

WENATCHEE WATERSHED COMMUNITY MEETINGS

Learn about upcoming stream and forest restoration projects and water resource management in your area.



NEED MORE INFORMATION?

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Visit our website for meeting
information

www.co.chelan.wa.us/natural-resources



Community Meeting Schedule

Chumstick Creek

Wednesday, May 23rd, 6:30 pm to 8:30 pm
Leavenworth Fire Hall (FD #6)

Mission Creek

Wednesday, May 30th, 6:30 pm to 8:30 pm
Cashmere Riverside Center

Upper Wenatchee River (including Lake Wenatchee, Little Wenatchee River, White River and Chiwawa River)

Saturday, June 2nd, 10:00 am to noon
Lake Wenatchee Recreation Club

Lower Wenatchee River (Leavenworth to Columbia River)

Tuesday, June 12th, 6:30 pm to 8:30 pm
Cashmere Riverside Center

Peshastin Creek

Wednesday, June 13th, 6:30 pm to 8:30 pm
Dryden Fire Station (FD #6)

Nason Creek

Saturday, June 16th, 10:00 am to noon
Lake Wenatchee Fire Hall (FD #9)

Topics discussed at Watershed Community

Meetings will include:

- Updates on completed and proposed stream restoration projects
- Updates on water resources and forest management projects

MISSION CREEK COMMUNITY MEETING

- Welcome and Introductions
- Background on Watershed Planning and Salmon Recovery Planning
- Implementation Priorities and Completed Projects
- Ongoing and Upcoming Efforts

Watershed Planning

Wenatchee River Watershed

- Planning Process began in 1999 under RCW 90.82
- Plan Approved in 2006 by local stakeholder group
- All 4 Elements Included: Water Quantity, Instream Flows, Water Quality and Habitat

Endangered Species Act (ESA)

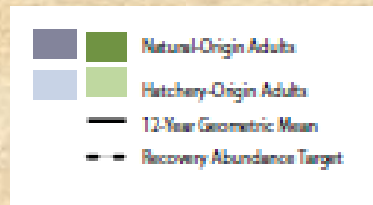
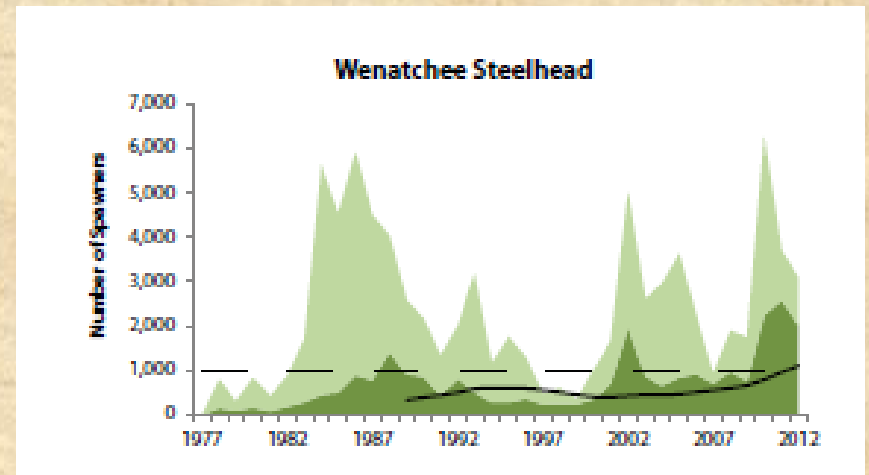
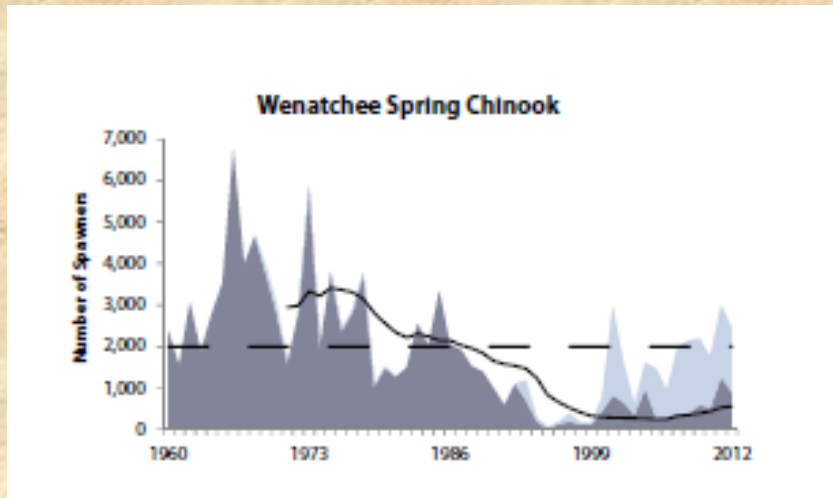
- Upper Columbia spring Chinook – 1999 endangered
- Upper Columbia steelhead – 1997 endangered, re-classified as threatened
- Bull Trout - threatened

