

# Animal Manure Pollution Identification and Correction



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# The Arrogance of Authority



A DEA officer stopped at a Texas ranch and talked with an old rancher. He told the rancher, *"I need to inspect your ranch for illegally grown drugs."* The rancher said, *"Okay , but don't go in that field over there..."*. The DEA officer verbally exploded saying, *" Mister, I have the authority of the Federal Government with me !"* Reaching into his pants pocket, he removed his badge and proudly displayed it to the rancher. *"See this badge?! This badge means I am allowed to go wherever I wish... On any land !! No questions asked or answers given!! Have I made myself clear...do you understand ?!!"* The rancher nodded politely, apologized, and went about his chores. A short time later, the old rancher heard loud screams, looked up, and saw the DEA officer running for his life, being chased by the rancher's big bull.



With every step the bull was gaining ground on the officer, and it seemed likely that he'd sure enough get gored before he reached safety. The officer was clearly terrified. The rancher threw down his tools, ran to the fence and yelled at the top of his lungs.....

*"Your badge, show him your BADGE... ! !"*



# The Arrogance of Denial

“That’s how we’ve always done it.”

“Our manure isn’t a problem.”

“The pollution must be coming from the road.”



# Building Trust

- Authority does not work without the trust and respect of the community.



# We all need clean water...



# Fecal Pollution Sources



**Humans**



**Livestock**



**Wildlife**



**Pets**



# Some Pet Waste Pathogens

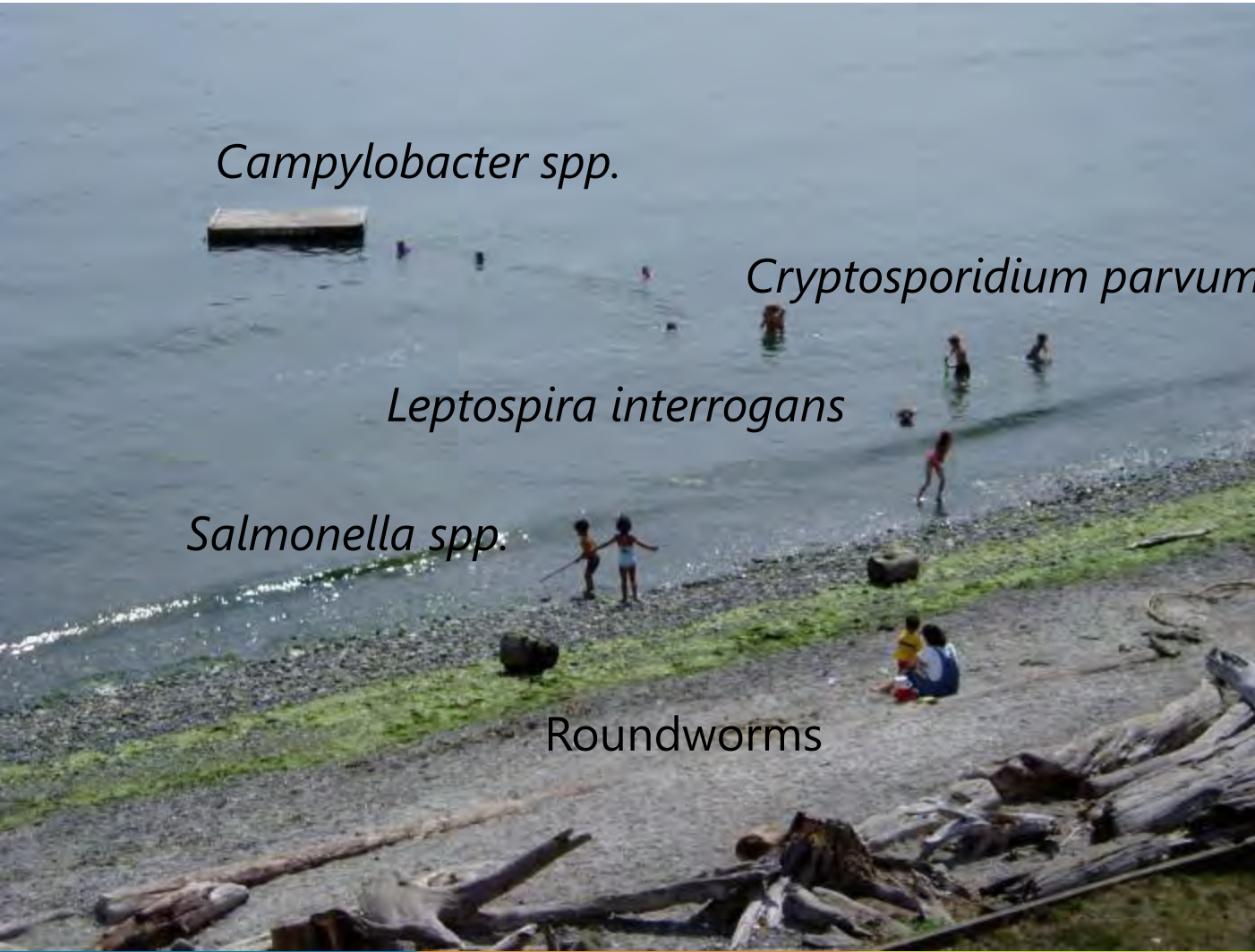
*Campylobacter spp.*

*Cryptosporidium parvum*

*Leptospira interrogans*

*Salmonella spp.*

Roundworms



# Kitsap County Pet Waste Campaign

**What's the problem with  
11 tons of dog poop?**

**That's like an  
entire city's  
raw sewage  
sitting in our  
backyards!**

Harmful organisms can be transmitted from dog waste to children.  
Some can persist for weeks in your yard, waiting for a host.

Landfills are designed to safely handle substances like dog waste.  
Yards and septic systems are not. Burying or composting pet waste  
allows harmful organisms into groundwater.



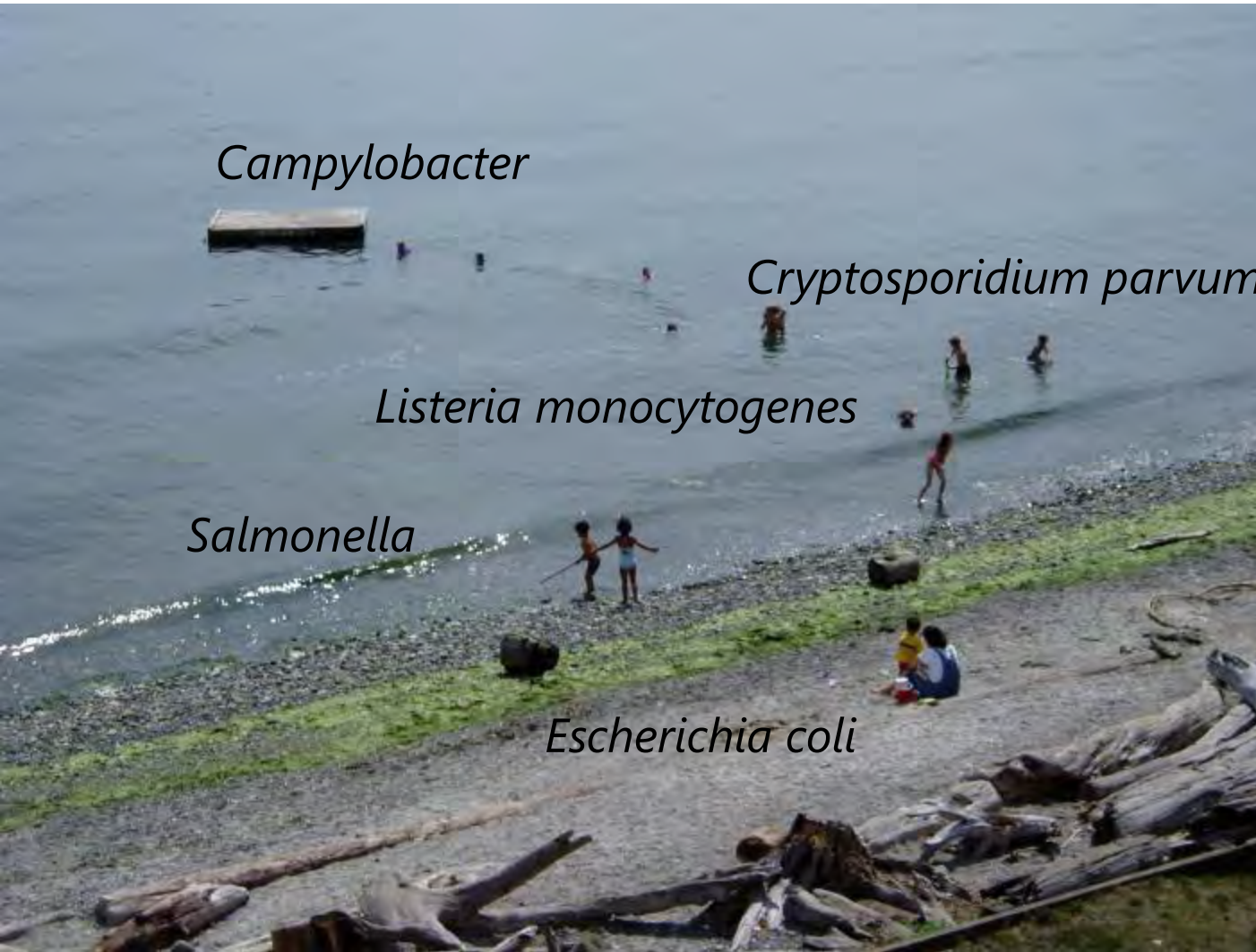
**Over 11 tons of dog waste are dropped on  
the Kitsap Peninsula every day!**

