Contents

- The Nisqually Watershed – Geography, History, Relationships
- RCW 90.94.020 Planning Process in WRIA 11
- Consumptive Use Estimates
- Mitigation Offsets – Micro and Macro Approach
- Lessons Learned in Planning Process
- Next Steps – Implementation and Future Considerations
History of Collaboration

- Nisqually River Council – 1987
- 2003 Nisqually Watershed Plan
- Plan Addendum in Response to Hirst – 020 Watershed

Nisqually Tribe – Planning Unit Lead

Adopted by Ecology – February 1, 2019
HISTORY – WA Watershed Planning
Legislation, Mandates, Initiatives, Drivers

- Treaty of Medicine Creek - 1854
- RCW 90.03.247 – Water Code, minimum flow setting
- RCW 90.22 Minimum Water Flows and Levels
- RCW 90.54 – Water Resources Act of 1971, Pilot process (RCW 90.54.045, 1991)
- Boldt Decision – 1974
- Chelan Agreement – 1990
- Initial Watershed Assessments (Completed 1994/1995)
- RCW 90.82 – Watershed Planning Act (1997)
- RCW 90.94 – Streamflow Restoration Act (2018) - HIRST
PLANNING UNIT MEMBERS

IMPLEMENTING GOVERNMENTS
  • Nisqually Indian Tribe – LEAD
  • Thurston, Pierce and Lewis Counties

OTHER PARTICIPANTS
  • Cities of Lacey, Olympia, Yelm
  • Town of Eatonville
  • Thurston PUD
  • WDFW, WA Dept of Ag, Ecology
  • Nisqually River Council Citizens Advisory Committee
1. Define and Delineate Appropriately Sized Sub-basins
2. Estimate 20-Year Population Growth and New Dwelling Units
3. Calculate New Domestic Permit-Exempt Connections
4. Estimate Consumptive Use (3 methods)
5. Identify Projects (Offset Actions) to Mitigate 20 years of Consumptive Use
6. Evaluate Projects (Offset Actions)
Step 1
Define appropriate sub-basins

Step 2
Estimate 20 Year Growth
### Step 3

Calculate new domestic permit-exempt connections, 2018-2040

<table>
<thead>
<tr>
<th>Sub-basin</th>
<th>UGA Connections</th>
<th>Rural Connections</th>
<th>Total Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister</td>
<td>39</td>
<td>116</td>
<td>155</td>
</tr>
<tr>
<td>Thompson/Yelm</td>
<td>1,036</td>
<td>526</td>
<td>1,562</td>
</tr>
<tr>
<td>Lackamas/Toboton/Powell</td>
<td>-</td>
<td>430</td>
<td>430</td>
</tr>
<tr>
<td>Lower Nisqually</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Mashel River</td>
<td>20</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Prairie Tributaries</td>
<td></td>
<td>596</td>
<td>596</td>
</tr>
<tr>
<td>Ohop Creek</td>
<td>27</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Upper Nisqually (Lewis, Pierce, Thurston)</td>
<td>195</td>
<td></td>
<td>195</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,075</strong></td>
<td><strong>1,912</strong></td>
<td><strong>2,987</strong></td>
</tr>
</tbody>
</table>
Step 4

Calculate Consumptive Water Use

<table>
<thead>
<tr>
<th>Method</th>
<th>Annual Average Consumptive Use per connection (gpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Water Use – Thurston PUD Method</td>
<td>95 gpd, 80 gpd outdoor</td>
</tr>
<tr>
<td>Ecology Method</td>
<td>223 gpd, 208 gpd outdoor</td>
</tr>
<tr>
<td>Legal Method</td>
<td>1,644 gpd, 1,536 gpd outdoor</td>
</tr>
</tbody>
</table>

Ecology guidance:
• 10% indoor use is consumptive
• 80% outdoor use is consumptive
**WRJA 11 – Basic Steps to the Hirst Response**

Estimate New Domestic Permit-exempt Well Connections and Associated Consumptive Use 2018 – 2040

