January 8, 2025

WA State Dept. of Ecology
Office of the Columbia River
1250 W. Alder St.
Union Gap, WA 98903-0009

Dear Office of the Columbia River,

In anticipation of the next iteration of Ecology's *Columbia River Basin Long Term Supply and Demand Forecast*, Friends of Toppenish Creek (FOTC) submits the information that follows and a request. Please include withdrawals from groundwater by concentrated animal feeding operations (CAFOs) in your next report. And analyze the impact of these withdrawals in WRIA 37, specifically on the stretch of the Yakima River between Union Gap and Benton City.

For context, on page 174 of Ecology's 2022 *Technical Forecast Supplement*[1], Ecology stated under public comments:

PUBLIC COMMENT	OCR's and FORECAST TEAM'S RESPONSE
Friends of Toppenish Creek submitted detailed comments that concern the disproportionate impact that concentrated animal feeding operation (CAFO) dairies have on Lower Yakima Valley groundwater. They request that this relation be described in detail in the Forecast.	It is beyond the scope of this Forecast to evaluate either the volume of water withdrawals or the water use associated with those withdrawals. We can consider the importance of quantifying these specific withdrawals for the 2026 Forecast; however, the scale at which the Forecast provides results does not match the scale of individual operations.

[1] Adam, J.C., Yourek, M.A., Scarpare, F.V., Liu, M., McLarty, S., Asante-Sasu, C., McClure, S., Turk, J., Haller, D., Padowski, J., Deshar, R., Brady, M.P., Rajagopalan, K., Barber, M.E., Weber, R., Hall, S.A., Yorgey, G.G., Whittemore, A., Goodspeed, H.L., Stockle, C.O., Gustine, R.N., Kondal, A., Yoder, J., Kruger, C.E., Deaver, B., Downes, M., Tarbutton, S., Callahan, M., Price, P. Roberts, T., Stephens, J., Valdez, W. 2022. Technical Supplement to the 2021 Columbia River Basin Long-Term Water Supply and Demand Forecast. Publication No. 22-12-001. Washington Department of Ecology, Olympia, WA. 207 pp. Available at 2021 Technical Supplement for the Columbia River Basin Forecast

In Washington State, Animal Agriculture can withdraw unlimited quantities of groundwater under the 1945 Stock Watering Law.[2] Consequently, concentrated animal feeding operations (CAFO) dairies do not need permits or water rights to pump water from the ground and do not need to measure and report withdrawals. These withdrawals make a big difference in individual counties, especially on impacted rivers and streams.

Yakima County Concentrated Animal Feeding Operations

According to the 2022 USDA National Agricultural Statistics Service Census of Agriculture[3], over 39% of all Washington milk cows are housed in Yakima County.

	# Cattle & Calves	# Beef Cows	# Dairy Cows	# Other Cattle	$ Milk Sales
WA State	1,123,261	216,119	255,872	651,270	$1,585,715,000
Yakima	236,986	17,817	100,591	118,578	$629,750,000
% Yakima	21%	8%	39%	18%	40%

Most of the Yakima milk cows are housed in the Extended Toppenish Basin. And about 90,000 are housed within the boundaries of the 273 square mile Lower Yakima Valley Groundwater Management Area[4]. There are about 330 milk cows per square mile in the GWMA target area.

There are large CAFOs in Grant County with 30,525 milk cows and Franklin County with 26,183 milk cows as well.[3, 5]

Milk cows require more water than other cattle because they produce large quantities of milk. “Lactating dairy cows require 4.5–5 pounds of water per pound of milk produced. This equates to roughly one-half gallon of water for every pound of milk secreted. As an example, a cow producing 100 pounds of milk daily could consume as much as 50 gallons of water.”[6] This does not account for water used to wash the cows’ udders prior to milking, to flush manure from milk barns, and water for dust control. During summer heat, water requirements may double.

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[2] WA State Dept. of Ecology. Groundwater Permit Exemption. Groundwater permit exemption - Washington State Department of Ecology

[3] USDA National Agricultural Statistics Service. 2022 Census of Agriculture. WA State Cattle and Calves – Inventory and Sales. st53_2_011_011.pdf

[4] WA State Dept. of Ecology. Lower Yakima Valley Groundwater Management Area. Lower Yakima Valley Groundwater Management Area - Washington State Department of Ecology

[5] WA State Dept of Agriculture. ArcGIS Dairies. Washington Licensed Cow Milk Dairy Farms | Washington State Geospatial Open Data Portal

[6] Nebraska Extension Service. 2017. Water Quality and Requirements for Dairy Cattle. Water Quality and Requirements for Dairy Cattle

Bulls, heifers, dry cows, and beef cattle require 10 to 15 gallons of water per animal per day or 1 gallon for every 100 lbs. of animal weight. Calves require 1.5 to 5 gallons of water per day per animal, depending on animal size.

By FOTC calculations dairy cows, calves, and dairy support animals in the Lower Yakima Valley (LYV) require over 8 million gallons of water per day and this all comes from the ground.[7] These withdrawals are not included in the 2021 Columbia River Basin Long Term Supply and Demand Forecast.

