. Exceptions include:

- No outdoor irrigation without mitigation in the Chimacum subbasin.
- Water allocated in the reserves of certain subbasins for commercial agriculture relying on a permit exempt well, where use of up to 3,000 or 5,000 gpd is allowed.

To determine the proposed rule’s potential impact on the exempt-well users, the first step is to determine if the water reserved is enough for the projected future domestic uses through 2025.

Details of the methodology Ecology used to determine the reserve sizes is provided in Appendix 4. Ecology calculated the reserved quantities based on stream flow characteristics and the estimated loss of the fish habitat during low flow periods. Ecology used the Instream Flow Incremental Method (IFIM), the 90 percent exceedence flow based on stream gauge records, or actual low stream flow measurement to determine flows and habitat losses. We then adjusted the reserve amounts in three subbasins to ensure enough water to meet the projected 16 remaining years of population growth.

The rule would limit water use in the reserve areas to permit-exempt well use consistent with the conservation standard. However, in some subbasins, portions of the reserved water are allocated for commercial agriculture. In the Big Quilcene, Little Quilcene and Thordyke subbasins which have larger reserves, a portion of the reserve is also available for pending and future water right applications.

Most household water use is typically less than the limits imposed by the proposed conservation standard. However, there is a social cost to those households that would have used more water if not limited by the conservation standard.

For the designated coastal management areas, the conservation standard helps to protect small streams, and total water use is not limited by a reserve quantity. This ensures available water will meet supply needs for the projected remaining 16 years of population growth.

The subbasins designated as coastal management areas include Bolton, Devils Lake, Marple, Toandos, Squamish Harbor, Mats Mats, Oak Bay, Marrowstone, Indian, Quimper, and Miller. Similar to the subbasins with reserves, some future homes in these areas might want to use more water than limited by the conservation standard. These households will also have a social cost of permit-exempt well use restrictions.

The reserved water is enough for the 871 projected households in the Quilcene-Snow watershed. For more details of growth in the watershed and reserves see Appendices 3 and 4.

The Cost of Restricting Outdoor Use

Under the proposed rule, new homes in the Chimaquum subbasin may not use water from a permit-exempt well for outdoor irrigation (watering lawns or gardens). Restricting outdoor irrigation will result in less water use per household. The permit-exempt well user in this subbasin will be entitled to less water which is calculated as a social cost in this analysis. It would reduce the level of people's satisfaction that can be measured by consumer surplus. However, not all future permit-exempt well users would be affected in this subbasin. The proposed rule would have no impacts to those not planning to use water outdoors. Ecology projects 149 households in the Chimaquum subbasin would be restricted from outdoor water use by 2025. Outdoor mitigation costs in other parts of the state for residential use can cost \$2000.⁴ The projected cost of this restriction is \$298,000 or a present value of **\$233,930**.

The Social Cost of Restrictions on Permit-Exempt Well Use

One study examining restriction of permit-exempt well use in Washington State determined an average social cost of approximately \$1,000 during a 20 year period for a similar type of restriction of permit-exempt uses.⁵ In reality only those permit-exempt well users that wanted, or planned, to exceed the restrictions of the proposed rule would

⁴ Walla Walla state assisted mitigation plan. <http://www.ecy.wa.gov/pubs/0711032.pdf>

⁵ A Methodological Case Study of the Cost of Restricting Outdoor Water Use by Exempt Wells, Zhang, Shidong and Reich, Dave. Northwest Journal of Business and Economics 2005

have a social cost. Using the 871 estimated users of permit-exempt wells through 2025 the total social cost of these restrictions would be \$871,000. Although Ecology is unable to determine how many future users would want to use over the conservation standard, this study estimated that about 45 percent of future permit-exempt well users might be affected. Ecology expects the total cost in the period from restricting permit-exempt well use to be **\$871,000** for all users.

Ecological Costs

To measure the ecological costs of the rule, Ecology assessed how the reserves were likely to affect salmon in the Big Quilcene, Little Quilcene and Thorndyke subbasins. These areas differ from the rest of the WRIA in that the rule will allow Ecology to issue new water right permits from the reserves in these three subbasins. This varies from the baseline condition, where to gain a new reliable water right, applicants must either mitigate their proposed use, show evidence that their use will not reduce flows, or prove an overriding consideration of the public interest would be met by the proposed use.

To assess the effects on salmon, Ecology biologists estimated the changes of flow that were likely to occur from new water right permits. They did not consider the entire flow change likely to occur from use of the reserves, as continued development of permit-exempt uses is part of the baseline. The estimated potential stream flow changes are shown in Table 5 in Appendix 5.

Ecology assumed a direct relationship between the changes to the low summer flow and salmon survival. (See How Stream Flow is Related to Fish Survival, in Appendix 5) We therefore multiplied the expected percent change by the estimated number of summer chum, coho, and steelhead for that stream. Total run sizes are made up of both escapement (the number of fish that return to spawn) and harvest (the number of fish that are caught). Since available population estimates only include escapement, Ecology doubled these numbers to account for harvest. Ecology then used that number as the estimate of the total run size that would be affected. The estimates are shown in Table 1, below.

Table 1. Estimates of fish lost

	Flow change (%)	Salmon escapement	Total salmon (includes harvest)	Salmon lost
Big Quilcene	-0.86%	12,953	25,906	-223
Little Quilcene	-0.29%	1,370	2,740	-8
Thorndyke	-0.79%	700	1,400	-11

Based on these assumptions, Ecology estimates that the rule may cause the loss of about 242 salmon from the three streams.

Based on a University of Washington study (Layton, et al 1999), the 20-year average between high and low status quo populations give us \$300 as the annual value for each adult spawner. Columbia River Initiative gave us existence values of \$268 (Huppert 2003). Bonneville Power Administration gave us restoration values of \$400 per adult

fish⁶. From these reports 16 year values for fish would range from \$4,288 to \$6,400. Ecology has chosen to use a 16-year real estimated value of \$5,000 for an adult returning spawner.

Reduction of 242 adult spawning fish to the people of Washington State can be estimated at **\$1,210,000**.

The detailed analysis of impacts to salmonids is in Appendix 5.

Metering

Proposed Chapter 173-517 WAC requires metering for all new uses of water.

The Legislature enacted RCW 90.03.360(2) requiring metering for all water diversions in areas with depressed or critical salmonid stocks. WRIA 17 is one of the 16 basins with depressed or critical salmonid stocks.

Metering will result in costs to individuals and businesses with new uses of groundwater or surface water. Metering imposes costs in the form of buying, installing, maintaining, and reading the meter, and reporting the measured water use to Ecology. The estimated cost below includes all these activities.

Ecology estimates that 871 wells over the remaining 16-year timeline will be drilled in WRIA 17. The estimated cost of metering and reporting for small water systems ranges from \$400 to \$600.⁷ Ecology chose to use \$500 per meter. The total cost for metering these new well uses is 871 x \$500, or \$435,500. This gives a present value of **\$341,868**.

Implementation Costs

There will be costs to implement the rule, including costs:

- To provide technical and educational information for rule compliance.
- To administer the reserves by Ecology and Jefferson County staff.
- To collect metering data and enforce rule requirements.
- To track future commercial agricultural use of permit-exempt wells.
- To track rainwater catchment.

Ecology estimates to employ the equivalent of one full time staff person for the first year and one-half a staff person between Ecology and Jefferson County for the following 15 years. At \$100,000 annual full time equivalent, Ecology estimates the present value at **\$700,000**

Public Meeting for Out of Subbasin Water Use

The proposed rule would require applicants proposing to transfer water from one subbasin for use in a different subbasin to:

⁶ <http://www.perc.org/articles/article232.php>

⁷ Survey of well drillers, pump installers, and Ecology's metering coordinator.

- Conduct a public meeting.
- Submit a report on the meeting to Ecology.

Ecology estimates that the proposed requirement will affect one applicant during the period of this analysis. Ecology estimates the total cost of conducting such a meeting, and preparing and submitting the report to be **\$2,000**.

Cost Summary

We estimate total costs of the proposed rule at \$3.3 million.

Table 2. Cost Summary

Rule Impacts	Costs
Closures/Max Allocation	\$0 (Transfer of Gain)
Exempt well restrictions	\$871,000
Outdoor water restrictions	\$233,930
Ecological costs (reserve allocation)	\$1,210,000
Metering Costs	\$341,868
Implementation Costs	\$700,000
Out of subbasin water use meeting	\$2,000
Total Costs	\$3,358,798

In general, the limits of current science, technology, and economic knowledge prevent us from making a more accurate estimate of the probable costs of the proposed rule.

The Probable Benefits

The proposed rule's primary benefits:

- Protects instream resources and aesthetic values by setting instream flows and managing future water use.
- Benefits to protecting flow restoration investments.
- Additional allocations of water in three reserves.
- Reduces seawater intrusion.
- Improves water management.
- Allows rainwater collection.
- Benefits recreation.
- Non-use benefits.

Protection of Instream Resources

The proposed instream flow rule protects fish in at least three distinct ways including:

- (1) Formally closing most of these streams in the watershed to the creation of large, new water rights under the permit-exempt well statute (currently four streams in the watershed are closed administratively).
- (2) Placing limits on the daily use of a new permit-exempt well in most areas.
- (3) Establishing finite quantities of water (reserves) that can be withdrawn by new wells within the subbasins.

These restrictions will provide significant benefits for the salmon in the future, although many of the benefits will be experienced beyond the 20-year time frame of this analysis.

Benefits to salmon by protecting flows

The benefits of preserving stream flow correspond directly to the percentage of stream flow that remains in the stream. Most of the streams in WRIA 17 are rain-fed. When the rain stops, stream flow starts to drop. During the lowest flow time of year, fish populations will drop as the stream flow drops. Without groundwater providing stream flow during the late summer and fall rain-fed streams would go dry.

The analysis of flow changes resulting from the proposed rule shows that flow benefits will occur in the coastal management areas and in the following subbasins:

- Chimacum
- Donovan
- Ludlow
- Piddling
- Spencer
- Tarboo

There is great uncertainty regarding how many people will move into the basin in the future. Currently any new home built in these subbasins could withdraw up to 5,000 gpd using an exempt well. Because of this potential, we made a relatively conservative assumption during our analysis and evaluated the effect of just one new person moving into the basin and pumping 5,000 gpd, or 4 such exempt withdrawals in the case of Chimacum (see Table 2 in Appendix 5).

Using the percent of stream flow saved as shown in Table 5 in Appendix 5, and multiplying that percentage times the estimated number of summer chum, coho, and steelhead for that stream, Ecology estimated the average number of salmon saved (assuming a direct relationship between the low summer flow and salmon survival (see How Stream Flow is Related to Fish Survival, below). Since available population estimates only include escapement, Ecology doubled this number to account for harvest and estimate the total run size that would be protected. Total run size is made up of both escapement (the number of fish that return to spawn) and harvest (the number of fish that are caught).

Table 3. Estimates of fish saved

	Flow change (%)	Salmon escapement	Total salmon (includes harvest)	Salmon saved
Chimacum	0.99%	2,750	5,500	54
Donovan	2.16%	343	686	15
Ludlow	0.13%	100	200	0
Piddling	2.09%	100	200	4
Spencer	1.25%	2,125	4,250	53
Tarboo	0.22%	685	1,370	3

The calculations for these streams leave out many salmon because certain fish, such as steelhead and cutthroat, have not been counted or estimated. The estimate of total number of salmon saved in the 6 streams is 129 salmon.

During field surveys in 2005 and 2008 Ecology and WDFW biologists found 3 large and 19 small independent coastal streams within the coastal management areas that were flowing during the low flow months at the end of summer. This estimate of 19 smaller streams is likely conservative as the portion of the Toandos Peninsula that was not surveyed likely also has some creeks flowing during the summer.

During the survey two of the large streams, Contractors and Eagle creeks, were flowing about 0.6 and 0.15 cfs, respectively. The remainder of the streams had very low flows of less than 5,000 gpd. Biologists documented either the presence of coho salmon and cutthroat trout or likely habitat for these species in all of these streams.

A total of 542 new households are projected by 2025 in the coastal management areas. If less than 5 percent of new households locate in proximity to these streams and pump approximately 1,000 gpd each, the three large streams could be significantly diminished and the small streams would likely go dry or become too small to support any fish life.

A reasonable estimate of coho and cutthroat production in these small coastal streams is approximately 20 fish in each stream, therefore we estimate that the rule would prevent the cumulative loss of about 440 salmon. In addition, the rule would likely also prevent the loss of chum and steelhead from the small coastal streams, but we cannot estimate these numbers.

Therefore, it is estimated that the rule will prevent the loss of at least 569 salmon (using the assumptions listed above) from the 6 streams listed above and the coastal management areas.

This analysis relies on conservative assumptions that do not reflect the “worst case” scenario of all new users taking full advantage of the ground water exemption in RCW 90.44.050. It is reasonable to assume that more than 14 new wells in the reserve management areas and more than 5% of new users in the coastal management areas would use more than allowed under the 500 gpd maximum and 350 gpd average

conservation standard. In that case the rule would prevent the loss of more than 840 salmon.

Based on the above rationale, Ecology biologists believe that the benefits of establishing the instream flows and preserving these instream values are very large. The salmon run in Quilcene-Snow basin averages around 60,000 adult spawners. This would be the number of salmon and trout that would be lost if the streams of WRIA 17 were allowed to go dry. This number includes the following estimated run sizes of ESA-listed species: summer chum averaging around 12,000, steelhead averaging around 300, Chinook around 20, and bull trout likely less than 20.

Preservation of 569 adult spawning fish to the people of Washington State using the estimated 16-year value of \$5,000 per fish would exceed **\$2,845,000**. This is the minimum value of in-stream resources this rule protects as a benefit. This figure does not take into account the mandatory requirement of preserving the estimated 12,000 listed species that require protection under the Endangered Species Act or the potential impact of eliminating all 60,000 salmonids this basin supports. Eliminating all the salmonids the watershed supports would cost the people of Washington State hundreds of millions of dollars.

The benefits specific to salmonids are discussed in further detail in Appendix 5.

Protecting Flow and Habitat Restoration Investments

The State Salmon Recovery Funding Board has committed significant financial investment to salmon recovery projects in the watershed. These projects are intended to help sustain salmon productivity by providing wild spawner escapement, conserving genetic diversity, and meeting basic needs of salmon for spawning rearing and migration. These efforts have provided a wide range of benefits to salmon including:

- Restoring riparian habitat.
- Reestablishing fish passage.
- Enhancing stream channels.
- Restoring estuaries.
- Acquiring habitat.

The approximate cost of such projects in WRIA 17 is more than **\$12,651,867** (see Appendix 6). Ecology recognizes this value does not account for projects funded through other sources or future restoration projects throughout the basin. Ecology alone has spent over \$265,807 in grants through the watershed planning process.

This proposed rule will ensure protection of the tremendous investments in salmon restoration made by the state, local agencies, tribes, and private entities. This is done by establishing instream flows, closing the subbasins, and limiting the amount of water withdrawn from new permit-exempt wells.

Water availability without the reserves

New water right holders would be required to stop using water when the stream flows dropped below permitted conditions. Under those circumstances, the potential users who needed an uninterrupted supply could choose among the following options:

1. **Water storage:** In some seasons, actual stream flows usually surpass levels currently included as permit conditions. If users can store enough of the excess flow, it would be available throughout the year. However, in order to be assured of sufficient water to sustain their needs, most users would need to store tens of thousands of gallons of water. Storage can be costly.
2. **Abandoning building lots:** In this scenario, the landowners cannot find an economic and technically feasible way to sustain their year-round water use. The potential building lots are unbuildable in the remaining 16-year period because of the lack of water.

To quantify the probable benefits, we assume the benefits are equal to the cost savings of using an uninterrupted water right from the reserves.

3. **Purchasing uninterrupted water rights:** In some areas, persons seeking new water rights can purchase agricultural farmland with uninterrupted water rights and transfer the right for their water supply. Where this is a viable option, the loss was from the degradation of irrigated farmland into non-irrigated farmland. This scenario has not been commonly used in the past.

Additional allocations of water available from three reserves

Under the proposed rule, those that qualify will be able to get additional uninterrupted permitted rights through the reserves in the Big Quilcene, Little Quilcene, and Thorndyke subbasins. Assuming the reserves do not have an impact on existing users, the benefits to surface water and groundwater users should be solely beneficial.

The following uses qualify for new water rights permits under the proposed rule and would not be subject to interruption when stream flows do not meet the instream flow levels:⁸

- Municipal or community domestic water supply consistent with the conservation standard defined in WAC 173-517-120.
- Agricultural irrigation.
- Industrial.

⁸ Fire suppression is not part of the reserves as it is not subject to a water right permit. It is assumed that water for fire suppression is not subject to instream flow and therefore available year-round without interruption.

Ecology recognizes these reserves can support many more uses beyond the projected permit-exempt uses in these subbasins. The users eligible for water right permits from the reserves will benefit primarily from uninterrupted water for domestic and other uses.

This extra water is capable of supporting 690 additional households with an uninterrupted water supply.

Under the rule, water storage would be the most likely means of achieving uninterrupted water if the reserves did not exist. Abandoning a building lot seems unlikely and purchasing uninterrupted water rights may not be possible.

In drought years, interruptible water supply users would likely be asked to shut off from July 1 to October 31. Systems capable of storing 42,000 gallons would be necessary for each household to meet their needs for these 120 days.

Ecology estimates water storage of this nature would average \$.75 per gallon or \$31,500 based on Washington State Department of Health's Small Water System Management Program Guide.⁹ Although we are unable to determine when the storage systems would be constructed, we assume they would all have to be in place to receive the full benefit that would be available from use of the reserves. Multiplying the 690 additional households by \$30,000 storage costs estimates the cost avoided by future users and developers as about \$20,700,000. Under the rule, the reserves eliminate the need for this storage and making water available to these users has a direct benefit. The present value of this benefit is estimated at **\$16,250,000**.¹⁰

Reduced Seawater Intrusion

In addition to the above benefits, adoption of the conservation standards will also reduce the risk of seawater intrusion (see Appendix 5). In vulnerable areas, the risk of seawater intrusion directly relates to the amount of up-gradient (inland) groundwater pumping leading to a reduced head in the aquifer, thus allowing seawater to move inland. Preventing new, large (5,000 gpd) withdrawals throughout the coastal areas reduces loss of head and seawater intrusion risks.

Owning a home without potable water diminishes its value significantly. Options for homes with wells that produce saline water include:

- Treating well water with reverse osmosis system.
- Connecting to a public water system (if available).
- Trucking water in.

One strong indication of the costs associated with seawater intrusion concerns the long-standing problems experienced on Marrowstone Island. Due to these problems, Jefferson

⁹<http://www.doh.wa.gov/ehp/dw/Publications/331-134-4-30-08.pdf>

¹⁰ For the purpose of this analysis, Ecology chose to use the cost of storage as an indication of benefits. The cost of water storage serves as a realistic indication of actual public response to water supply interruptions.

County PUD recently spent \$5.2 million to extend a water system line from the mainland to the island. As a result of this extension, about 625 island property owners were recently assessed a one-time household fee of \$8,100 (includes meter). About 200 people who elected not to connect to the system were charged \$1,500 (a no meter partial assessment).¹¹

There are 68 homes currently designated as “at risk” or “high risk” according to Jefferson County’s SIPZ map. Ecology assumes at least that number of homes will be protected by application of the conservation standard over the next 16 years. Avoiding seawater intrusion is worth at least \$8,100 per home. This suggests that the potential benefit provided by the rule relative to seawater intrusion may be about \$551,000 or present value of **\$432,535**.

Improved Water Management

Increased certainty and clarity in water right processing should reduce the delay and uncertainty in obtaining new water rights. This will allow developers and others to plan ahead in property development and better value investment opportunities. Some permits may be issued that are not subject to instream flows or closure, if the proposed use meets the criteria outlined in proposed WAC 173-517-110.

Proposed WAC 173-517-110 contains eight conditions for future water use, if any one of the conditions is met, then new water use is allowed. Conditions (1),(2), (3)(a) and (4) re-state current policy, cannot be counted as either benefits or costs, and are not considered in this analysis. The new provisions are:

- (3)(b) Proposed ground water appropriation occurs in a coastal management area.
- (5) Proposed water appropriation qualifies as an interruptible use and meets the criteria in WAC 173-517-140.
- (6) Proposed water qualifies for the reserve.
- (7) Proposed water is for an environmental enhancement project.
- (8) Use of rainwater collected from rooftop.

These provisions are new and are considered in this analysis.

Provision (3)(a) applies to permit-exempt water users and the conditions of use are specified in WAC 173-517-130. These future uses would be restricted by the proposed conservation standards for permit-exempt well use that is analyzed below.

Provision (5) limits the availability of interruptible water rights to the Big Quilcene and Chimacum subbasins. It also sets a maximum allocation that limits the total amount of seasonal water available for new water rights.

Provisions (7) and (8) contain no costs and we assume project proponents seeking water through these means believe there to be net benefits. For a group of these applicants,

¹¹ Bill Graham, Jefferson County PUD, pers. com., 4/9/09.

their expectations should be rational and the realized benefit should be larger than the realized cost.

Finally, those that qualify for provision (6) may access water from the reserves established, as conditioned in WAC 173-517-150. These are primarily permit-exempt water right users and would be restricted by the proposed conservation standards for permit-exempt well use that is analyzed below.

This rule also provides more clarity and certainty for existing water rights. To the extent that the rule reduces further big users of permit-exempt withdrawals, the potential curtailment of existing interruptible rights will be decreased. The exact benefit will depend on the location and quantity of actual withdrawals and the number and use of existing interruptible rights.

Rainwater Catchment Benefits

Ecology has evaluated the potential impact of rainwater collection and use on instream flows and determined that the use of rooftop rainwater is compatible with protecting instream flows. The rule enables WRIA 17 residents to reasonably use the rainwater resource. Rooftop collected rainwater can be used on-site to augment an existing supply or can be the sole source of water supply if treated to potable standards.

Recreation Benefits

Avoiding a reduced flow caused by surface water and groundwater uses in the rivers and streams of the Quilcene-Snow watershed could benefit recreation by protecting sport fishing, primarily in the Big Quilcene River. In general, protecting water in streams will favorably impact fishing, swimming, picnicking, camping, and hiking. The exact magnitude is difficult to determine since the quality of the experience and the measure of additional flows are a function of many factors including existing flows, availability of other recreational opportunities.

Non-Use Benefits

Healthy rivers and supporting salmon have been shown to have large and positive non-use value. Salmon are a highly cherished cultural icon and a spiritual source of inspiration. People have shown their willingness to pay for salmon restoration without ever consuming the fish or even visiting a site. These values are very difficult to quantify. However, it is reasonable to conclude that they would depend on the ecosystem impacts. As described previously, the ecosystem impacts may be significant if denying a proposed transfer prevents a significant loss of fish habitat. Several of the papers listed in Appendix B include non-use values.

Table 4. Benefit Summary

Rule Impacts	Benefits
Instream Values (fish)	\$2,845,000
Restoration Protection	\$12,651,867

Future Water Rights	\$16,250,000
Seawater Intrusion	\$432,535
Total Benefits	\$32,179,402

Total Probable Benefits

The estimated benefits of the proposed rule exceed \$32 million over a 20-year period. The estimated value is based on the following assumptions:

- Current fish stocks would be preserved over the life of the rule and beyond.
- Investments in flow restoration projects would be preserved.
- Additional waters would be allocated for highest and best use.
- Seawater intrusion and other benefits would be realized.
- The discount rate is three percent for the remaining 16 years.

D. Summary of the Cost Benefit Analysis

- The quantified benefit estimate is over \$32 million for the 20-year period.
- The quantified costs of the rule is estimated to be \$3.3 million for the 20 years.

Ecology has determined the proposed rule benefits exceed the associated probable costs. Ecology believes the unquantified values will not offset the net benefits of the rule.

7. Maximum Net Benefit Analysis

Reason for a Maximum Net Benefit Analysis

The Water Resources Act of 1971 presents a declaration of “fundamentals for utilization and management of the waters of the state.” One of these “fundamentals” requires Ecology to maximize the net benefits for the citizens of the state when allocating water. To do so generally requires an economic analysis called a “maximum net benefits analysis.”

Ecology will perform a maximum net benefits analysis in the following situations:

“When it is developing a rule to create a “reservation” for a particular use or uses, as allowed by RCW 90.54.050(1), except in cases where the reservation is being established solely to ensure a reliable and safe supply of potable water to satisfy human domestic needs”

Since the proposed rule creates reserves for particular uses, a maximum net benefit analysis (MNBA) is required.

Restrictions on the Analysis

This MNBA is based on the CBA, and is subject to a variety of restrictions.

Ecology has analyzed the rule based on discrete shifts in use. The traditional method of deriving maximum net benefit based on continuous variables is not viable in this case. The proposed rule has several legal constraints. For example, water law doctrine in Washington is prior appropriation, or “first in order, first in right.” This doctrine is incompatible with a general maximum net benefit approach of issuing new water rights according to its marginal value.

The law also constrains the analysis regarding instream flows, permit-exempt groundwater uses, and variables such as stock watering. None of these uses is subject to the maximum net benefit analysis. Therefore, a maximum net benefit analysis in a continuous case is not viable.

Highest Value Analysis

To achieve the maximum net benefit of the rule, we assess the benefits of the reserves for domestic and commercial use. Various researchers have agreed that the average water value for domestic and municipal water is higher than the average value for other uses. Huppert, et al (2004) pointed out that:

“In any given year, the value per AF¹² for M&I¹³ water will be greater than or equal to the value per AF for irrigation water.”

Thus, the average value of domestic, commercial, and industrial use is greater than agricultural uses.

In the 20-year time horizon, as analyzed in the cost-benefit analysis:

- The reserves are enough for qualifying domestic water use.
- The reserves and potential interruptible water rights can provide enough water resources for the continued development relying on permit-exempt well use and small group systems.

Therefore, the reserves satisfy the expected need for various uses that are not subject to the maximum net benefit analysis, while retaining stream flows at sufficient levels. The reserves provide for the highest value water uses, which is consistent with the principle of maximum net benefit.

¹² Acre foot

¹³ Municipal and industrial

Water Management Improvements

The proposed rule also encourages efficient water allocation and use. Conditions to access the reserves support water supply planning and will stretch the use of both in-stream and out-of-stream water supplies. This is consistent with maximizing the net benefits.

This rule indirectly supports economies of scale by utilizing public water supplies where available. Increased hookups to public water supplies reduce the per-unit costs of a distribution system. If most of the homes on a block were to hook up to water systems, the costs to access water would be higher for homes that did not hook up. Further, multiple wells in a given area may require all the wells to be driven deeper—increasing costs.

Overriding Consideration of Public Interest

RCW 90.54.020(3)(a) generally prohibits Ecology from allowing withdrawals from surface water or groundwater that conflict with protecting aquatic resources (in-stream flow needs). Ecology may authorize withdrawals that conflict with protecting aquatic resources only when it is clear that Overriding Considerations of the Public Interest (OCPI) will be served. The director of Ecology may apply a finding of OCPI after carefully weighing the public interest served by a potential out-of-stream use against the public value of leaving the same water in the river. When it is clear that the public interest advanced by a new out-of-stream use exceeds the public values protected by instream flows, Ecology may allow new withdrawals.

