WA CAFO Permit Fact Sheet

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CAFO Fact Sheet 14: The Need for Surface Water Monitoring

Life without salmon, without trout, without clams, without all the birds and animals that feed on them – such a life is unthinkable. Balancing short term profits against extinction of fish that have fed people for centuries is beyond unacceptable.

Yet some agricultural practices make some Washington rivers and streams unhealthy for fish and other aquatic species. The WA State Dept. of Ecology's (Ecology's) National Pollution Discharge Elimination System permits for concentrated animal feeding operations (CAFOs) cannot solve all the problems related to surface water quality and endangered species, but it should address one significant component – surface water pollution from CAFOs.

How Do CAFO Pollutants Reach Surface Waters?

1. Runoff from production areas and cropland can flow to ditches and drains that empty into rivers and streams (perennial, intermittent, & ephemeral). Runoff is usually associated with precipitation.
2. Pollutants may reach surface waters via drainage ditches and tile drains that are part of farming. *Draining water from agriculture lands is necessary because it: (1) prevents groundwater levels from remaining within the plant root zones for extended periods, (2) flushes salt accumulations from the soil, and (3) aerates the soil. Draining lands promotes desirable growing conditions for crop production in areas otherwise unsuitable for agriculture (i.e., wetlands)*[1]

[1] Granger Drain Fecal Coliform Bacteria Total Maximum Daily Load. 2001. https://apps.ecology.wa.gov/publications/SummaryPages/0110062.html

3. Subsurface and surface drainage ditches are often used to remove excess irrigation water from the fields. In semi-arid regions, such as the Yakima Valley, groundwater feeds these irrigation drainage ditches.[2] When groundwater contains contaminants, as it does when manure is over-applied, the result is surface water pollution.
4. There is a well-established two-way connection between groundwater and surface water.[3] In other words, contaminants from cropland that borders rivers and streams may enter the rivers and streams when groundwater feeds surface water.
5. When CAFOs are located in flood plains, the potential for surface water pollution from production areas and cropland approaches 100% during flood season.
6. When manure is spread on fields during winter months, when ground is frozen or covered with snow, when there are no plants to take up the nutrients, there is an increased likelihood of runoff to surface waters.
7. When nitrogen compounds in manure volatilize, some components eventually pollute surface waters through atmospheric deposition.[4] The WA State Dept. of Ecology estimates that 35% of nitrogen from dairy manure storage goes up to the atmosphere.[5]

How Does Washington State Address Surface Water Pollution?

The condition of Washington's rivers and streams is insufficiently studied, probably due to lack of resources at the WA State Dept. of Ecology where the Water Quality Data Base represents only 15% of the state's water bodies

According to Ecology's 2018 Water Quality Assessment[6] temperature and bacteria exceedances comprise the largest number of listings. Washington does not sample for nitrates in surface waters. Phosphorous sampling is mostly done in lakes and mostly took place during the 1990's.

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[2] Granger Drain Fecal Coliform Bacteria Total Maximum Daily Load. 2014. https://apps.ecology.wa.gov/publications/documents/1410036.pdf

[3] USGS Groundwater/Surface Water Interaction. https://www.usgs.gov/mission-areas/water-resources/science/groundwatersurface-water-interaction#:~:text=Water%20and%20the%20chemicals%20it,supplies%20the%20stream%20with%20baseflow.

[4] US EPA. Nitrogen from the Atmosphere. https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileID/14192

[5] Lower Yakima Valley Groundwater Management Area Program, Vol 1. Page 25. https://fortress.wa.gov/ecy/ezshare/wq/groundwater/GWMA-VolumeI-July2019.pdf

[6] WA Ecology 2018 Water Quality Assessment https://apps.ecology.wa.gov/publications/documents/2210017.pdf *The Assessment includes data from many water bodies across the state, including 9,292 miles of streams, 433 lakes and 614 square miles of marine water. With the use of a new automation tool, we analyzed approximately 66 million data points. . .. This data represents 15% of Washington water bodies.*

In the 2018 Ecology Water Quality Assessment, results for bacteria sampling were:

- Category 1 – Meets standards: 806 water bodies
- Category 2 – Water of Concern: 1017 water bodies
- Category 3 – Insufficient Data: 1,435 water bodies
- Category 4 – Doesn't meet standards but control efforts are in place: 904 water bodies
- Category 5 – Standards not met and cleanup plan needed: 1,357 water bodies

When Ecology develops a Total Maximum Daily Load (TMDL) for a body of water the agency calculates how much pollution the waters can tolerate, a Load Capacity. Waste Load Allocations (WLAs) are developed for point sources of pollution such as municipal waste water treatment plants (WWTPs) and concentrated animal feeding operations (CAFOs). Pollution from non-point sources is addressed through Load Allocations (LAs). The sum of WLAs + LAs + a margin of error is the amount of a pollutant allowed. Although CAFO's are considered point sources, only those CAFOs with National Pollutant Discharge Elimination System (NPDES) permits are treated as point sources and assigned WLAs. Non-permitted CAFOs are treated like non-point sources, which means they are bundled together with septic systems, pets, wildlife, etc.

Explaining this technical data is a preamble to understanding how little is known about surface water pollution from CAFOs in Washington State and the relationship between lack of data and difficulty in requiring NPDES permits for CAFOs.[7]

Surface Water Impairment in Whatcom County: There are over 86 Whatcom County water bodies listed for bacteria in Ecology's 2018 Water Quality Assessment. Several have listings for multiple segments. There are four TMDLs for bacteria in Whatcom County and two of these TMDLs list dairies as point sources of pollution. The 2000 Nooksack River TMDL says there are two CAFO dairies in the basin with NPDES permits and these dairies are allowed zero discharge to surface waters. The 2000 Johnson Creek Watershed TMDL for Bacteria lists dairies as a major activity. Johnson Creek dairies are addressed as non-point sources.

***Surface Water Impairment Skagit County*:** There are over 60 Skagit County water bodies listed for bacteria in Ecology's 2018 Water Quality Assessment. Several have listings for multiple segments. There are three TMDLS for bacteria in Skagit County. The 2000 Lower Skagit River Basin TMDL documents the presence of over 50 dairies with over 20,000 cows. The Samish Basin TMDL documents dairies and agriculture as non-point sources. But, there are no permitted CAFOs in Skagit County.

The Eastern Padilla Bay watershed consists of four major sloughs and two agricultural areas at the northern and southern ends of the bay with a large network of drainage ditches. The 2020 Padilla Bay TMDL does not mention dairies specifically but lists poor manure management as a

[7] Less than 10% of the > 250 CAFOs in Washington State have NPDES permits. https://apps.ecology.wa.gov/paris/PermitLookup.aspx

source of pollution. Following Ecology's current practices, the Padilla Bay TMDL assigns load allocations (LAs) to bodies of water, rather than sources of pollution.

Both Whatcom County and Skagit County have suffered for decades from bacterial surface water pollution that renders shellfish from their coastal waters unsafe to eat.

Surface Water Impairment Yakima County: There are over 30 Yakima County water bodies listed for bacteria in Ecology's 2018 Water Quality Assessment. Several have listings for multiple segments. There are three TMDLS for bacteria in Yakima County with the 2000 Granger Drain TMDL standing out as a showcase for the impact of CAFO dairies. In 2000 there were over 40,000 cows in the Granger Drain basin and the courts found one of the CAFOs guilty of dumping manure directly into a drainage ditch.

In 2000 the Granger Drain TMDL stated:

> *Wasteload Allocation: The only permitted point sources presently in the Granger Drain watershed are fourteen concentrated animal feeding operations (CAFOs), which are all represented by dairies. Because the State's dairy National Pollutant Discharge Elimination System (NPDES) general permit does not allow any wastewater discharge except as a result of a greater than 25-year, 24-hour storm event, all CAFOs have wasteload allocations set to zero.*

In 2003 the WA legislature transferred dairy inspections from Ecology to the WA State Dept. of Agriculture (WSDA) and the number of permitted CAFO dairies plummeted. The dairy that dumped manure into a drainage ditch is still operating with huge profits and no NPDES permit.