"Mutt mitt" stations





# Some Livestock Waste Pathogens



# Kitsap County Animal Manure Pollution Identification and Correction

## Process

- Ranked Inventory
- Initial Investigation
- Parcel Investigation
- Meet Property Owners
- Refer to Conservation District
- Enforcement



# Ranked Inventory



## High Priority Farms:

- Priority 1: Pasture in poor condition.  
Livestock access to surface water and/or high probability of contaminated runoff due to topography sloping toward water body.  
Visual evidence of contamination problem.
- Priority 2 Pasture in poor condition.  
Some reason to believe degraded conditions are seasonal or could get worse seasonally.  
Some areas on property reflect higher levels of management.



# Initial Investigation



Windshield Survey – look for potential fecal sources and surface water drainage.



# Water Quality is Important in Washington State

- RCW 90.48.010 “insure the purity of all waters of the state consistent with public health and public enjoyment “
- RCW 90-48-080 prohibits discharge of “any organic or inorganic matter that shall cause or tend to cause pollution of such waters”.
- (WAC) 173-201A-510 requires that activities “which contribute to nonpoint source pollution shall be conducted utilizing best management practices to prevent violation of water quality criteria”



# Agriculture – A Cornerstone of Washington's Economy

- Washington's \$46 billion food and agriculture industry represents 13% of the state's economy.
- In 2011, hay was the fifth most valuable agricultural commodity at \$713,568,000 and Cattle & Calves was sixth at 592,296,000.
- The average Washington State farm has livestock, poultry, and products sold valued at \$51,878.



# Parcel Investigation

- Three – five sets of investigative water samples.
- Bracket property if possible.
- Photograph potential sources.



# Kitsap Public Health Initial Meeting





# Refer Water Quality Violations to Conservation District



# What is the Kitsap Conservation District?

- ✓ We are a legal subdivision of state government that administers programs to conserve natural resources.
- ✓ Through voluntary cooperation with agricultural landowners, we promote Best Management Practices that benefit both the environment & the landowner.
- ✓ We coordinate technical assistance & cost share incentives to encourage good stewardship of our natural resources.
- ✓ **We are non-regulatory!**



# How Do We Get Things Done?

- ✓ Landowner cooperation
- ✓ Interagency partnerships
- ✓ Multi-source funding
- ✓ Non-regulatory technical assistance
- ✓ Start-to-finish project development



# FARM PLANNING

- ✓ Inventory the site – soil, water, animals, plants, people, air.
- ✓ Identify resource concerns.
- ✓ Make recommendations for addressing those concerns.
- ✓ The farm plan is a living document created with the landowner's specific goals in mind.