Although the reservations in the proposed rule could have a small negative impact on in-stream resources, they are justified through a determination of OCPI. In making a determination of OCPI under RCW 90.54.020(3)(a), Ecology uses a three step analysis:

- 1) Ecology determines whether and to what extent important public interests would be served by the allocation. The public interests served may include benefits to the community at large, such as providing a potable water supply or water for domestic uses, public services or the economy of businesses and farms.
- 2) Ecology assesses whether and to what extent the allocation would harm public values protected by instream flows. Instream flow values include “preservation of wildlife, fish, scenic, aesthetic, and other environmental and navigational values.”¹⁴ In addition to direct environmental benefits provided by instream flows, Ecology may consider other related public values, such as quality of life or resulting economic benefits (such as recreational services).

¹⁴ RCW 90.54.020(3)(a). ‘Other environmental and navigational values’ may include but are not limited to aquatic organisms, recreation, water quality, and channel maintenance.

- 3) Ecology determines whether the public interests served by the allocation (step 1) clearly override any harm to public values protected by instream flows (step 2). Other factors may make a finding of OCPI more likely by minimizing the harm (step 2) or maximizing the value of the out-of-stream use (step 1). Such factors could include limits on use of the reserves or methods to avoid, minimize, or mitigate potential harm.

The reserves in the rule were proposed after a lengthy public process and after evaluating whether establishing the reserves clearly overrides harm to values protected by instream flows. The specific reserve allocations were determined by careful data review and negotiations between Ecology and WDFW representatives. Discussions with local entities and other interested stakeholders during more than five years of rule development resulted in reserves sized to balance the projected needs of people with minimal impacts to stream flows. The reserves were also developed in the context of other rule provisions. For example, instream flows and closure provisions provide safeguards against further degradation of instream values.¹⁵

The reserve quantities are supported by the public interest expressed during the WRIA 17 rule development process, and by satisfying the OCPI requirements under RCW 90.54.020(3)(a). Ecology's OCPI determination further supports a finding that the rule maximizes the net benefits to the people of Washington State.

8. Least Burdensome Analysis

RCW 34.05.328 (1)(e) requires Ecology to perform a Least Burdensome Analysis to:

“Determine, after considering alternative versions of the rule and the analysis required under (b), (c), and (d) of this subsection, that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives stated under (a) of this subsection.”

The WRIA 17 Watershed Plan created obligations for state and local agencies that took part in the planning process. RCW 90.82.130(3) requires Ecology to adopt water management programs through rule to implement the approved watershed plan. The WRIA 17 Watershed Plan called for water use conservation, better measurement of actual water use, and continuing efforts to adopt instream flows.

During rule development, Ecology considered options for water use conservation. A limit on irrigation to 1/12 acre was considered and found to be more burdensome than a total water use limit of 500 gallons per day. These standards allow property owners that use water-saving irrigation methods to irrigate larger acreage with the same amount of water. Further, the exempt well conservation standards exceed typical residential use in basin, and should not prove burdensome to most new water users.

¹⁵ For instream flow and closure provisions *see* WAC 173-517-090 and WAC 173-517-100.

This rule provides water reserves, and uses a conservation standard and compliance system to promote efficient uses of water that most benefit the public. The alternatives to providing these reserves for future water use would be either complete closure to new uninterrupted water supply or a requirement that all new withdrawals mitigate for future water use. The rule mainly allows new permit-exempt well users to obtain uninterrupted water rights without preparing a proof of Overriding Consideration of Public Interest (OCPI) or providing mitigation.

Use of the reserves of water is limited by the conservation standards. However, in response to public input, Ecology reassessed residential growth projections against the size of the reserves and allowed water for commercial agricultural use in three subbasins with suitable soils for agriculture. Also, in three subbasins, the proposed rule makes water available for water right allocations (up to the reserve amount) that was not available previously. Pending applications, including applications for irrigation, may be processed in these subbasins. The community requested that Ecology make every effort to make water available for new agricultural production, and reserving water and allowing water for new water right allocations will ease the burden for a limited number of new farms.

In response to a request from the WRIA 17 Planning Unit, Ecology reassessed water availability in the Big Quilcene River and expanded the seasonal period when water could be accessed, provided instream flows are met. This change eases the burden on entities pursuing water supply options that rely on storage.

This rule manages future water use in designated coastal areas to protect instream resources and help prevent seawater intrusion. This rule eases the burden on future water users in these areas by allowing expanded water use for commercial agriculture in the Miller and Quimper Peninsula areas.

This rule eases the burden on homeowners strapped by saltwater intrusion, dry wells, or extreme water short areas by allowing rooftop rainwater collection and use without going through the permit process for a water right.

This rule proposes permit-exempt well metering (implementing plan recommendations). Ecology is developing recording or reporting requirements for property owners that we will publish in implementation guidance for the rule. Reporting metering data could be accomplished through requiring property owners to read the meter and send in data. Ecology, however, is intending to implement a less burdensome alternative relying on remote-read meters, with random spot checks of metering data by Ecology staff or a contractor.

Ecology believes the proposed rule is the least burdensome alternative for those required to comply.

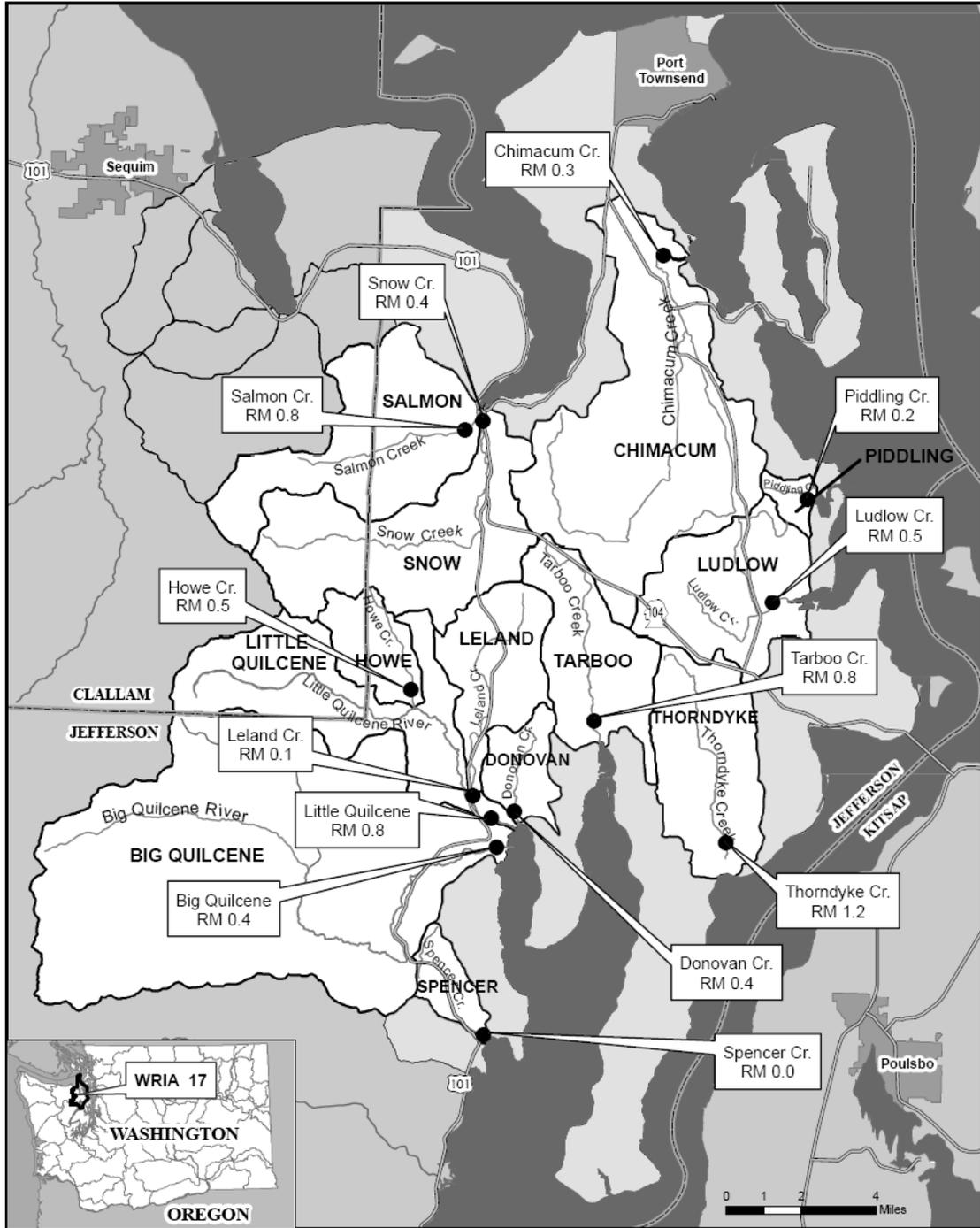
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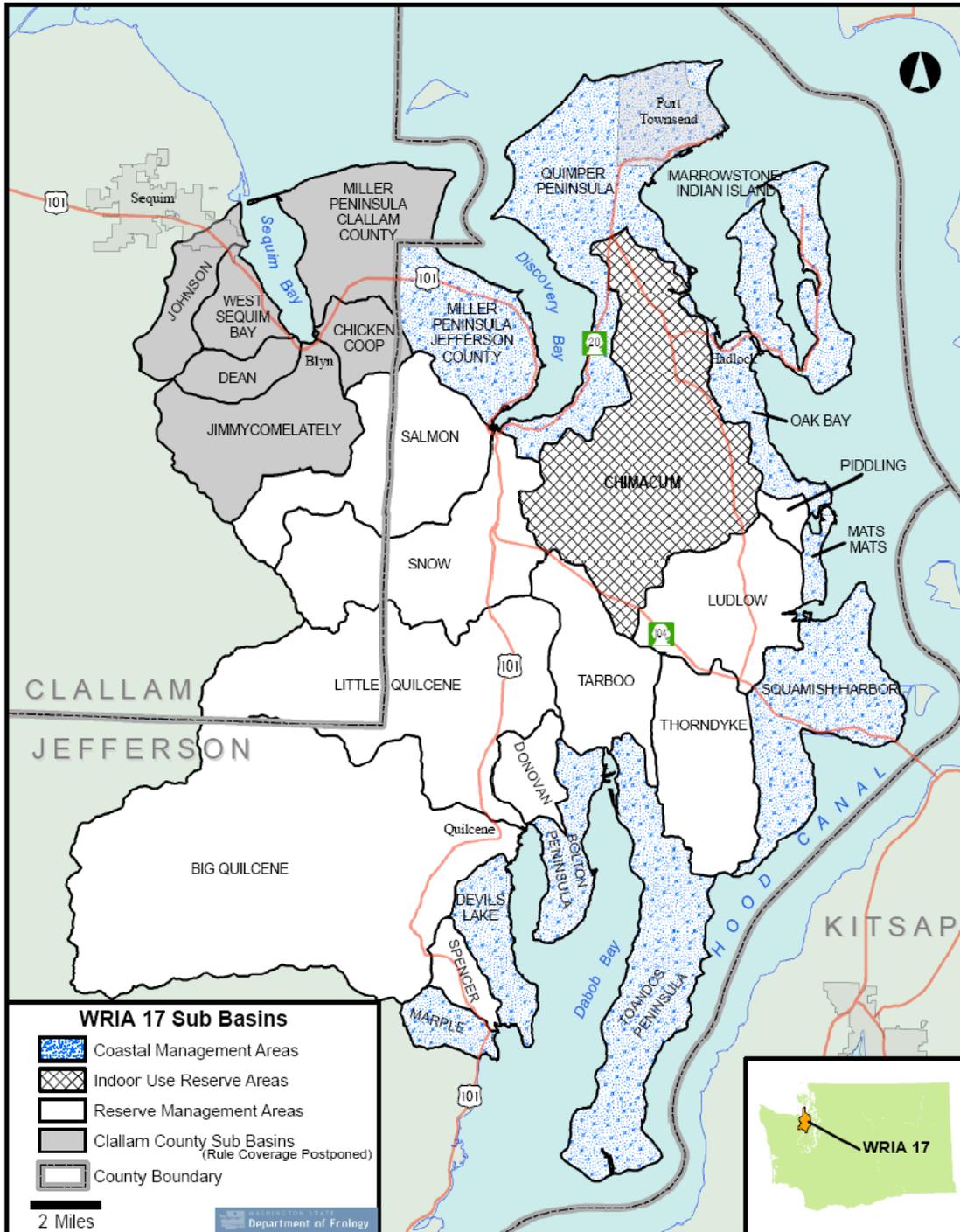
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Appendix 1. Maps

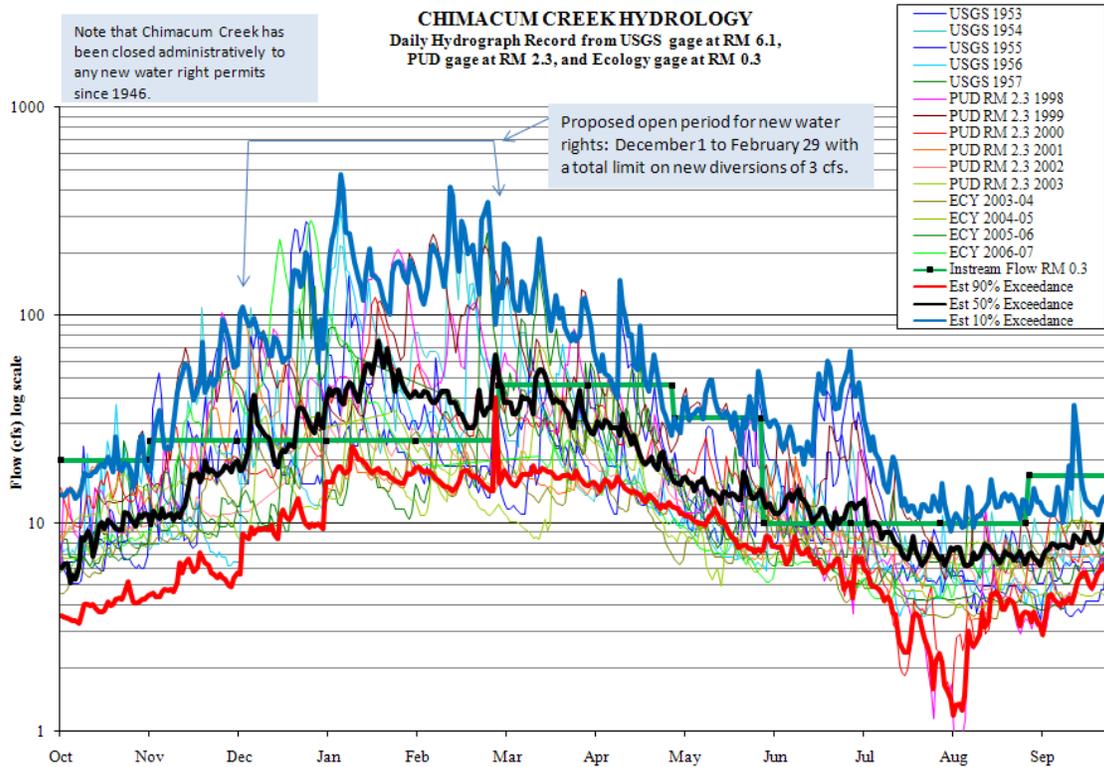
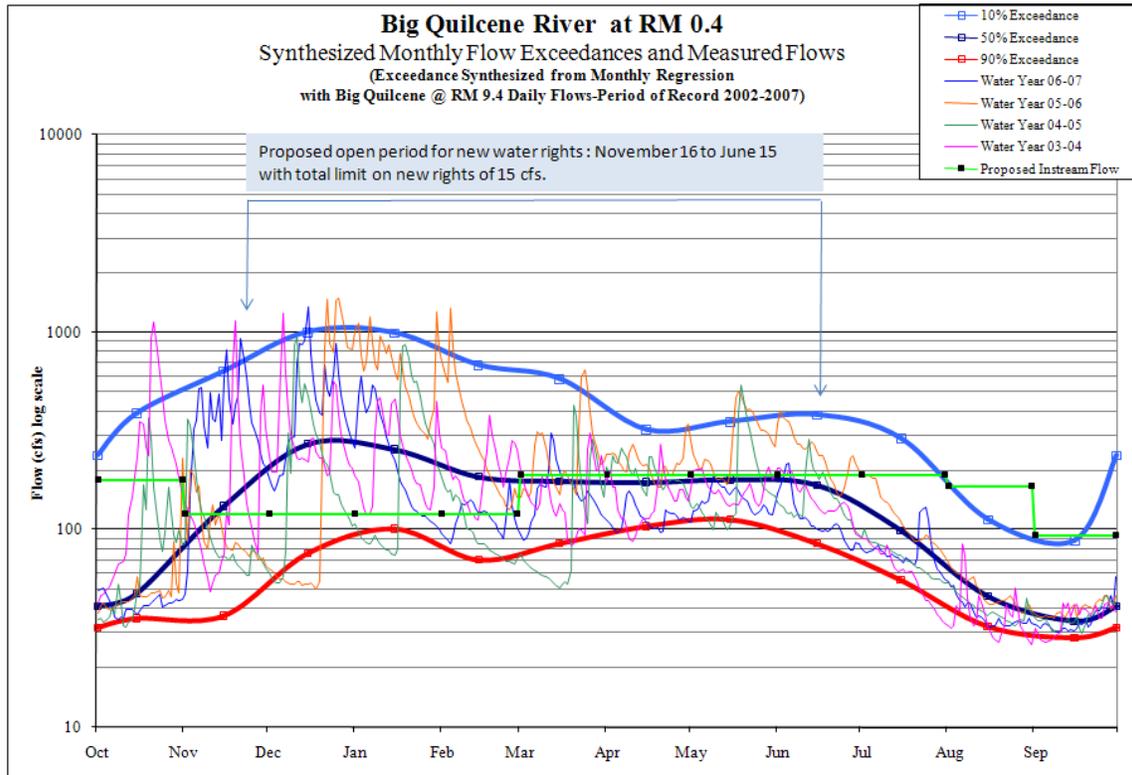
WRIA 17 Stream Management Units and Control Points



WRIA 17 Subbasins and Coastal Management Areas



Appendix 2. Hydrographs



Appendix 3. Rule Summary

WRIA 17 rule matrix – net changes from new rule to Ecology’s existing regulatory practice

Rule Section	Summary of section	Net effect requiring analysis
WAC 173-517-010	Introduction and Purpose	N/A – provisions reflect current laws and background information
WAC 173-517-020	Authority and applicability	N/A – provisions reflect current laws
WAC 173-517-030	Definitions	Most definitions are consistent with agency practice and usage. Unique to this rule are definitions of commercial agriculture and outdoor irrigation See analysis of sections 130 and 150 below.
WAC 173-517-040	Compliance and enforcement	N/A – consistent with statutory requirements for compliance and enforcement
WAC 173-517-050	Appeals	N/A – provisions reflect current laws
WAC 173-517-060	Regulation review	N/A – provisions reflect current agency practice
WAC 173-517-070	Maps	N/A
WAC 173-517-080	Establishment of stream management units	N/A – see analysis for section 090, below.
WAC 173-517-090	Instream flows - establishes monthly instream flow values in 13 streams, for the stream management units and at the control points established in section 050	The rule codifies current permitting practice and statutory obligations for water right permitting. Under the Water Resources Act of 1971, Ecology currently has a legal obligation to maintain water quantities sufficient for the preservation of the natural environment. Current practice for water right permitting includes assessing impacts to flows for all new water rights. Applicants must either demonstrate that flows will not be affected or must mitigate any impacts to flows. ----- The rule creates a new conservation standard for permit-exempt well use. See analysis for section 120, below.
WAC 173-517- 100	Closures – closes all streams and connected ground water	Surface Water Source Limitation (SWSL) letters from WDFW administrative close many streams in WRIA 17:

		Chimacum, Little Quilcene, Salmon, Snow, Tarboo, Contractors, Tommy (Donovan), Andrews (Crocker Lake), and 1 unnamed stream flowing into Port Ludlow.
WAC 173-517-110	Future new water use – generally – this section outlines exceptions to closures and how water rights may be approved in the future	See below for analyses of individual exceptions for coastal areas, interruptible water, and reserves Allows use of rooftop rainwater– relies on site-specific analysis of impacts to authorize the use of rooftop rainwater through the rule. The baseline is that de minimus use of rain barrels is allowed without a permit, and whether permit is or is not required for greater use is ambiguous.
WAC 173-517-120	Conservation Standard for permit exempt well use – establishes a 500 gpd maximum limit and 350 gpd average annual for permit exempt well use. Water use up to 5,000 gpd is allowed if a user can mitigate.	Establishes a new limit on permit exempt well use that applies in most areas (see exceptions, below). Also creates new requirement to mitigate for water use between 500 and 5,000 gpd, if more than 500 gpd is desired. Without rule new wells may use up to 5,000 gpd, but actual use typically much less, therefore, most new uses will not be affected. Water use information for residential use in this area is in the range of the conservation standard. There is also fairly strong demand for commercial agricultural use of permit-exempt withdrawals in this area. Without the rule new permit-exempt well withdrawals could use up to 5,000 gpd. See separate analysis for hydrologic benefit to streams and benefits to fish of this use restriction. See also sections 130 and 150, below.
WAC 173-517-130	Designates coastal management areas – and sets management standards for water use in these areas - Requires connection to public water supply, if available, except in the Port Townsend service area - limits permit exempt	N/A – no analysis required, consistent with local codes - without rule new wells may use up to 5,000 gpd, rule restricts new withdrawals to

	<p>wells to the conservation standard</p> <p>- Miller and Quimper peninsulas – agricultural use up to 5,000 gpd allowed outside of designated areas.</p>	<p>the conservation standard except for Miller and Quimper peninsulas.</p> <p>- without rule other types of uses could use up to 5,000 gpd, and agricultural use of exempt wells would not be limited to these 2 areas. Commercial agriculture defined very broadly in the rule.</p>
WAC 173-517-140	<p>Future appropriations for interruptible use - defines when and where future interruptible uses may occur</p>	<p>N/A – closure with the exception for interruptible uses is consistent with existing regulatory practices. The open periods for Big Quilcene and Chimacum match the seasonal high flow when water is available. The limit on the maximum allocation is consistent with the statutory obligation to protect instream resources, in this case channel forming flows. Conversely the seasonal closures on these streams are consistent with low flow periods when mitigation would be required.</p>
WAC 173-517-150	<p>Reserves of water for future use. The rule establishes reserves in 13 subbasins. See table</p>	<p>See Table for reserve sizes, uses of reserves and approximate # of households that could be served with reserves. Rule allows for year-round use for water that ordinarily could only be issued on an interruptible basis. Use of reserves generally restricted to any permit-exempt withdrawal, exceptions include: water available for future water rights in Big Quilcene, Little Quilcene and Thorndyke subbasins; and portions of the reserve allocated for agricultural use of exempt wells. Rule establishes restrictions on permit-exempt withdrawals to protect instream flows.</p> <p>Chimacum subbasin is a special case, because we cannot justify a traditional reserve, an interim 0.1% reserve is established and no outdoor irrigation is allowed – until another source of water is found for mitigation. In addition, if the USGS ground water model identifies places where withdrawals will not affect flows, rule will allow new withdrawals with no restrictions in those places.</p> <p>Analysis needed: Compare value of protection of instream resources to cost of conservation standards.</p>

		Compare out-of stream and instream value of allocated water.
WAC 173-517-160	Accounting for use under the reserves	See section 150
WAC 173-517-170	Lakes and Ponds	N/A – consistent with statutory requirements
WAC 173-517-180	Measuring water use – metering required for all new uses, including permit-exempt withdrawals	Analysis required – cost to install, maintain, and read meters, and report data to Ecology.
WAC 173-517-190	Conveying stockwater away from streams	N/A - provisions reflect current agency practice. Rule codifies existing program policy.
WAC 173-517-200	Future surface water withdrawals for environmental restoration – describes what projects qualify as environmental restoration projects (one of the exceptions to closure)	N/A – exception for environmental restoration projects is consistent with existing agency practice. Criteria used in rule is consistent with agency practice
WAC 173-517-210	Out of subbasin water use. Rule requires additional public meeting and report on possible harm to public interest of applicants that propose using water in a different subbasin.	Analysis required –cost of additional public meeting and report

**Reserves and Coastal Management Areas
WRIA 17 Instream Flow and Water Management Rule**

Subbasin	Projected Growth to 2025: # households outside service areas	Reserve Amount (gpd)	Anticipated Household Consumptive Use through 2025 (gpd)	Conditions of Use Above Conservation Standard*	Maximum Available for Permit Exempt Commercial Agriculture Use (gpd)**	Maximum Available for New Water Right Permits (gpd)**
Big Quilcene River	24.5	200,400	6,118	Permit exempt withdrawals for agriculture Water right permits subject to public interest test for domestic availability	193,670	
Chimacum Creek	148.7	1,940	1,933	No outdoor irrigation*	N/A	N/A

Donovan Creek	8.5	2,326	2,118	N/A	N/A	N/A
Little Quilcene River, Leland and Howe Creeks	56.5	38,800	14,118	Water right permits subject to public interest test for domestic availability	N/A	23,270
Ludlow Creek	28.2	7,830	7,059	N/A	N/A	N/A
Piddling Creek	6.6	1,845	1,647	N/A	N/A	N/A
Salmon Creek	2.8	9,050	706	Permit exempt agricultural use	5,000	N/A
Snow Creek	2.8	4,140	706	Permit exempt agricultural use	3,000	N/A
Spencer Creek	0	2,200	0	N/A	N/A	N/A
Tarboo Creek	24.5	7,110	6,118	N/A	N/A	N/A
Thorndyke Creek	23.5	31,670	5,882	Water right permits subject to public interest test for domestic availability	N/A	25,200
Miller Peninsula (Jefferson County) and Quimper Peninsula	222.1	Not limited by reserve	55,525	Permit exempt agricultural use allowed at certain withdrawal locations	Not limited by reserve	N/A
Oak Bay, Mats Mats Bay, Squamish Harbor, Toandos Peninsula, Bolton Peninsula, Devils Lake, Marple, Marrowstone and other islands	319.8	Not limited by reserve	79,950	N/A	N/A	N/A

* **Conservation Standard** for permit-exempt well use:

- Must use public water supply if available
- Single residence or industrial user: 500 gpd maximum, 350 gpd annual average use

The Conservation standard is required for new permit-exempt well water uses, WRIA-wide, except for agricultural use in Salmon, Snow and Big Quilcene subbasins, and Chimacum subbasin restriction on outdoor irrigation.

** Remainders of the reserves were estimated by subtracting 110% of the anticipated household consumptive use through 2025 from the reserve amounts

gpd = gallons per day

Appendix 4. Determining Sizes of Reserves of Water for WRIA 17 Subbasins

April 29, 2009

This document describes the methods the Department of Ecology (Ecology) used to determine the sizes of the reserves of water proposed in the draft Water Resources Inventory Area 17 (WRIA 17) Water Resources Management rule. Part of this analysis was to evaluate whether adequate reserves were being set aside for each subbasin. In addition, this analysis included developing standard amounts to deduct from reserves for each new permit exempt residential use. A standard deduction amount is needed to begin accounting for use of the reserves in the absence of actual use data. The rule allows Ecology to periodically adjust the standard amount to reflect actual use based on metering data.