2017 NPDES Permit for CAFOs re Surface Water Pollution

The 2017 NPDES General Permit for CAFOs prohibited discharge of pollutants to surface waters using these words:

> *Discharges conditionally authorized by this permit must not cause or contribute to a violation of water quality standards. Discharges not in compliance with these standards are not authorized. The Permittee must also be in compliance with other discharge limits (e.g. special condition S4) in order for discharges to be conditionally authorized.*
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> *A. Total Maximum Daily Loads (TMDL) Discharges conditionally authorized by this permit to waterbodies which have a TMDL in place for a pollutant that the discharge includes must not exceed the established load allocation for CAFOs for the pollutant. Discharges to waterbodies with a TMDL in place not in compliance with these standards are not authorized. To determine if a discharge may be to a waterbody with a TMDL in place, refer to the list of TMDLs at:*
> *http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyWria/TMDLbyWria.html*

B. Impaired (303d listed) Waterbodies Discharges conditionally authorized by this permit to impaired waterbodies that do not have a completed TMDL in place must not contain the pollutant(s) for which the waterbody is listed as impaired. To determine if a discharge may occur to an impaired waterbody, refer to the impaired waterbody database at: http://www.ecy.wa.gov/programs/wq/303d/index.html

C. Production Area The Permittee is prohibited from discharging manure, litter, feed, process wastewater, other organic by-products, or water that has come into contact with manure, litter, feed, process wastewater, or other organic by-products, to surface waters of the state from the production area except when:

1. Precipitation events cause an overflow of manure, litter, feed, process wastewater, or other organic by-product management and storage facilities which are designed, constructed, operated, and maintained to contain all manure, litter, feed, process wastewater, and other organic by-products including the contaminated runoff and direct precipitation from a 25-year, 24-hour rainfall event for the location of the facility and still have lagoon design freeboard;

2. The production area is operated in accordance with the applicable inspection, maintenance, recordkeeping, and reporting requirements of this permit.[8]

D. Land Application Fields The Permittee is prohibited from discharging manure, litter, feed, process wastewater, or other organic by-products from their land application fields, unless the discharge is generated only by precipitation, not caused by human activities during the precipitation, and the Permittee is in compliance with this permit (i.e. the discharge meets the definition of agricultural stormwater).

Nice words, but, aside from the unachievable zero discharge disclaimer, there are no Waste Load Allocations for CAFOs. No one looks for pollutants in tile drains or ditches, for runoff, for groundwater impacts on surface waters. No one measures pollutants in flood waters, or volatilization and atmospheric deposition.

Court of Appeals Ruling

In 2017 a coalition of environmental groups including Puget Soundkeeper, Friends of Toppenish Creek, Sierra Club, Community Association for Restoration of the Environment,

[8] Failure to keep clean water away from production areas is a violation of the Clean Water Act. On May 9, 2023, Snake River Waterkeeper filed a CWA complaint against the J.R. Simplot Co. because *Defendants have failed and continue to fail to properly manage manure at the Grand View Feedlot. Among other problems, Defendants are unable to control rain and snowmelt that flows onto the Feedlot, Defendants overapply manure to nearby fields, and Defendants fail to otherwise adequately collect, contain, and dispose of manure. As a result, manure and manure-laden water from the Grand View Feedlot course through streams, canals, and ditches and flow into the nearby Snake River.* https://food.publicjustice.net/wp-content/uploads/sites/3/2023/05/SRW-v.-Simplot-Complaint.pdf

Center for Food Safety, Waterkeeper Alliance, RESources, and the Western Environmental Law Center appealed Ecology's NPDES permits for CAFOs to the WA State Pollution Control Hearings Board (PCHB) and lost. On June 29, 2021, the WA State Court of Appeals, over-ruled the PCHB in favor of the environmentalists on many key issues.[9]

> *Soundkeeper et al argued that the PCHB erred because (1) the permit conditions do not satisfy the "all known, available, and reasonable methods of prevention, control, and treatment" (AKART) requirement with respect to discharges emitted from manure storage lagoons, composting areas, and animal pens and corrals (2) the permit conditions do not ensure that discharges from CAFOs will not violate water quality standards, (3) the permits do not provide for adequate monitoring, (4) the permits fail to provide for public comment on site-specific nutrient plans prior to issuance, and (5) Ecology was required to consider the effects of climate change in drafting the permits but failed to do so.*

