

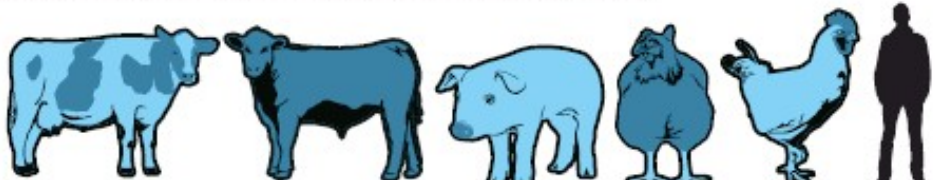
FISH & FARM: 4

The problem with manure. Day 2 of our series.

They are the invisible waterways. Laced with farm manure, choked with invasive grasses and often seasonally dry, their subtle meanderings go unnoticed and unappreciated. There are hundreds of them in the Fraser Valley, providing critical habitat for endangered fish and frogs against a tide of government neglect, poor farming practices and public ignorance.

Daily production of waste constituents

A comparison of dairy cattle, beef cattle, laying hens, broiler chickens, feeder pigs and humans



	units	dairy cow	beef feeder	feeder pig	laying hen	broiler chicken	human
typical weights	kg	590	295	52	1.6	0.7	63
volume of manure waste water (including dilution liquid, such as toilet flushing)	L	68.7	21.3	5.8	0.2	0.07	227
total solids	g	7,100	2,500	570	26	15	160
BOD ₅ [*]	g	940	470	160	5.3	n.a	50
total nitrogen	g	260	100	27	1.3	0.77	9.1
total phosphorus	g	55	27	9.4	0.48	0.21	1.8
total coliform bacteria	number	6.5x10 ¹²	1.8x10 ¹¹	2.3x10 ¹⁰	1.8x10 ⁹	n/a	2.3x10 ¹¹

* BOD₅ refers to the 5-day biochemical oxygen demand which is a measure of the organic matter in the waste.

Note: All calculations rounded off
Source: University of Guelph

On Zero Avenue in south Langley, some don't even have proper names, including F1.1, a ditch that flows into Bertrand Creek — one of the Fraser Valley's most important fish streams — and eventually the Nooksack River in Washington state's Whatcom County.

The Washington state target for the Bertrand watershed is 49 fecal coliforms per 100 millilitres of water, to protect public health and avoid polluting Lummi shellfish beds.

But the numbers flowing south from Canada are far above those levels — and livestock manure is to blame.

State agency staff make regular trips north through the Aldergrove- Lynden border, crossing to take water samples from the ditch, and analyze them at a Bellingham lab.

The results show a spike of 34,000 fecal coliforms in November 2013 and 3,800 at Jackman Ditch at the border, just to the west. The May results are no better: 19,000 fecal coliforms in the Bertrand main

stem at the border, 25,000 at nearby Cave Creek, and 3,000 in Jackman Ditch.

Farm manure is part of a cycle that acts to diminish the productivity of fish streams, especially when there is no streamside vegetation to help keep the water cool. It creates conditions for growth of invasive sun-loving species such as reed canary grass, which clogs the ditches. Nitrates, found in manure and fertilizers, have filtered into the aquifer to pollute wells used for drinking water.

In 1998, the Washington state agriculture department developed a water-quality program backed by law. Dairy farmers are required to develop and follow manure management plans and there are regular inspections.

In B. C., after more than two years of trying, the province is still embroiled in talks with farmers to find a compromise that would allow a crackdown on manure violators.

"It's a significant concern, an ongoing challenge," explains Andrea Hood, a program coordinator with Washington's office of shellfish and water protection. "Farmers in the county feel it's unfair that the state cracks down on them, while manure continues to flow unimpeded from Canada."

Without public recognition and protection, these important streams stand little chance of survival.

' Bad farming practices'

"People have no idea," says Mike Pearson, a consulting biologist from Agassiz who has worked on federal recovery plans for endangered Salish suckers and Nooksack dace. "The majority of coho in the Fraser River are produced between Vancouver and Hope. Their habitat is under threat. The root problem is bad farming practices."

Pearson recalls surveying for fish on Elk Creek in Chilliwack and finding almost no fish in the main stem, but hundreds of coho in a roadside ditch that was slightly warmer and out of the stronger flow. "That's where they go in winter. They get off the main channel."

He laments that agriculture is a big player on the land base, with "very little regulation environmentally. It's quite legal to spray and spread manure right up to the water's edge. I've even seen it spread over top of streams."

Guillermo Giannico, a fisheries specialist at Oregon State University who did his PhD on juvenile coho in Langley, has documented 15 species of fish that depend on small streams flowing through farmland. Meandering streams with streamside vegetation and buffers from active farming are most productive for fish, while "torpedo ditches" lacking complexity are the least productive.