Water reserves for indoor and outdoor use are proposed in 10 subbasins: Big Quilcene, Donovan, Little Quilcene, Ludlow, Piddling, Salmon, Snow, Spencer, Tarboo and Thorndyke. A water reserve for indoor use only¹⁶ is proposed for the Chimacum subbasin. This reserve is a special case and is described at the end of this document.

Ecology considered the water needs of both fish and people when determining reserve quantities for all subbasins in the affected portion of WRIA 17. Specifically, Ecology's goal was to develop reserve amounts that will have little or no impact on the long-term sustainability of fish populations, while at the same time meeting water supply needs of additional households expected through 2025. Ecology also evaluated the potential for new exempt well agricultural use of reserved water and was able to accommodate this to some extent in some of the subbasins, in light of the strong local public interest in expanding local agricultural production.

The analysis to determine the reserve sizes included the following steps:

1. Fish habitat analysis was used to determine a 1% base amount of water that could be withdrawn in a subbasin without significant further impacts to fish populations.
2. Estimates of the projected number of new households in each subbasin were calculated to estimate future residential water needs.
3. The amount of water consumptively used by new permit exempt households was estimated.
4. Inchoate water rights were evaluated to determine the impacts on reserves. In two cases reserves were decreased because of anticipated depletion of the reserve from use of yet to be used water.
5. In three subbasins reserve quantities were expanded beyond the 1% base reserve amount to accommodate the projected number of new households outside of water service areas through 2025.

¹⁶ In this paper the phrase "indoor use only" is used for convenience only. The proposed rule restricts outdoor irrigation. Outdoor irrigation is defined as watering greenhouse or outdoor plants, lawns, or gardens.

The goal was to establish reserve quantities adequate to meet anticipated growth through 2025 in all subbasins. In most subbasins the size of the reserve is adequate to meet growth beyond this date. In some basins Ecology decided that the 1% base reserve amount is sufficient to allow additional water use for small farms authorize and/or authorize additional water right withdrawals.

Fish Habitat Analysis

Both fish and people need water most when supplies are lowest—in hot dry years, in late summer and early fall. Reductions in flow lead to negative consequences for fish. However, people need to have reliable sources of drinking water that will not potentially be cut off during low flow years.

Biologists from Ecology, in consultation with biologists from the Department of Fish and Wildlife, determined that withdrawals would have a small impact on fish populations if limited to a one to two percent loss of stream flow or fish habitat during the lowest flow time of year. The intention is to minimize habitat loss during the most stressful flow conditions affecting fish survival. During normal or high flow conditions this level of withdrawal will have much less impact. Specifically, Ecology and WDFW determined stream flow during the low flow month (usually September) of a low flow year. This methodology resulted in a 1% base reserve amount that was increased up to 2% if needed to meet projected human water needs.

Listed below in order of preference, the base reserve amounts for each of the 10 subbasins with water reserves set aside for indoor and outdoor use were based on:

1. Calculated loss of 1% of habitat during low flow month based on the IFIM methodology (Big Quilcene River only), or method below if not available,
2. 1% of 90% exceedence flow during low flow month, or method below if not available,
3. 1% of lowest recorded flow during low flow month.

Relying on this analysis, the Department of Ecology determined the benefits to people outweighed the potential harm to fish in allowing a small portion of this lowest flow to be taken for new out-of-stream uses.

The methods used to derive the 1% base reserve amounts for each of the subbasins are as follows:

Big Quilcene River subbasin

Based on USGS and Ecology gage data, the Big Quilcene River's low flow month is September. The 90% exceedence flow (the flow level exceeded about nine years out of ten) for September is 23 cfs. Ecology and WDFW biologists used weighted useable area data (representing fish habitat) from the PHABSIM model to calculate the one percent loss of habitat for steelhead rearing and chum spawning during these low flow conditions. A one percent loss of habitat from 23 cfs equals a flow of 0.31 cfs which equals a reserve of 200,400 gallons per day (gpd).

Chimacum Creek subbasin (see below)

Donovan Creek subbasin

Ecology measured Donovan Creek's stream flow in September 2008 at 0.11 cfs. This flow was added to a low flow of 0.07 measured in a downstream tributary, Jakeway Creek. For the reserve Ecology calculated that one percent of 0.18 cfs is 0.0018 cfs or 1,163gpd.

Little Quilcene River subbasin

Based on Ecology gage data the Little Quilcene River's low flow month is August. The 90% exceedence flow for August is 6.0 cfs. For the reserve Ecology calculated that one percent of 6.0 cfs is 0.060 cfs or 38,800 gpd.

Ludlow Creek subbasin

Ecology measured Ludlow Creek in September 2008 at 3.0 cfs. For the reserve Ecology calculated that one percent of 3 cfs is 0.03 cfs or 19,400 gpd.

Piddling Creek subbasin

Ecology measured Piddling Creek's stream flow in September 2008 at 0.19 cfs. For the reserve Ecology calculated that one percent of 0.19 cfs is 0.0019 cfs or 1,230 gpd.

Salmon Creek subbasin

Based on Ecology gage data Salmon Creek's low flow month is September. The 90% exceedence flow for September is 1.4 cfs. For the reserve Ecology calculated that one percent of 1.4 cfs is 0.014 cfs or 9,050 gpd.

Snow Creek subbasin

Based on Ecology's gage data Snow Creek's low flow month is September. The 90% exceedence flow for September is 1.4 cfs. For the reserve Ecology calculated that one percent of 1.4 cfs is 0.014 cfs or 9,050 gpd.

Spencer Creek subbasin

Ecology measured Spencer Creek's stream flow in September 2008 at 0.34 cfs. For the reserve Ecology calculated that one percent of 0.34 cfs is 0.0034 cfs or 2,200 gpd.

Tarboo Creek subbasin

Based on Ecology's gage data the low flow month is July. The 90% exceedence flow for July is 1.1 cfs. For the reserve Ecology calculated that one percent of 1.1 cfs is 0.011 cfs or 7,110 gpd.

Thorndyke Creek subbasin

Based on Ecology's gage data the low flow month is July. The 90% exceedence flow for July is 4.9 cfs. For the reserve Ecology calculated that one percent of 4.9 cfs is 0.049 cfs or 31,670 gpd.

Anticipated new households in the WRIA 17 subbasins

To predict future households in the WRIA subbasins, Ecology relied on building permit data supplied by Jefferson County. Ecology displayed those data spatially using ArcGIS, then split the data by subbasin. In some subbasins some future development will be supplied by water systems. Therefore in those subbasins building permits within the water system service areas were removed from the data sets.

Once building permit data for each of the 10 subbasins were developed, the numbers of building permits issued between 1990 and 2006 were tallied. The tally began with 1990, since collectively the data indicate a significant increase in growth starting that year. The average numbers of permits per year were then calculated by dividing the numbers of building permits issued between 1990 and 2006 by 17. These values were then multiplied by 16 in order to estimate the additional households expected by 2025 (with 16 representing the number of years between 2009 and 2025). The results of those analyses are as follows:

	Total building permits outside of water system service areas 1990 through 2006	Average permits per year 1990 through 2006	Anticipated additional households by 2025
Big Quilcene	26	1.5	24.5
Chimacum	158	9.3	148.8
Donovan	9	0.5	8.5
Little Quilcene	60	3.5	56.5
Ludlow	30	1.8	28.2
Piddling	7	0.4	6.6
Salmon	3	0.2	2.8
Snow	3	0.2	2.8
Spencer	0	0	0
Tarboo	26	1.5	24.5
Thorndyke	25	1.5	23.5

Table 1. Building permit analysis

Estimated consumptive use associated with new households

To estimate the number of new households that the subbasin reserves could serve, it was necessary to estimate the amount of water consumptively used by new households. As water use peaks during the irrigation season and that coincides with the period of lowest flows, Ecology’s analysis focused on water use during that time of the year. The preferred method for determining irrigation use would have involved assuming an outdoor area to be irrigated and a certain crop type (such as pasture/turf grass), then relying on crop use estimates for Washington such as those available in the 1985 Washington Irrigation Guide (WIG). However, the nearest station evaluated in the WIG is Sequim and those data are not very representative of all of WRIA 17. Therefore, Ecology chose a much simpler method.

A greatest potential use scenario would assume that every new house will maximize its irrigation use. However, it is unlikely that all new homes will use the maximum 500 gpd during the growing season. This, combined with the fact that some wells will have more

of a delayed effect on streams suggests a lesser value is more realistic. Unfortunately, there is little information available upon which to base an average growing season use for all wells within the subbasins. In the absence of any published value, an average irrigation season withdrawal rate of 400 gpd was assumed. In order to estimate the percentage of that 400 gpd that does not return to the groundwater system after domestic use, the following assumptions were made:

- Assuming 60 gpd use per person and 2.21 people per household, there will be about 133 gpd indoor use per household.
- During the growing season, the average use per household breaks out as 133 gpd indoor use and 267 gpd outdoor use.
- Consumptive growing season use associated with indoor use will be 10% of 133 gpd or about 13 gpd.
- Consumptive growing season use associated with outdoor use will be 90% of 267 gpd or about 240 gpd.

The above 2.21 people per household estimate for Jefferson County comes from the 2006 U.S. Census Bureau data (<http://quickfacts.census.gov/qfd/states/53/53009.html>). The 60 gpd per connection estimate comes from an often cited an American Water Works Association Research Foundation (AWWA) study completed in 1999 during which end uses of water were physically measured in 100 single-family homes (selected to be statistically representative of all single family homes) in 12 municipal areas including Seattle. Based on those data, average total indoor per capita water use was estimated to be 72.5 gpd without conservation and 49.6 gpd with conservation. The lowest average indoor per capita water use was 57.1 gpd day for Seattle. Bearing in mind that some conservation is likely to have occurred in Seattle when the study was conducted, the above 57.1 gpd figure was rounded up slightly to 60 gpd.

Numerous sources support the 10% and 90% assumptions made for indoor and outdoor consumptive use, respectively. For example, these figures are consistent with percentages found in U.S. Geological Survey Special Investigative Report 2007-5197, entitled, "Consumptive Water-Use Coefficients for the Great Lakes Basin and Climatically Similar Areas) (Shaffer, et al., 2007, <http://pubs.usgs.gov/sir/2007/5197/>). In that report, the median consumptive-use coefficient for domestic and public supply was 12 percent and the median consumptive-use coefficient for the irrigation category was 90 percent. Use of these percentages for Washington is supported by Figure 3 in the report, which presents percent consumptive loss in the conterminous United States by water-resources region. That map, if anything, suggests Washington might have an even greater percentage of consumptive use.

Based on the assumption outlined in the four bulleted items above , consumptive use under a 400 gpd potential use scenario might be about 13 gpd plus 240 gpd, or about 250 gpd (or about 62% consumptive use). Although this number has uncertainty associated with it, this should not unfairly restrict individuals from tapping into reserves in the future. That is because the draft rule includes explicit language stating Ecology may adjust this amount periodically to reflect actual use based on metering data.

The WRIA 17 Planning Unit Level 1 Technical Assessment from 2000 summarized water use data per connection from 11 water systems in Eastern Jefferson County. Annual average use per connection ranged from 120 to 287 gallons per day, with an overall average of 222 gpd. The assessment noted that average use per connection from water systems in Clallam County was 272 gallons per day. However, these data are of limited use because annual averages don't reflect the higher use of water in the summer and the data is from households that pay a fee for water use are biased due to the built in incentive to conserve water.

Additionally, Jefferson County PUD provided water use per connection data for 8 of its satellite water supply systems. For a 7-year period average per connection water use in the month of July ranged from 23 to 799 gpd. In the Tri-Area, the per connection water use in July ranged from 322 to 535 gpd. However, some of those data included non-residential connections (such as ballpark or school irrigation). In addition, data from some systems appears to be skewed due to water system leaks. As such those data were deemed inappropriate for the purposes of this evaluation.

Estimated new households and Establishment of Reserve Sizes

The base reserve flow amounts described in the Fish Habitat Analysis section above were multiplied by up to 2X factors in three subbasins (indicated below) when the base reserve amounts were not sufficient to meet 16 years of predicted growth. In the case of the Chimacum subbasin this figure was reduced using a 0.1X factor as explained on page 8. In order to estimate the total number of new households potentially accommodated by the reserves, the final reserve amounts were divided by 250 gpd. Based on this method, the reserves for the 10 subbasins were as follows:

	Total New Households by 2025 Anticipated	Consumptive Use By 2025 Anticipated (additional households anticipated times 250 gpd)	1%Base Reserve Amount (gpd)	Multiplication Factor	Final Reserve Amount (gpd)	Total New Households Potentially Accommodated	Maximum New Households Potentially Accommodated (rounded down)
Big Quilcene	24.5	6118	200400	1X	200400	801.6	801
Donovan	8.5	2118	1163	2X	2326	9.3	9
Little Quilcene	56.5	14118	38800	1X	38800	155.2	155
Ludlow	28.2	7059	19400	1.6X	7830*	31	31
Piddling	6.6	1647	1230	1.5X	1845	7.4	7
Salmon	2.8	706	9050	1X	9050	36.2	36
Snow	2.8	706	9050	1X	4140*	16.6	16
Spencer	0	0	2200	1X	2200	8.8	8
Tarboo	24.5	6118	7110	1X	7110	28.4	28
Thorndyke	23.5	5882	31670	1X	31670	126.7	126
		Indoor only consumptive use (13 gpd)					
Chimacum [†]	148.7	1933	19,400	0.1X	1,940	149.2	149

Table 2. Reserve size analysis

* The final reserve amounts in Ludlow and Snow creeks were decreased because of anticipated effect of inchoate water use – see discussion on the effect of inchoate water on reserve sizes, below.

‡ *Chimacum subbasin is a special case and is explained on page 8 of this document.*

In the Salmon, Snow, Little Quilcene, Big Quilcene and Thorndyke subbasins the reserve amounts exceed the amount needed to meet residential growth. There are a number of pending water right applications in WRIA 17, including 10 or 11 applications in these subbasins. In addition, Ecology received requests from Jefferson County community members to allocate a portion of the reserved water for new agricultural use in the Salmon, Snow, Little Quilcene, and Big Quilcene subbasins. Therefore, Ecology is allowing additional uses of water from these larger reserves.

- 1) The proposed instream flow rule allows new agricultural use on permit-exempt wells (limit of 5,000 gpd per individual farm) in the following subbasins:
 - Salmon – up to 5,000 gpd of the reserve
 - Snow – up to 3,000 gpd of the reserve
 - Big Quilcene
- 2) The proposed instream flow rule allows future water right permits, for the uses listed below, subject to a public interest evaluation that takes into account water availability for future domestic use in the subbasin:
 - Municipal or community domestic water supply with domestic hookups consistent with the conservation standard defined in WAC 173-517-120.
 - Agricultural irrigation.
 - Industrial use.

Inchoate water effect on reserve sizes

When developing reserves for the various WRIA 17 subbasins, Ecology took into account the potential future effect of inchoate water use. Inchoate water refers to water that water systems are authorized to develop under existing water rights, but is not yet in use.

The WRIA 17 Planning Unit surveyed public water suppliers and published an analysis of inchoate water in the Detailed Implementation Plan for the Quilcene-Snow Watershed dated October 9, 2007. The report identifies four stream subbasins with inchoate water:

- Ludlow Creek
- Snow Creek
- Thorndyke Creek
- Chimacum Creek

Ecology considered individual water rights associated with potential developable inchoate water in each subbasin to determine how the future use of this water may affect stream flows.

The initial analysis performed by the WRIA 17 Planning Unit reported an annual total of 69 acre feet of inchoate water in the Ludlow subbasin. Further investigation showed that only one water right out of three water rights associated with that quantity is likely to affect stream flow in Ludlow Creek. 2008 water use data suggests that 26 acre feet per year might be produced from that well. When averaged across the entire year this equates to approximately 23,210 gpd. The original 1% base reserve quantity for Ludlow Creek was 19,400 gpd and this amount was expanded to a 1.6% reserve to accommodate projected growth and remaining inchoate water, resulting in 31,040 gpd. The 23,210 gpd unused water amount was subtracted from the 31,040 gpd total reserve, resulting in a final reserve amount of 7,830 gpd.

In the case of the Snow Creek subbasin, the initial analysis performed by the WRIA 17 Planning Unit suggested that two inchoate rights might exist. However, only one of these two may have a water right that has yet to be fully perfected. Therefore, in this subbasin the quantity associated with that one right was subtracted from the reserve. The original 1% base reserve quantity for Snow Creek was 9,050 gpd. An annual total of 5.5 acre feet of inchoate water was reported. When averaged across the entire year, this equates to approximately 4,910 gpd. This amount was subtracted from 9,050 gpd resulting in a final reserve amount of 4,140 gpd.

In the case of both the Ludlow and Snow Creek subbasins it is recognized that basing an analysis on annual quantities averaged over the entire year is not entirely justified given the seasonality of pumping. However, in both cases there is a residual amount of water that might have been reserved before reaching the maximum 2 percent potential reserve cap set for this process. The percentages used, 1.6 percent for Ludlow and 1 percent for Snow Creek, are both less than 2% and as such at least partially account for the seasonality of pumping. In addition, in the case of the Ludlow Creek subbasin efforts are underway to work with the owner to shift increased pumping to alternate sources to minimize impacts to the creek.

In the case of the Thorndyke Creek subbasin, the one well apparently associated with a municipal water system's inchoate water right is located in the Squamish Harbor designated coastal area. Therefore, use of this water will not affect stream flows. As such, this quantity of unused water was not subtracted from the reserve.

Special Case for the Chimacum Creek subbasin:

Ecology found that in the Chimacum subbasin unused inchoate water rights could affect the quantity of stream flow during the low flow time of year. An annual total of 851 acre feet of inchoate water was reported. When averaged across the entire year, this equates to about 1.2 cfs. In addition, increased pumping during the summer is likely to result in a larger amount taken during the low flow period than suggested by the annual average. The potential increased stress on Chimacum Creek of 1.2 cfs, or greater, is substantial when compared to the 3 cfs low flow. Therefore, Ecology could not justify a 1 percent reserve of water for new out-of-stream uses.

However, Ecology determined that it was necessary to allow very limited new water use as a stop-gap measure until alternative water supply is available. Therefore, Ecology decided to

create a reserve of 1,940 gpd for in-door use only. This quantity is equal to 0.1 percent of the current low flow for September or 90 percent exceedance, as measured from the Ecology gage.

Using the same building permit data analysis used in other subbasins, the number of new residences by 2025 Chimacum subbasin, outside the PUD water service area, is 149. Relying on the same estimate of 13 gpd per connection for indoor consumptive use as described above, the Chimacum subbasin 1,940 gpd reserve is projected to meet that demand.

Local efforts to develop an alternative water supply for mitigating new water use in the Chimacum subbasin have already begun, and Ecology is optimistic they will be successful prior to the 15-year horizon for this reserve. When an alternative supply is available for mitigation, the restriction on outdoor irrigation will be lifted.

Analysis of Maximum Water Available for New Water Rights and Permit Exempt Commercial Agriculture Use

In the case of the Big Quilcene, Little Quilcene, and Thorndyke subbasins the proposed rule makes water available for water right allocations (up to the reserve amount) that was not available previously. In addition, in the case of the Big Quilcene, Salmon and Snow subbasins new users will have the ability to access the water for agricultural uses up to 5,000 gpd (3,000 gpd for Snow) under the statewide ground water use exemption. In order to facilitate the economic analysis associated with establishment of the rule, an estimate was made of the maximum amount of water available for these new uses. The conditions of use above conservation standards and the amounts of water available for these additional uses are provided in Table 3 below.

Subbasin	Projected Growth to 2025: # households outside service areas	Reserve Amount (gpd)	Anticipated Household Consumptive Use through 2025	Conditions of Use Above Conservation Standard*	Maximum Available for Permit Exempt Commercial Agriculture Use (gpd)**	Maximum Available for New Water Right Permits (gpd)**
Big Quilcene River	24.5	200,400	6,118	Permit exempt withdrawals for agriculture Water right permits subject to public interest test for domestic availability	193,670	
Chimacum Creek	148.7	1,940	1,933	No outdoor irrigation*	N/A	N/A
Donovan Creek	8.5	2,326	2,118	N/A	N/A	N/A

Little Quilcene River, Leland and Howe Creeks	56.5	38,800	14,118	Water right permits subject to public interest test for domestic availability	N/A	23,270
Ludlow Creek	28.2	7,830	7,059	N/A	N/A	N/A
Piddling Creek	6.6	1,845	1,647	N/A	N/A	N/A
Salmon Creek	2.8	9,050	706	Permit exempt agricultural use	5,000	N/A
Snow Creek	2.8	4,140	706	Permit exempt agricultural use	3,000	N/A
Spencer Creek	0	2,200	0	N/A	N/A	N/A
Tarboo Creek	24.5	7,110	6,118	N/A	N/A	N/A
Thorndyke Creek	23.5	31,670	5,882	Water right permits subject to public interest test for domestic availability	N/A	25,200

Table 3. Reserves and conditions of use for subbasins with reserves

* Conservation standard is required for new permit-exempt well water uses WRIA-wide, except for agricultural use in Salmon, Snow and Big Quilcene subbasins, and Chimacum subbasin additional restriction on outdoor irrigation.

** Remainders of the reserves were estimated by subtracting 110% of the anticipated household consumptive use through 2025 from the reserve amounts

Appendix 5. Potential Environmental Effects Resulting from the WRIA 17 Instream Flow Rule

April 29, 2009

This paper evaluates the environmental effects resulting from the WRIA 17 instream flow rule through 2025.¹⁷ Although a number of benefits are expected to occur beyond 2025, those benefits are not considered here because they are beyond the timeframe of the cost benefit analysis, and because there is too much uncertainty to make assumptions that far into the future.

This paper presents two types of analyses:

- 1) Potential flow changes as a result of the rule. This analysis first estimates the amount of anticipated changes in stream flow, and translates these to effects on fish.
- 2) Reduced risk of seawater intrusion. This analysis estimates the number of homes that might be protected from seawater intrusion by the proposed rule and potential benefits of that protection.

The proposed rule divides the areas affected by the rule into either coastal management or reserve management areas. Flow benefits in both of these types of areas will result from the application of a conservation standard for new exempt use (or an in-house use only restriction in the case of Chimacum). However, in the reserve management subbasins full use of the reserve quantities could also affect flows. In the case of Chimacum, Donavan, Ludlow, Piddling, Spencer, and Tarboo the reserve quantities are only sufficient to cover approximately the anticipated permit exempt well growth through 2025. As such, in those subbasins no water has been designated for other than permit-exempt well use on the conservation standard (or in-house use only in the case of Chimacum). A portion of the flow analysis below focuses on the water savings due to the exempt well restrictions in those subbasins.

In the case of Big Quilcene, Little Quilcene, and Thorndyke the rule makes water available for allocation (up to the reserve amount) that previously was not available. Therefore as part of the analysis below, the additional water available for water right authorization in those subbasins was quantified and the diminished flow consequent to this use was estimated as a means of evaluating ecological costs of these reserves.

In the cases of Salmon and Snow the reserve sizes are small, but are more than adequate to cover anticipated permit exempt well growth through 2025. In addition to providing the water amount needed to meet anticipated growth, 3,000 gpd is set aside in Snow and 5,000 gpd is set aside in Salmon for exempt agricultural use up to 5,000 gpd under the

¹⁷ This paper in part relies on analyses described in a document called, "Determining Sizes of Reserves of Water for WRIA 17 Subbasins". (April 29, 2009). Among other things that document explains how Ecology relied on 1990 through 2006 building permit data in order to predict future growth through 2025 for all of the subbasins.

statewide ground water exemption. Since not much growth is expected in either of these subbasins by 2025 (less than 3 houses in each) and the rule allows for some of that growth to occur in the form of exempt agricultural use, during the analysis below it was assumed that no environmental benefit or detriment in Salmon or Snow would occur as a result of the rule through 2025.

Table 1 indicates reserve quantities and allowed uses in Quilcene-Snow subbasins.

Reserve Management Areas, Reserve Quantities and Allowed Uses

Reserve Management Area Water Source (including tributaries)	Reserve Quantity Maximum Average Daily Use in Gallons (gpd)	Allowed Uses of Reserve*
Big Quilcene	200,400 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120 • Permit exempt withdrawals for agriculture • Water right permits subject to public interest test for domestic availability
Chimacum	1,940 gpd	<ul style="list-style-type: none"> • Permit exempt withdrawals for domestic use, no outdoor irrigation
Donovan	2,326 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120
Little Quilcene (includes Leland and Howe creeks)	38,800 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120 • Water right permits subject to public interest test for domestic availability
Ludlow	7,830 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120
Piddling	1,845 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120
Salmon	9,050 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120 • Permit exempt withdrawals for agriculture
Snow	4,140 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120 • Permit exempt withdrawals for agriculture

Spencer	2,200 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120
Tarboo	7,110 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120
Thorndyke	31,670 gpd	<ul style="list-style-type: none"> • Permit exempt uses under the Conservation standard per WAC 173-517-120 • Water right permits subject to public interest test for domestic availability

*This table lists the types of allowed uses. See the text of the rule for specific requirements for each use.

Table 1.

The analysis in this document relies on an assumption that groundwater produced by wells is directly connected to the creeks that they effect. This obviously is a simplification and in reality pumping of groundwater will have delayed effects on the creeks in many instances. Nonetheless this assumption is reasonable for evaluation purposes, since all subbasins where anticipated well growth is evaluated (i.e. subbasins with reserves) were delineated such that they form the recharge areas for the surface water located within.

Anticipated Effects of the Conservation Standard

As a general rule we do not expect many homes to be prevented from using as much water as they would like due to the conservation standard’s restrictions that require individual users not to exceed a maximum of 500 gpd or an annual average of more than 350 gpd, for all permit-exempt uses authorized under RCW 90.44.050. Regarding the 350 gpd annual average restriction, that rate equates to 127,750 gallons per year. In Ecology’s WRIA 17 reserve methodology document it was assumed that indoor use for homes might be about 133 gpd. If one assumes that during the non-irrigation season homes only use water indoors, and that condition occurs for 9 months of the year, then water use during those 9 months will be 36,442 gallons (133 gpd times 274 days). The balance of water left for the remaining 3 months would be 91,308 (127,750 minus 36,442) gallons per year, or an average of 1,003 gpd (91,308 divided by 91 days). Assuming that individuals during the three peak-use months do not use more than 500 gpd (the other limit set in the conservation standard), this suggests the average annual restriction likely will not stop most people from pumping as much water as they would like.

Although it is unlikely that most homes would be restricted on an average annual basis, during the summer the conservation standard’s 500 gpd daily restriction likely would affect some users. There is little basis upon which to estimate how many homes might want to exceed the conservation standard during the summer. For that reason here it was simply assumed that in each subbasin one new home might have chosen to use the full 5,000 gpd available under the current exemption. This approach assumes that each new

high-use individual per subbasin locates his/her well such that it has a fairly direct effect on the creek. Although this assumption is couched in terms of one new 5,000 gpd home per subbasin, the same effect could result from two 2,500 gpd users, etc.