The Court of Appeals found, among other things, that:

- *Page 33: With regard to surface water, the combined permit conditions provide sufficient water quality based effluent limitations in the form of best management practices, but the state only permit condition regarding field discharges is too vague to prevent water quality violations from land application fields.*
- *Page 35: The combined permit contains conditions that protect surface water quality for tile drains and for emergency winter land applications, and the state only permit contains conditions that protect surface water quality for emergency winter land applications. However, while the state only permit allows CAFO operators to use tile drains, the broad condition that CAFOs must not discharge in violation of water quality standards is not an adequate effluent limitation where the permit could have imposed additional requirements. The PCHB therefore erred in approving the state only permit as sufficiently protective of surface water quality standards with respect to this particular practice.*
- *Page 39: Ecology acknowledged that both tile drains and emergency winter land applications may result in discharges to surface water. Although the permits largely prohibit such discharges as written, in practice, activities allowed under the permits may lead to unauthorized discharges if permit conditions are not observed. Surface water monitoring is therefore necessary to ensure that CAFOs engaged in these practices comply with the permits.*
- *Page 40: Monitoring is necessary because it is meant to ensure that dischargers act in compliance with permit conditions. . .. by declining to provide for adequate monitoring of*

[9] Puget Soundkeeper et al versus Ecology. 2021. http://www.friendsoftoppenishcreek.org/cabinet/data/D2%2052952-1-II%20PUBLISHED%20OPINION%20(2).pdf

these activities, Ecology undermines its ability to enforce the effluent limitations in the permits. That is, an NPDES permit is unlawful if a permittee is not required to "effectively monitor its permit compliance."

2023 NPDES Permit for CAFOs Surface Water Pollution

Ecology set about writing a new NPDES permit for CAFOs and issued that permit on December 7, 2022. It will expire on January 5, 2028. Environmentalist have again challenged the permit before the WA PCHB due to multiple deficiencies. The PCHB has scheduled a hearing date for August 2024.

Regarding surface waters Ecology added a section on surface water monitoring that reads:

S5.E. Surface Water Monitoring Standard Protocol

If any discharge of pollutants occurs from the production area to surface water or a prohibited discharge occurs from land application areas to surface water, the permittee must:

a. Record the date and time the discharge was identified, the date and time the discharge is halted, and an estimate of the volume of the discharge.

b. Collect a minimum of one grab sample from the point of overflow or discharge within 30 minutes of detecting the discharge. The sample(s) collected must be representative of the discharge. Analyze the sample(s) for the parameters listed in Table 11.

c. Notify the appropriate Ecology regional office in person or by phone, within 24 hours of detecting the discharge.

d. Submit the results from the above actions to Ecology using the Water Quality Permitting Portal, unless granted a waiver from electronic reporting according to S7.A How to Submit Documents to Ecology.

e. If the discharge is unauthorized, follow reporting requirements in special condition S7.E Reporting Permit Violations.

Protocol when conditions are unsafe

If conditions are not safe for sampling, the permittee must provide documentation of why samples could not be collected and analyzed. For example, the permittee may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.).

a. Record the date and time the discharge was identified, the date and time the discharge is halted, and an estimate of the volume of the discharge.

b. Notify the appropriate Ecology regional office by phone, within 24 hours of detecting the discharge.

c. Once dangerous conditions have passed, collect a minimum of one sample from the point of overflow or discharge.

d. Submit the results from the above actions to Ecology using the Water Quality Permitting Portal, unless granted a waiver from electronic reporting according to S7.A How to Submit Documents to Ecology. If the discharge is unauthorized, follow reporting requirements in special condition S7.E Reporting Permit Violations.

These instructions apparently apply to one time, unexpected events. These instructions do not address ongoing discharge to surface waters through tile drains and ditches. There is no required monitoring of the ongoing effluent from tiles and drains. There is no accounting for groundwater flow that feeds ditches or drains and ends up in rivers or streams. There is no routine or even random monitoring of rivers and streams that border WA CAFOs.

