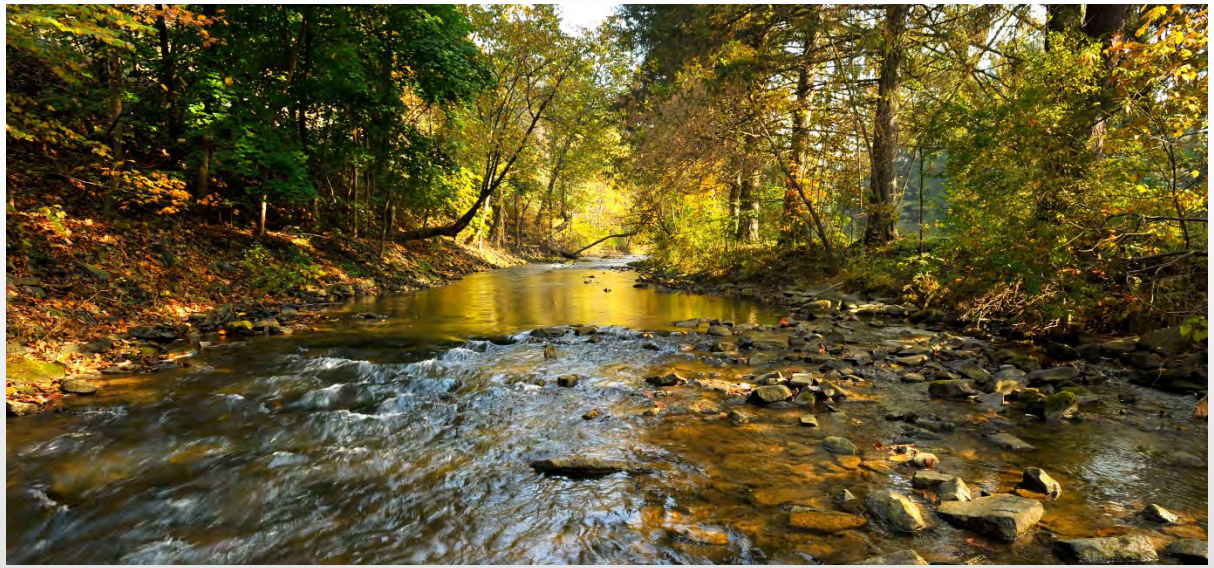
Pierce Conservation District

Chambers-Clover Creek Watershed

Workshop Overview

- Watershed Basics
- Your Watershed
- Human Built Environment
- Stormwater
- Salmon/Orcas
- Watershed Conditions
- Watershed Monitoring
- Todd Smith + University Place
- Things you can do!



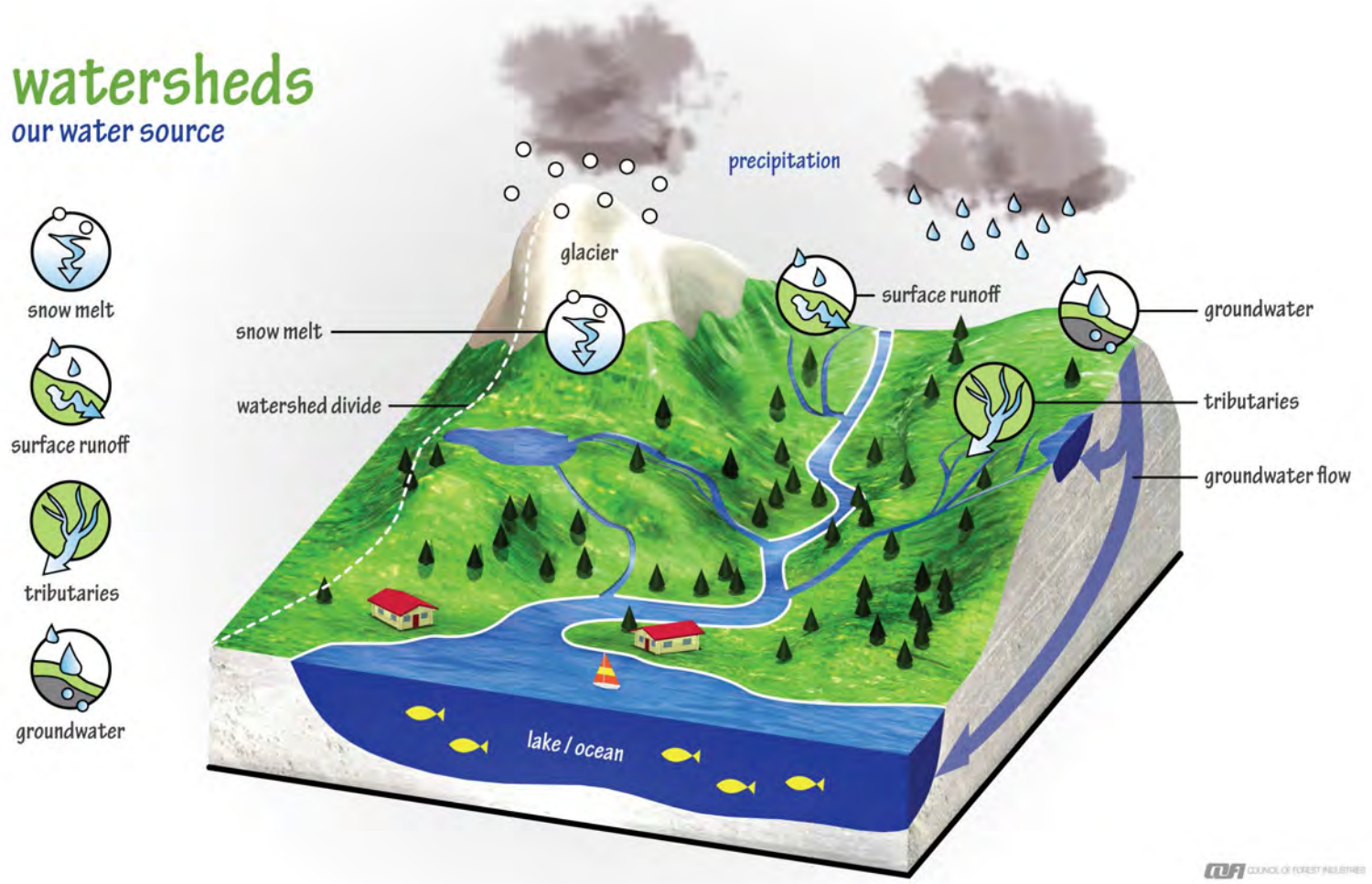
PCD 101 - Who We Are

Conservation Districts created in response to the Dust Bowl (1930's)