The problem on both sides of the border is that these critical streams remain poorly protected, he says.

Ditch F1.1 is directly across Zero Avenue from an Aldergrove mushroom farm, Truong's Enterprises Ltd. On the day The Sun visits, the property looks cluttered with debris. Water floods from the property almost across the narrow two-lane road into the ditch. A row of compost sits on the property only a few metres from the road. Owner Quan Truong does not return The Sun's phone calls.

Ministry of Environment spokesman David Karn says that a new ministry team responsible for monitoring, compliance and stewardship is investigating "alleged discharge from the mushroom farm."

Of course, sometimes pollution goes the other way — and the Americans are known to take decisive action.

In April, the state's Department of Ecology fined Sarbanand Farms and Pacific Pumping Inc. \$ 4,000 each for spreading a large amount of manure last September on a bare field before heavy rain, allowing manure to pollute a tributary of the Sumas River, which flows north into the Fraser River.

"Manure can be a resource or a waste, depending on how you use it," said Ginny Prest, program manager for Washington's dairy nutrient management program. She remembers what it was like in the late 1980s into the early 1990s. "It was pretty ugly — a lot of manure getting into the water, shellfish bed closures, beach closures, those kinds of things."

' Stricter enforcement'

At the same time, farmers' reaction to nutrient legislation was "loud and unhappy," she added.

She estimated more than one-fifth of dairy farmers continue to use practices that have the potential to pollute. However, officials only act when pollution occurs to state waters.

"You can see there is manure right up against the creek, no buffer, no setback," she said. "We have to get that number smaller ... take stricter enforcement. It's going to take a legislative change to make that happen. The language could be stronger so we could be more proactive."

Over the past decade, the state has issued 16 penalties and 169 warnings to dairy farmers for violations.

In 2013, the penalties included \$ 7,000 and \$ 9,000 for applying manure under inappropriate field conditions and \$ 8,000 for a collection system malfunction.

On the B. C. side of the border, you'd be hard- pressed to find a dairy farmer fined for a manure-related violation — although that could be changing.

In January 2012, the B. C. Ministry of Environment released a discussion paper aimed at a code of practice — legally binding requirements for farms.

It proposed that manure storage sites be located at least 30 metres from any watercourse, that farms must have the capacity to store at least a year's worth of manure and other waste, and that direct discharge to surface water or groundwater be banned. It raised the potential for buffers or setbacks from the property boundary and a ban on spreading manure during wet conditions.

Angry farmers blocked the proposal.

"The people who did it didn't understand agriculture," said Ken Vandeburgt, a dairy farmer from Dewdney, east of Mission. "They threw this thing out at the farmers and it was like an instant war. A lot of it made no sense."

' Zero tolerance'

Farmers formed a committee and began working with the ministries of Environment and Agriculture on a model they could live with. More than two years after release of the discussion paper, agreement on new regulations giving the province more powers could happen later this year.

"If a guy is going to spread manure right up to his creek and there is manure going in the creek, he's going to get nailed," Vandeburgt, vice- chair of the B. C. Dairy Association, said of the changes. "That's pretty much where we're at. There is zero tolerance for pollution.

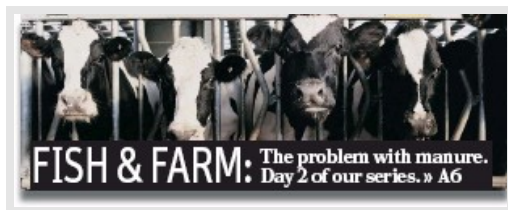
"For some farms ... there'll be a rude awakening. ... We're going to enforce proper farming practices. We don't want overflowing pits, we don't want spreading outside of the growing season. We're not going to do anything that impacts the environment."

Currently, the province issues advisories on when to spread manure, but farmers are not legally bound to obey.

"Right now they don't have the ability to impose fines," added Vandeburgt. "The new regulations will "make it easier for the Ministry of Environment to come on your farm and if they see pollution, you're getting nailed, no if, ands, or buts. It will be good. It's going to weed out the bad apples and I have no trouble with that."

But it still remains to be seen how strict the regulations will be. Vandeburgt wants each farm considered on a casebycase basis, allowing for factors such as the lay of the land and the amount of riparian area around streams, and he's opposed to fixed stream setbacks.

"If there was a minimum setback on every watercourse, you wouldn't have any land left (for farming)," he said.



Environment Minister Mary Polak refused to be interviewed. Communications officer David Karn released a ministry statement on the delay in new regulations, saying "it takes time to get the job done right and consultation with the sector has been a (high) priority." The statement added that the "intent is to deter pollution by preventing manure from entering watercourses; however, setbacks cannot be applied universally."

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