Meeting Notes

**Snohomish (WRIA 7)**

**WREC Technical Workgroup meeting**

November 18, 2019 | 10:30 a.m. - 12:00 a.m. [WRIA 7 Committee Webpage](https://www.ezview.wa.gov/site/alias__1962/37310/watershed_restoration_and_enhancement_-_wria_7.aspx)

## **Location**

WebEx

**Committee Chair**

Ingria Jones

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(425) 649-4210

**Handouts**

Agenda

Growth projection workbook (spreadsheet – updated)

Growth projections by subbasin map

Consumptive use calculator (spreadsheet)

# Participation

* *Ingria Jones, Dept. of Ecology*
* *John Covert, Dept. of Ecology*
* *Paulina Levy, Dept. of Ecology*
* *Bridget August, GeoEngineers*
* *Patty Dillon, NHC*
* *Alexa Ramos, Snohomish County*
* *Daryl Williams, Tulalip Tribes*
* *Kirk Lakey, Dept. of Fish and Wildlife*
* *Joe Hovenkotter, King County*
* *Julie Lewis, Snoqualmie Tribe*
* *Keith Binkley, Snohomish PUD*
* *Matt Baerwalde, Snoqualmie Tribe*
* *Mike Wolanek, City of Arlington*
* *Paul Faulds, City of Seattle*

# Growth projections by subbasin

* Objective: Understand how 20-year growth projection was reallocated by subbasin

Reference materials

* Growth projection workbook (on BOX [here](https://app.box.com/s/bq9xlpv5u894ry680caydw86991trdxv))
* Growth projections by subbasin map (on BOX [here](https://app.box.com/s/xwqhb0cidz6varu57t08o1mm0e7mgqyu))

Bridget provided an overview of how technical consultants reallocated growth projections by subbasin.

* After the Committee delineated subbasins, technical consultants re-grouped growth projections from stream basins or HUC12 to subbasins.
* King County reallocated historic growth by the Committee subbasins and reanalyzed water use by subbasin (public, private, and other). They used GeoEngineer’s method to estimate the 20-year growth projection by subbasin based on permits per year, percentage of permits on PE wells, and adding a 6% error to account for the other permits where the water source could not be identified.
* King County also analyzed available parcels and DUs by subbasin. They analyzed whether those parcels and DUs were located inside or outside water district boundaries, and the number of parcels and DUs anticipated to be served by public connections or PE wells, based on past connection rates. King County compared the available parcels and DUs to the 20-year projection and identified a shortfall of 22 DUs in the Upper Snoqualmie Subbasin. They reallocated the projected 22 PE wells to Snoqualmie South.
* GeoEngineers reviewed King County’s analysis by subbasin and confirmed that the reallocation of growth from Upper Snoqualmie to Snoqualmie South was reasonable for the following reasons:
  + Snoqualmie South has much more available capacity for future growth, whereas Upper Snoqualmie did not have available parcels.
  + Growth within the Snoqualmie South drainage basins relies almost exclusively on PE wells, in particular in the Griffen, Tokul and Lower Tolt drainages so it makes sense that future growth would also be on PE well connections.
  + Reallocation to Patterson would put that subbasin over capacity and almost 70% of past growth here is on public water.
  + Reallocation to Raging River would also put that subbasin close to capacity.
* GeoEngineers re-grouped growth projections by HUC12 in the Snohomish County portion of WRIA 7.
* Quilceda/Allen Subbasin includes projected growth in Quilceda-HUC 39 and Snohomish River-Frontal Procession Sound-HUC 44. GeoEngineers did the following to estimate growth in Quilceda/Allen Subbasin:
  + Reallocated the percentage of growth in Allen Creek drainage from Snohomish River-Frontal Procession Sound to Quilceda.
  + Estimated the portion of past growth in HUC 44 that was in Allen Creek (28% of past growth).
  + Used past growth to estimate future growth for Allen Creek (33 PE wells).
  + Reallocated the Allen Creek growth projection (33 PE wells) from HUC 44 to HUC 39.
  + The projected growth in Allen/Quilceda Subbasin is 338 PE wells (297 PE wells plus 33 PE wells from Estuary/Snohomish Mainstem Subbasin).
* GeoEngineers reallocated projected PE wells in UGAs by subbasin.
* Bridget provided a clarification on the growth projections for Tulalip Subbasin.
  + Includes growth forecast of 204 PE wells based on past trends for unincorporated Snohomish County.
  + Assumes all of the growth forecast for water service areas in Tulalip (249) will use PE wells to account for the inability of the Seven Lakes water system to expand service at this time.
  + Includes an estimate of 15 potential new PE wells on Tulalip Tribal owned lands.

# Consumptive use estimates & calculator

* Objective: Review preliminary consumptive use results & scenarios

Ingria let the workgroup know that GeoEngineers and NHC are coordinating with technical consultants providing support to the southwest 203 Committees to perform a QA/QC of the irrigated footprint analysis conducted across the watersheds. Ingria will provide an update when new information is available.

Reference materials:

* Consumptive use calculator spreadsheet (on BOX [here](https://app.box.com/s/rclb2llcrrywsbuap0n028k2a8sylrak))
* Consumptive use results –presentation (on BOX [here](https://app.box.com/s/6pt2buh95x7j897xovdu52pgwqvbtj7n))
* Consumptive use work plan (on BOX [here](https://app.box.com/s/d7e3pqkir8uc60lv2amnp095l1b286ij))

Patty Dillon (NHC) provided an overview of the preliminary consumptive use estimates for WRIA 7.

