

Friends of Toppenish Creek



October 24, 2021

Dear WA Dept. of Ecology,

Please consider these comments from the Friends of Toppenish Creek (FOTC) as you prepare a new National Pollutant Discharge Elimination System (NPDES) permit for Concentrated Animal Feeding Operations (CAFOs).

Sincerely,

Jean Mendoza

Executive Director, Friends of Toppenish Creek
3142 Signal Peak Road
White Swan, WA 98952

Systems Theory

Ecology's Mission: Protect, preserve, and enhance the environment for current and future generations.

The Friends of Toppenish Creek believe strongly that WA Ecology must strive to fulfill this mission every day, that this mission must guide your every action and interaction. Ecology is the only agency with the resources and authority to look at life in Washington State as a whole.

And so, FOTC submits some observations on systems theory and Ecology's NPDES permits for CAFOs. We hope that Ecology will consider this perspective and expand your criteria for decision making.

Family Farms

The Friends of Toppenish Creek are not unsympathetic to problems in the agricultural community, in this case problems for dairies which comprise most Washington CAFOs. Many or even most members of FOTC grew up on family farms. We have watched in pain as out of area businessmen who barely know the difference between a cow and a steer¹ swallow up small dairies and incorporate them into thousand head factory farms.^{2,3,4}

We believe that people who live close to the land simply want to farm and have done what experts advised and the laws required in order to continue this way of life. Too often family farmers were misled, as evidenced by the decline in the number of Washington dairies. Family farmers rightfully prefer to farm, rather than spend time studying computer technology, hydrogeology, bio-ethics, communications, fisheries, forestry, public health, and the law. The same is true for FOTC. But here is a summary of what happens when we trust too much.

- Dairymen were advised in the late 1980's to build manure lagoons to store manure over winter months and avoid applying manure to fields when there were no crops to take up the nutrients. Experts did not advise them adequately about lagoon linings and these lagoons were frequently built with minimal compaction and ineffective clay liners. Newer, more effective requirements for lagoon liners are more stringent.⁵
- Government has explicitly interfered in the marketplace and supported programs that promote mega dairies and lead to the decline of smaller operations.⁶
- Experts and entrepreneurs sell dairymen manure treatment systems that frequently do not deliver on promises, that increase costs for farmers and prioritize increased profits for those who sell innovation.⁷
- Experts market systems to spread liquid manure using big guns and irrigation to Washington dairymen. A Deep Soil Sampling study in the LYV GWMA found higher nitrate levels in fields where this form of manure fertilization is used.⁸
- Experts have advised dairymen to rely on composting to deal with the large amounts of manure produced by high producing milk cows. This will inevitably lead to complaints from environmentalists and public health experts about the unintended consequences of sending large volumes of reactive nitrogen and other pollutants into the ambient air.⁹
- Today the price farmers receive for milk is so low that dairies must produce more and more milk per dairy to survive. Dairy farms that do survive find themselves paying more and more money to agronomists, nutritionists, lobbyists, attorneys, brokers, communications specialists, and candidates for public office. (FOTC struggles with the same issues and even less money)
- Also see Attachment A at the end of this document that describes the history of the WSDA Dairy Nutrient Management Program

Fisheries & Shellfish

Salmon in Washington are struggling. *50-90 percent of land along waterways (riparian areas) has been lost or extensively modified by humans. Riparian areas and floodplains are critical for salmon and will increase in importance as environmental conditions become more extreme due to climate change.*⁹ Loss of habitat for spawning is a leading reason for declining salmon numbers.

At this time, 14 species of salmon and steelhead are at risk of extinction in Washington State under the Endangered Species Act.⁹ Requiring healthy buffers will go a long way to restoring salmon runs in our state.