# Best Management Practices (BMPs)

- ✓ Agricultural Best Management Practices (BMPs) are practical, cost-effective actions that agricultural businesses can use to reduce pesticides, fertilizers, animal waste and other pollutants entering our water resources.
- ✓ BMPs are designed to protect or improve water quality while maintaining or even enhancing agricultural production



# Livestock Exclusion Fencing

This practice facilitates the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles.



- ✓ **Most obvious improvement.**
- ✓ **Most likely to qualify for cost share assistance.**
- ✓ **Usually required by Critical Area Codes.**





## Livestock Waste Transfer

Very common resource concern where contaminated runoff is entering road ditches.

- ✓ Waste Transfer is a system using structures, conduits, or equipment to convey byproducts (wastes) from agricultural operations to points of usage or treatment. In this case - Filter strip.



Filter Strip



# Waste Storage Facility

Temporarily store wastes - manure, wastewater, and contaminated runoff - as a storage function component of an agricultural waste management system.



- ✓ Prevents manure laden runoff from leaving property.
- ✓ Preserves valuable nutrients in manure from leaching into ground water.
- ✓ Provides soil amendments for local gardeners.

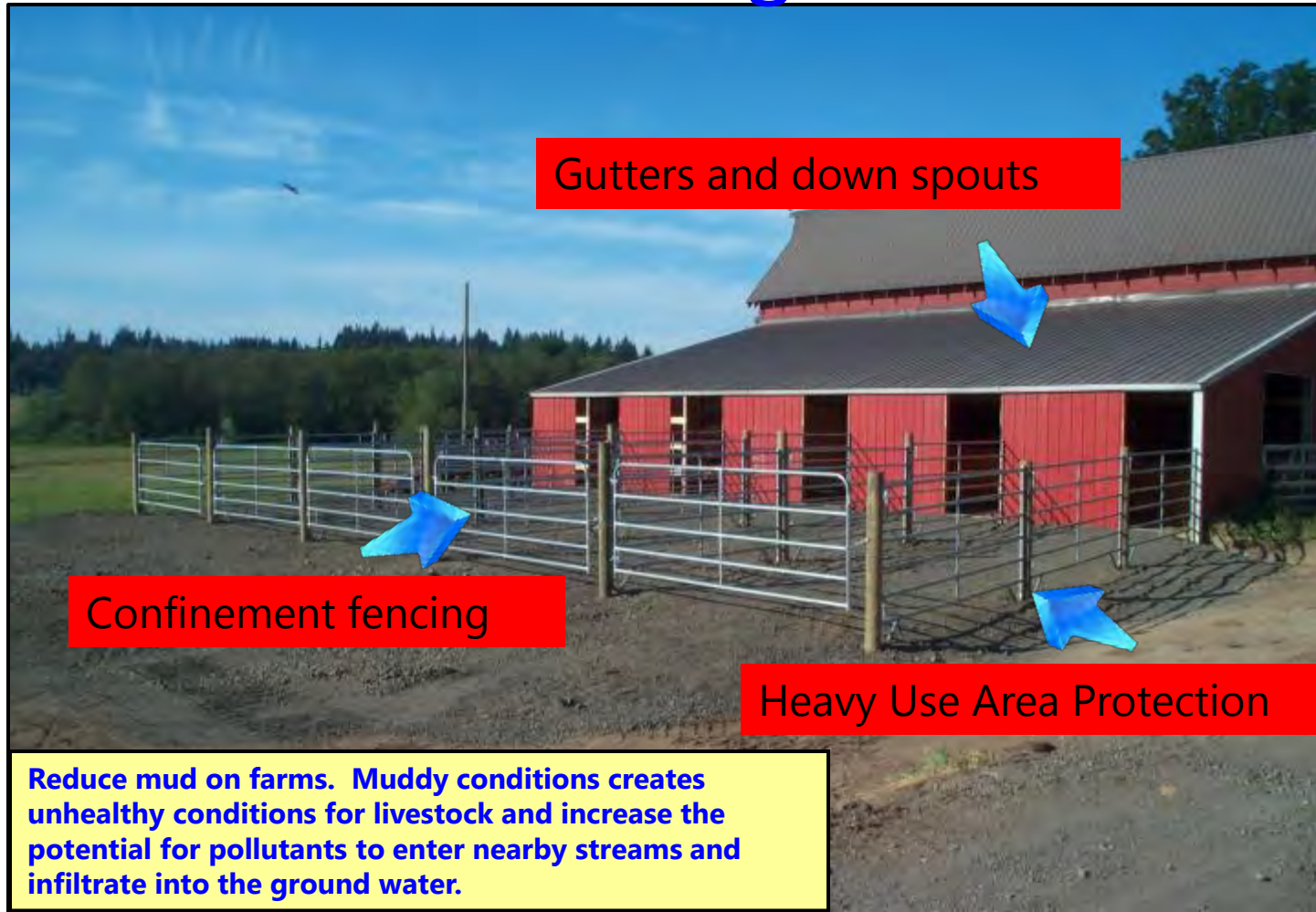




# Waste Storage Facility



# Mud Management



# Heavy Use Area Protection

To provide a stable, non-eroding surface for areas frequently used by animals, people or vehicles.



- ✓ Very common source of polluted runoff.
- ✓ Extremely important for livestock health.



# Heavy Use Area Protection

Before



After



Before

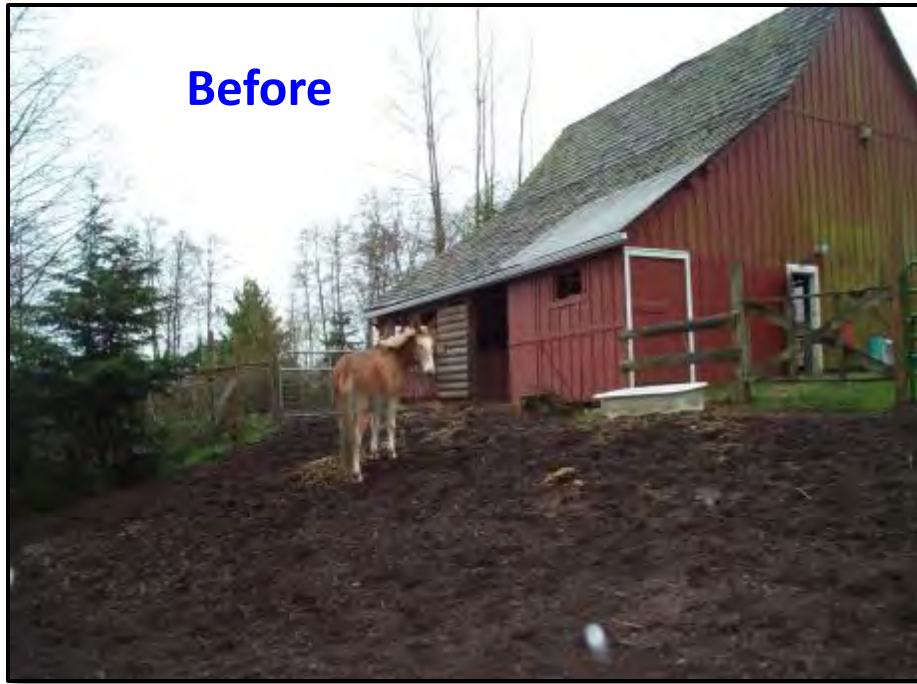


# Heavy Use Area Protection

After



**Before**



# Heavy Use Area Protection

**After**



# Diversion

A channel generally constructed across the slope with a supporting ridge on the lower side.