**Total consumptive use for WRIA 7 (Scenario 1) is 797.4 acre-feet per year (1.1 cubic foot per second)**

* Calculated indoor use
  + Assumed indoor use of 60 gpd per person
  + Calculated average people per home by subbasin.
    - King County: 2.73 people per rural household
    - Snohomish County: 2.75 people per home.
    - 2.74 people per home were used in some calculations (subbasin crosses county boundary)
* Calculated average lawn size from irrigated footprint analysis for each subbasin
  + - * + Sampled 393 single-family residential building permit sites, 2006-2017 (25% of permits)
        + 20-30 permit parcels evaluated in each of 16 subbasins with projected permit-exempt well connections
        + Evaluated irrigation practices at each site using Google Earth imagery
        + Calculated average irrigated acres by subbasin
        + **Average irrigated acres (lawn size) in WRIA 7 is 0.21 acres**
        + Identified 3 parcels out of 393 parcels reviewed with swimming pools. Technical consultants are not planning to account for swimming pools.
* Calculated portion of water use that is consumptive
  + Indoor consumptive fraction = 10% for home on septic.
  + Outdoor consumptive fraction
    - Calculated crop irrigation requirement (inches) by subbasin (varies based on precipitation and temperature)
    - Assumed 75% irrigation efficiency
    - Assumed 80% consumptive
* Calculated total consumptive use (indoor + outddor) by subbasin and WRIA
  + **Total consumptive use for WRIA 7 (Scenario 1) is 797.4 acre-feet per year (1.1 cubic foot per second)**

Patty reviewed examples of metered water use for Snohomish PUD and Covington Water District.

* Technical consultant’s water use estimates are higher than metered water use for Snohomish PUD or Covington Water District.

Questions and Discussion

* What version of the Washington Irrigation Guide was used? Is it the latest version?
  + Used the Washington Irrigation Guide (1997 is most recent complete data)
  + WAIG has not been updated since then.

Patty Dillon introduced the consumptive use calculator spreadsheet and the scenarios in the spreadsheet.

* Information tab includes default/standard values, average people per home calculation, irrigated footprint analysis results, and crop irrigation requirements. This creates the reference for the estimates.
* Annual Consumptive Use Summary of Scenarios (“Summary Annual” tab) shows the input and results for four different scenarios.
  + **Scenario 1:** assumes 60gpd per person indoor use per person and an average lawn size, based on irrigated footprint analysis (results above)
  + **Scenario 2:** assume 60 gpd per person and ½ acre irrigated lawn area
    - **Consumptive use result is 1,885 acre-feet per year (2.6 cfs).**
  + **Scenario 3:** assume 950 gpd annual average
    - Assumes indoor use of 60 gpd per person indoor use and the rest for outdoor use
    - **Consumptive use result is 2,448 acre feet per year (3.38 cfs).**
  + **Scenario 4:** provides a comparison to average household water use for a local water purveyor (Snohomish PUD)
    - **Consumptive use result is 261.6 acre-feet per year (0.36 cfs).**
* Summer Consumptive Use Summary of Scenarios (“Summary Summer” tab) shows the water use in June, July and August for scenarios 1 through 4
  + **Consumptive use results for scenario 1 are 641 acre-feet (3.51 cfs).**
* The “CALC” tabs allow users to input their own assumptions at the subbasin or WRIA scale. Results are shown on the summary tabs in the first table “Active Scenario”

Questions and Discussion

* How is the scenario 1 summer result 3.41 cfs but the annual result 1.1 cfs?
  + The majority of water use occurs during the summer and the majority of consumptive use is from outdoor irrigation.
  + The summer scenario assumes the volume of water used during the summer period (641 acre-feet) converted into an instantaneous rate (3.41 cfs) over the three month period. In contrast, the annual scenario spreads out the annual volume of water (797.4 ace-feet) over a longer period, so the instantaneous rate is lower (1.1 cfs).
  + The summer scenario instantaneous rate (cfs) calculation does not take into account local geology or the time it would take consumptive use impacts to reach a stream. This scenario is for comparison.
* Next Steps
  + Technical consultants will present the CU estimates to the Committee in December.
  + Technical workgroup members can use the calculator spreadsheet to test scenarios & sensitivity. Next meeting the technical workgroup will discuss recommendations for the offset target.

# Water service connection policies

* Objective: Discuss proposal to conduct outreach to water purveyors and cities

Ingria reached out to cities on the commit last spring to ask under what circumstances they allow permit-exempt wells within their city limits and showed the responses.

Matt Baerwalde would like to understand water purveyor policies regarding allowing permit-exempt wells. This information would be used to inform committee discussions and potentially recommendations for the Plan. Matt requested assistance in contacting water providers in WRIA 7.

Mike Wolanek volunteered to contact water providers near Arlington, in the northwestern portion of the WRIA.

Next Steps: Matt and Mike will report back in January on their initial results.

# Next Steps and Action Items

* Workgroup members begin to think about ways to develop an offset target and familiarize yourself with the consumptive use spreadsheet.
* Matt will provide a report-out to the committee in December.
* Next Committee Meeting: December 12, Willis Tucker Community Park
* Next Technical Workgroup Meeting: Date TBD; Doodle Poll for webex or in person