**ECOLOGY METHOD**

<table>
<thead>
<tr>
<th>Sub-Basin</th>
<th>Total PE Connections</th>
<th>Annual Consumptive Use (AFY)</th>
<th>Cubic feet/second</th>
<th>cfs per connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister</td>
<td>155</td>
<td>39</td>
<td>0.054</td>
<td></td>
</tr>
<tr>
<td>Thompson/Yelm</td>
<td>1,562</td>
<td>390</td>
<td>0.539</td>
<td></td>
</tr>
<tr>
<td>Lackamas/Toboton/Powell</td>
<td>430</td>
<td>107</td>
<td>0.148</td>
<td></td>
</tr>
<tr>
<td>Lower Nisqually River</td>
<td>2</td>
<td>0</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Mashel River</td>
<td>20</td>
<td>5</td>
<td>0.007</td>
<td></td>
</tr>
<tr>
<td>Prairie Tributaries</td>
<td>596</td>
<td>149</td>
<td>0.206</td>
<td></td>
</tr>
<tr>
<td>Ohop Creek</td>
<td>27</td>
<td>7</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Upper Nisqually (all counties)</td>
<td>195</td>
<td>49</td>
<td>0.067</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,987</strong></td>
<td><strong>747</strong></td>
<td><strong>1.032</strong></td>
<td><strong>0.0003453</strong></td>
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</tbody>
</table>
USGS – McKenna Gage – August Mean Discharge, 2000-2010

Watershed Offset Requirement

469 cfs

1.03 cfs
Impacts of permit-exempt use on streamflow – Little Spokane River Watershed

Modeled average reduction in flow (cfs) during July, August, September at Dartford Gage

<table>
<thead>
<tr>
<th>Year</th>
<th>2040 Permit Exempt Demand</th>
<th>2040 Climate Change No Additional Demand</th>
</tr>
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<tbody>
<tr>
<td>2005</td>
<td>-0.26</td>
<td>-14.5</td>
</tr>
<tr>
<td>2006</td>
<td>-1.42</td>
<td>-13.4</td>
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<tr>
<td>2007</td>
<td>-0.44</td>
<td>-14.4</td>
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<tr>
<td>2008</td>
<td>-1.72</td>
<td>-21.8</td>
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<td>2009</td>
<td>-2.35</td>
<td>-24.6</td>
</tr>
<tr>
<td>2010</td>
<td>-1.08</td>
<td>-19.6</td>
</tr>
<tr>
<td>2011</td>
<td>-1.01</td>
<td>-30.7</td>
</tr>
<tr>
<td>2012</td>
<td>-0.56</td>
<td>-27.3</td>
</tr>
<tr>
<td>2013</td>
<td>-0.58</td>
<td>-29.4</td>
</tr>
</tbody>
</table>
### Step 4

**3 METHODS to Calculate Consumptive Water Use**

<table>
<thead>
<tr>
<th>Method</th>
<th>Nisqually Watershed: Projected Annual Average Consumptive Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(AFY)</td>
</tr>
<tr>
<td>Actual Water Use – Thurston PUD</td>
<td>318</td>
</tr>
<tr>
<td>Ecology Method</td>
<td>747</td>
</tr>
<tr>
<td>Legal Method</td>
<td>5,501</td>
</tr>
</tbody>
</table>
Step 5

Identify Offset Actions

Micro Mitigation

- City of Yelm – Water Right Offset (future + current)
- Water System Improvements (Group A and B)
- Water Right Acquisition
- Reclaimed Water Infiltration
- Local Stream Restoration – Lower Sub-basins
- Managed Aquifer Recharge (MAR)
- Update County permitting processes – policies for Implementation – bank, credit system
Step 5

Watershed Scale Offsets

Macro Mitigation

Multiple Benefits

- Community Managed Forests
- Large Scale Floodplain and Riparian Restoration & Protection Projects (Ohop Creek)
- Address Major Barriers to Salmon Recovery
- Mashel River Baseflow Strategies – Eatonville Infrastructure Improvements
WRIA 11 – Implementation

Further Evaluation

- Managed forestry (VELMA Model\(^1\))
- Stream/floodplain restorations
- Municipal actions (expansion of Yelm's water right, capital improvement projects identified in City of Eatonville's Comprehensive Stormwater Plan)

- Hall, Justin, et. al, 2018.
- McKane, Bob et. al. (unpublished)-
  [https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=341378&Lab=NHEERL&SIType=PR&fed_org_id=111&dateBeginPublishedPresented=06/26/2017&dateEndPublishedPresented=06/26/2018](https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=341378&Lab=NHEERL&SIType=PR&fed_org_id=111&dateBeginPublishedPresented=06/26/2017&dateEndPublishedPresented=06/26/2018)
Consumptive Use (Ecology Method) Compared to Minimum and Maximum Estimated Mitigation (See Table 7-2)