If one new home per subbasin chose to pump 5,000 gpd, the effect on the stream would essentially result from the portion of that use lost to evapotranspiration. In Ecology’s WRIA 17 reserve methodology document it was assumed that 90% of water used for irrigation is consumptively used. Assuming the additional use of water by the one high-use individual per subbasin is 4,500 gpd (5,000 gpd minus the 500 gpd conservation standard) and that 90% of that water would have been consumptively used, it follows that about 4,050 gpd of additional water potentially may reach the streams in each of the subbasins because the rule is in place.

Decreased use anticipated as a result of the instream flow rule

For the purposes of this analysis it was assumed that the effect of this rule is to prevent a single 5,000 gpd exempt well from going into production in the Donovan, Ludlow, Piddling, Spencer, and Tarboo subbasins. As such and based on the analysis in the preceding section, it is assumed that effect of the rule is to prevent 4,050 gpd of water use per subbasin.

In the case of the Chimacum subbasin a more complex calculation is necessary. Based on analysis provided in Ecology’s WRIA 17 reserve methodology document, an additional 148 homes might go in this subbasin by 2025 (based on 9.29 additional homes per year). As that number is almost as much as all other subbasins with reserves combined (for which 173 homes are predicted), an assumption of just one high-use individual is unrealistic. Therefore for the Chimacum subbasin it was assumed that 4 individuals might use the maximum 5,000 gpd. Thus relying on the 4,050 gpd savings per high-use individual (as described above), a total 16,200 gpd (4 times 4,050) savings might occur. However, additional savings would also occur as a result of the in-house use only restriction. For example, if all new homes in the Chimacum subbasin were allowed to use up to 500 gpd (the conservation standard), then perhaps an additional 240 gpd per home of water might be consumptively used (based on analysis in Ecology’s WRIA 17 reserve methodology document). As the in-house use only restriction does not allow this without mitigation, that provision alone might lead to a savings of 35,520 gpd (148 times 240). Combining this figure with the potential water use savings from preventing high-use individuals, this suggests the total water savings to the Chimacum subbasin of about 51,720 gpd (35,520 plus 16,200).

Based on all the above, the total savings for six of the subbasins with reserves might be as follows.

	New use (gpd) that might have occurred by 2025
Chimacum	51,720
Donovan	4,050
Ludlow	4,050

Piddling	4,050
Spencer	4,050
Tarboo	4,050

Table 2. Potential increased use prevented in WRIA 17 reserve management areas through 2025 as a result of the rule.

Increased use that will not occur by homes in the designated coastal management areas

The subbasins designated as coastal management areas include Bolton, Devils Lake, Marple, Toandos, Squamish Harbor, Mats Mats, Oak Bay, Marrowstone & Indian, Quimper, and Miller. Similar to the subbasins with reserves, in these areas some homes that do get built might choose to use more water if they were not limited by the conservation standard. No low flow analyses similar to those for the reserve areas were completed because the designated coastal management areas have so many small streams it would have been cost prohibitive to undertake the analysis. However, there are many environmental benefits anticipated from the protections of the rule listed in Table 4:

	Benefits to small streams/riparian health	Benefits to salmonids	Reduced risk of seawater intrusion	Reduced risk to existing water right holders
Bolton	X	X	X	X
Devils Lake	X	X	X	X
Marple	X	X		X
Toandos	X	X	X	X
Squamish Harbor	X	X	X	X
Oak Bay	X		X	X
Marrowstone & Indian	X		X	X
Mats Mats	X			X
Quimper	X	X	X	X
Miller	X	X	X	X

Table 3. Environmental benefits anticipated in the designated coastal management areas

In the designated coastal management areas the conservation standard will prevent large (5,000 gpd) single-location exempt uses permissible under the current exemption. The benefits of this are significant, since in some locations, one such withdrawal could diminish flows in small streams and cause existing nearby water levels in wells to drop. Based on the building permit record, projected growth in the coastal areas is 546 new households outside of public water supply service areas. The benefits specific to salmonids are discussed in greater detail later in this paper. The other benefits to small streams and riparian corridors, and the reduced risk to existing wells, while very important are difficult to quantify.

Increased use anticipated as a result of the instream flow rule

In the case of Big Quilcene, Little Quilcene, and Thorndyke subbasins the rule makes water available for water right allocation (up to the reserve amount) that was not

available previously. In these subbasins, water is made available for permit exempt uses under the conservation standard and water right permit allocations. In addition, in the case of Big Quilcene, new users will have the ability to access the water for agricultural use up to 5,000 gpd under the statewide ground water exemption. In order to evaluate the potential effects on flows from this expanded potential use, first an estimate was made of the amount of water use that would have occurred if the rule is not established. This amount was then subtracted from the reserve amount. For that analysis the following assumptions were made:

- One new household through 2025 was assumed to pump at the maximum 5,000 gpd, and to consumptively use 4,050 gpd.
- The remaining households anticipated through 2025 were multiplied times 250 gpd (estimated use under the conservation standard)
- The sum of these two types of use was subtracted from the reserve amounts

The results of that analysis were as follows:

	Reserve amount (gpd)	New households anticipated by 2025	Estimated use ((number of anticipated households - 1) X 250) + 4,050) gpd	Potential flow change (decrease) by 2025 (gpd)***
Big Quilcene	200,400	24.5	9,925	-190,475
Little Quilcene	38,800	56.5	17,925	-20,875
Thorndyke	31,670	23.5	9,675	-21,995

Table 4. Potential decreases in flow as a result of the rule

*** Reserve amount minus estimated use

Flow Analysis

In order to gain perspective on the quantities of water lost or gained as presented in Tables 2 and 3, these flow amounts were compared to the amounts of water in the streams during the times critical to fish. Ecology has flow data available for the Big Quilcene, Chimacum, Little Quilcene, Salmon, Snow, Tarboo and Thorndyke subbasins. For these streams, Ecology used available data to calculate the median flow during September, the low flow month. An analysis of those data also shows that the September median flow is generally 1.6 times the 90 percent exceedance (the “normal” low) flow measurement. Thus, in the case of Donovan where only a single low flow measurement is available, that value was multiplied by 1.6 in order to approximate the median low flow. In the case of Ludlow, Piddling and Spencer multiple individual measurements were taken. In order to approximate a median low flow for these streams the highest of these measurements were selected. In all cases the highest flow measurement was at least as high as the lowest flow times 1.6.

The percent of flow change for each of the subbasins was determined by comparing the quantities of water lost or gained as presented in Tables 2 and 3 with the median low flows estimates (Table 5).

	Median September flow (cfs)	Median September flow (gpd)	Potential flow changes by 2025 (from Tables 2 and 3) (gpd)	Flow change (%)
Big Quilcene	34.3	22,168,668	-190,475	-0.86%
Chimacum	8.1	5,235,166	51,720	0.99%
Donovan	0.29	187,432	4,050	2.16%
Little Quilcene	11	7,109,485	-20,875	-0.29%
Ludlow	5	3,231,584	4,050	0.13%
Piddling	0.3	193,895	4,050	2.09%
Spencer	0.5	323,158	4,050	1.25%
Tarboo	2.9	1,874,319	4,050	0.22%
Thorndyke	4.3	2,779,162	-21,995	-0.79%

Table 5. Estimated median low flows, potential flow changes by 2025, and estimated percent change in low flow

Reduced Risk of Seawater Intrusion

In the Coastal Management Areas adoption of the conservation standard will also reduce the risk of seawater intrusion. In areas where seawater intrusion exists, that risk directly relates to the amount of up-gradient (inland) groundwater pumping that leads to a reduction in the head (groundwater surface elevation) in the aquifer and thus allows seawater to move inland. Preventing new, large (5,000 gpd) withdrawals throughout the coastal areas reduces potential declines in head and the risk of seawater intrusion accordingly.

In order to address the issue of seawater intrusion Jefferson County adopted a seawater intrusion policy in 2002. That policy classifies all lands within ¼ mile of marine shorelines and all islands as Seawater Intrusion Protection Zones (SIPZ). Additionally, the SIPZ include all areas within 1000 feet of a groundwater source with a chloride history above 100 milligrams per liter (mg/L). This includes areas categorized as either “at risk” (between 100 mg/L and 200 mg/L) or “high risk” (over 200 mg/L). The policy designates a number of steps intended to prevent additional seawater intrusion within the SIPZ.

The County’s SIPZ map

(http://www.co.jefferson.wa.us/idms/pdfs/august2002_finalmap_parcel.pdf) indicates that 8 out of 10 of the designated coastal management areas have at least one “high risk” area. All totaled, the map indicates about 8 “at risk” wells and about 23 “high risk” wells on Marrowstone Island. Additionally, about 6 “at risk” wells and about 31 “high risk” wells are indicated throughout the remainder of the County.

Seawater intruded wells produce water with constituents not suitable for drinking water, including sodium and chloride. The EPA set a secondary maximum contaminant limit (MCL) for chloride at 250 mg/l based on a taste threshold. The EPA considers sodium a primary (health risk) contaminant, although it has not set an MCL for this. The EPA has

recommended a level of 20 mg/l for those consumers who may be restricted for daily sodium intake.

A “Seawater Intrusion Topic Paper” produced by the WRIA 6 watershed planning group (3/16/05) provides information on the relationship between chloride and sodium. Using water quality data from sampling marine waters around Island County, the ratio of chloride to sodium was estimated to be about 1.8 mg/l of chloride for every 1 mg/l of sodium. Applying this ratio to the wells indicated as “high risk” on Jefferson County’s SIPZ map suggests that about 54 existing wells might produce water with more than 110 mg/l of sodium. That level is more than 5 times the recommended EPA level for consumers who should restrict daily sodium intake.

Owning a home without potable water diminishes its value significantly. Options for homes with wells that produce saline water include: treating well water with reverse osmosis system, connecting to a public water system (if available), or trucking water in. One strong indication of the costs associated with seawater intrusion concerns the long-standing problems experienced on Marrowstone Island. Due to these problems the Jefferson County PUD recently spent 5.2 million dollars to extend a water system line from the mainland to the island. As a result of this extension about 625 island property owners were recently assessed \$8,100 (includes meter), and about 200 people who elected not to connect to the system were charged \$1,500 (a no meter partial assessment) (Bill Graham, Jefferson County PUD, pers. com., 4/9/09).

The total number of homes currently designated as “at risk” or “high risk” according to Jefferson County’s SIPZ map is about 68. Assuming at least that number of homes will be protected by application of a conservation standard over the next 20 years, and that avoiding seawater intrusion is worth at least \$8,100 per home, this suggests that the potential benefit provided by the rule relative to seawater intrusion may be on the order of about \$551,000.

Fish Use and ESA Listings

Most all of the small streams support coho and chum salmon, and cutthroat trout. Many of the streams support smaller numbers of steelhead and a few streams may have small numbers of Chinook, pink salmon and bull trout.

The fish populations in WRIA 17 streams consist of salmonids whose juveniles rear in streams year round such cutthroat trout, coho salmon, bull trout, and steelhead. In addition, there are other salmon present such as summer and fall chum and fall Chinook whose young rear in streams for short periods of time: a matter of a couple of weeks rather than a year or more.

There are several species of trout and salmon in WRIA 17 subbasins listed as threatened or endangered under the Federal Endangered Species Act. For example, Chimacum Creek specifically has the following fish species federally listed as “threatened:” Puget Sound Chinook salmon, Hood Canal summer-run chum salmon, and Puget Sound

steelhead. Bull trout, another federally listed species, are also listed for this evolutionarily significant unit (ESU) area.

Existing Stream Closures and Instream Flows

Most of these streams have been closed since the 1940's and 50's.

- **Chimacum Creek:** administratively closed to new rights since 1946.
- **Donovan Creek:** administratively closed to new rights since 1975.
- **Little Quilcene River:** administratively closed to new rights since 1952.
- **Ludlow Creek:** administrative minimum instream flow since 1972.
- **Salmon Creek:** administrative minimum instream flow since 1946.
- **Snow Creek:** administratively closed to new rights since 1948.
- **Tarboo Creek:** administrative minimum instream flow since 1972.

Salmon Numbers for the Quilcene-Snow River Basin

Salmon population estimates vary widely. The current total yearly wild and hatchery salmon population for the Quilcene-Snow basin (including harvest and escapement) averages around 60,000 adult fish. The largest numbers of salmon consist of summer chum, fall chum, and coho salmon. The estimated yearly run size of ESA listed species are: summer chum averaging around 12,000, steelhead averaging around 300, Chinook maybe around 20, and bull trout likely less than 20.

Ecology has 4 primary sources of information about salmonid population sizes in WRIA 17:

1. The Washington State Department of Fisheries 1976 "*A Catalog of Washington Streams and Salmon Utilization*".
2. The "*WRIA 17 Stage 1 Technical Assessment*" dated October, 2000, prepared by Parametrix for the WRIA 17 Planning unit.
3. Information provided by Thom Johnson, WDFW biologist
4. Field surveys conducted in 2005 and 2008 by Ecology and WDFW biologists.

According to the Washington State Department of Fisheries 1976 "*A Catalog of Washington Streams and Salmon Utilization*" in WRIA 17 there were 303 streams with 428 miles of streams. The average number of salmon per year that escaped harvest to spawn in the streams from 1966-1971 was as follows: 400 Chinook, 7300 coho, 8900 chum, and 200 pink salmon. The total harvest of all salmon from WRIA 17 varied from 20, 125 to 59,700.

The total number of adult salmon estimated in WRIA 17 for 1966-1971 ranged from 36,925 to 76,500. These numbers did not include the steelhead or cutthroat trout generated from these streams.

The Watershed Planning Unit had Parametrix, Inc. produced the "*WRIA 17 Stage 1 Technical Assessment*" in October, 2000. In that document the graphs of the number of adult salmon that escaped harvest to return to spawn were as follows: summer chum from

1968 to 1998 ranged from 1000 to 40,000, fall chum from 1968 to 1998 ranged from 3000 to 29,000, and coho from 1986 to 1999 ranged from 2500 to 41,000. These numbers are for the eastern Strait of Juan de Fuca and Hood Canal for summer chum, for northern Hood Canal and Quilcene Bay for fall chum, and for northern Hood Canal for coho.

Chinook estimates were 100 to 200 in the 1980s. At that time some Chinook had been sighted in the Big Quilcene River, Snow Creek, Tarboo Creek, and Salmon Creek.

Steelhead and cutthroat trout were known to return to most all streams but escapement was unknown.

Table 7 below is a March, 2009 summary developed by Washington Department of Fish and Wildlife (WDFW) fish biologist, Thom Johnson that provides salmon escapement data for some of the streams in the Quilcene-Snow basin.

Geographic area in WRIA 17	Stream number	Fall chum	Summer chum	Coho	Steelhead
Spencer/Jackson creeks	17.0001-17.0004	1,000 to 4,000	--	50 to 200	--
Dabob/Tarboo Bays (including Big/Little Quilcene rivers)	17.0012-17.0136	1,000 to 10,000	4,000 to 13,000	500 to 2,000	50 to 150
Northern Hood Canal/Ludlow	17.0140-17.0192	--	--	100 to 500	--
Chimacum Creek	17.0203	--	500 to 1,000	1,000 to 3,000	unknown
Snow/Salmon creeks	17.0219-17.0245	--	1,000 to 5,000	1,000 to 2,000	50 to 150
TOTAL		2,000 to 14,000	5,500 to 19,000	2,650 to 7,700	100 to 300

Table 6. Typical range in the number of salmon and steelhead spawners in WRIA 17 streams.

(compiled by Thom H. Johnson, WDFW District Fish Biologist, 3-09)

Ecology and WDFW biologists conducted field surveys on the independent streams in the coastal management areas and verified the existence of many streams and their use by fish even during low flow times. Surveys were conducted in July and October of 2005 and 2008. During those investigations biologists found about 20 of the small streams flowing and some had coho and cutthroat juveniles. The streamflow in these streams was too small to measure with streamflow meters and all were estimated to be less than 5,000 gpd. The overall numbers of fish produced by each streams would be small, but likely would cumulatively be on the order of several hundred coho and cutthroat for all the coastal streams. Possible use by chum and steelhead could result in many more salmon created per stream when fish migrate up during much higher flows in the winter and

spring. The overall salmonid fish production from these independent small streams would likely be on the order of hundreds of adult salmon and trout.

Effect of the Rule on Salmon in the Basin

The proposed instream flow rule affects fish in at least three distinct ways including:

- 1) Formally closing most of these streams in the WRIA to the creation of large, new water rights under the exempt well statute (currently four streams in the basin are closed administratively).
- 2) Placing limits on the daily use of a new permit exempt well in most areas.
- 3) Establishing finite quantities of water (reserves) that can be withdrawn by new uses within some of the subbasins.

These provisions in the proposed rule will affect stream flows and the resulting change in flow will affect fish populations. In six subbasins the effect of the rule is to increase flows and protect salmon over the baseline situation of continued water use without the rule. In three subbasins the effect of the rule is to slightly decrease flows and cause negative impacts to salmon populations. In two subbasins flow will remain essentially unchanged from the baseline through the year 2025, the time frame for this analysis. The provisions in the rule will provide significant benefits for salmon in the future, and many of the benefits will be experienced beyond the time frame of this analysis.

Benefits to salmon by protecting flows

The benefits of preserving stream flow correspond directly to the percentage of stream flow that remains in the stream. Most of the streams in WRIA 17 are rain-fed. When the rain stops, stream flow starts to drop. During the lowest flow time of year, fish populations will drop as the stream flow drops. Without groundwater providing stream flow during the late summer and fall rain-fed streams would go dry.

The above analysis of flow changes resulting from the proposed rule shows that flow benefits will occur in the coastal management areas and in the following subbasins:

- Chimacum
- Donovan
- Ludlow
- Piddling
- Spencer
- Tarboo

There is great uncertainty regarding how many people will move into the basin in the future. Currently any new home built in these subbasins could withdraw up to 5,000 gpd using an exempt well. Because of this potential, we made a relatively conservative assumption during our analysis and evaluated the effect of just one new person moving into the basin and pumping 5,000 gpd, or 4 such exempt withdrawals in the case of Chimacum (see Table 2).

Using the percent of stream flow saved as shown in Table 5, and multiplying that percentage times the estimated number of summer chum, coho, and steelhead for that stream, Ecology estimated the average number of salmon saved (assuming a direct relationship between the low summer flow and salmon survival (see [How Stream Flow is Related to Fish Survival](#), below). Since available population estimates only include escapement, Ecology doubled this number to account for harvest and estimate the total run size that would be protected. Total run size is made up of both escapement (the number of fish that return to spawn) and harvest (the number of fish that are caught).

	Flow change (%)	Salmon escapement	Total salmon (includes harvest)	Salmon saved
Chimacum	0.99%	2,750	5,500	54
Donovan	2.16%	343	686	15
Ludlow	0.13%	100	200	0
Piddling	2.09%	100	200	4
Spencer	1.25%	2,125	4,250	53
Tarboo	0.22%	685	1,370	3

Table 7. Estimates of fish saved

The calculations for these streams leave out many salmon because certain fish, such as steelhead and cutthroat, have not been counted or estimated. The estimate of total number of salmon saved in the 6 streams is 129 salmon.

During field surveys in 2005 and 2008 Ecology and WDFW biologists found 3 large and 19 small independent coastal streams within the coastal management areas that were flowing during the low flow months at the end of summer. This estimate of 19 smaller streams is likely conservative as the portion of the Toandos Peninsula that was not surveyed likely also has some creeks flowing during the summer. During the survey two of the large streams, Contractors and Eagle creeks, were flowing about 0.6 and 0.15 cfs, respectively. The remainder of the streams had very low flows of less than 5,000 gpd. Biologists documented either the presence of coho salmon and cutthroat trout or likely habitat for these species in all of these streams. A total of 542 new households are projected by 2025 in the coastal management areas. If less than 5% of new households locate in proximity to these streams and pump approximately 1,000 gpd each, the three large streams could be significantly diminished and the small streams would likely go dry or become too small to support any fish life. A reasonable estimate of coho and cutthroat production in these small coastal streams is approximately 20 fish in each stream, therefore it is estimated that the rule would prevent the cumulative loss of about 440 salmon. In addition, the rule would likely also prevent the loss of chum and steelhead from the small coastal streams, but we cannot estimate these numbers.

Therefore, it is estimated that the rule will prevent the loss of at least 569 salmon (using the assumptions listed above) from the 6 streams listed above and the coastal management areas.

This analysis relies on conservative assumptions that do not reflect the “worst case” scenario of all new users taking full advantage of the ground water exemption in RCW 90.44.050. It is reasonable to assume that more than 14 new wells in the reserve management areas and more than 5% of new users in the coastal management areas would use more than allowed under the 500 gpd maximum and 350 gpd average conservation standard. In that case the rule would prevent the loss of more than 840 salmon.

Ecological costs: Impacts to salmon by reducing flows

Using the assessment of flow changes shown in Table 5, above, Ecology biologists assessed the likely effect of the reserves on salmon in the Big Quilcene, Little Quilcene and Thorndyke subbasins. These flow changes reflect an assumption that the impact to stream flow over the baseline condition of continued permit-exempt well use is the portion of reserved water that could be allocated for future water right permits, and/or in the Big Quilcene subbasin future agricultural use of up to 5,000 gpd through the ground water exemption.

Using the estimated potential stream flow changes in Table 5, and multiplying those percentages times the estimated number of summer chum, coho, and steelhead for that stream, Ecology estimated the average number of salmon lost by assuming a direct relationship between the low summer flow and salmon survival (see How Stream Flow is Related to Fish Survival, below). Since available population estimates only include escapement, Ecology doubled these numbers to account for harvest and estimate the total run size that would be affected. Total run sizes are made up of both escapement (the number of fish that return to spawn) and harvest (the number of fish that are caught).

	Flow change (%)	Salmon escapement	Total salmon (includes harvest)	Salmon lost
Big Quilcene	-0.86%	12,953	25,906	-223
Little Quilcene	-0.29%	1,370	2,740	-8
Thorndyke	-0.79%	700	1,400	-11

Table 8. Estimates of fish lost

Therefore, it is estimated that the rule may cause the loss of at approximately 242 salmon (using the assumptions listed above) from the 3 streams listed above.

How Streamflow is Related to Fish Survival.

Does a 1% loss of streamflow represent a 1% loss in the fish population?

Numerous studies have found that the higher the 30- or 60-day low summer flow the higher the number of returning adult coho salmon from that year class. Correlations relating low summer streamflow for juvenile coho to the numbers of returning adult coho two years later have been reported in the literature here in Washington since the 1940's. Mathews and Olson (1980) (see graph below) found a strong relationship between increased summer flow for coho juveniles and greater returning adults 2 years later, as did Neave 1949, McKernan et al 1950, Wickett 1951, Smoker 1955, Lister and Walker 1966, Pearson et al 1967. This relationship was reaffirmed in Hartman and Scrivener 1990, and Quinn and Peterson 1996. The summer low flow is still used today by WDFW to predict the number of returning coho adults in Puget Sound 2 years later as described in Zillges 1977 and Seiler 2001 (see graph below).

It is surprising that the correlation between summer flow and returning adult coho salmon 2 years later would be so strong since fish habitat is only one of many factors that kill fish (such as ocean survival, fish harvest, disease, winter floods, etc). However, biologically it makes sense that a 1% loss in streamflow during a low flow month such as September can serve as a reasonable surrogate for estimating a 1% loss in a salmonid fish population whose juveniles rear in streams.

The relationship between low streamflow and salmonid survival has also been shown for steelhead. In the Green River in 1979, Dr. Hal Beecher (WDFW) found the higher the low summer flow the higher the number of returning wild steelhead adults 2.5 years later. The low summer flow measurement he used was the lowest daily flow recorded during the summer.

Ecology has found in other streams and rivers that a 1% loss of streamflow during the low flow month, usually September, corresponds to around a 1% loss of fish habitat. For example:

- Ecology and WDFW biologists used weighted useable area data (representing fish habitat) from the PHABSIM/IFIM fish habitat model to calculate the 1% loss of habitat for steelhead rearing and chum spawning in the Big Quilcene River during the September low flow. Agency biologists found that a 1% loss of habitat corresponds to a 1.1 % loss of flow for the Big Quilcene River
- In the mainstem Stillaguamish River a 1.1% loss of flow from the September 90% exceedance flow (its low flow month) corresponds to a 1% loss of steelhead juvenile habitat using the Instream Flow Incremental Methodology (IFIM) to quantify fish habitat.
- In the South Fork Stillaguamish River a 0.9% loss of flow from the September 90% exceedance flow (low flow month) corresponds to a 0.6 % loss of steelhead juvenile habitat and a 1.3 % loss of chinook spawning habitat. The loss is not exactly 1% because there are multiple fish species and lifestages present in these streams.

- In the North Fork Stillaguamish River a 0.94% loss of flow from the September 90% exceedance flow (low flow month) corresponds to a 0.7 % loss of steelhead juvenile habitat and a 1.0 % loss of Chinook spawning habitat.

F.W. Olson in 1983 summarized the relationship between low summer streamflow and coho run size in a Draft EIS for the South Fork Skokomish River Hydroelectric Project.

the correlation between coho production in Puget Sound and the WDF low-flow index for a composite of streams indicates that a tripling of the stream flow during the critical summer period could be expected to nearly triple the adult coho run (Figure 3-8).