The Columbia River Inter Tribal Fisheries Commission states: “Historically, we were wealthy peoples because of a flourishing trade economy based on salmon. For many tribal members, fishing is still the preferred livelihood.”¹⁰ Tribal people who rely on salmon suffer, and have suffered for years, due to declining fish numbers. Fishermen no longer sell fresh salmon on the roads and highways of Yakima County. Decreasing numbers of Chinook salmon are listed as the leading reason for decreases in the number of Orca whales.¹¹

According to the Puget Sound Partnership¹² “Of Puget Sound’s approximately 257,000 acres of classified commercial and recreational shellfish beds, around 33,000 acres, or 13%, do not meet water quality standards and are closed to harvest.” In 2010 The Lummi Nation estimated an economic loss of about \$850,000 per year associated with the shellfish bed closures.¹³ There are 20 Shellfish Protection Districts in Washington with funding that ranges from \$380,000 to \$657,500.¹²

According to the *Puget Sound Nutrient Synthesis Report, Part 2*,¹⁴ “Puget Sound has areas of low dissolved oxygen that do not meet Washington State Water Quality Standards due to the influence of excess nutrients from anthropogenic sources.” And “The Snohomish and Skagit Rivers have the highest overall total nitrogen loads into Puget Sound. The Stillaguamish, Nooksack, and Snohomish Rivers have the highest total nitrogen yield (load per unit area).”

CAFO Impacts on the Environment & People

The evidence is clear: CAFO dairies pollute the groundwater.

EPA studies in the LYV found that 61% of domestic wells one mile down gradient from a cluster of dairies delivered water with nitrate levels above the safe drinking water standard of 10 mg/L (ppm). One monitoring well had nitrate levels as high as 234 mg/L.¹⁰

The evidence is clear: CAFO dairies pollute the surface water.

The Nooksack River in Whatcom County delivers 1,729,000 kg of nitrogen per year to Puget Sound. About half is from agriculture and 34% is from manure.¹⁴

Costs to purchase bottled water

FOTC has estimated that people in the LYV spend over \$1 million per year on bottled water.¹⁶ This is an unofficial tax that people in this area, where 27% of the population lives below the poverty level,¹⁷ pay to avoid the adverse health effects when drinking water in domestic wells is up to 10 times higher than safe levels.

Each family is a system unto itself, and these small systems pay a high price when a child is born with a major deformity, or the wage earner for the family dies an early death. When FOTC asked the LYV GWMA leadership to conduct a health assessment in 2012 we were told that the GWMA would restore safe nitrate levels to the LYV aquifers. This would solve the problem, so a health assessment was unnecessary. Today the aquifers are even more polluted, and no one has studied connections to public health.

Plastics used for delivery of bottled water wreak havoc with the environment.¹⁸

- The entire life cycle of bottled water uses fossil fuels, contributes to global warming, and causes pollution.
- More than 17 million barrels of oil are required to produce enough plastic water bottles to meet America's annual demand for bottled water.
- "According to the Container Recycling Institute, 86 percent of plastic water bottles used in the United States become garbage or litter."

Atmospheric Deposition

According to the Inventory of U.S. Greenhouse Gases and Sinks 1990 – 2019 (page 5-3) emissions from enteric fermentation and manure management have increased over the past 20 years, and agriculture accounts for about 10% of greenhouse gases in the U.S.

According to the Washington State Greenhouse Gas Emissions Inventory: 1990-2018 (page 22) agriculture accounts for 6.7% of greenhouse gas emissions in our state, and emissions from manure management have increased over the past 20 years.

Ecology estimated in 2017 that 28% of atmospheric ammonia in our state, or 20,436 tons out of a total of 71,922 tons, came from livestock.

To the best of our knowledge Ecology has not approved a model for atmospheric deposition of reactive nitrogen.

Ecology and “Sister Agency” WSDA Could and Should Do A Better Job Of Evaluating CAFOs in Particular and the Environment As A Whole

Ecology has never developed models to analyze potential differences in water pollution, emissions of greenhouse gases, or cost of production when large CAFO dairies are concentrated in small areas compared to a state in which smaller dairies are more evenly distributed across the landscape.