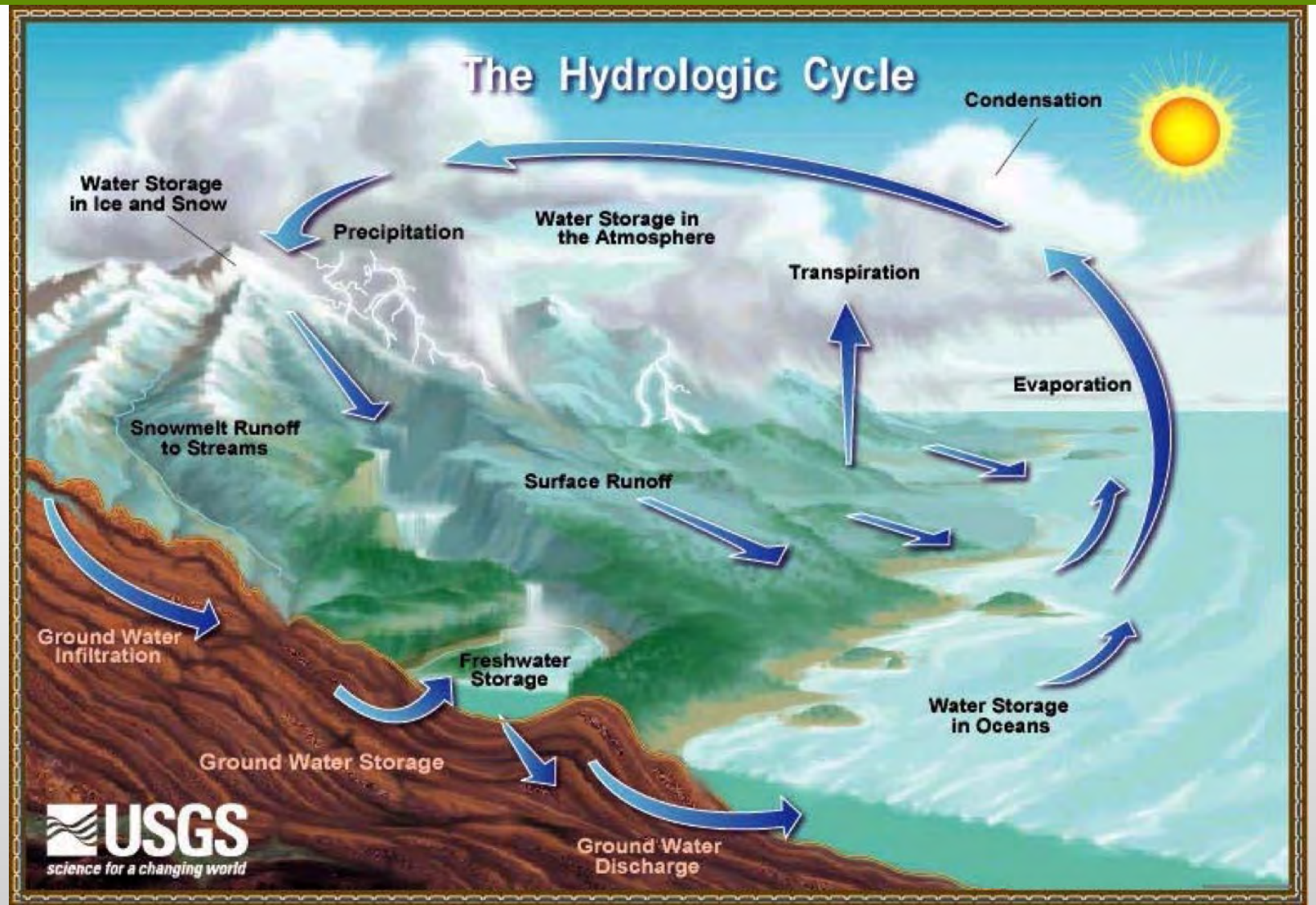
Pierce Conservation District established 1949

- Farm Assistance
- Habitat Improvement
- Harvest Pierce County
- Environmental Education
- Water Quality

What Is Watershed?