ESA Efforts

- Development of federal recovery plans
- NOAA-Fisheries and US Fish and Wildlife Service
- Watershed Planning Units/Watershed Action Teams
- Upper Columbia Salmon Recovery Board

Spring Chinook and Steelhead

Salmon Productivity and Recovery Goals



Implementation

- Meetings, coordination, partners
- Funding mechanisms
- Focus on restoring natural processes in high priority areas.



Wenatchee River Basin Salmon **Restoration** Priorities

Assessment Unit	Priority
Nason Creek	1
Upper Wenatchee River	2
Icicle Creek	3
Peshastin Creek	4
Lower Wenatchee River	5
Mission Creek	6
Little Wenatchee River	Not a priority at this time
White River	Not a priority at this time
Middle Wenatchee River	Not a priority at this time
Chumstick Creek	Not a priority at this time
Chiwawa River	Not a priority at this time

Wenatchee River Basin Salmon **Protection** Priorities

Assessment Unit	Priority
Nason Creek	1
White River	1
Upper Wenatchee River	1
Chiwawa River	1
Little Wenatchee River	2
Middle Wenatchee River	2
Icicle Creek	3
Lower Wenatchee River	3
Peshastin Creek	4
Mission Creek	4
Chumstick Creek	4

Mission Creek

Recommended Strategy

- Address water quality issues for temperature, fecal coliform and DDT (TMDL/Water Clean-up Plan)
- Increase water availability for instream and out-of-stream uses; Implement instream flow rule
- Improve side channel and wetland connections
- Reduce sediment and restore habitat diversity and complexity
- Riparian restoration – plant native streamside vegetation/remove noxious weeds

Lower Mission Creek Constraints

- Low stream flows during late summer (dry in some locations)
- Water temperature, fecal coliform and DDT levels have exceeded state standards
- Channelization and loss of channel migration/floodplain function

Fish Use in Mission Creek

Steelhead **Spawners** modeled by WDFW data incorporating PIT Tag data and redd surveys

Mission Creek PIT Tag Array Hits				
	2013	2014	2015	2016
Bull Trout	0	0	0	2
Hat. Coho	9	35	36	12
Hat. Spring Chinook	3	5	0	0
Hat. Summer Steelhead	5	9	4	3
Hatchery Sockeye	0	1	0	0
Wild Sockeye	0	0	1	0
Wild Spring Chinook	2	1	1	0
Wild Summer Steelhead	13	31	25	11
TOTAL	32	82	67	28

BY 2015 Wenatchee Spawning Escapement



Data from Ben Truscott of WDFW

Wenatchee River Instream Flow Rule

- Balances community needs and fish needs
- Established 4 cfs reservation for future use
- Provides reliable year-round domestic water for 20 years
- Wenatchee Water Work Group Efforts to Process Water Rights

New Water Policies

- WA Supreme Court cases
- *Swinomish, Foster, Hirst*
- Limits to Ecology's "toolbox"
- More local government responsibility