<table>
<thead>
<tr>
<th>Sub-basin</th>
<th>ECY Method Annual PE Consumptive Use (cfs)</th>
<th>Mitigation Actions (cfs) MIN</th>
<th>Mitigation Actions (cfs) MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>McAllister</td>
<td>0.054</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Thompson/Yelm</td>
<td>0.539</td>
<td>0.479</td>
<td>1.050</td>
</tr>
<tr>
<td>Lackamas/Toboton/Powell</td>
<td>0.148</td>
<td>0.116</td>
<td>0.697</td>
</tr>
<tr>
<td>Lower Nisqually</td>
<td>0.001</td>
<td>0</td>
<td>0.552</td>
</tr>
<tr>
<td>Mashel River</td>
<td>0.007</td>
<td>3.48</td>
<td>7.27</td>
</tr>
<tr>
<td>Prairie Tributaries</td>
<td>0.206</td>
<td>0.058</td>
<td>2.058</td>
</tr>
<tr>
<td>Ohop Creek</td>
<td>0.009</td>
<td>0.017</td>
<td>2.105</td>
</tr>
<tr>
<td>Upper Nisqually (Pierce, Lewis, Thurston)</td>
<td>0.067</td>
<td>0.067</td>
<td>0.619</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.03</strong></td>
<td><strong>4.22</strong></td>
<td><strong>14.35</strong></td>
</tr>
</tbody>
</table>
Lessons Learned - Planning

- Focus time and effort on developing robust offset actions providing multiple benefits – **Mitigation Projects**
- 20 years of domestic PE Consumptive Use is a relatively small impact to streamflow – conservatively estimate and move onto offsets
- Work collaboratively with local salmon groups – overcome the language barrier between Water Resource and Salmon Recovery Scientists
- QUANTIFY your offsets
- Aim for multiple benefits,
- Trust, Partnerships and Leadership provided by the Nisqually Indian Tribe and a very hard working Planning Unit were keys to our success!
APPROVED!
Forward looking. Where do we want to be in Puget Sound in 50 years

Creative opportunities to marry economic development/growth with environment

Enable intelligent growth

In the Nisqually:
  • Need to fully develop projects for funding
  • Push for multiple benefit projects rather than water for water projects
1974 Federal Judge George Boldt issues landmark ruling affirming the Stevens Treaties. The case revolves around Article 3 of the Treaty of Medicine Creek:
Art. III. The right of taking fish at all usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the Territory...provided, however, that they shall not take shellfish from any beds staked and cultivated by citizens.
Nisqually Watershed Stewardship Plan

Nisqually River Council
The Nisqually retreated 700 feet since 2003, S. Lofgren, NPS.
Contemporary Glacial Volume Loss

Glacial Ice Volume - Mt. Rainier

- Nylen, 2001
- Riedel (Unpublished)
- Dreiger and Kennard, 1986
The issue:
• Over 50 percent of the private working forests in the upper Nisqually River Watershed are now owned by East Coast investment managers
• Managed for the benefit of underlying investors
• Managed to produce short-term gains through rapid buying, harvesting, and selling of forestlands
The consequences:

- Decreased consideration of local concerns
- Reduced investment in sustainable forest management
- Increased fragmentation of working-forest and conservation landscapes
- Negative impacts on
  - forestry jobs
  - river and forest health
  - scenic vistas and recreation opportunities that support the local tourism economy
Our vision: The Nisqually Community Forest

- Locally owned
- Economically self-sustaining
- At scale (10,000 – 60,000 acres)
- Managed to provide a suite of local benefits:
  - Sustainable forestry jobs and products
  - Treaty Right access and use for the Nisqually Indian Tribe
  - Recreation
  - Education
  - Protected wildlife habitat
  - Clean air and water
  - Scenic vistas
  - Support for the local tourism industry
Ashford
Mount Rainier National Park (Managed Owl Conservation Area)
Elbe Hills State Forest (Owl Dispersal Habitat)
Nation's largest no-fee hut-to-hut ski trail
Marbled Murrelet Detection Section
State Natural Resource Conservation Area
Spotted Owl Nest
Spotted Owl Nest
Main Entrance, Mount Rainier National Park
Gifford Pinchot National Forest
Late Seral Reserve (Northern spotted owl and marbled murrelet critical habitat)
Target First Acquisition, Nisqually Community Forest
Highest Priority, Nisqually Steelhead Recovery Plan
Nisqually Community Forest Phase I
Nisqually Indian Tribe
INDUSTRIAL TIMBERLANDS
Nisqually Land Trust
Mount Rainier Gateway Reserve (USFWS Cooperative Endangered Species Conservation Fund)
“I believe in the sun and the stars, the water, the tides, the floods, the owls, the hawks flying, the river running, the wind talking. They’re measurements. They tell us how healthy things are. How healthy we are”. –Billy Frank Jr.
Questions?

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(206) 915-9551

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(360) 438-8687