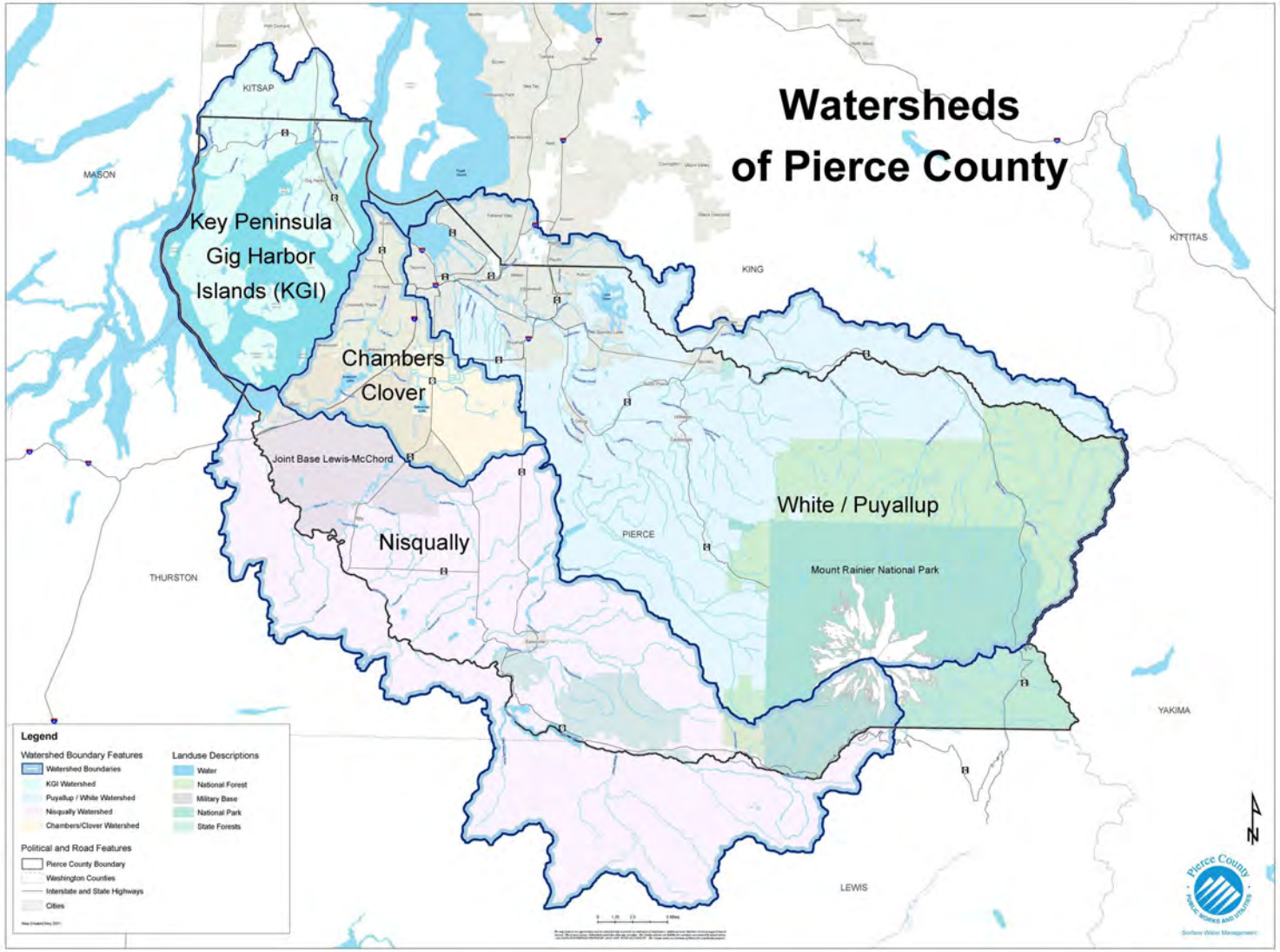
Watersheds Are a System



Why Are Watersheds Important?

- <u>Main Function: Transport and Store Water</u>
  - Provides freshwater for drinking, agriculture and manufacturing
  - Habitat for plants, animals and humans!
  - Sediment and nutrient transport

4 Watersheds of Pierce County



Stakeholders in C3

Tribes

Nisqually Indian Tribe

Puyallup Indian Tribe

Northwest Indian Fisheries Commission

Government Agencies

City of Tacoma

City of Lakewood

City of University Place

Pierce County

Chambers - Clover Watershed Council

Tacoma-Pierce County Health Department

Town of Steilacoom

City DuPont

Non-Profits

Center for Urban Waters

Citizens for a Healthy Bay

Puget Sound Starts Here

Surfrider Foundation

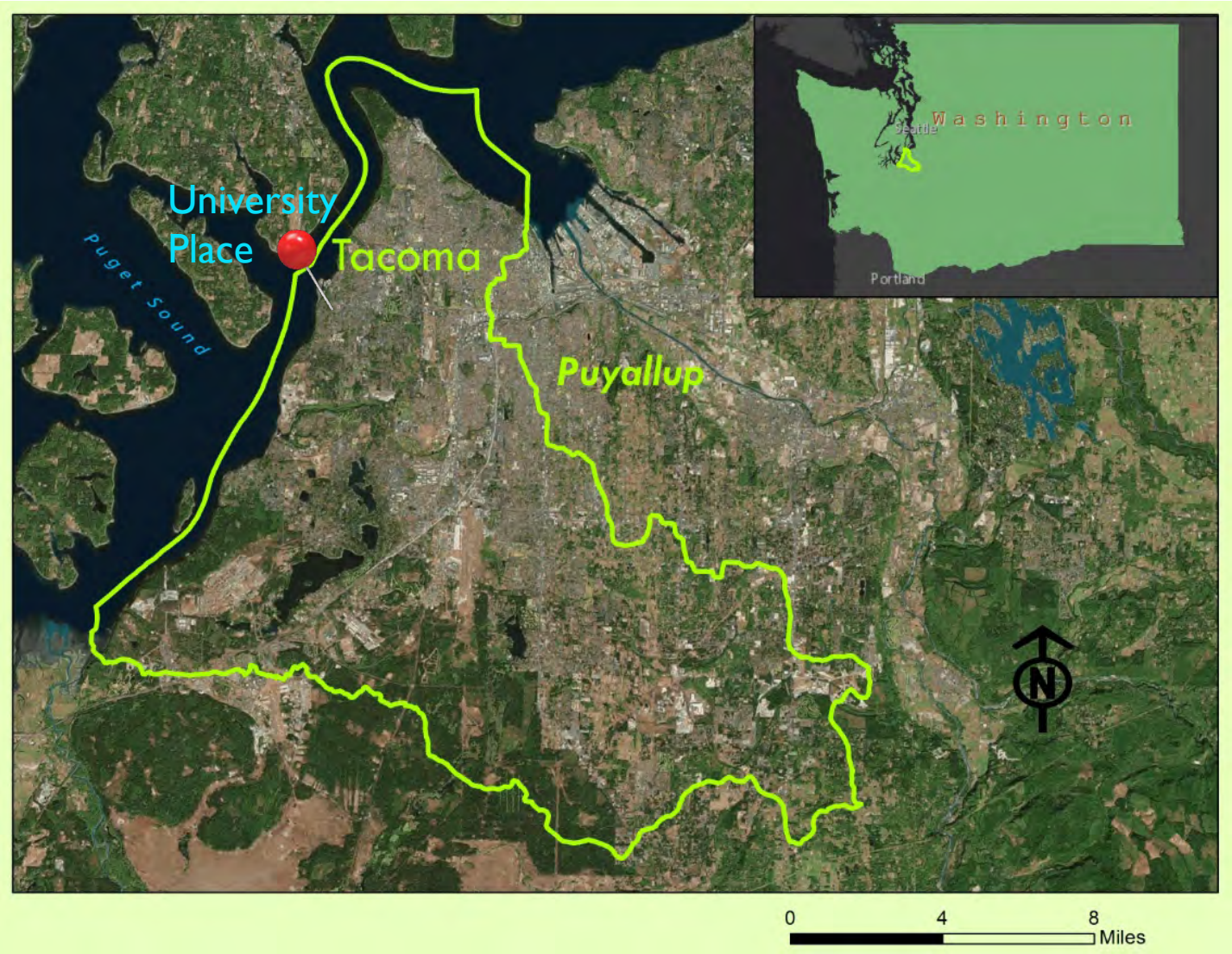
Where Is Your Watershed?