That document states in bold on page ES1:

> ***The primary purpose of the 2021 Long-Term Water Supply and Demand Forecast is to provide a system-wide, quantitative assessment of how future environmental and economic conditions and human responses are likely to influence water supplies and demands over the next 20 years***

The Yakima River Basin is a major agricultural area. The Yakima River is a major tributary of the Columbia. The Yakima River Basin is a major spawning ground for salmon and steelhead. CAFOs produce massive amounts of manure (feces and urine), about 120 lbs. per cow per day, that impacts both air and water. When 37% of all WA milk cows are confined in a 273 square mile area next to the Yakima River, it makes a difference in supply and demand that is worth discussing.

Lower Yakima River Surface Water Pollution

The Yakima River between Union Gap and Benton City is one of the most polluted stretches in the state.[8]

For WRIA 37, in the 2022 Washington State Water Quality Assessment, there are 77 listings for temperature that fall into either category 2, Water of Concern, or category 5, the 303(d) list. There are also 17 listings for category 3, Insufficient Data to Make a Determination. Most of these listings are for waterways between Union Gap and Benton City.

For this stretch of the Lower Yakima the WA Water Quality Assessment posts 58 listings for bacteria in categories 5, or 2, or 4a - Impaired but Being Addressed. The 4a listings include the long running Granger Drain Bacteria TMDL and the more recent Middle Yakima River Bacteria TMDL.

[7] See Attachment 1

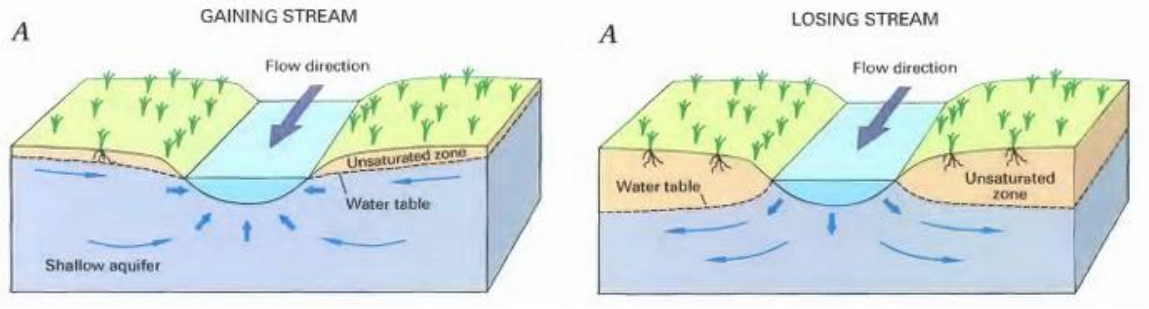
[8] WA Ecology. 2022 Draft Water Quality Assessment. Available at Draft Search

For this stretch of the Lower Yakima the Water Quality Assessment posts 38 listings for common pesticides in categories 5 or 2. There are also 132 listings in category 3 where there is Insufficient Information for Determining Water Quality.

Groundwater pollution in the Lower Yakima Valley has been well documented in the work of the Lower Yakima Valley Groundwater Management Area.[9] About 20% of domestic wells in the LYV deliver water that is unsafe for human consumption.

Groundwater Impacts the River

Groundwater impacts surface water.[10, 11] Ideally cool groundwater reduces the temperature of surface waters during summer months. Ideally groundwater feeds surface water and replenishes instream flows. In dry regions water sometimes moves from surface waters to the ground.



From Ground Water and Surface Water A Single Resource U.S. Geological Survey Circular 1139. Available at report.pdf

Is the Lower Yakima River a "Gaining Stream" or a "Losing Stream"? There is evidence that it may be both.[12] There is evidence that water tables in the Lower Yakima are dropping due to decreased recharge as irrigators invest in micro-drip irrigation and other conservation measures. Increasing groundwater withdrawals contribute as well.

One way to look for movement of river water to ground is to chart variations in water temperature for groundwater and surface water and compare the two.[13] Greater correlation between river and ground temperature fluctuations indicates a higher level of exchange.

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[9] WA State Dept. of Ecology. Lower Yakima Valley Groundwater Management. Lower Yakima Valley Groundwater Management Area - Washington State Department of Ecology

[10] Winter, T.C., Harvey, J.W., Franke, O.L., Alley, W.M. 1999. Ground Water and Surface Water: A Single Resource U.S. Geological Survey Circular 1139. Available at report.pdf

[11] We know that Ecology understands this. We document the facts for other readers.

[12] See Attachment 2

[13] The Groundwater Project. Water Temperature. 5.8 Water Temperature – Groundwater-Surface Water Exchange

FOTC has charted temperatures in monitoring wells from the Mabton area in Ecology's 2021 to 2023 Lower Yakima Valley Groundwater Area baseline study[14]. Our work shows greater fluctuations in groundwater temperature near the Yakima River[15]. We share our findings with the Office of the Columbia River as a way of encouraging further research on ground and surface water interactions near the Lower Yakima.