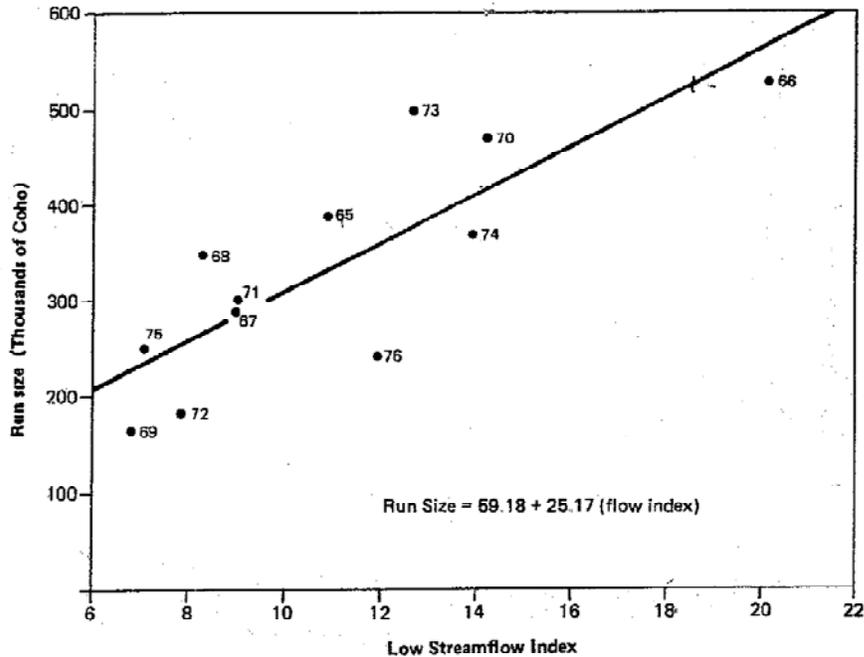
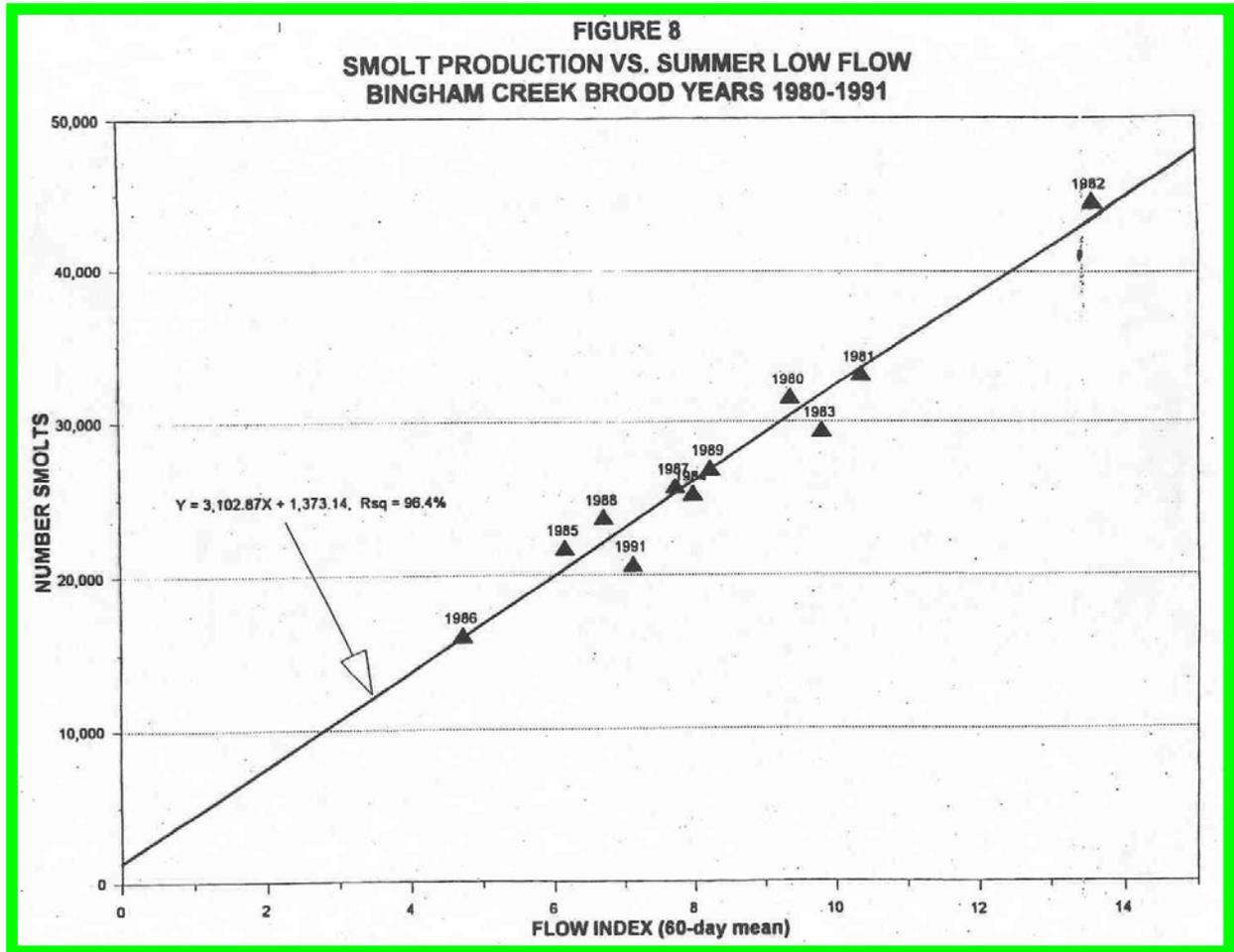


Figure 3-8
Relationship between
Puget Sound Coho Run
Sizes and Summer Low Flow

Summer Flow Enhancement

Numerous studies have shown that coho salmon smolt production and resulting adult returns are positively correlated with minimum summer discharge levels (Neave, 1949; Wickett, 1951; Smoker, 1955). Other studies of stream-carrying capacities for coho have found direct relationships between summer flows and coho production (Lister and Walker, 1966; Pearson et al., 1967). The strength of this relationship for Puget Sound streams is evidenced by its continued high correlation from 1935 (Mathews and Olson, 1980). Currently, the preseason run size prediction of Puget Sound wild coho is based on the relationship between the 60 lowest consecutive days of flow during year i and the return in year $i + 1$ (Zillges, 1974 and 1977).

Dave Seiler's studies on Bingham Creek for 1980-1991 found more summer flow equals more coho smolts migrating out the following spring.



Seiler (2001) used the Zillges 1977 document (Tech. Memo 28, WDFW) to estimate wild coho smolt production. Zillges 1977 contained estimates of the amount of coho juvenile habitat at summer low flow by using the 60 consecutive day low flow. The flow averaged over 12 years was called the Puget Sound Summer Low Flow Index (PSSLFI).

When Seiler mapped coho smolt production versus PSSLFI for Puget Sound streams he found a strong positive correlation between the previous summer's flow and the population of smolts the following spring. On Bingham Creek, Seiler stated: "for this low gradient stream, the relationship between smolt production and flow the previous summer is clear: production is a positive and proportional function of flow – water equals fish" (p 14).

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Appendix 6. Restoration Project Costs WRIA 17

Funded Salmon Recovery Funding Board projects supported by WRIA 17 Rule

Sponsor	Name	Program	TotalAmount
Jefferson Co Cons Dist	Indian George Creek Restoration, Phase 2	Salmon State Projects	\$11,506
Jefferson Co Cons Dist	Big Quilcene River Colyott Project	Salmon State Projects	\$59,836
North Olympic Salmon Coalition	WF Chimacum Creek Restoration Project	Salmon State Projects	\$184,000
Jefferson Co Cons Dist	E. Chimacum Creek RM 1.2 - 2.3	Salmon State Projects	\$78,492
North Olympic Salmon Coalition	Lower East Fork Chimacum Creek	Salmon State Projects	\$57,700
Jefferson Co Cons Dist	Salmon Creek Restoration	Salmon State Projects	\$202,400
Jefferson Land Trust	Chimacum Creek Watershed Acquisitions	Salmon State Projects	\$194,757
Fish & Wildlife Dept of	Chimacum Estuary Habitat Restoration	Salmon Federal Projects	\$559,981
Hood Canal SEG	Indian George Creek Estuary Restoration	Salmon State Projects	\$588,639
Jefferson Co Public Works	Big Quilcene R. Linger Longer Fea. Study	Salmon Federal Projects	\$50,000
Jefferson County of	WRIA 17 Salmonid Refugia Study	Salmon Federal Projects	\$94,624
Hood Canal SEG	Tarboo Creek Habitat Restoration Project	Salmon State Projects	\$483,510
Jefferson Land Trust	Salmon and Snow Creek Estuary 01	Salmon State Projects	\$509,211
Jefferson Co Public Works	Lower Big Quilcene N Bank Acquisition	Salmon Federal Projects	\$152,218
Skokomish Indian Tribe	Mid-Quilcene River LWD Restoration	Salmon Federal Projects	\$209,126
North Olympic Salmon Coalition	East Fork Chimacum Extension	Salmon State Projects	\$63,705
Hood Canal SEG	Shine Estuary Restoration	Salmon State Projects	\$417,453
North Olympic Salmon Coalition	Chimacum Creek Estuary Riparian Acq	Salmon State Projects	\$879,307
Hood Canal SEG	Little Quilcene Estuary Restoration	Salmon State Projects	\$1,492,680
Hood Canal SEG	Big Quilcene Estuary Dike Removal 04	Salmon State Projects	\$170,393
North Olympic Salmon Coalition	Salmon/Snow Lower Watershed Restoration	Salmon State Projects	\$1,022,612
Skokomish Indian Tribe	Big Quilcene ELJ Restoration	Salmon Federal Projects	\$486,882
Jefferson Co Cons Dist	Hannan- Swansonville Creek - R4	FFFPP Grants	\$14,000
Hood Canal SEG	Quilcene Estuarine Wetlands Rest-Schinke	Salmon State Projects	\$643,001
Hood Canal SEG	L Quilcene River Acquisition, McClanahan	Salmon Federal Projects	\$125,000
Skokomish Indian Tribe	Quilcene Floodplain Acquisition	Salmon Federal Projects	\$39,548
North Olympic Salmon Coalition	Salmon Estuary Wood Waste Removal and Restoration	Puget Sound Acq. & Restoration	\$755,580
Hood Canal SEG	WDFW Big Quilcene Estuarine Dike Removal	Salmon Federal Projects	\$225,000
Jefferson Co Cons Dist	Snow/Salmon Cr. 2007 Riparian Project	Puget Sound Acq. & Restoration	\$218,462
Hood Canal SEG	Quilcene Bay Conservation - Ward	Puget Sound Acq. & Restoration	\$305,025
Northwest Watershed Institute	Tarboo-Dabob Bay Acquisition and Restoration	Puget Sound Acq. & Restoration	\$993,186
Jefferson Land Trust	Chimacum Creek S. Curve	Puget Sound Acq. & Restoration	\$113,350
North Olympic Salmon Coalition	Snow/Salmon Railroad Grade Removal Design	Salmon Federal Projects	\$100,000
Hood Canal SEG	Big Quilcene River ELJ Restoration Phase 2	Salmon Federal Projects	\$325,500
Hood Canal SEG	Little Quilcene Delta Cone Removal - Design Only	Salmon Federal Projects	\$100,000
Jefferson Co Cons Dist	Scholz Riparian Restoration	Salmon State Projects	\$10,906
North Olympic Salmon Coalition	Christian Chimacum Creek Habitat Project	Salmon State Projects	\$9,885
Wild Olympic Salmon	Indian George Creek Railroad Bridge	Salmon State Projects	\$28,200
Northwest Watershed Institute	Chimacum Headwaters Restoration Project	Salmon State Projects	\$27,977

Jefferson Co Public Works	North Branch East Fork Tarboo Creek	Salmon State Projects	\$120,222
Fish & Wildlife Dept of	East Fork Tarboo Creek Passage	Salmon State Projects	\$164,841
Jefferson County of	Chimacum and Salmon Creek Chum Salmon	Salmon Federal Projects	\$38,246
Jefferson County of	Chimacum Creek/Summer Chum Spawning	Salmon Federal Projects	\$105,000
Jefferson County of	Big Quilcene River Habitat Aquisition	Salmon Federal Projects	\$179,904
Fish & Wildlife Dept of	Salmon and Snow Creek Estuary 99	Salmon Federal Projects	\$40,000
WRIA 17 RESTORATION INVESTMENT DOLLARS			<hr/> \$12,651,867

Appendix 7. Pending Applications for WRIA 17

Report Date: 2/11/2009

Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	1stSrc
NewApp	2/4/2009	PO	250	CFS			17	JEFFERSON	BIG QUILCENE RIVE
NewApp	9/17/2008	IR	0.03	CFS		0	17	JEFFERSON	HUBBARD CREEK
NewApp	6/25/2008	ST,DS	0.02	CFS			17	JEFFERSON	UNNAMED STREAM
NewApp	2/26/2008	DS	0.07	CFS			17	JEFFERSON	RAINWATER
NewApp	11/19/2007	MU	200	GPM	120		17	JEFFERSON	Well #13
NewApp	9/20/2006	DM	50	GPM	7		17	JEFFERSON	WELL
NewApp	8/25/2006	DM	158	GPM	128		17	JEFFERSON	WELL
NewApp	3/13/2006	MU	50	GPM	30		17	JEFFERSON	well
NewApp	1/17/2006	DS	0.2	CFS	0.32		17	JEFFERSON	UNNAMED SPRING
NewApp	4/20/2004	IR,DM	100	GPM	30	0.5	17	JEFFERSON	well
NewApp	2/19/2004	DS	0.01	CFS			17	JEFFERSON	UNNAMED SOURCE
NewApp	6/5/2003	IR,DS	0.03	CFS		5	17	JEFFERSON	LAKE LELAND
NewApp	10/31/2002	DM	600	GPM			17	JEFFERSON	WELL
NewApp	6/13/2002	IR	150	GPM		35	17	JEFFERSON	WELL
NewApp	8/24/2001	IR,DS	20	GPM		5	17	JEFFERSON	WELL#1
NewApp	7/10/2001	CI	750	GPM			17	JEFFERSON	WELL
NewApp	4/13/2001	ST,IR	0.11	CFS		6.71	17	JEFFERSON	Teal creek
NewApp	1/24/2000	DS	0.02	CFS			17	JEFFERSON	UNNAMED SPRING
NewApp	1/4/1999	DM	45	GPM			17	JEFFERSON	WELL
NewApp	6/19/1998	WL,IR	0.11	CFS		20	17	JEFFERSON	UNNAMED SPRING
NewApp	4/10/1998	DS	0.01	CFS			17	JEFFERSON	LAKE LELAND
NewApp	3/31/1998	FR,DM	20	GPM			17	JEFFERSON	WELL
NewApp	3/6/1998	ST,IR	0.02	CFS		0.5	17	JEFFERSON	TARBOO CREEK
NewApp	12/17/1997	DM	10	GPM			17	JEFFERSON	WELL
NewApp	11/3/1997	IR	25	GPM		5	17	JEFFERSON	WELL
NewApp	12/9/1996	DM	600	GPM			17	JEFFERSON	WELL
NewApp	12/3/1996	ST,IR	0.02	CFS		3	17	JEFFERSON	UNNAMED STREAM
NewApp	9/27/1996	DM	120	GPM			17	JEFFERSON	WELL
NewApp	1/17/1996	IR	294.17	GPM		85	17	JEFFERSON	WELL
NewApp	11/20/1995	DM	38	GPM			17	JEFFERSON	WELL
NewApp	5/10/1995	DM	15	GPM			17	JEFFERSON	WELL
NewApp	12/27/1994	DS	0.067	CFS			17	JEFFERSON	UNNAMED STREAM
NewApp	12/6/1994	IR	1.5	CFS		10	17	JEFFERSON	UNNAMED POND
NewApp	9/29/1994	FR,DM	250	GPM			17	JEFFERSON	WELL
NewApp	9/14/1994	DM	50	GPM			17	JEFFERSON	WELL
NewApp	9/8/1994	DM	100	GPM			17	JEFFERSON	WELL
NewApp	7/20/1994	IR	400	GPM		0	17	JEFFERSON	WELL
NewApp	6/17/1994	CI	20	GPM			17	CLALLAM	WELL
NewApp	9/21/1993	DM	370	GPM	225		17	JEFFERSON	WELL
NewApp	7/14/1993	IR	300	GPM		43	17	JEFFERSON	WELL
NewApp	1/22/1993	MI,DS	60	GPM			17	JEFFERSON	WELL
NewApp	10/5/1992	IR,FS	0.04	CFS		4	17	JEFFERSON	UNNAMED SOURCE
NewApp	10/2/1992	CI	60	GPM			17	JEFFERSON	WELL
NewApp	9/14/1992	IR,FS	40	GPM		4	17	JEFFERSON	WELL
NewApp	2/19/1992	DM	55	GPM			17	JEFFERSON	WELL
NewApp	1/24/1992	IR	0.0001	CFS		12	17	JEFFERSON	UNNAMED POND
NewApp	5/23/1991	IR,DM	1000	GPM		0	17	CLALLAM	WELL

March 9, 2009

MEMORANDUM

TO: Bill Clarke, Attorney and Teren MacLeod, Realtor

FROM: Joanne Greenberg, P.E.

RE: Final DRAFT Buildout Analysis of Chimacum Subbasin

As per your request and in accordance with the contract issued by Bill Clarke on 12/4/2008, we have undertaken a full buildout analysis of the Chimacum Creek Subbasin. This memo serves as a final draft summarizing what was accomplished as part of this analysis.

The goal of this analysis was to determine/estimate the number of new homes that could be built within the Chimacum Basin watershed boundary. This is considered a surrogate for understanding the additional domestic water supply needs of the basin outside of existing water service areas. This means that we assumed that each vacant parcel would require a new exempt well to be drilled or additional water drawn from an existing well. Additional assumptions are as follows:

Assumptions

- Jefferson County PUD #1 Service Area was excluded
- Acreage values were obtained from the Assessor's database. If not available, area presented in j-Map was used (Jefferson County online parcel map).
- If a parcel is vacant and the acreage < zoning acreage, one house could still be built on the parcel.
- Polygons with duplicate parcel numbers were counted as one total area. In other words, one parcel number includes the acreage from all of the polygons associated with that parcel number
- If the polygon appeared to be subdivided into similar sizes but only had one parcel no., the buildable homes are based on the total area and the zoning under that parcel no. For example, even if a parcel seems to have been subdivided into similar size polygons, those lots are not buildable unless each has its own parcel number. If they do not have their own parcel number prior to the rule implementation, it is possible they would not be able to get parcel numbers after the rule is set.
- Four parcels in Vacant Land (9100) with significant building values were moved to the appropriate land use category.

- Building values greater than \$10,000 were assumed to have a livable dwelling unit on it and thereby a water supply sufficient for that structure.
- Parcels with building values less than \$10,000 were assumed buildable unless spot checking proved otherwise.
- Areas in PPR (Parks, Preserves, Recreation) zoning were excluded
- The following land use codes were eliminated from the analysis:
 - ✓ 4800 Utilities
 - ✓ 4810 Public utilities: state assessed land
 - ✓ 5000 Commercial: whl-ret inc inc restaurants
 - ✓ 6000 Commercial banks, offices, services
 - ✓ 6242 Cemeteries
 - ✓ 6911 Churches
 - ✓ 7600 Community Areas: greenbelts, parks
 - ✓ 7670 Regional Park
 - ✓ 9700 Exempt
 - ✓ 9720 State DNR Managed Timberlands
 - ✓ 9725 State Forest Board

Buildout Analysis Results

The Chimaquam Creek Subbasin encompasses about 24,000 acres or 37.5 mi² of which about 3,680 acres are within the PUD#1 service area. Of the remaining 20,325 acres, 71% of the land area contains parcels that remain buildable. An estimated 597 additional homes could be built on 481 parcels based on current zoning regulations (Table 1). This is an estimate because of the assumptions that were used in the analysis and certainty would only come from fully investigating each parcel to determine whether or not a well has been constructed and the water used on that parcel. A random sampling of parcels with building values less than \$10,000 were investigated to determine whether or not a potable water supply determination had been made or whether or not a livable structure was obtaining a water supply through use of an exempt well.

The 481 parcels represent 53% of the 915 parcels that were analyzed in this study. This means that 47% of the parcels are already developed. The distribution of buildable versus developed parcels in each zoning category can be found in Table 2. The zoning designation RR-5 is 75% built out with only 3 parcels able to accommodate more homes. RR-10 is 60% built out with an additional 165 parcels considered buildable and RR-20 has an additional 126 parcels (or 58% of the total) which can accommodate a dwelling. Rural Forestry and Commercial Forestry parcels are over 80% buildable which translated to 81 parcels being buildable. The agricultural lands, AL-20 and AP-20, have capacity for an additional 105 homes.

Table 3 shows a more detailed breakdown of developed and developable parcels by land use code and zoning designation. The 597 additional homes that could be built are displayed as a percentage of the total in a pie chart by zoning designation (Figure 1) and displayed spatially in Figure 2.

By comparing the buildable parcels to the wetlands overlay, about 53 parcels are covered by wetlands to the point that the construction of buildings might be questionable. However, the wetlands layer is not currently mapped to the parcel level and therefore this interpretation is likely to change if the wetlands are mapped more accurately. In addition, Ecology's well log database shows that about 397 wells are located near to buildable parcels. Since the well logs are mapped to the centroid of a quarter-quarter section in which they are located, it is not possible to identify which buildable parcels actually have operational wells on them. Figures 3 and 4 show the wells in the Chimacum Subbasin that are located near to buildable parcels and the wetlands overlay onto buildable parcels, respectively.

Data Sources:

1. Teren MacLeod provided the following data:
 - Jefferson County Assessor's Database dated 5/23/2008
 - Current Zoning Designations
 - Wetlands shapefiles
 - Water Service Areas shapefiles
 - Land Use Codes
2. Well logs obtained from the Department of Ecology's well log database website
3. Hydrology and Chimacum Cr Subbasin boundary from previous work in WRIA 17 obtained from Department of Ecology and Jefferson County

Water Use Analysis

Given that the Department of Ecology assumes 350 gallons per day (gpd) per household, that value has been applied to the 597 additional homes that represent full buildout in the Chimacum Subbasin. The water supply needs for those homes totals 0.32 cfs. From previous work documenting water use for homes and gardens, HSC estimated the return flow of inside and outside water use to be about 65%¹. That means that 65% of the 0.32 cfs returns to the Chimacum system, given the parcel is in hydraulic connection with that system. In other words, 35% of 0.32 cfs or 0.11 cfs is consumptively used and is lost to the local system.

¹ HSC Memo dated September 28, 2005 addressing the draft rule in Skagit County and exempt well return flow.

Table 1: Summary of Full Buildout by Parcels and by Number of Additional Homes

Land Use Code	1100	1101	1900	8000	8100	8120	8300	9100	9800	Total
Built Out Parcels	257	81	24	3	41	4	17	0	7	434
Buildable Parcels	7	12	13	1	89	5	119	223	12	481
Total	264	93	37	4	130	9	136	223	19	915
# additional homes	9	12	13	1	113	5	184	247	13	597
The number of additional homes may exceed the number of parcels due to the ability to subdivide a parcel under its zoning designation Land Use Codes: 1100 RES-SINGLE RESIDENTIAL-SINGLE UNIT 1101 MH-REALW/LND RESIDENTIAL-MH REAL W/LAND 1104 MH SITE RP MH SITE RP ONLY 1900 VAC HM-CABIN VACATION HOMES AND CABINS 8100 OSAG OPEN SPACE AGRICULTURE(A) 8120 OSTBR OPEN SPACE TIMBER(T) 8300 DESIGNATED TIMBERLAND 9100 VACANT LAND VACANT LAND 9800 SITE IMPS SITE IMPS/OTHER IMPS										

Table 2: Summary of Developed and Buildable Parcels

Zoning	Developed Parcels		Buildable Parcels		Total Parcels*	
AL-20	33	52%	31	48%	64	100%
AP-20	34	31%	74	69%	108	100%
CF-80	8	13%	52	87%	60	100%
IF-20	1	50%	1	50%	2	100%
PPR	3	100%	0	0%	3	100%
RF-40	5	15%	29	85%	34	100%
RR-10	250	60%	165	40%	415	100%
RR-20	91	42%	126	58%	217	100%
RR-5	9	75%	3	25%	12	100%
Total	434	47%	481	53%	915	100%
*This does not include parcels with land use codes that were excluded from the analysis.						

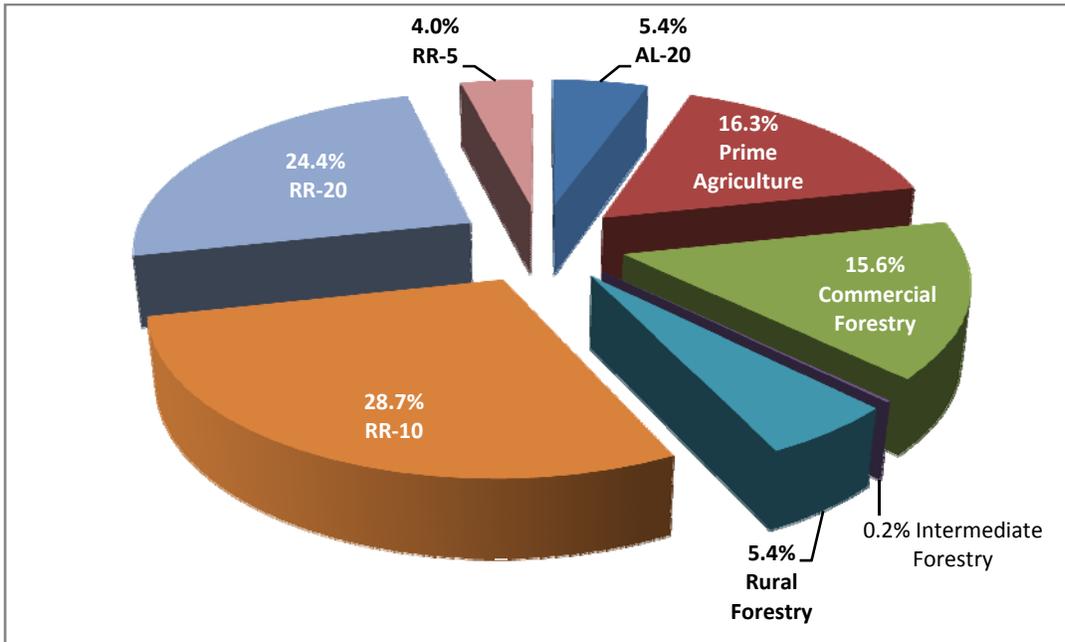


Figure 1: Distribution of Additional Homes Allowed Under Current Zoning to Achieve Full Build Out

Table 3: Parcel Summary for Chimacum Subbasin by Zoning and Land Use

Land Use Code	1100			1101			1900			8000			8100			8120			8300			9100			9800		
	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T
Zoning	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T	D	B	T
AL-20	17		17	3	1	4	1	1	2	3		3	7	7	14	1		1		2	2		20	20	1		1
AP-20	2	1	3	1		1							30	69	99				1	1	2		2	2		1	1
CF-80	2	1	3	1		1							3	2	5				2	47	49		2	2			
IF-20	1		1																							1	1
PPR	2		2				1		1																		
RF-40	2		2										1	1					3	23	26		4	4		1	1
RR-10	172	2	173	52	9	61	16	6	22		1	1				2	5	7	4	17	21		118	118	5	7	12
RR-20	53	3	56	22	2	24	6	6	12				1	10	11	1		1	7	29	36		74	74	1	2	3
RR-5	7		7	2		2																	3	3			
Total	257	7	264	81	12	93	24	13	37	3	1	4	41	89	130	4	5	9	17	119	136		223	223	7	12	19