WSDA and DOH have never fully evaluated the economic impact of bacterial pollution on shellfish. WSDA has never fully evaluated the impact of disease from CAFOs on people, on wildlife, and on other farm animals.

In 2003 when the legislature took monitoring of dairies away from Ecology and awarded that job to WSDA the number of dairy inspectors dropped from 7 to 2 ½.¹⁹ By 2005 the number of permitted CAFO dairies had dropped from 100 to less than 25. There is only one dairy inspector for all of Eastern Washington, a likely example of environmental injustice.

None of the WA State agencies quantify the health impacts from CAFOs or the amount of water and air pollution from these facilities.

Both WSDA and Ecology convene work groups to study issues such as pollution from CAFOs and Non-Point Source pollution. These work groups are not open to the public. Presumably the work group products will be delivered to the public some time in the future, and we will be asked to give our stamp of approval with little background information and little time to evaluate impacts.

References:

1. The composted steer manure that people buy in their local garden store is actually cow manure.
2. Witness the vacant barns that litter the Skykomish/Snohomish/Snoqualmie Valleys.
3. Between 1969 and 2012 USDA's estimate of dairy operations (Yakima County) went from 7,868 cows on 301 farms to 99,532 cows on 97 farms. LYV GWMA Nitrogen Availability Study (2018) Available at <https://www.yakimacounty.us/DocumentCenter/View/17514/June-2018-Final-Nitrogen-Availability-Assessment-> Today there are less than 50 dairies in the LYV.
4. Civil Eats (2018) In 2001, mega-dairy Threemile Canyon Farms, a 70,000-cow facility near Boardman, began supplying milk to the Tillamook County Creamery Association's manufacturing plant nearby. One of the results of this move was that an average of nine family-owned Oregon dairy farms went out of business each month between 2002 and 2007. Available at <https://civileats.com/2018/01/03/big-milk-brings-big-issues-for-local-communities/>
5. NRCS (2018) Pond Sealing or Lining, Compacted Soil Treatment. Available at https://efotg.sc.egov.usda.gov/api/CPSFile/18469/520_WA_CPS_Pond_Sealing_or_Lining%2c_Compacted_Soil_Treatment_2018
6. Star Tribune (2019) Former US Secretary of Agriculture Sonny Perdue, "In America the big get bigger and the small go out." Available at <https://www.startribune.com/sonny-perdue-to-farmers-go-big-or-just-go/562216182/>
7. Spokesman Review (2016) University seeks retraction, says researcher's study data is a bunch of bull. Available at <https://www.spokesman.com/stories/2016/jan/13/university-seeks-retraction-says-researchers-study/>
8. LYV GWMA Program, Vol II, Appendix F, Deep Soil Sampling (2018) Available at <https://www.yakimacounty.us/DocumentCenter/View/22175/GWMA-VolumeII-Appendices-July2019>
9. State of Salmon in Watersheds Executive Summary 2020. Available at <https://stateofsalmon.wa.gov/wp-content/uploads/2020/12/StateofSalmonExecSummary2020.pdf>
10. LYV GWMA Nitrogen Availability Assessment, page 25 (2018) Available at <https://www.yakimacounty.us/DocumentCenter/View/17514/June-2018-Final-Nitrogen-Availability-Assessment->
11. Puget Sound Institute (2018) *For Declining Orcas Food is Fate.* (2018). Available at <https://www.eopugetsound.org/magazine/ssec2018/orca-food>
12. Report prepared for Washington State Department of Natural Resources (CONTRACT NO. 93-100602) and Puget Sound Partnership by Ross Strategic (2021) Regional Perspectives on the Effectiveness of Puget Sound Shellfish Recovery Actions. Available https://www.eopugetsound.org/sites/default/files/features/resources/Ross%20Strategic_2021_Final%20Shellfish%20Report.pdf
13. Portage Bay Shellfish Protection District Shellfish Recovery Plan (2014) Available at <https://www.whatcomcounty.us/DocumentCenter/View/3429/2014-Portage-Bay-Shellfish-Recovery-Plan-PDF?bidId=>