In 2015 a LYV dairy applied for a conditional use permit to build a calf ranch with 6,000 calf hutches on land south of the Yakima River near the City of Mabton and withdraw 50,000 gallons of water per day from the ground.[16]

The WA State Dept of Ecology expressed concern[17], stating:

- Two Deep wells are proposed to provide project water:
  - Vertically, there are multiple aquifers in this area. Please identify approximate depth of proposed wells or the target aquifer for evaluation.
  - The closest Ecology ("deep") monitoring well (SID 204119) completed in the Wanapum Formation aquifer shows 104 feet of decline over a 29 year period of record, a persistent average of approximately 3.6 ft/yr. If the proposed wells are constructed into the Wanapum aquifer, it will further contribute to the persistent state of decline in that aquifer.
  - The project's capture of groundwater (shallow or deep) that would, in time, otherwise discharge to the Yakima River system affects and will impair water availability for existing Federal Yakima River Basin Water Enhancement Project (YRBWEP) rights, Time Immemorial Federal rights and State instream rights held in perpetuity, specifically:
  - 1994 Congressionally set flows imposed on the YRBWEP under Title 12.
  - Time Immemorial Rights recognized by the Court and administered by the United States Bureau of Reclamation (USBR) as recommended by the System Operation Advisory Committee (SOAC) on the Yakima River System.
  - Water Rights acquired by the State of Washington and held in trust for instream flow purposes on the Yakima River System.

Note: If the project is to go forward, main stem Yakima River mitigation for the above impacts would be required.

When Yakima County issued a determination of significance (DS), Windmill Estates withdrew the application. Then, in 2016, Windmill submitted a second application with a

[14] WA Ecology Environmental Information System – Groundwater Study ID mred0005
[15] See Attachment 2
[16] Windmill Estates SEPA Checklist. 2015. Fryslan 2015 4 SEPA Checklist.pdf
[17] WA State Dept. of Ecology. 2015. Fryslan 2015 7 Ecy Comments.pdf

"reduced footprint" for 1,500 calf hutches and withdrawal of 25, 000 gallons of groundwater per day. The second permit application received a determination of non-significance and was approved in 2017.[18]

Today, contrary to the promises Windmill made in their State Environmental Policy Act (SEPA) checklist[19], there are about 7,000 calf hutches on the Fryslan Calf Ranch, and the facility withdraws much more than 25,000 gallons of groundwater daily.[20]

Windmill Estates had agreed to cease drawing water at three wells north of the river and to place monitors on those wells as a permit condition. In 2018 Windmill Estates proceeded to drill a new, unmonitored well near these wells. The collective now takes unlimited, unmonitored water from this new well in addition to withdrawals south of the river.[16]

FOTC presents this information about one CAFO to show that similar abuse of WA water laws likely occurs on other CAFO operations where water use is unmonitored and unregulated. There are about 40 CAFO dairies in the LYV.

Excessive groundwater withdrawal by concentrated animal feeding operations at the expense of other beneficial uses is out of hand. A necessary first step to sustain Eastern Washington groundwater for future generations is acknowledgement of the problem and investigation. This should start with characterization of water use by animal agriculture in Ecology's 2026 *Columbia River Basin Long Term Supply and Demand Forecast*.

Thank you for reading.

Friends of Toppenish Creek

3142 Signal Peak Road
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[18] WA Board of County Commissioners. 2017. Fryslan 2017 12 BOCC Decision.pdf
[19] Mitigated Determination of Non-Significance for Fryslan Calf Ranch. 2017. Fryslan 2017 4 MDNS.pdf
[20] See FOTC appeal to Yakima County Code Enforcement. 2025. Available at

Attachment 1

Based on a conditional use permit for a LYV dairy FOTC estimates that dairies use 85 gallons of water per day per cow. See CUP 2018-00099, available at Fryslan 2018 9 Sage Brush Dairy.pdf That CUP says on page 12/29:

> The Sage Brush Dairy will draw water from one of two wells under the exempt water use of stock watering purposes from the deep Grande Ronde Aquifer. The agglomerate of adjacent parcels have 4 wells, and two wells will be drilled to pull water from the Grand Ronde Aquifer, estimated depth 1200 feet. These new wells will be the primary source of water. The other wells could be used as a backup supply in the unlikely event of multiple equipment failures. The water will be used for stock watering and related accessory uses. For a herd of 3500 milking cows water usage will be near 210 gallons per minute, 300,000 gallons per day, or 360 acre feet per year. One accessory use will be parlor cleaning.

210 gallons per minute = 302,400 gallons per day

302,400 gallons per day/3,500 cows = 86.4 gallons per day per cow.

Using this estimate, adding estimates of animal numbers, and adapting water usage numbers from Nebraska Extension Service's 2017 Water Quality and Requirements for Dairy Cattle, FOTC compiled the table below.

Lower Yakima Valley	# Animals	Gal/Day/Animal	Total Daily Water
Milk Cows	95,000	85	8,075,000
Heifers	30,000	10	300,000
Calves	50,000	3	150,000
Total Gallons per day			8,525,000

Attachment 2 is provided in a separate document.