D= # developed parcels
 B= # buildable parcels
 T = # total parcels

Chimacum Creek Subbasin Full Buildout Analysis Based on Zoning

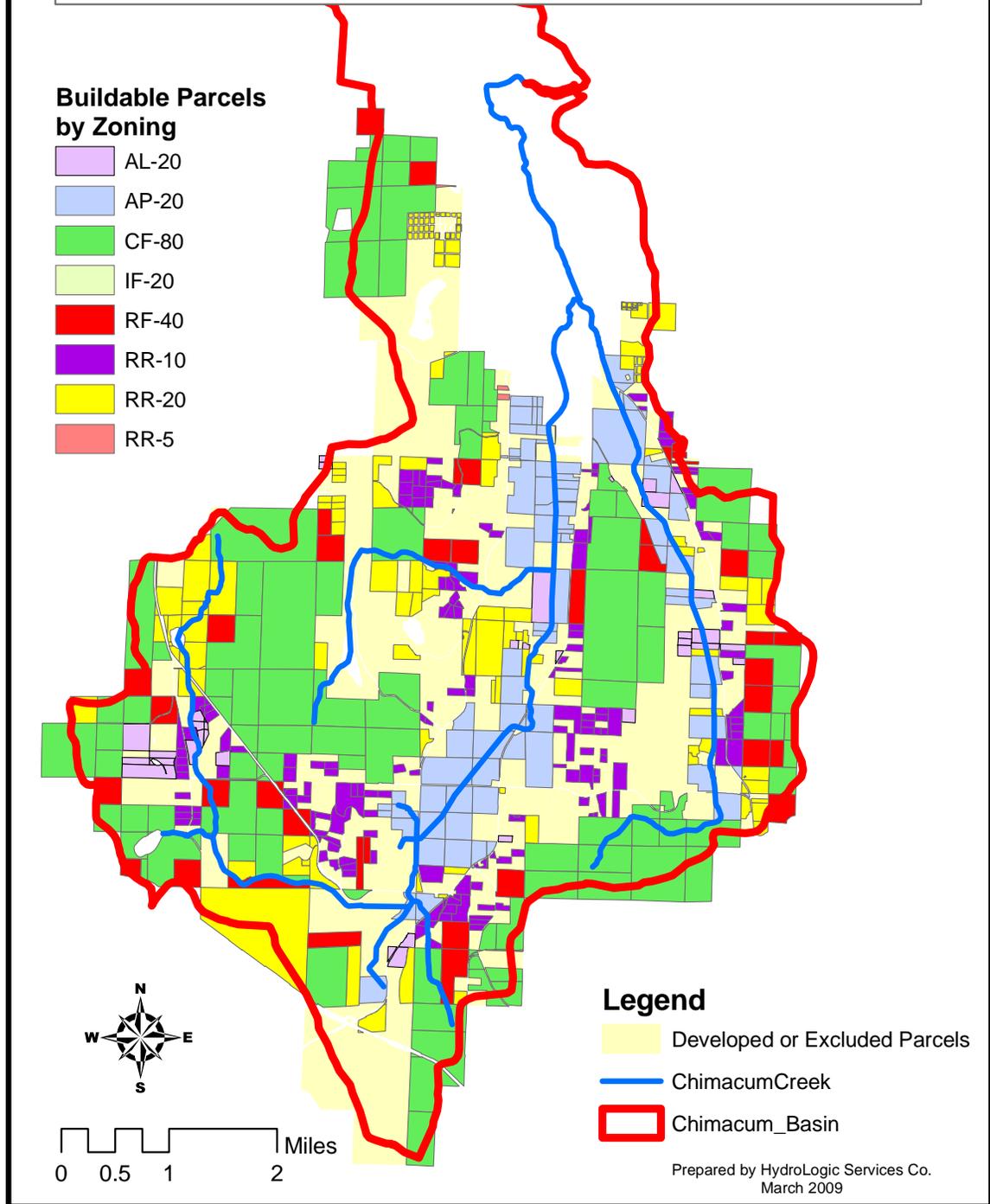


Figure 2: Buildable Parcels identified according to Zoning Designation

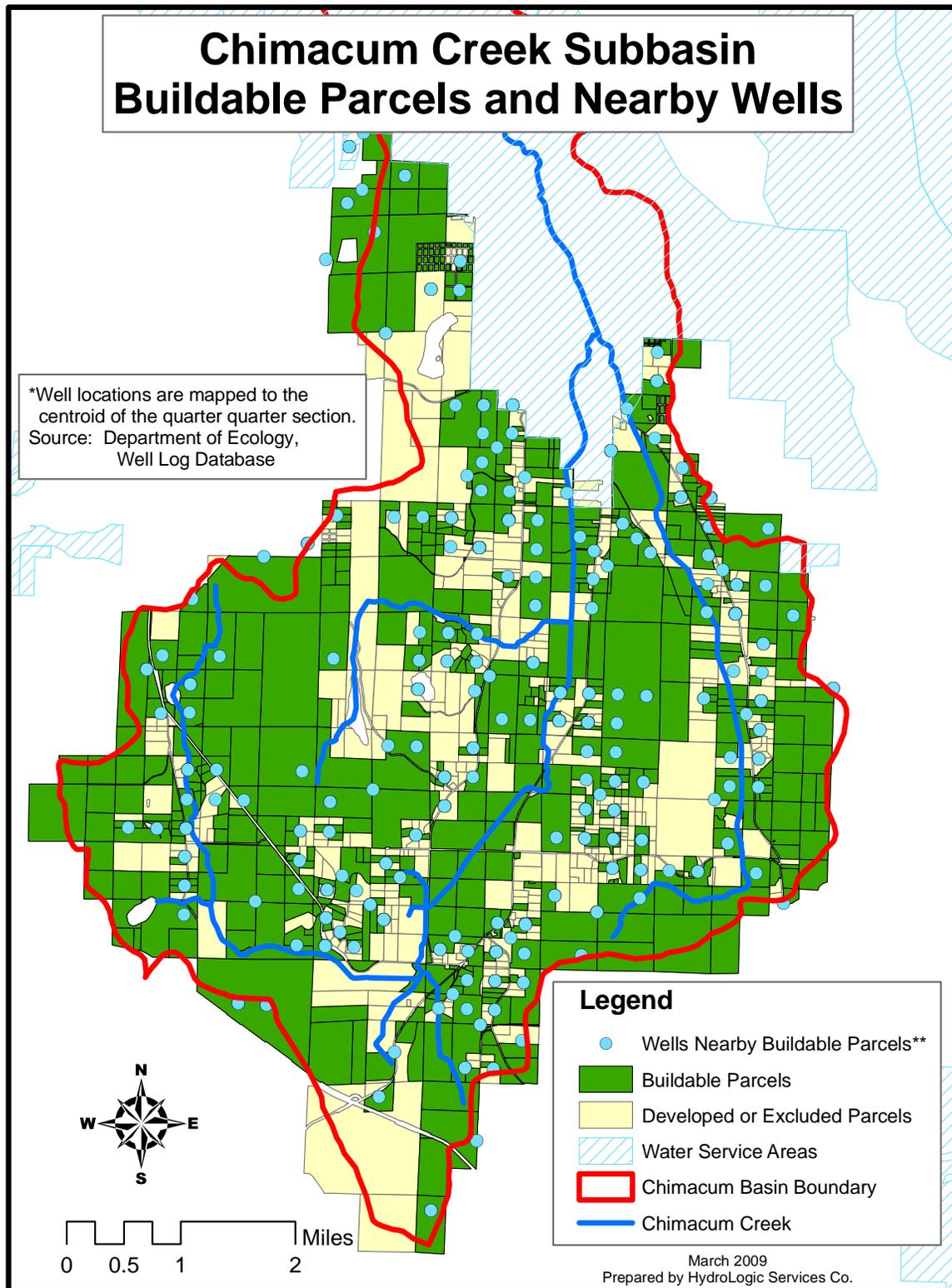


Figure 3: Buildable Parcels with Wells Located Nearby

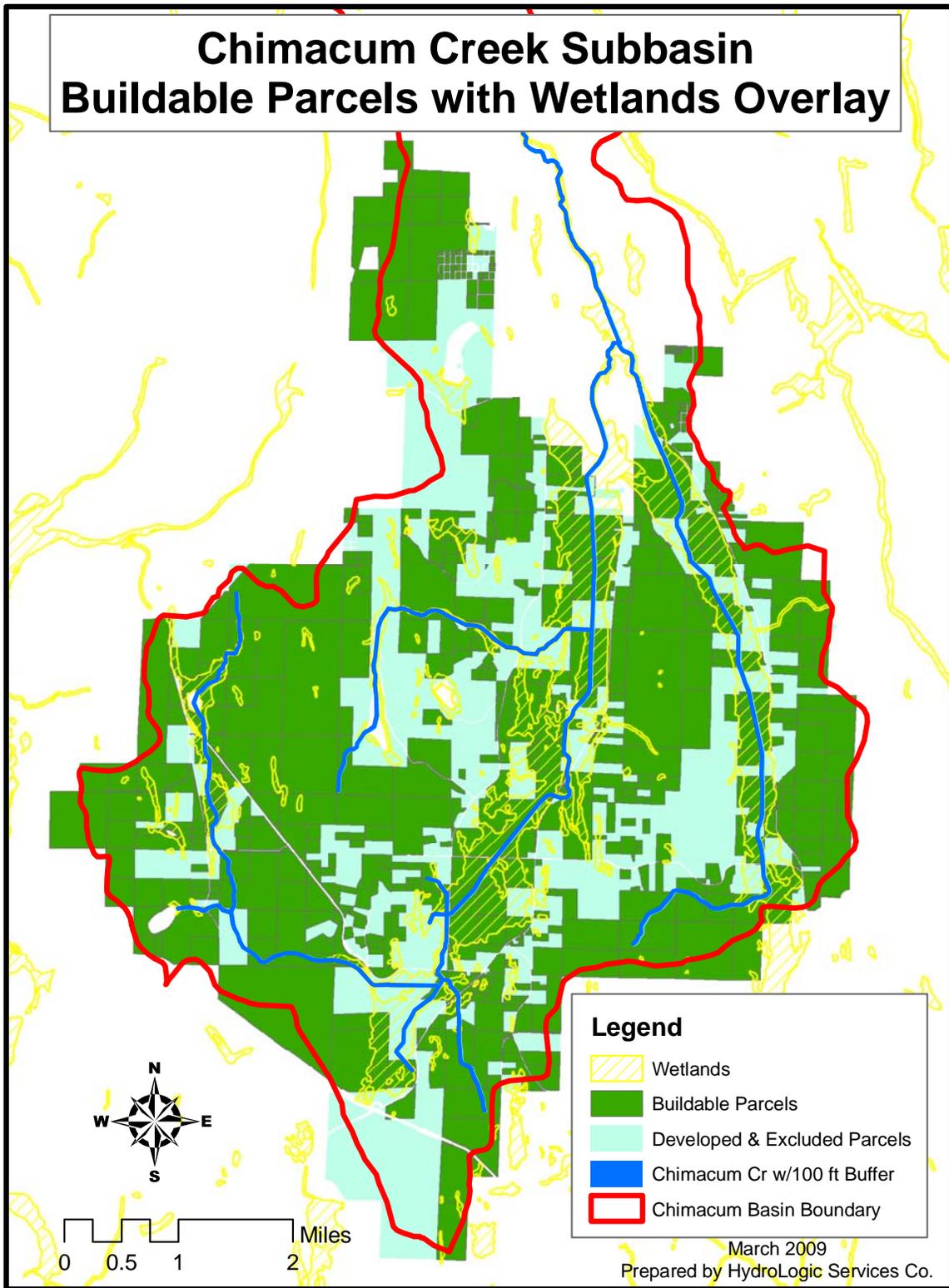


Figure 4: Buildable Parcels and the Potential Effect by Wetlands

From: Marguerite Glover [mailto:marg@sequim.com]
Sent: Monday, June 11, 2012 11:39 AM
To: Teren MacLeod
Subject: Our June 28th Public Hearing, on the Dungeness Water Rule

Teren MacLeod

Dear Teren,

Because you have been very active in rural issues, water issues, and land use issues--and, most especially, since you have followed, and given testimony, on the WRIA 17 Rule, I would like to invite you to come and speak (on the record), at the Public Hearing for our Dungeness Water Management Rule. I know that you are also following our Rule, and are versed in the economic and regulatory aspects of it. The hearing starts at 5 PM, with an open house. It is at the Guy Cole Convention Center, which is in Carrie Blake Park. At 6 PM, there will be a presentation about the proposed Rule, with questions and answers (these may or may not be "live" questions). Following that, will be the hearing. Thursday, June 28th.

All of the comments (including verbal ones) that Ecology receives at the hearing will become part of the official record; and, all of us have until July 9th, to make written comments.

I hope you can make it!

Thank you, Teren!

Sincerely,

Marguerite A Glover, Co-Chair
Sequim Assoc of REALTORS® Govt Affairs Committee



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Department of Ecology
Water Resources Program Attn: Ann Wessel
PO Box 47600
Olympia WA 98504-7600

RE: WRIA 17 Proposed Water Management Rule, WAC Chapter 173-517

Dear Ann:

The Jefferson County Association of REALTORS® (“JCAR”) is submitting this letter from its Government Affairs Committee in response to the Department of Ecology’s proposed Water Management (instream flow) Rule for WRIA 17. JCAR members have been involved with the formulation of this rule and related water resource issues for a number of years. We have a member on the planning unit, have planned and hosted a number of meetings to inform both our members and the public, and have taken out ads in the local newspapers to make sure that local residents and landowners are aware of the proposed Rule. As REALTORS® we know the beauty of the land and the value of the natural resources Jefferson County offers us as community members and our clients as land and home owners and buyers.

We agree that instream flow water resource issues should be addressed and believe that actions that actually improve streamflows and groundwater resources are the better approach. Regulations, where necessary, need to be clear and concise. As proposed by Ecology, we believe certain parts of the rule are beyond the agency’s statutory authority, conflict with other legal requirements, and will negatively impact homeowners, homebuyers, and the quality of life in Jefferson County. We also are concerned that some of the data used by Ecology is not accurate and that additional information on water resources and hydrogeology is necessary before adopting a final rule. Below we provide specific comments on a number of provisions in the rule.

1. Coastal Management Areas

Ecology has included a new concept called “Coastal Management Areas” within the proposed rule (WAC-173-517-130(1)), indicating that these are areas where future groundwater withdrawals could negatively impact the instream values of small streams, or contribute to the seawater intrusion. We believe that Ecology should be required to first show that there will be a negative impact from future water withdrawals in order to regulate these areas. Furthermore, we do not believe Ecology has a sufficient statutory mandate to regulate these areas under this section of the law. Regulatory authority over coastal area is found in the Shoreline Management Act, not the water code, and the SMA provides a more balanced approach involving both state and local shoreline regulation, as opposed to state-only regulations.

2. Regulation of the “Unnamed Stream”

The waterway indicated in the rule to be the “Unnamed Stream” is subject to additional restriction on groundwater withdrawals and well construction activities. The “Unnamed Stream,” however, is a series of drainage basins that do not interface with Discovery Bay, and fish passage and existence in the basins are not and have never been seen. We do not believe that Ecology has the statutory authority to regulate such an area.

3. Stream Flow Levels

The instream flow levels that would be set by the proposed rule are levels that have only been achieved by actual flow levels two times in the previous 80 years, in 1952 and 1958. This clearly exceeds Ecology’s statutory authority to adopt minimum instream flows by rule. Ecology’s authority to adopt minimum instream flow is provided in Chapter 90.22 and 90.54 RCW, and both provide authority to Ecology adopt only “minimum” or “base” flows. RCW 90.22.010 provides that Ecology “may establish minimum water flows or levels . . .” RCW 90.54.020(3)(a) states that rivers and streams “shall be retained with baseflows . . .” Ecology lacks authority to adopt instream flow levels that are not true “minimum flows” or “baseflows.” Ecology has defined “baseflow” as “that component of streamflow derived from groundwater inflow or discharge.” *Sinclair and Pitts, Estimated Baseflow Characteristics of Selected Rivers and Streams, Ecology Water Supply Bulletin No. 60, Pub. No 99-327 (October 1999).*

The meaning of “minimum flow” or “baseflow” has not been subject to court decision, however, the Attorney General’s Office has previously provided Ecology with legal interpretation of what these terms mean. In 1986, then Senior Assistant Attorney General Charles B. Roe provided an information opinion as to the extent of Ecology’s instream flow authority, based on both Chapters 90.22 and 90.54 and the legislative history of those acts:

. . . The intent was, simply stated, that streams with certain values were not to be dried up or reduced to trickles. Rather, flows, usually of an amount extending to a limited portion of a stream’s natural flow were to be retained in order to protect instream values of the stream from total relinquishment. Of import here, the thrust of the 1967 legislation was not designed to maintain a flow in excess of the smallest amount necessary to satisfy the protection and preservation values and objectives just noted . . .

Letter from Senior Assistant Attorney General Charles B. Roe to Eugene F. Wallace, Program Manager for Ecology Water Resources, February 20, 1986, at 8. (Attached as Exhibit 1).

Mr. Roe's analysis from 1986 still stands today, and is provided as legal authority on instream flows in the WSBA Real Property Deskbook, which further provides:

“The first determination is to provide for foundational ‘minimum flows’ (or ‘baseflows’) as contemplated by RCW 90.22.010 and RCW 90.54.020(3)(a). The second determination, reaching after conducting a ‘maximum net benefits’ test as described in RCW 90.54.020(2), focuses on whether an additional increment of enhanced flow should be provided above ‘minimum flows.’”

WSBA Real Property Deskbook, Water Rights (C. Roe) § 117.9(1)(b), p. 117-133, also citing Northwest Steelhead and Salmon Council et al. v. Ecology, PCHB No. 81-148.

The flow levels proposed by Ecology far exceed minimum or baseflows, and Ecology has not properly conducted a maximum net benefits test to justify selecting flow levels beyond minimum or baseflows. Due to this fact, Ecology needs to reevaluate this rule and set the levels and the related restrictions to levels that are historically achievable flows that are truly minimum or baseflows.

4. Serving a Water Right

In the cost benefit analysis included within the rule proposal, Ecology currently valued each and every adult spawning salmon at over \$5,000. The instream flow levels being what they are, we believe that the Department of Fish and Wildlife (WDFW) should be establishing opportunities to directly serve the new water right they are creating. Taking this action would be very beneficial for the DOE and DFW and would move the burden off of the rural land owner.

5. Impacts to Local Cottage Industry Agriculture

The Small Business Economic Impact Analysis (SBEIS) concludes that “there are very few businesses in the affected area of this Rule” and discussions with Tryg Hoff from Ecology has clarified that the document parameters consider only businesses that report income to the IRS. That being said, Ecology has shown in its analysis of WRIA-17, and particularly in rural areas, that most businesses are cottage industry and/or small sustainable agriculture on rural residential lands. These “businesses” were not looked at or considered in the SBEIS, a possible tax burden shift was not considered, and the loss of future agriculture was not valued. We feel that Ecology needs to revisit the SBEIS in order to make it more accurately reflect the nature of our local community.

6. Job Creation

Ecology's SBEIS concludes that as a consequence of adopting the instream flow rule, 819 new jobs will be created, including 384 jobs in the construction sector, and 20 jobs in real estate. We disagree with Ecology's assertion that a rule placing a fixed limit on the supply of water available for future growth in Jefferson County could result in a net gain of over 800 jobs. Ecology uses the fact that rule provides limited supplies of water to create a false baseline

against which to measure economic impacts. In the past, Ecology has informed the WRIA-17 planning unit that the rule restrictions are not based on a water shortage or over-allocation of water rights. We believe the number of purported jobs created is inaccurate because water is currently readily available and not water short. We believe the SBEIS needs to be changed to reflect this fact.

7. Previously Drilled Wells, Priority Dates, and Relation-Back Doctrine

The Hydrologic Services Co. (HSC) Build-Out Analysis (Attached as Exhibit 2) and the well data provided to Ecology from the Jefferson County Department of Health (Attached as Exhibit 3) shows there are several hundred wells that have been drilled in Eastern Jefferson County that have not yet been used for a beneficial domestic use. Many of these wells are in the Chimacum sub-basin and will be subject to no outdoor use after the rule is in place. We believe that the citizens who have drilled wells and done soils testing with the understanding that they would be able to develop their properties and have the opportunity for all the beneficial uses that a permit-exempt well provides under 90.44.050. In answering a query from the county as follow-up to a question from a landowner in the Chimacum sub-basin, Ann Wessel attempted to clarify Ecology's position on the impact of the instream flow rule on pre-existing wells, and how Ecology would determine the priority date of exempt wells, in the following:

“Your best assurance of establishing your water right under this exemption is to beneficially use water for the purpose you intend for the future. For domestic use, beneficial use is considered to occur when water is used within a permitted residential structure. Ecology prefers a Certificate of Occupancy for the residence to demonstrate domestic use of water.

The proposed rule establishes reserves of water that will provide water for new and previously unused permit-exempt wells for many years into the future. Based on the building permit record, we project each reserve will provide water through 2025. If alternative sources of water are not developed and available when the reserve is used up, there will likely be further restrictions on those who want to start using water at that time.

After the rule takes effect we will be coordinating with the County, tracking new building permits and applying the requirements of the rule to each new residence. This means we intend to debit the reserves and apply the conservation standard to each new user regardless of their using an individual or shared well.”

E-mail from Ann Wessel (Ecology) to Neil Harrington, Jefferson County DOH) , dated 7/2/09.

Ecology's conclusion that a water users priority and the right to use water is established only upon beneficial use is inconsistent with both the historical common law of water rights, and how the State Legislature codified the relation back doctrine. Ecology's current interpretation creates significant risk for lenders, homebuilders, and homebuyers and should be carefully examined and modified.

“The relation back doctrine was created under the principles of equity to allow an appropriator to receive as a priority date the date the appropriator first initiated the use of water and not later when the appropriation was completed. The ability to receive the early priority date depended on the appropriator's diligence in applying water to use.

An Introduction to Washington Water Law, Office of the Attorney General, January 2000, at III:27, citing RCW 90.03.340 and Hunter Land Co. v. Laugenour, 140 Wn. 558, 565 (1926).

The relation back doctrine is relevant to the process used to develop new housing in order to provide certainty to lenders, builders, and homebuyers. If the right to use water for domestic use is not actually obtained until the time of beneficial use, lenders and homebuilders are at significant risk that water may not be available. In the development process, the time from when a construction loan is issued to when the house is completed by a builder and then sold to a homebuyer can often take a number of years. During this period of time, the local government will have to determine whether water is available under RCW 19.27.097 in order for a building permit to be issued. The priority date for this type of project should relate back to when the project was first initiated, to protect the investments of the lender and builders, and so that consumers know that water will be available.

For permitting water rights, the relation back doctrine was codified so that the “date of filing of the original application” becomes the priority date. RCW 90.03.340. Because exempt wells require no application, the analogous point in time would be the notice of intent filed by a well driller. So long as the project is developed and completed with due diligence, the priority date should relate back to the date of the notice.

8. Shared Well Agreements

Shared well agreements are prevalent in the rural areas of WRIA-17. When one party in a shared well agreement is vested with beneficial domestic use and another is not, Ecology has asserted that the second party will be subject to the rule limitations. We believe that if a well predates the adoption of the instream flow rule, it is senior to the rule and therefore additional users or increases in use are not subject to the rule. Ecology’s position will create a situation where different users on the same well have different priority dates and requirements under the instream flow rule. This results in conflict among water users who have invested jointly in the development of water resources and who have a reasonable expectation of being able to use water.

9. Least Burdensome Option

The Least Burdensome Analysis does not explore all the possible ways in which the proposed rule could be imposed to find a true Least Burdensome option. The HSC study shows that in the Chimacum sub-basin, approximately 60% of undeveloped parcels in the area are zoned rural 1du/10 acres and 1du/20 acres. These are parcels that will be restricted to no outdoor watering, destroying the opportunity for our community’s future small farms and rural way of life. Ecology should look to find a way to truly create a Least Burdensome option that preserves the ability for landowners to engage in agricultural activities.

10. 1/10th of 1% Basis for Reservation in Chimacum Sub-Basin

The water reserve given to people in the Chimacum sub-basin is 1/10th of 1% of the flow level set in rule. In other areas that have been regulated under such rules, the reserve levels for people have not been nearly this minimal. We believe that it is beyond Ecology's authority to limit the amount of water to such an extreme degree and should be changed to allow greater flexibility for water users within the Chimacum sub-basin.

11. Conflict With Local Planning

By adopting this rule and limiting the number of households that can be allowed in certain areas of the County, Ecology is invalidating the growth projections and other aspects of the County's Comprehensive Plan required under Chapter 36.70A RCW, the Growth Management Act ("GMA"). Under the GMA, local governments are required to plan for future growth, including making sufficient land and zoning available to accommodate this growth. It is questionable whether under Ecology's rule that water will be sufficient for 20 years, and without question that at some point, Ecology's rule could prevent local governments from being able to accommodate population growth. Ecology's promise to reexamine water demands in the future provides little comfort.

By creating conflicts with the GMA that have not be reconciled or analyzed, Ecology's rulemaking process also violates the requirements of the Administrative Procedures Act, Chapter 34.05 RCW. Under the APA, Ecology was required to: (h) Determine if the rule differs from any federal regulation or statute applicable to the same activity or subject matter and, if so, determine that the difference is justified by the following:

- (i) A state statute that explicitly allows the agency to differ from federal standards; or
 - (ii) Substantial evidence that the difference is necessary to achieve the general goals and specific objectives stated under (a) of this subsection; and
 - (i) Coordinate the rule, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter.
- RCW 34.05.328

The GMA, local comprehensive plans and zoning, and Ecology's instream flow rule all relate to constraints on future population growth and land use. Even though the local comprehensive plan will be undermined by the proposed instream flow rule, Ecology has not analyzed whether this is "justified," or provided "substantial evidence that the difference is necessary." Further, there has been little progress in coordinating the rule with other state and local laws.

12. Livestock Watering

The proposed rule indicates in section WAC-173-517-190(b) that water for livestock is limited to "no greater number of stock that historically range that parcel." Ecology has no statutory authority to use instream flow rules to prevent landowners from increasing the number of stock at a piece of property, or to begin raising stock even though the property was not historically used for this purpose. We interpret this to be affecting water rights that are senior to the water right developed in this rule and clearly outside the statutory mandate of the Ecology.

More fundamentally, we question why Ecology would want to prohibit landowners from raising farm animals, which is an important part of our rural economy and way of life.

13. Impacts to Real Estate Consumers

Ecology's rule is premised on the collection, analysis, and distribution of significant amounts of data relating to water use, building permits, and other information. Neither Ecology nor local governments have the human resources necessary to actually implement all of the various details of the rule. Ultimately, this will create risks to real estate consumers. Under the Seller Disclosure Act, Chapter 64.06 RCW, sellers of residential real estate, both improved and unimproved, must provide buyers with a checklist responding to various questions about the property, including whether the property has water supply. The instream flow rule is so complicated that we do not believe average real estate sellers will have sufficient knowledge to be able to complete the seller disclosure form, which in turn creates significant uncertainty for real estate buyers.

14. Continued Support for Alternative Water Supply Studies and Options

One of our major concerns with the proposed rule is that it limits future water supply without any certainty that alternative water supplies will be made available. We acknowledge and appreciate the support provided by Ecology to the WRIA-17 Planning Unit for the USGS study and the ASR project. We support working towards a better understanding of water movement and alternative water supply options. Ecology's adoption of an instream flow rule will require continued work and funding on the part of the agency to examine future water supply options. Water availability for supply and storage options from the Big Quilcene River and the Chimacum Creek at certain high flow periods is an important beneficial use and tool that Ecology has allowed for in the proposed rule and must continue to pursue.

Thank you for your time and we look forward to your comments on the issues we have just raised.