Chambers Clover Creek (C3) Watershed

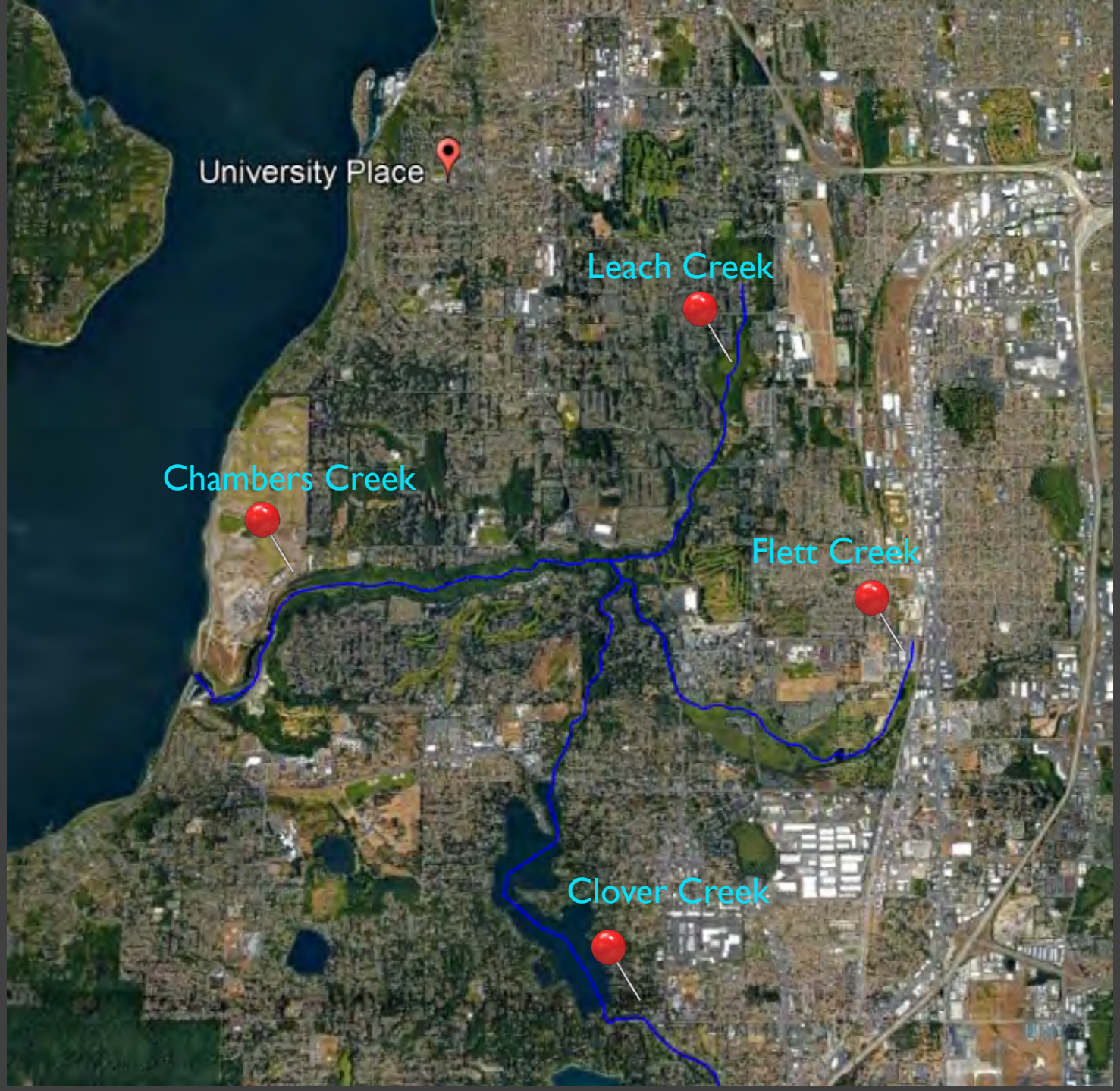
Designated WRIA 12

Covers about 180 square miles

Ground water connects everything



What do you notice about this map?



History of the Chambers-Clover Watershed

History of the Chambers-Clover Watershed

Native inhabitants

- Steilacoom Indians, Coast Salish native peoples
  - Around five bands comprising about 600 Steilacoom inhabited the area
- Salmon runs large portion of diet

Non-commercial timber harvesting began in 1850

- Mouth of Chambers Creek dammed ~1915

Current research into removal design

Human Impact

Human infrastructure built over short period of time

Watershed importance was unknown in the beginning

Forces natural systems to adapt rapidly to support larger surface water amount

Stormwater

Precipitation falls on the watershed (~40 in. per year)

About 20,000 gallons for an average roof per year

Runs into storm drains untreated/unfiltered to Puget Sound

https://www.sightline.org/2013/01/22/are-rain-gardens-mini-toxic-cleanup-sites/

Solution: Rain Barrel

40 in. per year X 1000sqft roof=

20,000 gallons of water per year!

Diverts water from storm drain

Water your landscaping

Solution: Rain Gardens

Filters stormwater

Diverts water from storm drain

Beautifies your garden

Helps pollinators

Orcas: An Indicator of Health

J, K, & L pods (Southern Residents)

- 73 wild combined total

Primary food source

- Chinook Salmon

Provide insight into overall food web and environmental health

Watershed Inhabitant: Salmon

- Salmon rear and spawn in C3
- Chambers Creek Species: Chinook, Coho, Chum, Pink salmon, Steelhead
- Current populations are 1/3 of what they were 100 years ago