14. Puget Sound Nutrient Synthesis Report, Part 2, (2019) Available at <https://apps.ecology.wa.gov/publications/documents/1903019.pdf>
15. U.S. Environmental Protection Agency, Lower Yakima Valley Groundwater (2021) Available at <https://www.epa.gov/wa/lower-yakima-valley-groundwater>
16. FOTC. Costs Related to Elevated Nitrates. FOTC Minority Report, Attachment (2017) Available at <https://www.yakimacounty.us/DocumentCenter/View/18726/GWMA-MR-Attachment-26-Costs-Related-to-Elevated-Nitrates-in-Groundwater>
17. U.S. Census in FOTC Minority Report for the LYV GWMA, page 81. (2018) Available at <https://www.yakimacounty.us/DocumentCenter/View/18990/FOTC-Minority-Report>
18. Harvard University, Sustainability. Reasons to Avoid Bottled Water. Available at <https://green.harvard.edu/tools-resources/green-tip/reasons-avoid-bottled-water>
19. Lower Yakima Valley Groundwater Management Area Regulatory Framework Group (2015) Report from the WSDA Dairy Nutrient Management Program. Available at http://www.friendsoftopenishcreek.org/cabinet/data/GWMARegFrameworkCommittee-Study%20Session%20Questions_08-12-2015.pdf
20. Inventory of U.S. Greenhouse Gases and Sinks 1990 – 2019 (page 5-3) Available at https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf?VersionId=wEy8wQuGrWS8Ef_hSLXHy1kYwKs4.ZaU)
21. Washington State Greenhouse Gas Emissions Inventory: 1990-2018 (page 22) Available at <https://apps.ecology.wa.gov/publications/documents/2002020.pdf>)

Attachment A: *DNMP – Implementation Progression (Timelines)* from a WSDA presentation to the LYV GWMA Regulatory Framework Group.

1998 Act establishing program requiring nutrient management plans to be developed, approved and certified, establishing NRCS practice standards as the default technical standards and requiring inspections. Compliance is performance based so field enforcement is tied to having a discharge.

1998-99 Conservation Commission established 20 minimum elements required for the plans to be approved. Elements included both infrastructure and management elements to protect both surface and groundwater.

1999- July 2002 CD and NRCS: Plan development and approval required

- Infrastructure investment by state and NRCS: State funding provided to conservation districts to develop the plans and for cost share to dairies to implement the plans. Implementation included construction or improvements of infrastructure for manure collection and storage in lagoons, concrete pads and curbing to contain contaminated water, gutters and downspouts to keep clean water clean, pumps and irrigation equipment.
- Planning and various calculations were done to balance and properly manage nutrient storage capacity and proper applications on land managed by the dairies. Generally, implementation of agronomic management practices was postponed while focus was on getting infrastructure in place.

1998-July 2002 Ecology inspections, compliance and CAFO permit

- Up to 7 inspectors located in Yakima, Lacey, Bellevue and Bellingham spent some part of their time on systematic inspections of dairies, identifying and documenting surface water quality issues from facilities and fields.
- Close to 100 dairies had documented discharges and were put under the Dairy General CAFO permit which required full implementation of their dairy nutrient management plan.
- As infrastructure improvements were constructed and most plans were completed.

July 2002-Dec. 2003 Plan certification (implementation) required

- Implementation requires ongoing facility management and agronomic applications. Districts and NRCS continued with infrastructure improvements and worked to some extent with operators on soil and manure testing, cropping, application methods and timing to ensure agronomic applications.
- Compliance continued to focus on surface water impacts.
- Ecology tracked plan approvals and certification.