Mission Creek Instream Flow Rule

- Interim Reservation of 0.03 cfs for domestic water use for two years
 - 2008-14 Debit: 30 new wells = 0.0176 cfs (58%)
 - 0.0124 cfs remaining in interim reserve
- Instream Flow Improvements are needed to access full reservation of 0.12 cfs

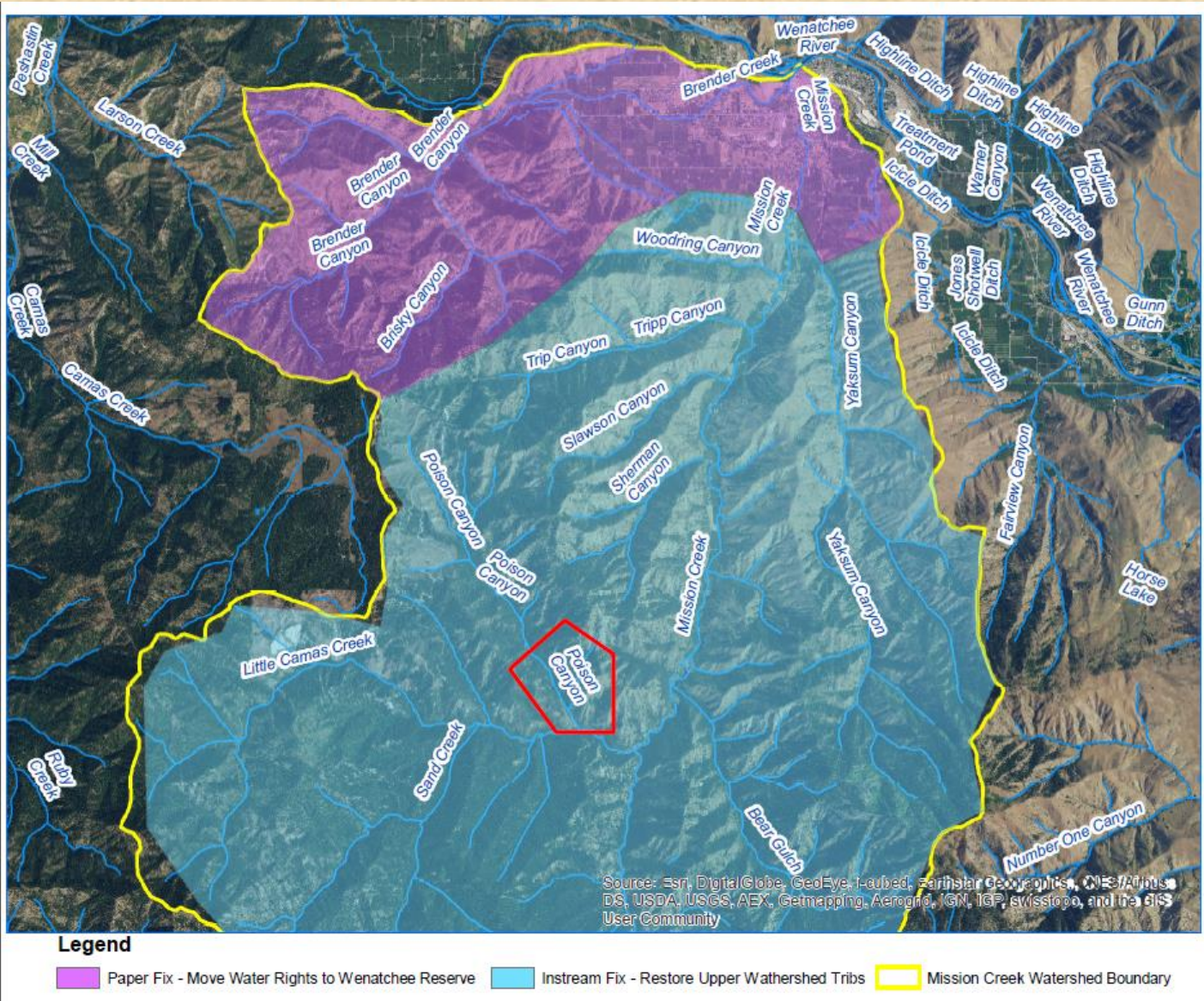
How are we addressing the reserve?