Ecology should find a way to estimate atmospheric deposition and estimate the impact on surface waters, especially for CAFOs located near Puget Sound where the impact is most serious.[10] Ecology should bring TMDL studies up to date and treat CAFOs as the point sources of pollution they are. Ecology should consider writing individual permits for CAFOs situated in flood plains.

Thank you for reading.

Friends of Toppenish Creek

You have received this Fact Sheet because you are on a list of potentially interested parties. If you do not want to receive further information, please contact Jean Mendoza at jeanrmendoza@icloud.com

[10] US EPA. Nitrogen from the Atmosphere. https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileID/14192

Glossary

Agricultural Stormwater: Discharges to surface water from land application fields generated only by precipitation provided that the following are true: 1. The discharge was not from the production area, 2. The discharge was not caused by human activities even if the activity took place during precipitation, and 3. Permittee is in compliance with their CAFO permit (including use of best management practices), where the manure, litter, process wastewater, or other organic by-products have been applied in accordance with site specific yearly field nutrient budget and other relevant permit requirements. (From 2023 NPDES Permit for CAFOs)

Land Application Field: An area of land, including management units, under the control of the CAFO (excluding the production area) to which manure, litter, process wastewater, or other organic by-products are applied as a fertilizer or soil amendment. (From 2023 NPDES Permit for CAFOs)

Load Allocation: That portion of a receiving water's loading capacity that is attributed either to one of its existing or potential non-point source of pollution or to natural background sources. As calculating these separate load allocations is exceedingly difficult due to the natural variability of FC bacteria, the TMDL will rather set load allocations for the entire mainstem Granger Drain and the two principal irrigation water supply canals that pass through the watershed. All points in such "waters of the State" will need to comply with an interim FC load allocation of 510 cfu/100 mL (commencing with the 2007 irrigation season), and a final FC load allocation of a geometric mean of 100 cfu/100 mL and a 90th percentile of 200 cfu/100 mL (commencing with the 2012 irrigation season). The final FC targets are equivalent to the State Class A FC water quality standard. (From Granger Drain Study)

Loading Capacity: The maximum amount of FC loading that a receiving water can absorb without violating the respective State water quality standard. (From Granger Drain Study)

Production Area: The locations making up a CAFO facility that are used for animal confinement, manure, litter, feed, and process wastewater storage, product processing facilities (e.g. milking parlor, egg washing, feed mixing), and other areas used for the storage, handling, treatment, processing, or movement of raw materials, products, or wastes. This includes manure stockpiled on fields. (From 2023 NPDES Permit for CAFOs)

Rivers & Stream Types (EPA at https://archive.epa.gov/water/archive/web/html/streams.html)

> **Year-round streams (perennial)** typically have water flowing in them year-round. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.
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> **Seasonal streams (intermittent)** flow during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow. Runoff from rainfall or other precipitation supplements the flow of seasonal stream. During dry periods, seasonal streams may not have flowing surface water. Larger seasonal streams are more common in dry areas.

Rain-dependent streams (ephemeral) flow only after precipitation. Runoff from rainfall is the primary source of water for these streams. Like seasonal streams, they can be found anywhere but are most prevalent in arid areas.

Total Maximum Daily Load (TMDL): A calculation of the maximum amount of a pollutant that a water body can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations include a "margin of safety" to ensure that the water body can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation also accounts for seasonable variation in water quality. (From 2023 NPDES Permit for CAFOs)

Wasteload Allocation: That portion of a receiving water's loading capacity that is allocated, or attributed, to existing or potential point sources of FC pollution. The only permitted point sources presently in the Granger Drain watershed are fourteen concentrated animal feeding operations (CAFOs), which are all represented by dairies. Because the State's dairy National Pollutant Discharge Elimination System (NPDES) general permit does not allow any wastewater discharge except as a result of a greater than 25-year, 24-hour storm event, all CAFOs have wasteload allocations set to zero. There are various other dairies and feedlots within the watershed that are considered as animal feeding operations (AFOs), but they are not yet required to be permitted due to no past discharge of wastewater. All AFOs are required to have no discharges of pollution. (From Granger Drain Study)