Salmon Near UP

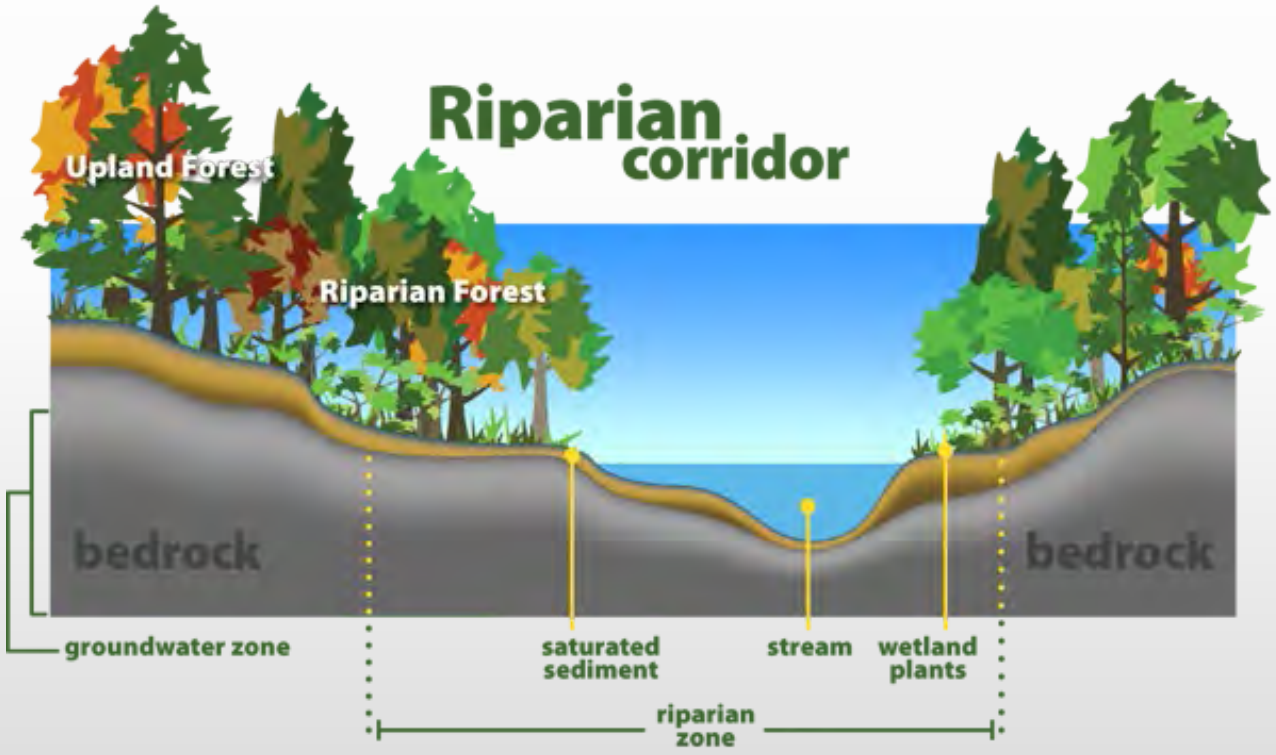
http://apps.wdfw.wa.gov/salmonscape/map.html

Salmon Habitat

Riparian zone: The area between the stream and upland areas.

Riparian comes from the Latin word, *ripa*, which means river bank.

Filters water, provides shelter



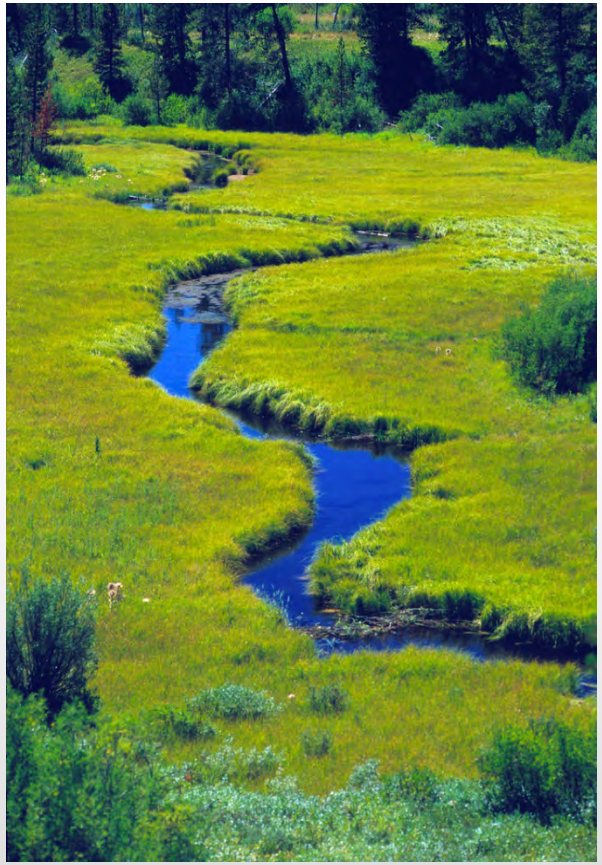
Watershed Conditions

- **Temperature**
- Dissolved Oxygen
- pH
- Turbidity
- Nitrates
- Flow
- Habitat & Current Inhabitants

https://gritcitymag.com/2017/11/in-search-of-chambers-creek-salmon/

Positive Watershed Factors

Shade, riparian vegetation

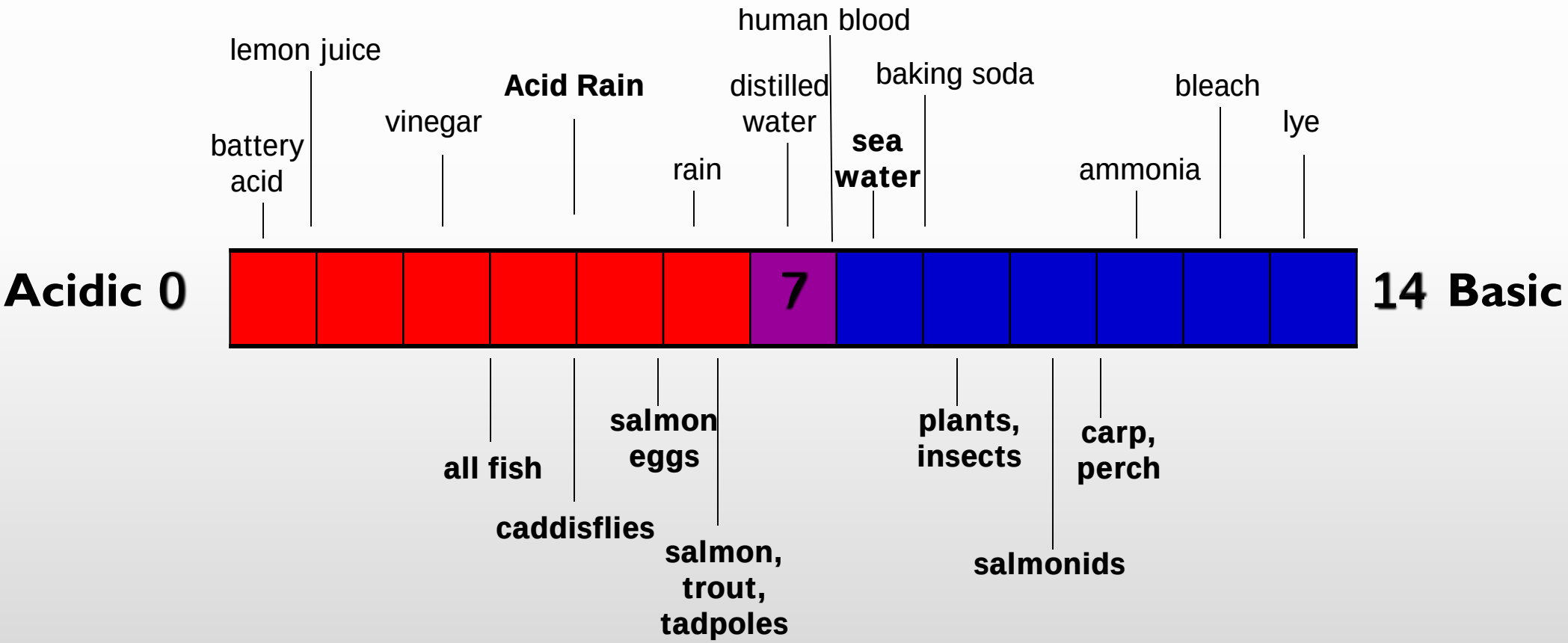


Meandering (or re-meandering)