- Finetune Mission Creek reserve accounting
- Innovative projects
- Evaluate groundwater connectivity
- Potential water purchase
- New wells: new county policies in 2019

Flow Improvement & Water Quality

- Currently working on feasibility of multiple options:
 - Have assessed “Pump and Dump” of irrigation wells, transfer of use from surface diversions to deep wells, extension of regional water services to landowners
 - Water banking of surface water rights into a trust
 - Storage Options in upper watershed
 - Coordinated Outreach to address DDT/DDE, Fecal Coliform, Temperature, and Dissolved Oxygen
- All options shown are continually vetted by landowners and refined by engineers to arrive at a community supported outcome

Two Part Fix for Water Right Instream Flow Reserve: Paper Water & Real Instream Restoration



- **Poison Canyon Restoration Pilot (red box) has potential to store ~6.5 acre feet Water (pond & subsurface**
- **6.5 acre feet = 2,119,000 gal**
- **Project has potential to improve late season flow 0.06 cfs for 80 days (27 gal per min) into Sand Creek.**
- **Currently working with Dept of Ecology to officially recognize this storage**



Poison Canyon Pilot:

**Raise the bed,
impound the flow,
drop out the sediment,
Store the water.**

**Mission Creek Assessment:
10 miles of instream storage =
0.26 CFS retimed release June to
October
(NSD Mission Assessment 2017)**





October 2016



Spring 2018

- Example of what we don't want:
volatile seasonal runoff eliminating any
potential water storage, increased sediment
loading into Brender Creek

- Unnamed Tributary to Brender
Creek near Tabor Rd.



Ongoing and Upcoming Efforts

- Mission Creek Water Quality Restoration Plan
 - Water Quality
 - Instream Flow
 - Community Outreach and Coordination

Riparian Restoration to improve water quality



- Eradication of noxious species, natives installed
- Long term water quality and habitat improvements benefits

Bank Stabilization to reduce erosion & DDT/DDE input, improve stream conditions



- High flow event in December caused flows > 600 CFS
- Likely attributable to breach hydrology associated with past wildfires
- Debris jam accumulated, re-routed Creek and eroded stream bank and house



- CCNRD was requested to assist in bank stabilization process
- Local contractor to start Phase 1 stabilization in upcoming weeks
- Phase 2 & 3 will include moving the building envelop away from County Road and Creek, as well as habitat-oriented water quality restoration

Bank Stabilization and Riparian Planting

Mork Property on Mission Creek



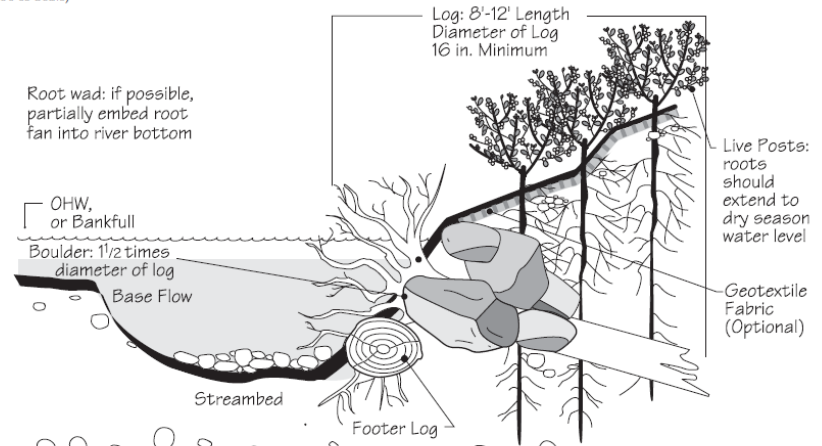
Source: Arc, Earth Globe, Geoparc, Earthstar Geographics, CNRA/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

- Legend**
- House & Septic Removal
 - 50' Proposed Easement
 - Mission Creek Dec 9
 - Proposed New Building Envelope 60' x 60'
 - Parcels