Sincerely,

Teren MacLeod
Government Affairs Chairperson
Jefferson County Association of REALTORS®

Enclosures:

- 1 – 1986 Memo from Office of the Attorney General
- 2 – HSC Buildout Analysis
- 3 – Jefferson County Well Information



Small Business Economic Impact Analysis

Chapter 173-517 WAC

**Water Resources Program for the
Quilcene–Snow Watershed**

May 2009

09-11-015

This report is available on the Department of Ecology Web site at:
<http://www.ecy.wa.gov/biblio/0911015.html>

For a printed copy of this report, contact:

Name: Water Resources Program Publications
Address: PO Box 47600, Olympia WA 98504-7600
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Introduction

The Washington State Department of Ecology (Ecology) is proposing Chapter 173-517 of the Washington Administrative Code (WAC), Water Resource Program for the Quilcene-Snow Watershed, Water Resources Inventory Area (WRIA) 17.

The purpose of this Small Business Economic Impact Statement (SBEIS) is to identify and evaluate the various requirements and costs that the proposed rule might impose on businesses. In particular, the SBEIS examines whether the costs on businesses from the proposed rule impose a disproportionate impact on the state's small businesses. The Revised Code of Washington (RCW) 19.85.040 describes the specific purpose and required content of an SBEIS.¹

To meet Chapter 19.85 RCW, Ecology is developing and issuing this Small Business Economic Impact Statement (SBEIS) as part of our rule adoption process. Ecology intends to use the information in the SBEIS to ensure that the proposed rules are consistent with legislative policy.

Rule Proposal

The key elements of the proposed rule include:

- Setting instream flow levels in the watershed to protect aquatic resources, including habitat for threatened and endangered salmonids, and protect existing water users.
- Closing most subbasins to new year-round withdrawals.
- Establishing water reserves to provide a reliable water supply through 2025.
- Specifying conditions for accessing the water reserves to benefit in-stream resources and better manage limited supply.
- Establishing a conservation standard for new permit-exempt well withdrawals.
- Allowing rain catchment for onsite water use.

The proposed instream flows are designed to protect fish habitat. This makes less water available for future uses during low-flow portions of the year (July 1 through October 31). To provide a reliable, year-round supply of water for future uses, it is necessary to reserve water that would be available even when the instream flows are not met. To do this, RCW 90.54.020(3)(a) requires that Ecology determine that there is an Overriding Consideration of the Public Interest (OCPI) to establish reserves for future out-of-stream uses.

The proposed reserves give more access to reliable water supplies for permit-exempt uses in the watershed and permitted uses in three subbasins, consistent with RCW 90.54.020(8) and the Growth Management Act (GMA). The reserves ensure a year-round, reliable water supply to

¹ Due to size limits for filing documents with the Code Reviser, the SBEIS does not contain the appendices that further explain Ecology's analysis. Nor does it contain the raw data used in this analysis, or all of Ecology's analysis of this data. However, the rule-making file contains this information and it is available upon request.

meet demands estimated to occur through 2025. Future users of the reserves can obtain their water primarily from groundwater sources.

Water uses, established after the instream flow rule and that do not use reserves, are junior water rights and may be interrupted when instream flows are not met.

Analysis of Compliance Costs for Washington Businesses

We have assessed the impacts of the proposed rule by comparing water right management under the proposed rule to current practices. The current framework or “baseline” includes the use of water by permit-exempt wells (RCW 90.44.050) and any administrative procedures for considering applications for both new water rights and changes to existing water rights. Baseline administrative procedures include technical and legal review to ensure the proposed use meets flow protection requirements of Chapters 90.22, 90.54, and 90.82 RCW.

We provide a brief description of compliance requirements below. You can find further details of water management under existing practices and the proposed rule in the Cost Benefit Analysis.

Water Right Administration under the Proposed Rule

The proposed Chapter 173-517 WAC will create “instream flows.” Instream flows are water rights for in-stream resources. Once adopted, the instream flows would be protected from impairment by “junior” water rights—those with a later priority date. This means junior water rights must not further deplete surface waters when stream flows do not meet the instream flow levels. The instream flows will not affect senior uses established before the rule. Uses from the reserves will also have uninterruptible water rights.

Ecology and the Department of Fish and Wildlife negotiated the size of the reserves, established to provide water for permit-exempt well use. Water in the reserves would also provide water for new non-interruptible water rights in three sub-basins (Little Quilcene, Big Quilcene, and Thorndyke).

As well as setting the instream flows and creating reserves for new uses, the proposed rule clarifies other requirements that might affect future uses. We describe the expected changes to water management below. For more detail on changes to water right administration, see the Cost Benefit Analysis.

Surface Water

The proposed rule would close the watershed to further surface water diversions during periods of low flow. During such periods, water users wanting a new surface water right would need to either:

- Purchase or lease, and transfer an existing water right.
- Suspend water use during periods of low flows.

- Develop storage mechanisms.
- Develop strategies, acceptable to Ecology, to mitigate their impacts.
- Get a new water right from the reserve.

However, we do not expect the rule to have a large effect on those that cannot directly access the reserves. These users face similar obstacles to gaining new water rights under current practices. Absent rulemaking, all new surface water users would need to either mitigate or use stored water during periods of low flow.

Groundwater Permits

As with surface water, following adoption of the rule, Ecology can also make decisions on groundwater right applications similar to the baseline, except for permitted uses from the proposed reserves in three sub-basins. Applications for groundwater in hydraulic continuity with rivers and streams in WRIA 17 would be subject to flow conditions under the baseline or to the instream flows under the proposed rule.

As with surface water, there may be minimal effects to those water users not qualifying for the reserve, but Ecology does not expect such effects to change business practices. In particular, many small businesses may still be able to meet demands under the groundwater permit exemption and conservation standard². Groundwater users under the proposed rules are also able to avoid interruption by showing that their use is not in hydraulic continuity with closed surface water bodies.

Overall, the change in ground water permitting does not significantly affect businesses, unless they qualify for one of the reserves available water in Big Quilcene, Little Quilcene, or Thorndyke. The proposed rule will reduce the administrative costs of ground water permitting. The rule closes certain most ground water areas, making case-by-case hydraulic connection determinations unnecessary. Applicants can still make these determinations and seek permits via traditional means if they choose.

Permit-Exempt Groundwater Uses

Under the proposed rules, permit-exempt well users would gain an uninterrupted water use through the reserves and in coastal management areas. Although exempt from permitting under RCW 90.44.050, permit-exempt wells remain subject to all other state water laws. Permit-exempt well use can be shut off if it impairs senior water rights, although this has not yet occurred in WRIA 17. Nonetheless, permit-exempt well users remain susceptible to future curtailment if withdrawals result in impairment of a senior water right.

The proposed rule reserves water for future permit-exempt wells subject to a restricted conservation standard of use, but are not subject to interruption to protect the created instream

² In the state Ground Water Code, the “ground water permit exemption” allows for certain uses of small quantities of ground water; including domestic, industrial, stockwatering, and non-commercial irrigation of less than one-half acre of land. RCW 90.44.040, *See also* Washington Attorney General Opinion (2005 Op. Atty Gen. Wash. No. 17).

flows. The rule provides added assurances to small businesses that would rely on year-round water from permit-exempt wells.

Small businesses that locate outside a service area of municipal water suppliers are most likely to use permit-exempt wells.

Changes or Transfers of Water Rights

Ecology will continue to process changes or transfers of existing water rights as permitted by Chapters 90.03 and 90.44 RCW. The process is the same with the proposed rule as with the baseline, although future decisions would also consider the potential of impairing the instream flows.

Reserves of Water

The use of water under the reserves, and the conditions of use, are part of the proposed rule. The reserves will allow eligible water users the benefit of having a continuous, reliable source of water during low flow periods, with a few limits. These limits primarily include the finite quantity of the reserves and the restricted amount of the conservation standard, which is a condition of accessing the reserves. The proposed rule also requires measuring water use from the reserves.

Coastal Management Areas

The proposed rule establishes coastal management areas to protect streams too small for setting instream flows, but that still provide valuable salmonid habitat. Surface water and connected groundwater are closed in these areas, however, permit-exempt well use is allowed subject to the conservation standard. The proposed rule will allow eligible water users in coastal management areas the benefit of having a continuous, reliable source of water during low flow periods. There is no finite limit as in the subbasins with reserves. Measuring water use is also required as in the reserve management areas.

Impacts to Businesses in WRIA 17

The element of the proposed rule that will have the greatest financial impact on businesses is creation of the reserves of water for future uses. The reserves would make water predictably and reliably available for more out-of-stream uses than under the baseline. The proposed reserves can provide water for water systems and permit-exempt uses, even during low flow periods. Businesses located in the Big Quilcene, Little Quilcene, or Thorndyke subbasins, may also be able to secure a reliable water right, which would have been very difficult to do without the rule.

Some businesses may also rely on rainwater collection and use on site, as this use is allowed under the proposed rule.

The proposed rule will not directly affect existing water right holders and is likely to have a positive effect on most of the affected businesses. An exception to this would be businesses that use water in the river—such as canoeing and fishing businesses. There are also potential costs to

businesses from the conservation standard restricting permit-exempt well use and the requirements to measure new water uses. The possible impacts are described below.

Impacts to Businesses Dependent on Stream Flows

As stated above, the proposed rule creates a series of reserves. Accessing the reserves will allow entities to use water for various uses during low flow periods. In three subbasins, this will slightly reduce the amount of water in streams and could impact in-stream benefits such as ecosystem services, recreation, and so on. For farms that rely on stream flow for stockwatering, businesses that provide guide services such as fishing and bird watching, or those dependent on dilution for waste removal, there could be a very minor negative impact. Most impacts to businesses will be from gaining access to the volumes of water needed out-of-stream for the proposed future or expanding business, not from reduced stream flows.

Impacts to Existing Permitted Water Rights

Allowing access to water through the reserve could affect the value of existing permitted water rights held by some businesses. The exact effect will depend on the allowable use, volume, and point of diversion of the existing rights, the existing and desired uses, and the volumes needed. Ecology does not foresee any measureable impacts to existing water rights from this rule.

Costs to Firms and Required Professional Services

Businesses that depend on in-stream activities and potentially those that hold existing permits might incur very small impacts.

- The impacts to in-stream users would be specific to the firm, but is unlikely to be significant since few firms are dependent on instream flows.
- Existing water right holders could be impacted if the proposed rule resulted in changes to the value of their water right. This would ultimately only affect those that want to sell or lease a right, and only for the period until the reserves are fully allocated to new uses. The exact cost is difficult to determine since it depends on many factors and very few if any transfers would happen in this fashion.

Creation of the reserve will be a net benefit for most businesses that need water. Water being unavailable during low flow periods is damaging to any business that needs it for its own use or who are looking to develop residential or commercial properties. Allowing rainwater collection and use on site is also a benefit to some businesses.

For those that do not require water during low flow periods, an interruptible water right is an option under both the current practices and proposed rule in the Chimacum and Big Quilcene sub-basins.

In order to have water available during low flow periods under the baseline, uninterrupted water would have to be obtained through purchase, lease, transfers, or on-site storage. On-site storage for a low flow period can cost approximately \$0.75 per gallon for small water systems.³ This

³ <http://www.doh.wa.gov/ehp/dw/Publications/331-134-4-30-08.pdf>

would be typical for a residence connected to a public water system; the proposed rule avoids this cost for those using the reserves. For other users, the cost of storage would likely preclude it as an option. Businesses who are able to locate outside the water service areas in the watershed are able to get uninterrupted water with some restrictions and costs identified below.

Required Professional Services

Ecology anticipates no added professional services as a result of requirements from this rule. For water users qualifying for the reserves, the proposed rule reduces the need for small businesses to obtain consulting services. The proposed reserves make a reliable water supply available, without the expense and uncertainty of demonstrating water exists on a case-by-case basis. The same is also true for permit-exempt well use in the coastal management areas.

Costs of Equipment, Supplies, Labor, and Increased Administrative Costs

We expect no additional equipment, supplies, labor, or administrative costs from the proposed rule except from required metering. This would include the cost of a meter for their groundwater well and minimal labor for maintaining the meter and reporting measured water use.

Other Compliance Requirements

The proposed rule establishes a 500-gallon per day maximum and 350 gpd annual average conservation standard for the use of permit-exempt wells. Group domestic uses are limited to 5,000 gallons per day and the conservation standard for each residence. This standard applies throughout the watershed—including subbasins with reserves and the coastal management areas.

The proposed rule includes an exception to the conservation standard for new permit-exempt wells to be used for small commercial agriculture. The rule would limit such use to no more than 5,000 gallons per day (3,000 gallons per day in the Snow Creek subbasin). The proposed rule would only allow these new permit-exempt agricultural uses in the Salmon Creek and Snow Creek subbasins and most parts of the Miller and Quimper peninsulas.

Quantification of Costs and Ratios

It is the purpose of this section to evaluate whether:

- Compliance with the proposed rule will cause businesses to lose sales or revenue.
- The proposed rule will have a disproportionate impact on small businesses.

Revenue Impacts

As noted previously, the impacts of the proposed rule would be from the conservation standard on permit-exempt wells, required metering, decreased flows in the river, the creation of reserves, and allowing rainwater collection and use on site. Some potential losses to revenue we felt were could be dropped from consideration:

- The reduction of flows in three subbasins is unlikely to significantly affect any firms within the subbasins.
- Existing water right holders might see some loss in the value of existing water rights and this could lower revenues. However, this effect is likely to be relatively small.

Those firms that will be able to access water from the reserves will benefit from easier access to reliable water supplies. We estimate that summer flows will not meet the proposed minimum instream flows most years. New permits issued with stream flow conditions would be interruptible under the baseline, as under the proposed rules. Storage or mitigation would likely be required for all uses absent the reserves. In that sense, the rule will represent a negative cost (net benefit) to firms.

The net benefit to firms is the value of avoiding expensive storage, or purchasing or leasing water rights, or other mitigation options to access water during periods of low flow. This will likely lower costs to some potential water users and to that extent, may increase revenues.

Distribution of Compliance Costs

The distribution of compliance costs can be analyzed by evaluating those who would seek water under the permit-exempt well exceptions. To qualify for the reserve, those businesses would need to measure their water use and adhere to the conservation standard for permit-exempt wells. Local ordinances already require those businesses in municipal water services areas to hook up to a municipal supplier.

Small businesses could have added costs under the proposed rule if they pursue interruptible water rights in the Chimacum or Big Quilcene subbasins. However, gaining new allocations of water, that were not readily available before, would be a large net benefit.

Known Costs and Benefits

The rule would allow water rights to be issued from the reserves in the Big Quilcene, Little Quilcene, and Thorndyke subbasins. Businesses located in these subbasins may benefit from being able to obtain a permitted water right more easily. Under baseline conditions, few businesses were receiving additional permitted water rights in the watershed.

The rainwater catchment provisions may provide a benefit to small business. It provides an alternate source of water, of greatest benefit to those with a dry or contaminated well. Catchments can also provide additional water for landscaping.

Businesses wanting to use a new permit-exempt well are required to comply with the rule. These businesses must comply with the conservation standard and would have a total social cost of about \$1000 on average.⁴

⁴ Cost Benefit Analysis and “A Methodological Case Study of the Cost of Restricting Outdoor Water Use by Exempt Wells, Zhang, Shidong and Reich, Dave. Northwest Journal of Business and Economics 2005”

Businesses beginning new permit-exempt well uses and requesting water right permits from the reserves must measure their water use. Additional costs for buying and installing a meter for small water systems is estimated to range from \$400 to \$600.⁵ Ecology chooses to use \$500 per meter, including any reporting costs.

Costs Per Employee for Large and Small Businesses

There are very few businesses in the affected area of this rule. Ecology found 53 small businesses in the potentially affected industries in the watershed. For small businesses in these industries, the average number of employees is 2.5. For the top ten percent of potentially affected businesses, the average number of employees is 7.

Table 1. Proportional Costs to Businesses

	Estimated Costs	Average # of Employees		Cost Per Employee	
		Small Business	10% Largest	Small Business	10% Largest
Cost of the conservation standard, meters and reporting	\$1500	2.5	7	\$600	\$214

The highest cost per employee for small business is \$600, and for the top ten percent of large businesses is \$214.

Overall, the data suggests that the impacts of the proposed rule will impose disproportionate costs to the smaller businesses. However, there is clearly a very large net benefit to those who seek water and qualify for the reserve.

Conclusions

Only businesses needing new water supplies outside a public water service area or applying for a water right are required to comply with the rule. Businesses that choose to qualify for the benefits of the reserve or use a permit-exempt well in a coastal management area must measure their water use and may suffer a welfare loss adhering to the conservation standard. Those businesses that choose to seek water through this option would receive a net benefit of uninterrupted water. All businesses of all sizes that qualify to use the reserves will experience net benefits from the rule. When examining only the costs, the rule will have disproportional costs to small businesses.

Actions Taken to Reduce the Impact on Small Business

As noted above, it is unlikely that there will be significant adverse impacts on businesses (small or large) as part of this rulemaking compared to the baseline. Therefore, the proposed rule takes no specific measures to reduce or mitigate these rule impacts. In general, small businesses seeking reserved water through a permit-exempt well may have advantages over larger businesses with needs too large to be satisfied through a permit-exempt well.

Involvement of Small Businesses in the Development of the Proposed Rules

The proposed rules have been developed as an outcome of regular communication with a variety of stakeholders including:

- WRIA 17 watershed planning unit
- City of Port Townsend
- Jefferson County
- Jefferson County PUD #1
- Three Klallam Tribes
- Skokomish Tribe
- Clallam County
- Quilcene Chamber of Commerce
- Jefferson County Association of Realtors
- Jefferson County Water Utilities Coordinating Council
- WSU Extension Office.

This rulemaking was an open process allowing all entities to comment and take part in developing the rule. Those taking part included small businesses and organizations representing small businesses. Ecology will also hold public hearings after filing the CR-102 to allow small businesses to provide further input.

SIC Codes of Impacted Industries

No industries are required to comply with the proposed rules unless they seek to obtain new water right permits or permit-exempt water rights in the covered area. The following list shows Standard Industrial Codes (SIC) codes for existing developable properties in the Quilcene-Snow watershed.⁶ This serves as a representative sample of potential future businesses that may be affected.

**Table 1. Industries potentially affected by proposed rules
(North American Industry Classification System⁷)**

Agriculture, forestry, fishing and hunting	Code 11
Mining, Mineral extraction	Code 2123
Residential building construction	Code 2361
Nonresidential building construction	Code 2362
Manufacturing	Code 33
Health Care and Social Assistance	Code 62
Accommodation & Food Services	Code 72

⁶ Washington State Employment Security Department was the basis for this table.

⁷ Ecology has used NAICS codes rather than Standard Industrial Codes (SIC). It is a comparable system, used at the federal and state level, and has replaced SIC codes in common use.

Expected Jobs Created or Lost

Ecology recognizes three of the reserves can support substantially more households beyond the exempt uses in these reserves. These users will benefit primarily from uninterrupted water for domestic and other uses.

This extra water is capable of supporting 690 additional households with an uninterrupted water supply. Assuming \$50,000 revenue from construction of each household, this could generate revenues of \$34,500,000.

If further residential build out uses all of the water from the reserves, it could result in annual labor income of about \$25 million to the area. This could create 819 new family-supporting jobs in the Quilcene-Snow watershed. (See Table 2.)

Office of Financial Management's NAICS based input/output model⁸ provides estimates of interdependence among industrial sectors in the state. Each sector not only produces and sells goods or services, but also purchases goods or services for use within its production process. Ecology expects jobs created through the proposed rule in these areas:

Table 2.	
	Employment
Crop production	6
Animal production	2
Forestry and fishing	2
Logging	2
Mining	3
Electric utilities	2
Gas utilities	0
Other utilities	1
Construction	384
Food manufacturing	4
Textiles and apparel	1
Wood product manufacturing	5
Paper manufacturing	1
Printing	2
Petroleum and products	0
Chemical manufacturing	0
Nonmetallic mineral products manufacturing	11
Primary metals	1
Fabricated metals	4
Machinery manufacturing	1
Computer and electronic product	1
Electrical equipment	0
Aircraft and parts	0
Ship and boat building	0
Other transportation equipment	0
Furniture	2
Other manufacturing	3
Wholesale trade	14
Retail trade	85
Transportation and warehousing	11
Information	8
Finance and insurance	17
Real estate	20
Professional services and management	57
Educational services	10
Health services	67
Arts, recreation, and accommodation	16
Food services and drinking places	36
Other services	42
Total Employment	819

⁸ <http://www.ofm.wa.gov/economy/io/default.asp>

Appendix A. References

1. Department of Ecology Quilcene-Snow Watershed Planning website, <http://www.ecy.wa.gov/apps/watersheds/planning/17.html>
2. Huppert, Daniel, Gareth Green, William Beyers, Andrew Subkoviak and Andrew Wenzl, Economics of Columbia River Initiative, 2004
3. RS Means, Building Construction Cost Data, 55th Annual Edition, 1997

Appendix B. Net effects analysis

WRIA 17 rule matrix – net changes from new rule to Ecology’s existing regulatory practice

Rule Section	Summary of section	Net effect requiring analysis
WAC 173-517-010	Introduction and Purpose	N/A – provisions reflect current laws and background information
WAC 173-517-020	Authority and applicability	N/A – provisions reflect current laws
WAC 173-517-030	Definitions	Most definitions are consistent with agency practice and usage. Unique to this rule are definitions of commercial agriculture and outdoor irrigation See analysis of sections 130 and 150 below.
WAC 173-517-040	Compliance and enforcement	N/A – consistent with statutory requirements for compliance and enforcement
WAC 173-517-050	Appeals	N/A – provisions reflect current laws
WAC 173-517-060	Regulation review	N/A – provisions reflect current agency practice
WAC 173-517-070	Maps	N/A
WAC 173-517-080	Establishment of stream management units	N/A – see analysis for section 090, below.
WAC 173-517-090	Instream flows - establishes monthly instream flow values in 13 streams, for the stream management units and at the control points established in section 050	<p>The rule codifies current permitting practice and statutory obligations for water right permitting.</p> <p>Under the Water Resources Act of 1971, Ecology currently has a legal obligation to maintain water quantities sufficient for the preservation of the natural environment.</p> <p>Current practice for water right permitting includes assessing impacts to flows for all new water rights. Applicants must either demonstrate that flows will not be affected or must mitigate any impacts to flows.</p> <p>-----</p> <p>The rule creates a new conservation standard for permit-exempt well use. See analysis for section 120, below.</p>
WAC 173-517- 100	Closures – closes all streams	Surface Water Source Limitation (SWSL) letters

	and connected ground water	from WDFW administrative close many streams in WRIA 17: Chimacum, Little Quilcene, Salmon, Snow, Tarboo, Contractors, Tommy (Donovan), Andrews (Crocker Lake), and 1 unnamed stream flowing into Port Ludlow.
WAC 173-517-110	Future new water use – generally – this section outlines exceptions to closures and how water rights may be approved in the future	See below for analyses of individual exceptions for coastal areas, interruptible water, and reserves Allows use of rooftop rainwater– relies on site-specific analysis of impacts to authorize the use of rooftop rainwater through the rule. The baseline is that de minimus use of rain barrels is allowed without a permit, and whether permit is or is not required for greater use is ambiguous.
WAC 173-517-120	Conservation Standard for permit exempt well use – establishes a 500 gpd maximum limit and 350 gpd average annual for permit exempt well use. Water use up to 5,000 gpd is allowed if a user can mitigate.	Establishes a new limit on permit exempt well use that applies in most areas (see exceptions, below). Also creates new requirement to mitigate for water use between 500 and 5,000 gpd, if more than 500 gpd is desired. Without rule new wells may use up to 5,000 gpd, but actual use typically much less, therefore, most new uses will not be affected. Water use information for residential use in this area is in the range of the conservation standard. There is also fairly strong demand for commercial agricultural use of permit-exempt withdrawals in this area. Without the rule new permit-exempt well withdrawals could use up to 5,000 gpd. See separate analysis for hydrologic benefit to streams and benefits to fish of this use restriction. See also sections 130 and 150, below.
WAC 173-517-130	Designates coastal management areas – and sets management standards for water use in these areas - Requires connection to public water supply, if available, except in the Port Townsend service area - limits permit exempt wells to the conservation standard	N/A – no analysis required, consistent with local codes - without rule new wells may use up to 5,000 gpd, rule restricts new withdrawals to the conservation standard except for Miller and

	- Miller and Quimper peninsulas – agricultural use up to 5,000 gpd allowed outside of designated areas.	Quimper peninsulas. - without rule other types of uses could use up to 5,000 gpd, and agricultural use of exempt wells would not be limited to these 2 areas. Commercial agriculture defined very broadly in the rule.
WAC 173-517-140	Future appropriations for interruptible use - defines when and where future interruptible uses may occur	N/A – closure with the exception for interruptible uses is consistent with existing regulatory practices. The open periods for Big Quilcene and Chimacum match the seasonal high flow when water is available. The limit on the maximum allocation is consistent with the statutory obligation to protect instream resources, in this case channel forming flows. Conversely the seasonal closures on these streams are consistent with low flow periods when mitigation would be required.
WAC 173-517-150	Reserves of water for future use. The rule establishes reserves in 13 sub-basins. See table	See Table for reserve sizes, uses of reserves and approximate # of households that could be served with reserves. Rule allows for year-round use for water that ordinarily could only be issued on an interruptible basis. Use of reserves generally restricted to any permit-exempt withdrawal, exceptions include: water available for future water rights in Big Quilcene, Little Quilcene and Thorndyke subbasins; and portions of the reserve in Salmon, Snow and Big Quilcene are allocated for agricultural use of exempt wells. Rule establishes restrictions on permit-exempt withdrawals to protect instream flows. Chimacum sub-basin is a special case, because we cannot justify a traditional reserve, an interim 0.1% reserve is established and no outdoor irrigation is allowed – until another source of water is found for mitigation. In addition, if the USGS ground water model identifies places where withdrawals will not affect flows, rule will allow new withdrawals with no restrictions in those places. Analysis needed: Compare value of protection of instream resources to cost of conservation standards. Compare out-of stream and instream value of allocated water.
WAC 173-517-160	Accounting for use under the	See section 150

	reserves	
WAC 173-517-170	Lakes and Ponds	N/A – consistent with statutory requirements
WAC 173-517-180	Measuring water use – metering required for all new uses, including permit-exempt withdrawals	Analysis required – cost to install, maintain, and read meters, and report data to Ecology.
WAC 173-517-190	Conveying stockwater away from streams	N/A - provisions reflect current agency practice. Rule codifies existing program policy.
WAC 173-517-200	Future surface water withdrawals for environmental restoration – describes what projects qualify as environmental restoration projects (one of the exceptions to closure)	N/A – exception for environmental restoration projects is consistent with existing agency practice. Criteria used in rule is consistent with agency practice
WAC 173-517-210	Out of sub-basin water use. Rule requires additional public meeting and report on possible harm to public interest of applicants that propose using water in a different sub-basin.	Analysis required –cost of additional public meeting and report to greater protection of public interest.