High Dissolved Oxygen

Negative Factors

Watershed Chemistry: pH Scale



Keeping Track

Temperature

Turbidity

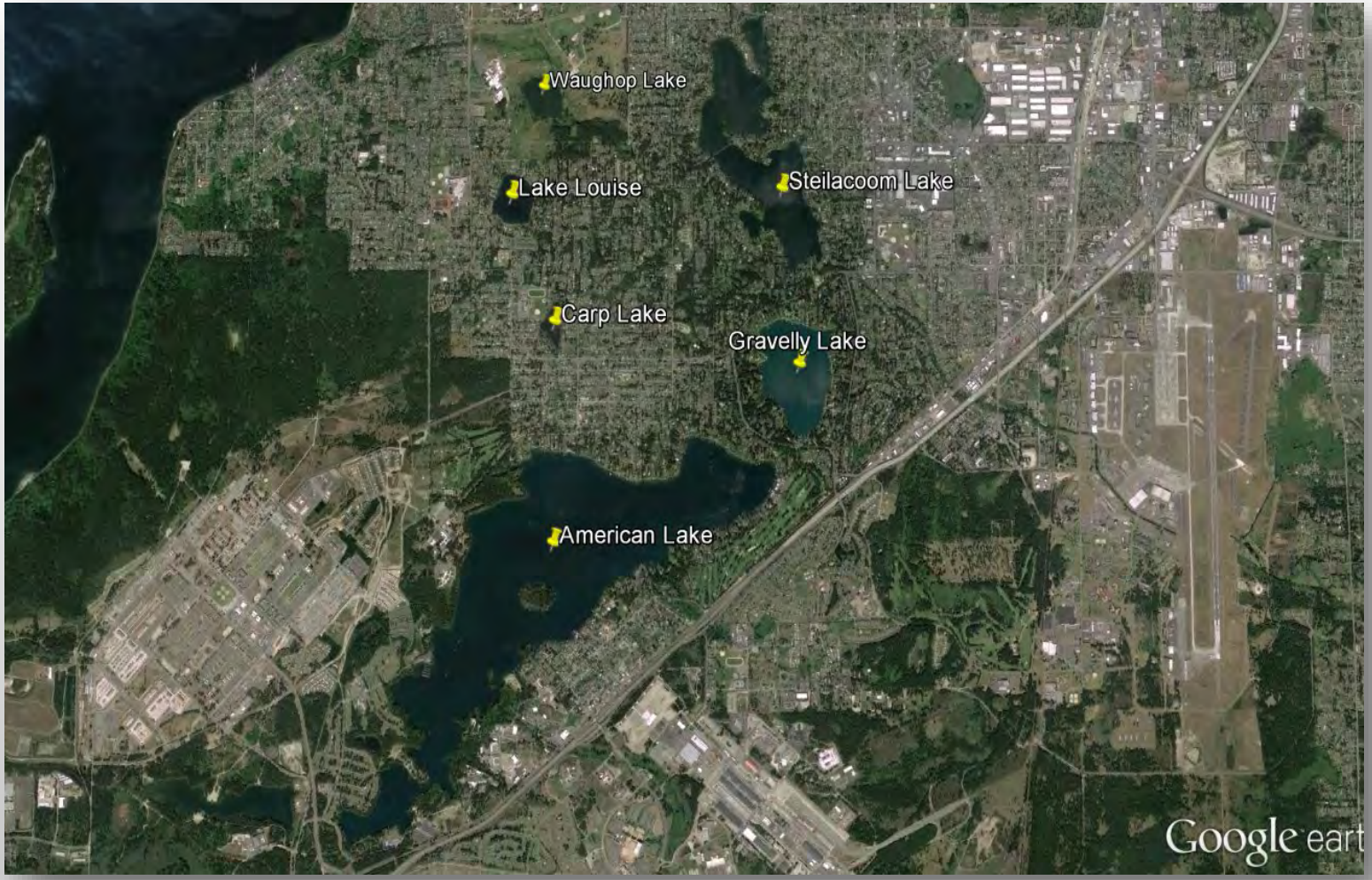
Flow

Dissolved Oxygen

Nitrates

pH

Lake Monitoring

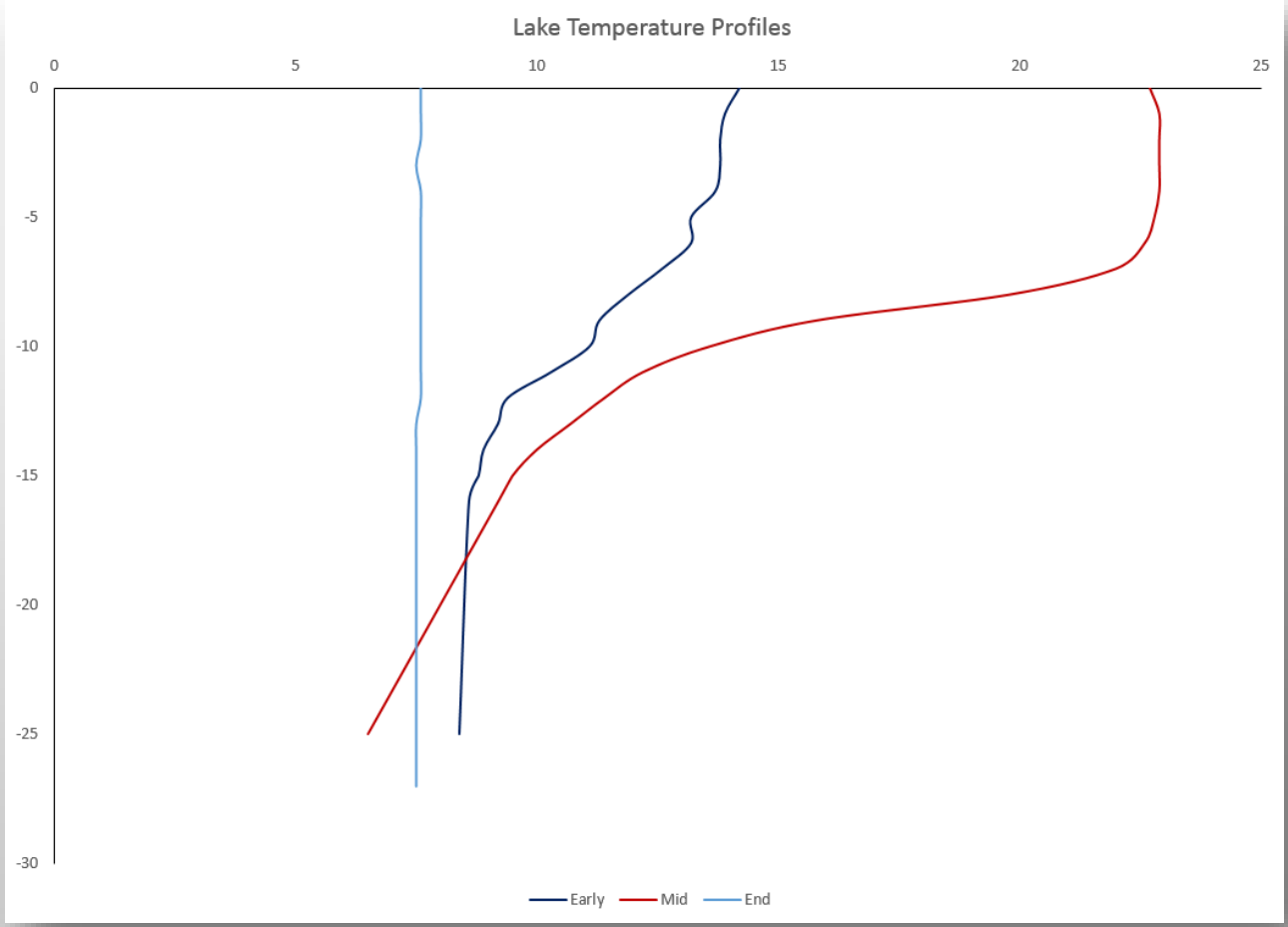


Lake Name	Size (acres)	Drainage Area (mi^2)	Max Depth (ft)	Avg Depth(ft)