Additional Notes:
 -All other outbuildings would be demolished & removed
 -Property is located 3 miles up Mission Creek Road
 -Property is listed at 0.81 Acres
 -Mission Creek stream frontage is 400' linear feet
 -Currently has a working well to leave in place

ROOT WAD WITH FOOTER: SECTION

(Not to scale)



Community Involvement & Next Steps:

- Continue Mission Creek Watershed Council
- Coordinate with Landowners in need of assistance with septic evaluation, bank stabilization, riparian plantings, noxious weed removal, riparian maintenance
- Voluntary Stewardship Program
- Implement watershed specific Restoration Plan to aid in making informed decisions that meet landowner & environmental needs



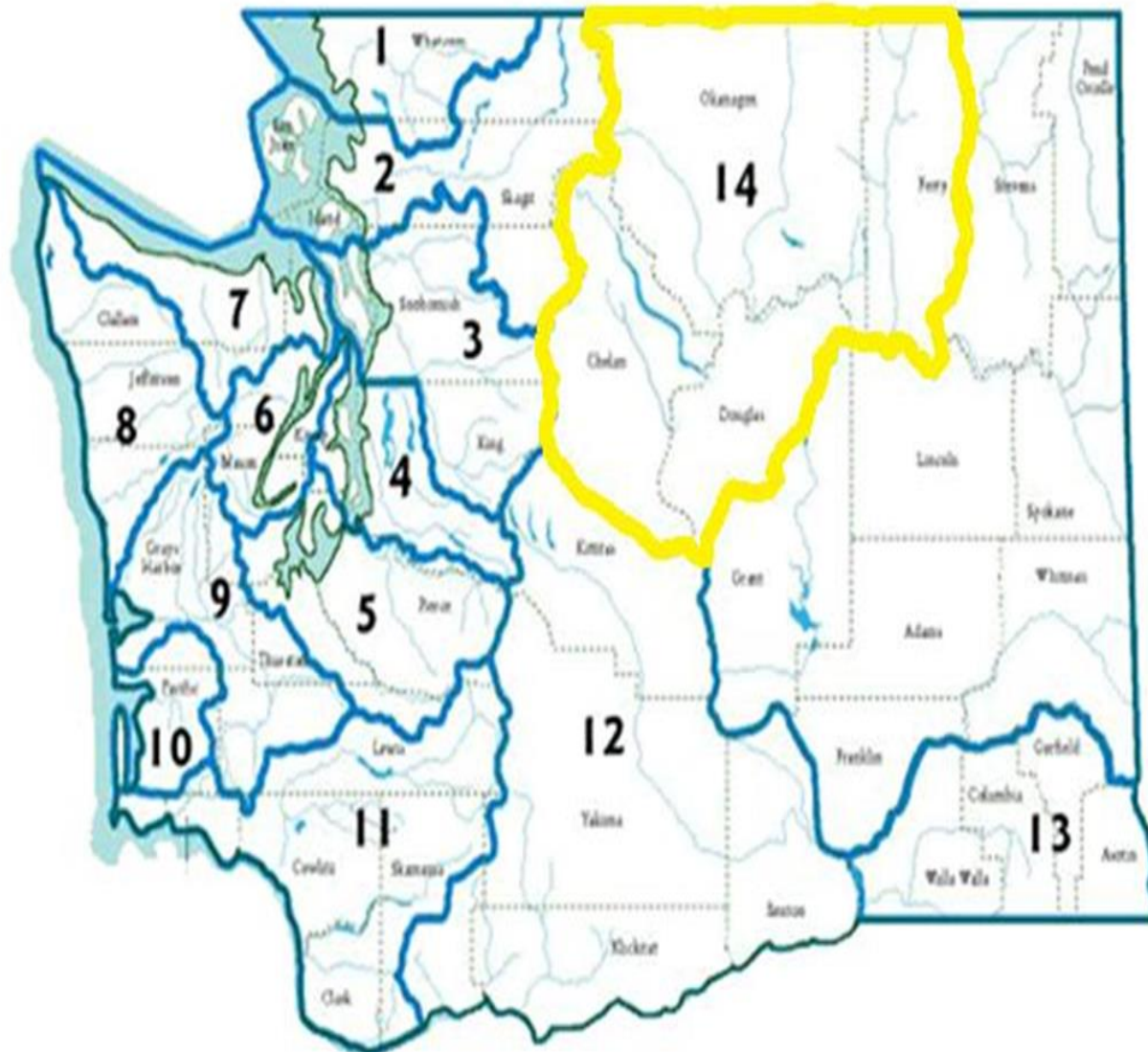
Cascade Columbia Fisheries Enhancement Group