July 2003

- Program shifted to WSDA with half the inspection resources (2 ½ inspectors).
- Initial program organization was slow but in place by spring 2004 and fully functional by July 2004. o WSDA led meetings and discussions of the Development and Oversight Committee (DOC) and subcommittees on state livestock and CAFO program elements, including compliance with water quality standards surface and ground, technical standards and regulatory requirements to meet EPA delegation requirements.

2004 WSDA implementation

- WSDA staff looked closely at records and discussed with operators the need to keep and use them. Inspectors identified need for operators to have good direction on soil and manure testing. They noted informally that maybe only 15% were keeping and using records to manage agronomic applications.
- Program determined that 2 ½ inspectors was insufficient to cover all of Puget Sound and Whatcom. Consequently staff coordinated with industry leaders and other stakeholders in order to get funding for additional Puget Sound inspector.
 - o Ecology begins new CAFO permit development and includes groundwater monitoring, Ecology negotiated with stakeholders to drop monitoring wells from the permit, to include an element focused on lagoons for potential leaking and to increase emphasis on records under the permit. Ecology agreed to put more emphasis on groundwater in Whatcom and Yakima.
 - o DOC meetings continued and draft legislation was developed expanding dairy act to all livestock Animal Feeding Operations, outlining CAFO program to be consistent with federal program and incorporating necessary authority for WSDA.

2005 WSDA program development

- Developed fact sheet for operators on soil and manure testing in cooperation with other technical staff from WSU, Ecology, NRCS and CDs.
- Program implementation issues raised by inspectors:
 1. Some plans were not very detailed, difficult for operators to use or did not seem to adequately address WQ issues at operations. Discussions with operators and CD planners did result in some improvements.
 2. Identified state limitation to require ongoing DNMP implementation once certification was achieved, and need to update plans as operations changed. Determined state did not have authority to write rules to improve situation.
 3. Lagoon management issues resulted in ‘emergency’ need for winter applications to protect integrity of lagoons.

4. 3rd party applicators noted as not getting the same message on agronomic applications and field conditions. Did some communication with them on a case by case basis.

5. Lack of authority to gain access to a dairy site if access was denied

- Fall 2005 – Lagoon sweeps started this and every fall to check lagoon management and capacity going into winter, primarily in North Puget Sound counties.
- Groundwater nitrate issues in Lower Yakima were raised through complaints on condition of some private wells. WSDA organized some meetings among Ecology, WSDA and local Health with minimal outcomes for homeowner involved.
 - o DOC legislative compromise negotiated out but smaller targeted bill was passed
 - o EPA CAFO rule court decision limited permits to facilities with actual discharges

2006 Expanded technical assistance role

- Initiated ‘Inter-agency Livestock Technical Assistance Committee’ with cross agency representation. Over two years group assisted Ecology in identifying process to evaluate CAFO lagoons for possible leakage, developed a Technical Assistance Referral process and form for WSDA to use with Conservation Districts and further discussed soil and manure testing and use of data to make management decisions on crop applications.
- Soil test data use: Due to variability in soil testing results, determination was to look at data from at least 3 years to get sense of trend. Soil test trigger numbers were set at: 45ppm N as needing attention to reduce levels, used 30 ppm as a level of concern; 100 ppm P for Eastern WA and 120ppm P for Western WA as the level requiring attention. These levels became regular part of inspection discussions when records were reviewed.
 - o Expanded DOC discussed state livestock program and WSDA delegation in terms of the federal court decision. After starting all over with a new statute, decision was made to go forward with a split state program that had Ecology responsible for the permit and non-dairy AFOs and WSDA responsible for the dairy program

2007 Staff noted seeing soil N and P levels dropping at some sites, comments made by some dairy operators that they realized they did not need to buy any or as much fertilizer

2008

- After a series of compliance actions related to poor management of silage, staff worked with other partners to develop a fact sheet on the WQ impacts of silage leachate and better management.
- Discussed with dairy industry the need for record keeping in order to ensure operators have the tools to make agronomic applications.