American	1100	25	92	53
Gravelly	160	0.66	55	37.5
Steilacoom	320	89	20	11
Waughop	33	0.34	14	7

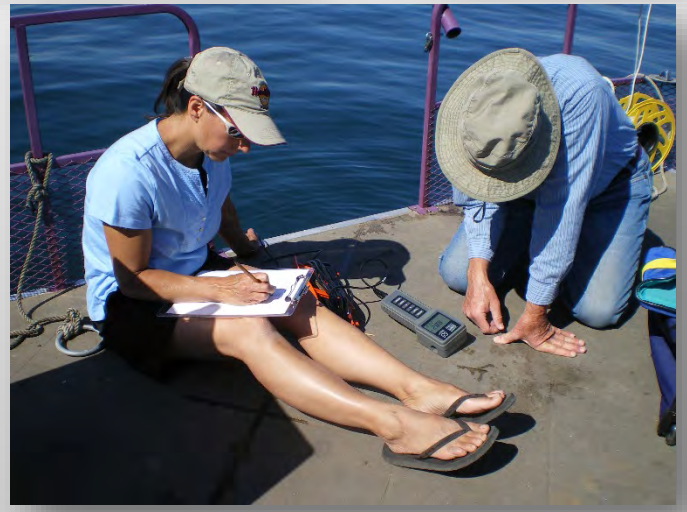
Lake Conditions Data

Data Collected (May – Oct)

- Dissolved oxygen/temperature profile
- Water Clarity – secchi depth
- Weather conditions
- Water samples for lab analysis