From: Teren MacLeod [<mailto:teren@ptproperty.com>]
Sent: Monday, July 09, 2012 8:04 AM
To: awes461@ecy.wa.gov
Subject: Written testimony - WRIA-18, JCAR

Jefferson County Association of REALTORS®
Community & Government Affairs Committee
219 W. Patison Street
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July 9, 2012

Ms. Ann Wessel
Washington Department of Ecology
Bellingham Field Office
1440 – 10th Street Suite 102
Bellingham, WA 98225-7028
RE: Dungeness River Water Management Rule Proposed WAC 173 – 518

Dear Ms. Wessel:

This written testimony amplifies the verbal testimony provided from the Jefferson County Association of Realtors® (JCAR) at the June 28th Public Hearing on the proposed Water Management Rule in WRIA-18. This testimony is made by invitation and cooperation with the Sequim Association of Realtors (SAR) and the Washington Realtors (WR). As co-Chair of the Community and Government Affairs Committee for JCAR, we find that many issues and concerns that are being faced here in the proposed Rule for WRIA-18 are remarkably similar to what was and is being experienced in WRIA-17 – in fact, the comments provided to Ecology during the Public Hearing process for the Rule in WRIA-17 have many salient points that can and could and should be applied here, in particular, numbers 3-7, 9, 11 and 12.

While not speaking for the East Jefferson Watershed Council (EJWC), I have also served for 7 years as the Realtor member for EJWC, previously known as the WRIA-17 Planning Unit. In a similar capacity, Marguerite Glover has been a long-time participant (to the extent allowed by the Ecology process in 18) in water and community issues in the Dungeness.

I ask that this testimony also include all formal testimony made by JCAR for WRIA-17 (attached), as well as be received in support of testimony made by SAR and WR to Ecology for the proposed Water Management Rule adopted in WRIA-18 (attached).

The Rule in WRIA-17 created reserves for future water use in many sub-basins. The Chimacum sub-basin saw severe restrictions to water and land use for homes and future agricultural.

Now, no new water is allowed for outdoor gardens and growing food in this, our primary farming area. A study conducted by Hydrologic Services (attached) showed that full build-out of the basin would have a consumptive use of only .3 cfs from permit exempt wells – very similar to water demand projections for the Dungeness - and only a small fraction of the water “right” provided to the streams for instream flow.

While both WRIs are administratively deemed “water-short” and considered critical for fish habitat in terms of water availability, there is much to indicate that actual wet water is available and even plentiful at times. In Chimacum, and in the Dungeness, there is much good news that is not being considered.

A book from the Instream Flow Council (Integrated Approaches to Riverine Resource Stewardship) uses the Dungeness as one of its case studies. It shows 150 cfs used for irrigation in 1979, down to 56 in 2001. With less and less water being used, .3 cfs should be available to the community for future reasonable development without concern.

Rules are not supposed to cost more than the benefit they provide. Ecology has opted to conduct a cost-benefit analysis and small business economic impact study here and in 17. These economic analyses are required to meet a certain standard and meet the maximum net benefits test. They are required to show real costs and benefits, and we, the public, are meant to see and be able to understand those real costs and benefits.

An internal Ecology e-mail suggests the draft Rule for 18 is “upside down by a massively negative cost benefit ratio.” This does not seem to be an isolated case. In WRIA-17, each returning salmon was valued at \$5,000 over a 16 year life span. That same study, the SBEIS for 17, showed, as a benefit, 819 jobs created from the Rule, with 384 in construction! We have instead experienced a steady decrease.

Questions regarding this and other outlandish presumptions were raised by many voices in the proposed Rule process in WRIA-17, by JCAR as well as other organizations and individuals. Information to qualify or quantify the reasoning behind these presumptions was never made available. Clear questions were asked, stemming from the need to provide information back to our members on matters that were, and continue to be, very difficult to understand and explain.

The Concise Explanatory Statement that is required from questions raised in the hearing process is not provided until Rule adoption, with the CR-103. We believe this practice needs to be changed in statute so that formal answers are provided during the hearing process and the CR-102, to allow time for *responsiveness modification* for the proposed Rule prior to the end of the formal comment period.

We ask that you withdraw the proposed Rule and go back to the drawing board for WRIA-18 to develop more information that is understood and available. We ask

that you re-consider the Rule in WRIA-17, particularly as it relates to the draconian restrictions now in place in the Chimacum sub-basin.

We ask that the science used in the stream assessments and water demand studies be peer-reviewed independently to ensure that real and replicable numbers are being used and provided as a basis for the reasoning behind the Water Management Rules and related impacts to communities.

We also ask that the economic impact analyses be independently reviewed and acknowledged, and be reflective of the unique nature of the communities they engage. A full SEPA review should be required.

Sincerely,

Teren MacLeod
Co-Chair, JCAR CGAC

**Attachments to e-mail to Support Testimony in
WRIA-18 Proposed Water Management Rule**

Hydrologic Services Co. – Build-Out Analysis (WRIA-17) (3/9/2009)

Preliminary Cost Benefit, Maximum Net Benefit and Least Burdensome Analyses

Chapter 173-517 WAC

Water Resources Program for the Quilcene-Snow Watershed

Water Resources Inventory Area (WRIA) 17

May, 2009

09-11-014

Small Business Economic Impact Analysis

Chapter 173-517 WAC

Water Resources Program for the Quilcene-Snow Watershed

May 2009

09-11-015

Jefferson County Association of Realtors – WRIA-17 Testimony (7/10/2009)

Testimony – Ag and Natural Resources Committee (1/15/2010)

E-Mail invitation from SAR (6/11/2012)

Washington Realtors/Sequim Association of Realtors Comments (from initial draft and for proposed Rule)



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Realtor Funded Study of the Chimacum Sub-basin Provides Full Build-out Analysis for Review

A draft report presented to the WRIA-17 Planning Unit shows how and where full build-out of the Chimacum sub-basin could occur, given current land use and zoning, and estimates the corresponding water usage. The Washington Realtors® (WR) funded study is helping to identify the actual potential for development in the sub-basin, as a critical piece in understanding how the proposed Water Management Rule (previously referred to as the Instream Flow Rule) would alter development patterns currently allowed in the county's comprehensive plan. The study was conducted by Joanne Greenberg, hydrologist and principal of HydroLogic Services Company (HSC) based in Bellingham, Washington.

Ms. Greenberg had previously conducted a permit-based analysis for the Department of Ecology (DOE) based on building permits issued from 1990 to 2006. The study assumed similar activity in building permits from now to 2024, and indicated over 1300 new homes could be built in the Chimacum sub-basin. Questions regarding those assumptions and subsequent numbers prompted this analysis, based on the actual zoning and land use in the sub-basin.

HSC's analysis showed 481 parcels with the potential for 597 new homes, encompassing 71% of the land mass and 20,325 acres, not including the PUD service area. Much of the undeveloped land in Chimacum is in Rural Residential 1:10 and 1:20, with Prime Agriculture and Commercial Forestry also showing a significant percentage. Residential 1:5 zoning accounts for only 4% of the yet undeveloped homes on buildable parcels at this time.

Ms. Greenberg, putting that in water terms, remarked, "The full build-out of the sub-basin would require 0.32 cfs (cubic feet per second) additional water supply with a net loss or consumptive use of 0.11 cfs to the Chimacum sub-basin hydrologic system, which translates to 71,128 gpd (gallons per day). This allows for 350 gpd for each household and assumes 65% return from in-house use via septic systems and outside water use for lawns and gardens." This compares to the 10 cfs being allotted to the stream in low flow months in the draft flow rule for the Chimacum Creek, which translates to 6.5 million gpd.

The study was initiated by local Realtor, Teren MacLeod, who, as a member of the WRIA-17 Planning Unit and Government Affairs chair for the Jefferson County Association of Realtors (JCAR) recognized the need for a more thorough analysis of future growth trends as it relates to water use and the proposed rule limitations. Teren commented, "We are aware of the trend locally for small sustainable agriculture on rural residential lands. We also understand the importance of local food production and security. I believe we all need to understand the impacts of the rule as it relates to our future needs as a community, and to become more sustainable here on the peninsula."

Washington Realtors funding of this local government affairs program was an essential element in getting the work done, and continues to assist in education and awareness for issues of local import. Bill Clarke, WR Public Policy Director, said, "We see information as key, and encourage, wherever possible, policy decisions based on facts rather than suppositions. We were pleased to support the study for the WRIA-17 Planning Unit."

A Realtors' Friday Forum on April 3rd will offer an opportunity for presentation of the study to the public, JCAR members and affiliates; as well as hear from Jack Westerman and other pertinent guests on the affects the proposed rule might have in east Jefferson County. These Forums, held the first Friday of each month at 9 am at WSU offer ample time for questions on issues of importance to our community.

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Attached file – Final Draft Build-Out Analysis from HydroLogic Services Company

Note: 597 homes X 350 gpd = 208,950 gpd; w/65% return flow, the 35% consumptive use is 73,132 gpd. A slightly different number than above due to conversions and rounding.

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[Sent via e-mail to cyne461@ecy.wa.gov]

January 4, 2010

Cynthia Nelson
Washington Department of Ecology
PO Box 47600
Olympia WA 98504-7700

**RE: Initial Comments on Draft Version of WAC Chapter 173-518
Dungeness Instream Flow Rule**

Dear Cynthia:

Washington REALTORS® represents the interests of approximately 18,000 members and their clients on matters relating to the development and transfer of residential and commercial real estate. We appreciate the opportunity to submit initial comments on Ecology draft version of WAC Chapter 173-518, the proposed Dungeness Basin Instream Flow Rule ("ISF Rule"), and request that our comments be included in the agency's rulemaking record.

As you know, the proposed ISF Rule, and the recently adopted WAC Chapter 173-517 instream flow rule for the Quilcene basin are of great concern to our local members. This letter includes comments on the rule language as well as suggestions on analysis that should be conducted during the formal rulemaking process.

1. Proposed Flow Levels Are Not "Minimum Flows" and Exceed Ecology's Statutory Authority.

Ecology's authority to adopt minimum instream flow is provided in Chapter 90.22 and 90.54 RCW, and both provide authority to Ecology adopt only "minimum" or "base" flows. RCW 90.22.010 provides that Ecology "may establish minimum water flows or levels . . ." RCW 90.54.020(3)(a) states that rivers and streams "shall be retained with baseflows . . ." Ecology lacks authority to adopt instream flow levels that are not true "minimum flows" or "baseflows." Ecology has defined "baseflow" as "that component of streamflow derived from groundwater inflow or discharge." *Sinclair and Pitts, Estimated Baseflow Characteristics of Selected Rivers and Streams, Ecology Water Supply Bulletin No. 60, Pub. No 99-327 (October 1999).*

The flow levels proposed by the ISF Rule are contrary to the statutory authority granted to Ecology to set flows. A 1986 client advice letter from the Office of the Attorney General to Ecology describes the extent of Ecology's instream flow rulemaking authority. Notably, this letter was written by Senior Assistant Attorney General Charles B. Roe, a preeminent water lawyer and original drafter of the statutes in question. The opinion of the Attorney General's Office, was as follows:

. . . The intent was, simply stated, that streams with certain values were not to be dried up or reduced to trickles. Rather, flows, usually of an amount extending to a limited portion of a

stream's natural flow were to be retained in order to protect instream values of the stream from total relinquishment. Of import here, the thrust of the 1967 legislation was not designed to maintain a flow in excess of the smallest amount necessary to satisfy the protection and preservation values and objectives just noted . . .

Letter from Office of the Attorney General to Eugene F. Wallace, Program Manager for Water Resources, dated February 20, 1986, at 8.

The Attorney General letter further describes a two-step process under which flows that may be higher than a true minimum flow may be adopted through a "maximum net benefit" legal framework. The two-step maximum net benefit process is described (again, by Mr. Roe) in the Washington State Bar Association's Real Property Deskbook:

Of import here, the 1967 and 1971 legislation was not designed to maintain a 'minimum' flow in excess of the smallest amount reasonably necessary to satisfy the protection and preservation of such values. It was not, however, the legislative intent to preclude [Ecology's] power, in appropriate factual situations, to establish higher or 'enhanced' instream flows than those established under the minimum flows provided by RCW 90.22.010.

WSBA Real Property Desk Book, Water Rights, § 117.9(1)(b), p. 132-133.

The PCHB has also confirmed that instream flows are to be minimum flows, which may be increased only through the two-step maximum net benefits test – i.e., that the initial flow level is a true baseflow, not an optimal fish flow:

"Tacoma first urges that base flows may not be set at levels which provide the optimum flow regime for fish. We agree . . . "

PUD No. 1 of Jefferson County et al. v. Ecology et al., PCHB No. 86-118 (1988).

Perhaps more importantly, the PCHB has also concluded that Ecology's instream flow authority enables it only to protect existing instream flows, not establish flows beyond actual flows to provide a "restoration" level of instream flow protection:

The optimum fish flows adopted as base flows by Ecology are also inconsistent with the statutory authorization for base flows. Base flows, as authorized at RCW 90.54.020(3)(a), are those 'necessary to provide for preservation of' fish and related values. The term 'preservation' is not specifically defined, nor ambiguous. . . the term 'preservation' means 'the act of preserving' . . .

The evidence in this matter is that the optimum fish flows adopted as base flows enhance fish habitat beyond that provided by the river in its natural state. This is inconsistent with the statutory plan that base flows 'keep safe' or preserve fish habitat, rather than enhance it.

Id.

The proposed instream flow levels for the Dungeness River far exceed actual flow levels, and are not minimum flows. Specifically, the proposed flows for August, September, and October are 180 cfs. Using the date of September 1, this flow level has only been reached once since 2000.

Year	USGS Flows for Dungeness River
2009	112 cfs
2008	166 cfs
2007	148 cfs
2006	140 cfs
2005	99 cfs
2004	173 cfs
2003	157 cfs
2002	96 cfs
2001	148 cfs
2000	200 cfs

See <http://waterdata.usgs.gov/nwis/uv?12048000> (USGS flow gauge data for Dungeness River).

2. Exempt Well Withdrawals Are Not Causing Significant Impact on Streamflows.

Like in other instream flow rules recently adopted by Ecology, an underlying assumption is that impacts to streamflows have been directly caused by increased reliance on exempt groundwater wells that capture groundwater that otherwise would provide instream flow. While wells of a certain depth and location will capture groundwater that provide baseflow, the presumption that all wells must be regulated to protect surface water flows is not supported by the specific hydrogeology in WRIA 18.

While certain documents relating to the ISF Rule assume that the reliance on exempt wells over the past 30 years has caused instream flow impacts, actual flow data does not support this presumption. Specifically, see flow data again for September 1 for the period of record from 1937 to 1948:

Year	USGS Flows for Dungeness River
1948	162 cfs
1947	146 cfs
1946	237 cfs
1945	143 cfs
1944	97 cfs

1943	174 cfs
1942	140 cfs
1941	212 cfs
1940	162 cfs
1939	156 cfs
1938	160 cfs
1937	174 cfs

The flow levels on September 1 for this historical period of record are similar to actual flows on September 1 from the past decade – in spite of the increasing reliance on exempt groundwater withdrawals that appears to be a cause of Ecology’s concern for streamflows. While a short answer may be that changes in irrigation practices toward more efficient irrigation diversion and delivery methods has resulted in streamflow improvements that more than offset any groundwater withdrawal impacts, the reality is that far more will be done to protect streamflows by focusing efforts on continuing to improve the efficiency of all surface and groundwater diversions.

3. Proposed ISF and Consistency with Local Land Use Plans and Zoning – Further Analysis of Land Use Conflicts is Required.

REALTORS® are greatly concerned that the availability of water in the proposed ISF Rule is inconsistent with land use plans and zoning adopted at the local level. Throughout WRIA 18, our members have assisted clients with transactions in which future development of vacant parcels relies on the use of exempt wells. Hundreds of such parcels of developable land exist within WRIA 18, and are part of Clallam County’s land use plan adopted under the Growth Management Act. While the owners of these parcels believe water will be available in the future, the reality is that the groundwater reservations in the proposed ISF Rule will result in unbuildable lots, causing a severe loss of value to ordinary citizens.

One of the ironies of the conflict with land use plans and zoning created by Ecology’s proposed ISF Rule is that it is the exact conflict that the Legislature sought to avoid through the watershed planning process – a process implemented in WRIA 18. Under RCW 90.82.070(1)(e), each watershed plan shall include “an estimate of the water needed in the future for use in the management area.” Because the watershed plan was developed for WRIA 18 and approved by the Clallam County Commissioners, this information should be put to use. Specifically, Ecology should review the amount of water necessary to implement the County’s land use plan and ensure that sufficient water is made available to avoid a conflict between its own ISF Rule and the Growth Management Act.

A meaningful analysis of the future conflict between ISF rules and local land use plans has been notably absent from the recent ISF rules adopted by Ecology. This is unfair both to the local governments who have spent significant time and expense to complying with the planning requirements of the GMA, and to local landowners who have purchased vacant land that at the time of purchase was buildable – but in the future may not be because of the limited water reservations in the ISF Rule. REALTORS® request that during the formal rulemaking period, Ecology provide a meaningful analysis of whether the water available for future domestic use in WRIA 18 will allow for implementation of local land use plans based on existing zoning.

We don't believe this is asking much – in fact, the Administrative Procedures Act already requires it. Under the APA, Ecology is required to “coordinate the rule, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter.” RCW 34.05.328(1)(i). The primary regulatory impact of the proposed ISF Rule will be to limit or condition rural development in certain areas of WRIA 18. Obviously, this is the same “activity or subject matter” regulated by the GMA itself, which requires local governments to adopt a comprehensive land use plan specifically including a “rural element” that allows rural development consistent with rural character.

At this point, we don't see how the proposed ISF Rule is coordinated at all with the county's comprehensive plan or with the specific zoning that has been adopted in many parts of the county. For example, some of the limited groundwater reservations provide enough water only for 2 or 3 additional exempt wells to be drilled – far short of the number of buildable lots in those sub-basins. If Ecology is going to adopt a regulation that renders a significant number of lots unbuildable or imposes mitigation requirements on those lots, Ecology should be straightforward with those landowners about the future impact of its regulation.

Finally, Ecology failure to provide sufficient water supply through the proposed ISF Rule violates RCW 90.54.020(5), one of the fundamental requirements of the state's Water Resources Act. This provisions states that “Adequate and safe supplies of water shall be preserved and protected in potable condition to satisfy human domestic needs.” The policy enacted by the Legislature that adequate potable water for human domestic needs “shall be preserved and protected” could not be stated more clearly. An ISF Rule that violates statutory authority by adopting more than minimum flows while failing to provide sufficient water for future domestic uses clearly violates the Water Resources Act.

4. Ecology Must Conduct Accurate Small Business Economic Impact Statement and Cost Benefit Analysis of Proposed ISF Rule.

Under the APA, Ecology is required to conduct both a Small Business Economic Impact Statement (SBEIS) and Cost-Benefit Analysis. REALTORS® ask that unlike the recent SBEIS and cost-benefit analysis conducted in the WRIA 17 rulemaking, that the analysis for the proposed ISF Rule specifically analyze (a) negative economic impacts to construction and real estate caused by limiting the water available for domestic use; (b) increased development costs associated with mitigation plans; (c) reductions in property value to landowners; and (d) lost local and state tax revenues associated with unbuildable property.

We hope that Ecology's economic analysis in WRIA 18 will avoid whatever methodology resulted in the extremely dubious conclusions in WRIA 17. For example, the WRIA 17 analysis concluded that as a consequence of adopting the instream flow rule, 819 new jobs will be created. For example, 384 jobs would be created in the construction sector, and 20 jobs in real estate. It is absurd for Ecology to assert that a rule placing a fixed limit on the supply of water available for future residential growth would result in a net gain of over 800 jobs, and specific gains in residential construction and real estate that would not occur otherwise. While we understand that the role of an agency in rulemaking is to produce analysis that defends the agency decision, the conclusion that instream flow rules actually create jobs in real estate and construction that would not exist absent the rule does not pass the straight face test.

5. Under Washington Water Law, Priority Date for Exempt Wells, Like Other Beneficial Uses, Must Be Based on Relation-Back Doctrine

Ecology's draft ISF Rule states that the priority date for exempt wells will be the date that water is put to beneficial use. Proposed WAC 173-518-070(4) states as follows: "The priority date of a withdrawal under the permit exemption in RCW 90.44.050, is the date upon which water is first put to beneficial use."

Ecology's conclusion that a water users priority and the right to use water is established only upon beneficial use is inconsistent with both the historical common law of water rights, and how the State Legislature codified the relation back doctrine. Ecology's current interpretation creates significant risk for lenders, homebuilders, and homebuyers and should be carefully examined and modified.

"The relation back doctrine was created under the principles of equity to allow an appropriator to receive as a priority date the date the appropriator first initiated the use of water and not later when the appropriation was completed. The ability to receive the early priority date depended on the appropriator's diligence in applying water to use.

An Introduction to Washington Water Law, Office of the Attorney General, January 2000, at III:27, citing RCW 90.03.340 and Hunter Land Co. v. Laugenour, 140 Wn. 558, 565 (1926).

The relation back doctrine is relevant to the process used to develop new housing in order to provide certainty to lenders, builders, and homebuyers. If the right to use water for domestic use is not actually obtained until the time of beneficial use, lenders and homebuilders are at significant risk that water may not be available. In the development process, the time from when a construction loan is issued to when the house is completed by a builder and then sold to a homebuyer can often take a number of years. During this period of time, the local government will have to determine whether water is available under RCW 19.27.097 in order for a building permit to be issued. The priority date for this type of project should relate back to when the project was first initiated, to protect the investments of the lender and builders, and so that consumers know that water will be available.

The structure of the mitigation requirements in the proposed ISF Rule further require that the priority date should be based on the relation back doctrine. The proposed ISF Rule would mandate that mitigation plans include financial assurances such as bank letters of credit, a cash deposit, negotiable securities, savings certificates, or surety bonds. *See Proposed WAC 173-518-080.* Even though such assurance would be provided by water users, Ecology appears to offer to no security in return – the priority date is part of the assurance to lenders and buyers as to the validity of water supply and viability of the project. Ecology should not impose costly and complicated mitigation requirements and yet be unwilling to provide regulatory assurance in return.

For permitted water rights, the relation back doctrine was codified so that the "date of filing of the original application" becomes the priority date. RCW 90.03.340. Because exempt wells require no application, the analogous point in time would be the notice of intent filed by a well driller. So long as the project is developed and completed with due diligence, the priority date should relate back to the date of the notice.

Further, Ecology's conclusion in the proposed ISF Rule that the priority date of an exempt withdrawal is the date of beneficial use is inconsistent with how it has dealt with the same legal issue in other instream flow rules. For example, in Chapter 173-503 WAC, the Skagit Basin Instream Flow Rule, the rule provides that exempt withdrawals based on a reservation of water have a priority date of the date of rule adoption when the water reservation was established. For other exempt withdrawals, the

Skagit Instream Flow Rule does not provide a date of priority. This is likely correct, since the exact priority date of an exempt withdrawal may be based on fact specific considerations. In any case, Ecology should not be adopting instream flow rules in different parts of the state that are based on different legal standards.

6. Ecology Lacks Authority to Condition Beneficial Use of Water from Exempt Well on Obtaining Permit for Residential Structure.

The error in Ecology's conclusion that the date of beneficial use of an exempt well determines its priority date is further compounded by its conclusion that "for domestic use, beneficial use shall not be considered to occur until water is used within a permitted residential structure." *Proposed WAC 173-518-070(4)*. By creating the additional legal requirement that beneficial use of water from an exempt well does not occur until a local government has issued a permit, Ecology is unlawfully conditioning the use of an exempt well on the action of a local government. What constitutes "beneficial use" of water is determined by the state water code (See RCW 90.54.020(1)), not by the action of local government.

Further, it is common for construction projects to use (if not require) beneficial use of water at the construction site for uses such as dust control, fire suppression, potable consumption, concrete mixing, and other construction-related uses. Owner-builders often live on-site during construction, not in the "permitted residential structure," but in a temporary structure or recreational vehicle. Such uses of water clearly establish beneficial use.

7. Proposed ISF Rule Must Be Reviewed To Determine Whether It Is Constitutional.

The proposed ISF Rule imposes its regulatory burden solely on water uses that are junior to the priority date of the adoption of the rule. Because all senior uses are not subject to the rule, even though most junior uses will be small withdrawals of water under the exempt well statute, Ecology should review the proposed ISF Rule to determine whether it meets constitutional requirements. In 2008, the Washington State Court of Appeals, Division I, issued a decision invalidating a King County ordinance in part on grounds that King County failed to show that the regulatory restriction on property owners subject to the ordinance was proportional to the impact caused by those property owners. *Citizens' Alliance for Property Rights v. Sims*, 145 Wn.App 649 (2008).

Small exempt groundwater withdrawals will have little or no impact on surface waters in comparison to large groundwater withdrawals or diversions directly from the surface water source. Thus, there is no "proportionality" in the proposed ISF Rule. As the Court said in the CAPR decision,

These holdings are consistent with the fundamental purpose of the Takings Clause, which is *not* to bar government from requiring a developer to deal with problems of the developer's own making, but which *is* "to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole." *Id.* at 669, citing *Burton v. Clark County*, 91 Wn.App. 505, 521-22 (1998) and quoting *Dolan v. Tigard*, 512 U.S. 374 at 384.

Ecology's proposed ISF Rule clearly lacks the proportionality necessary to pass muster under a constitutional analysis. We believe Ecology should review the proposed ISF Rule under the Attorney General's Memorandum for Avoiding Unconstitutional Takings of Property established under RCW 36.70A.370 during the formal rulemaking process.

8. Ecology Should Not Proceed With Rule Adoption Until Mitigation Programs Are in Place.

As it has done in other basins, Ecology appears poised to move forward with rule adoption without having mitigation programs in place. As an initial comment on mitigation, many of the areas that would be subject to groundwater closures absent mitigation likely have little impact on surface water flows. Yet, mitigation will be required across the basin regardless of the specific impacts of a proposed withdrawal.

The promise of having a functional, affordable, and rational mitigation program in place at some unknown point in the future after the adoption of an Ecology rule has been problematic in other parts of the state. The strategy of first closing basins through rulemaking and only then developing mitigation strategies is a bad idea that should not be repeated. As evidenced by regulatory closures enacted by Ecology in Skagit or Kittitas Counties, the closure logically results in motivating people seeking to use water before the reservations are depleted (Skagit) or a dramatic increase in the cost of water for transfer that could be part of a mitigation program (Kittitas). By closing a basin first, and then seeking to obtain water rights for mitigation, Ecology creates exclusively a seller's market that drives up costs that will ultimately be paid by homeowners.

During the rulemaking process, it is impossible to analyze the true impacts of the rule because there is no mitigation plan or requirements in place: will mitigation sufficient for an average single-family house cost \$1,000 or \$20,000; will mitigation plan approval take one week or one year? Ecology must seek to develop mitigation requirements as part of the rule itself, so that regulated entities can understand the rule and its impacts. While premise for requiring mitigation in many parts of the basin is dubious, at the least, the mitigation requirements must be integrated into the local land use approval process. Homeowners and small builders should be expected to possess expertise in hydrogeology or provide Ecology or local governments with costly consultant reviews in order to obtain building permits.

Thank you for the opportunity to provide initial comments on the draft ISF Rule.

Sincerely,



Bill Riley, President
Washington REALTORS®

cc: Clallam County Board of Commissioners
Sen. Jim Hargrove
Rep. Lynn Kessler
Rep. Kevin Van De Wege