- WSDA began discussions with Ecology on updating the MOU o Oct 2008 Yakima Herald series on groundwater prompted new discussions with dairy industry on groundwater protection and importance of records and agronomic applications o DOC sunset

2009

- Legislation passed amending statute to establish warrant authority to access dairies and all records and making it a violation of the statute to not keep records required to show agronomic applications.
- Fact sheet on new records requirement developed and mailed to all dairies.
- WSDA held livestock stakeholder meeting with some discussion regarding implementation of the split livestock program.
- New MOU with Ecology was finally completed and signed
- WSDA began developing records rule to define required records and establish a penalty matrix and worked with local state and federal technical staff on language and approach.
 - o Meetings among state and local agencies and public held discussing the groundwater issues in Lower Yakima Valley.
 - o WSDA volunteered to pull together initial overview of what was then known about the valley ground water and uses.
 - o 3 years of annual reports from permitted CAFOs confirmed there were high nitrate levels at some dairy facilities
 - o Ecology initiated effort to move dairy program back to Ecology (Natural Resource Reset)
- Changed program name from ‘Livestock Nutrient’ to ‘Dairy Nutrient’ to reflect statutory program focus on dairies
- Range rules to be used during public disclosure process were finalized and adopted as required by RCWs 43.17, 42.56, and 34.05. 2010 Program constraints, compliance issues and best management practices
- A summary of statutory constraints on program effectiveness was developed in preparation for legislative discussions
- Legislation amended statute to establish penalty for records violation and the Natural Resources Reset effort to move the program was dropped
- As a part of cross agency discussions regarding the dairy program and possible improvements, program enforcement actions were analyzed. Nine main categories of compliance issues were identified. Four related to field applications three related to

facility infrastructure, one for animal access to surface water and one for problems with nutrient management plan. Applications made with improper field conditions were the single most common problem.

- After a series of compliance actions related to improperly managed filter strips, staff worked with other agency technical staff to develop a fact sheet on proper conditions and use to be effective for both surface and ground water protection.
- Worked with Ecology and NRCS on Bartelheimer lagoon failure in Snohomish Co.
- Worked with stakeholders on Samish River Watershed bacteria issues.
- Participated in various discussions regarding Best Management Practices to protect water quality triggered in part by Ecology's riparian manual
 - o Ecology issued compliance order to several permitted dairies with high nitrates
 - o Puget Sound funding by EPA to address nutrients and bacteria among other items – discussion among agencies on nutrient management
 - o EPA carried out extensive groundwater and source sampling as part of effort to better inform groundwater protection efforts in Lower Yakima Valley

2011

- Expanded activity in Samish Watershed to include some non-dairy work to support Ecology and County in response to Governor's directive to make better progress.
- WSDA coordinated with Ecology on review of NRCS lagoon assessment tool developed partly in response to Bartelheimer failure and partly due to aging of early lagoons. Later signed a grant contract with NRCS to use the tool to do lagoon assessments in Puget Sound. Assessment discussions included concerns over difficulty to evaluate groundwater impact of existing structures.
- Completed draft records and penalty rule revised after input from technical and dairy stakeholders but held back to resolve certain issues with Ecology regarding the penalty matrix
 - o 3DT talks rise out of BMP discussions, coordination opportunities regarding Samish work, MOA development between Skagit CD and Ecology and communication issues around the Ecology and WSDA MOU

2012 Lagoon assessment focus

- Mar- Dec – Lagoon assessments conducted in North Puget Sound counties to field test lagoon assessment process for NRCS

- Sep-Dec - 3DT committee work to evaluate the technical and policy gaps to prevent negative impacts from land applications of manure (WSCC, ECY, WSDA) o Oct – WAC 16-611 Nutrient Management finalized