- ✓ **Divert water away from farmsteads, agricultural waste systems, and other improvements.**
- ✓ **Intercept surface and shallow subsurface flow.**



# Pasture Renovation

Establishing adapted and compatible native and introduced species, varieties, or cultivars to improve or maintain livestock nutrition and/or health, extend the length of the grazing season, provide emergency forage production, reduce soil erosion by wind and/or water or improve water quality by reducing runoff.



- ✓ Improves forage production up to three-fold.
- ✓ Improves infiltration.
- ✓ May function as a Filter Strip during winter months.





# Follow-up Sampling



# Strategy Sessions

Working together with our water quality toolbox to solve problems.

## Kitsap Public Health

- Water quality data
- Enforcement

## Kitsap Conservation District

- Free technical assistance
- Cost share programs



# BEFORE AND AFTER CORRECTION



October 2011



March 2013

**Kitsap Public Health District**

**BURLEY LAGOON WATER QUALITY PROJECT  
Water Quality Investigation Results**

DATE	Bear Creek at Pine	Bear Creek at Madrona
	Fecal coliform/100 ml	Fecal coliform/100 ml
4/28/2011	160	140
5/12/2011	120	590
6/2/2011	210	220
9/27/2011	100	290
10/25/2011	200	40
11/9/2011	4	4
12/15/2011	10	10
<b>GMV - before</b>	<b>142</b>	<b>269</b>
<b>GMV - after</b>	<b>20</b>	<b>12</b>

GMV - Geometric Mean Value



# BEFORE AND AFTER CORRECTION



Kitsap Public Health District

**BURLEY LAGOON WATER QUALITY PROJECT**  
**Water Quality Investigation Results**

DATE	Stream entering	Stream exiting
	Fecal coliform/100 ml	Fecal coliform/100 ml
10/28/1999	240	1601
12/8/1999	50	170
12/13/1999	22	90
GMV	64	290

GMV - Geometric Mean Value



Washington State considers animal waste to be a solid waste.

Washington has provided local jurisdictions a detailed framework that can be used to protect water quality and prevent water pollution from animal waste.

Regulations provide guidance for local jurisdictions to protect water quality from the adverse affects of animal waste.

- Revised Code of Washington (RCW) 70.95.020 establishes: “a comprehensive statewide program for solid waste handling, and solid waste recovery and/or recycling which will prevent land, air and water pollution and conserve the natural, economic, and energy resources of this state.” It assigns primary responsibility for solid waste handling to local government.
- WAC 173-350-010 was adopted: “to protect public health, to prevent land, air, and water pollution, and conserve the state’s natural, economic, and energy resources by: (1) Setting minimum functional performance standards for the proper handling and disposal of solid waste originating from residences, commercial, agricultural and industrial operations and other sources...”
- WAC 246-203-130 requires: “Any person, firm or corporation is prohibited from keeping or sheltering animals in such a manner that a condition resulting from same shall constitute a nuisance.”



## Enforcement



# Enforcement

Kitsap County incorporated the state regulatory framework into Solid Waste regulations that have been effective in correcting animal waste pollution sources. Kitsap County Board of Health Ordinance Number 2010-1 “Solid Waste Regulations”, Effective July 6, 2010 integrates the full text of WAC 173-350.

Section 305 specifies solid waste handling standards for specific waste streams. The animal waste sub-section specifies that:

- “ Animal Manure shall not be deposited, or allowed to accumulate, in any ditch, gulch, ravine, river, stream, lake, pond, marine water, or upon the surface of the ground, or on any highway or road right of way, where it might become a nuisance or menace to health, as determined by the Health Officer, through the breeding of flies, harboring of rodents, or pollution or water, Manure shall not be allowed to accumulate in any place where it can pollute any source of drinking water.”

The pet waste sub-section specifies:

- “Pet Feces, especially dog droppings, shall be disposed of in a manner, such as burial, or double-bagged and placed into containers described in Section (300(2), which does not create a nuisance or pollute surface waters of the state. Pet feces shall not be disposed of into the sanitary sewer unless approved by the sewer purveyor. This waste shall not be put into a storm sewer or on-site sewage system or allowed to accumulate on the ground so as to create a nuisance.”



# Follow-up Sampling



# Questions?





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