Lake Equipment



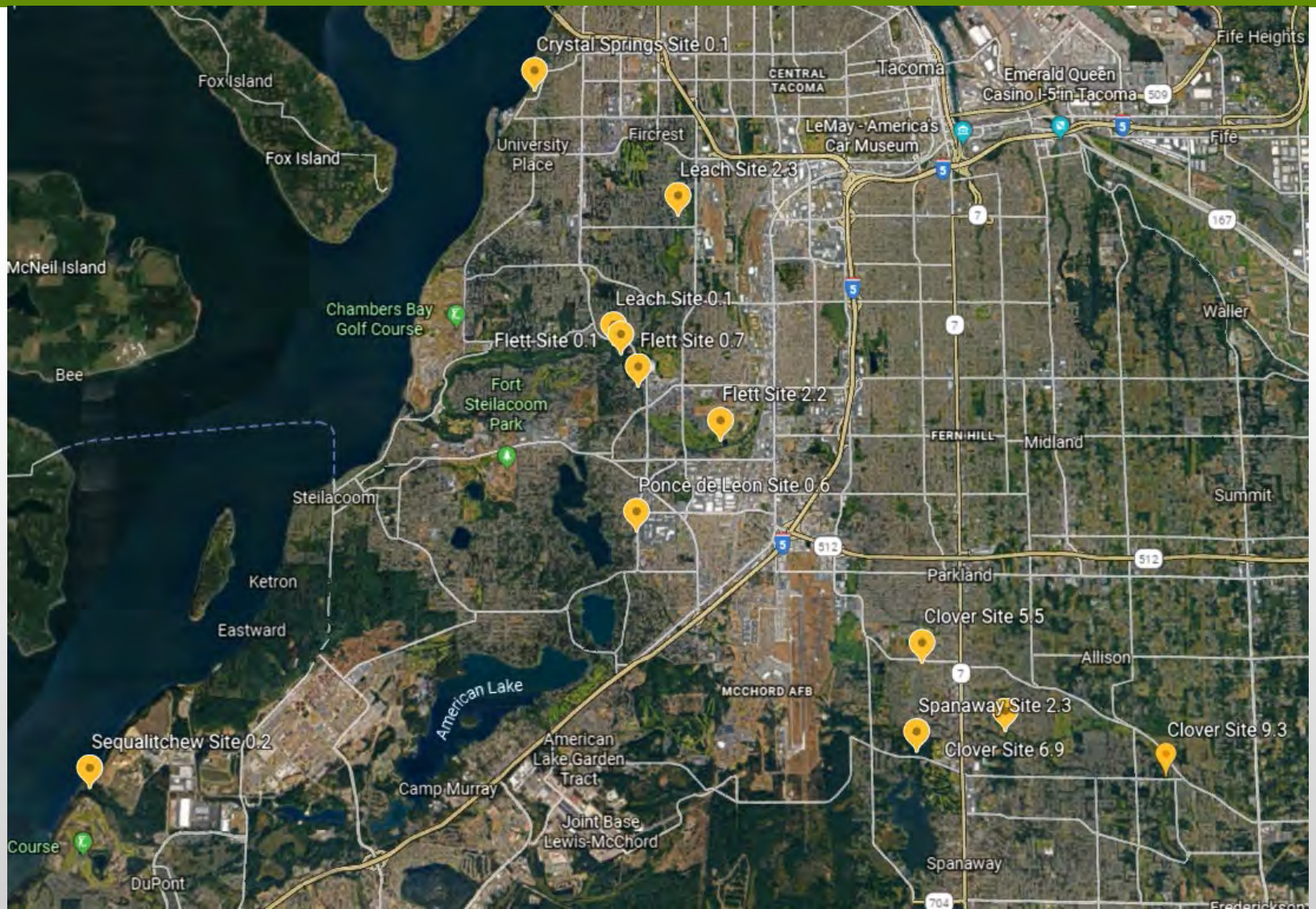
Stream Monitoring

Trained volunteers monitor stream conditions

Many sites around Pierce County

Utilize kits to test streams normally once per month, rain or shine, all year

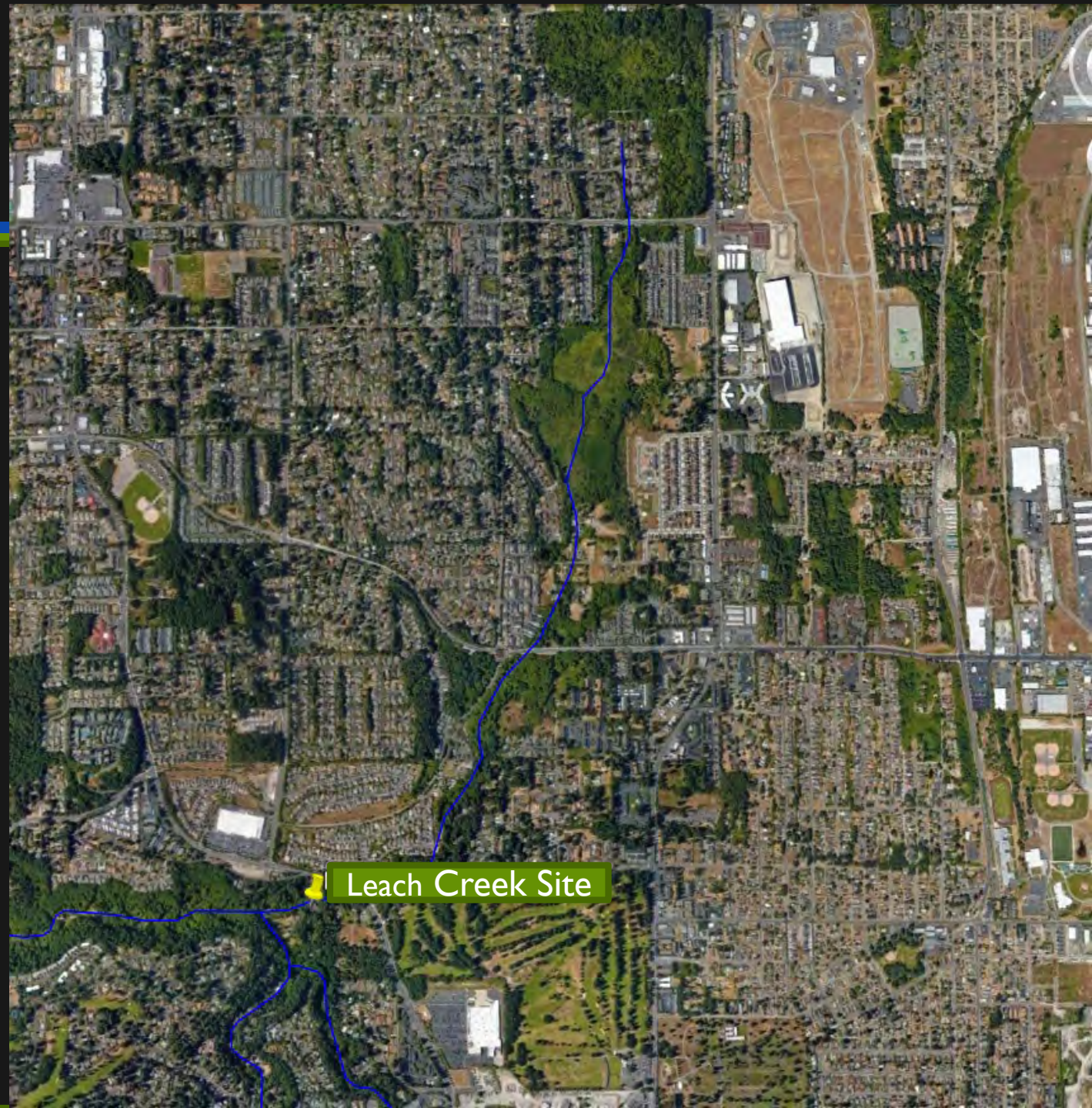
PCD Monitoring Sites in C3



Current Sites:

- Clover
- Crystal Springs
- Flett
- Leach
- Ponce de Leon
- Sequalitchew
- Spanaway

Conditions Near UP



Stream Equipment

C3 Water Condition Problems

Low Dissolved Oxygen

- Clover
- Flett
- Leach
- Ponce de Leon

High Temperatures

- Leach
- Spanaway

Other

- Trash/litter
- Graffiti
- Invasive vegetation
- Reed canarygrass
- No water during summer
  - Clover-Parkland Prairie
- Ducks/geese present
- Dogs in creek
- Foam - Spanaway

Todd Smith, NPDES Coordinator

Engineering Department

3609 Market Place West, Suite 200

University Place, WA 98466

Phone: 253.460.5432

Cell: 253.677.1422

www.CityofUP.com

Best Management Practices (BMPs)

- Wash your car on grass or at a car wash
- Pick up after your dogs
- Natural yard care
- PCD Programs

Habitat Stewardship

Help make your local parks and open spaces clean, healthy and vibrant

Plant native species

Upcoming Dates

Stream Team

Get trained on stream health

Learn about your local streams

Learn how to measure stream conditions

Test monthly, bi-monthly, or quarterly

Upcoming Events

Gilmur Grubbers December 2nd

- Thelma Gilmur Park, Fircrest
- Every 1st Monday of the month

Adrianna Hess December 7th

- Adrianna Hess Wetland Park, UP
- Every other month, 1st Saturday

Whittier Park November 23rd

- Every other month
- Directly across from Whittier Elementary

Thank you

Questions?

Ideas?

Feedback?

James Moore

Stream Team Specialist
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