Restoring native fish habitat through enhancement education and community engagement



Community Forum
May 23, 2018

Regional Fisheries Enhancement Group Boundaries



Active

Prospective

Completed

Updated 11/3/16

Driscoll Island Refuge

Driscoll Island Planting

FFFPP - Hinesline

FFFPP - Federson

FFFPP - Ames

Weir & Concrete Removal

Burns Garrity

Methow Chewch Groundwater Study

FFFPP - Peterson

Wolf Creek Diversion

Silver Phase 2

Geestman Riparian & Car Removal

Silver Phase 1

Chiwawa Nutrient Enh.

Judd Planting

Twisp to Carlton RA

WPPP

TT Planting & Sign

25 Mile Creek

Foster Creek

White R. LWD Atonement

White R. Assess

White R. Culvert Removal

Stormy Creek Barriers

Clear Creek Planting

Entiat - Area C

FFFPP - Thomson

Icicle River Kiosk

FFFPP - Monigold

Tumwater Dam

FFFPP - Darlington

Salmon Cycle Landscape

Wenatchee Bas in FPA

Peshastin Confluence Design



Who we are?



What do we do?

- Fish barrier removal
- Planting projects
- Habitat enhancement
- Studies and assessments
- Education &



The 4 “H’s” of decline

Harves



Habitat



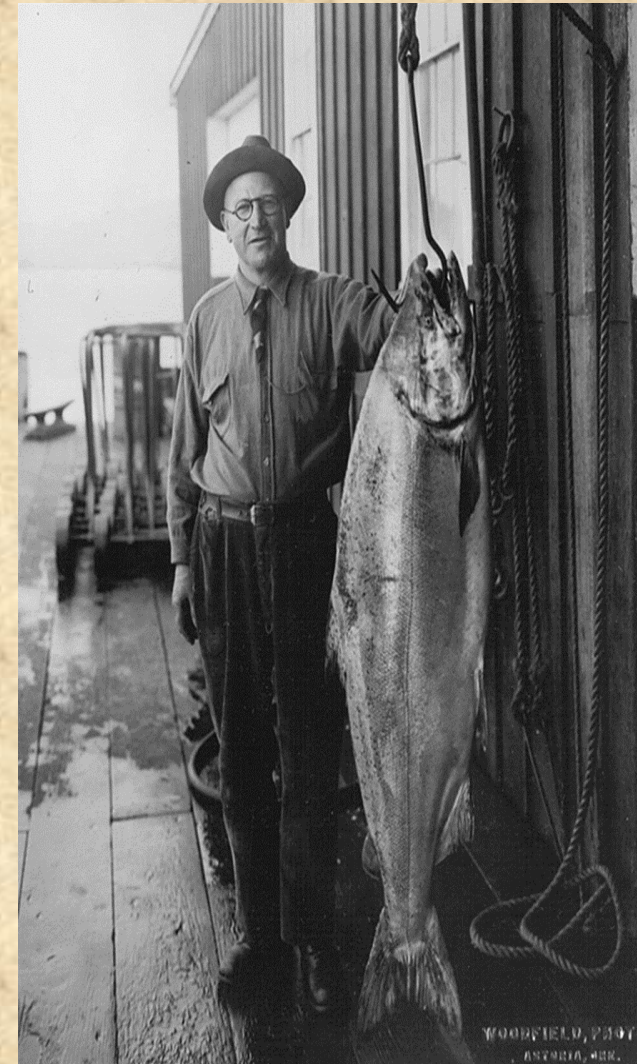
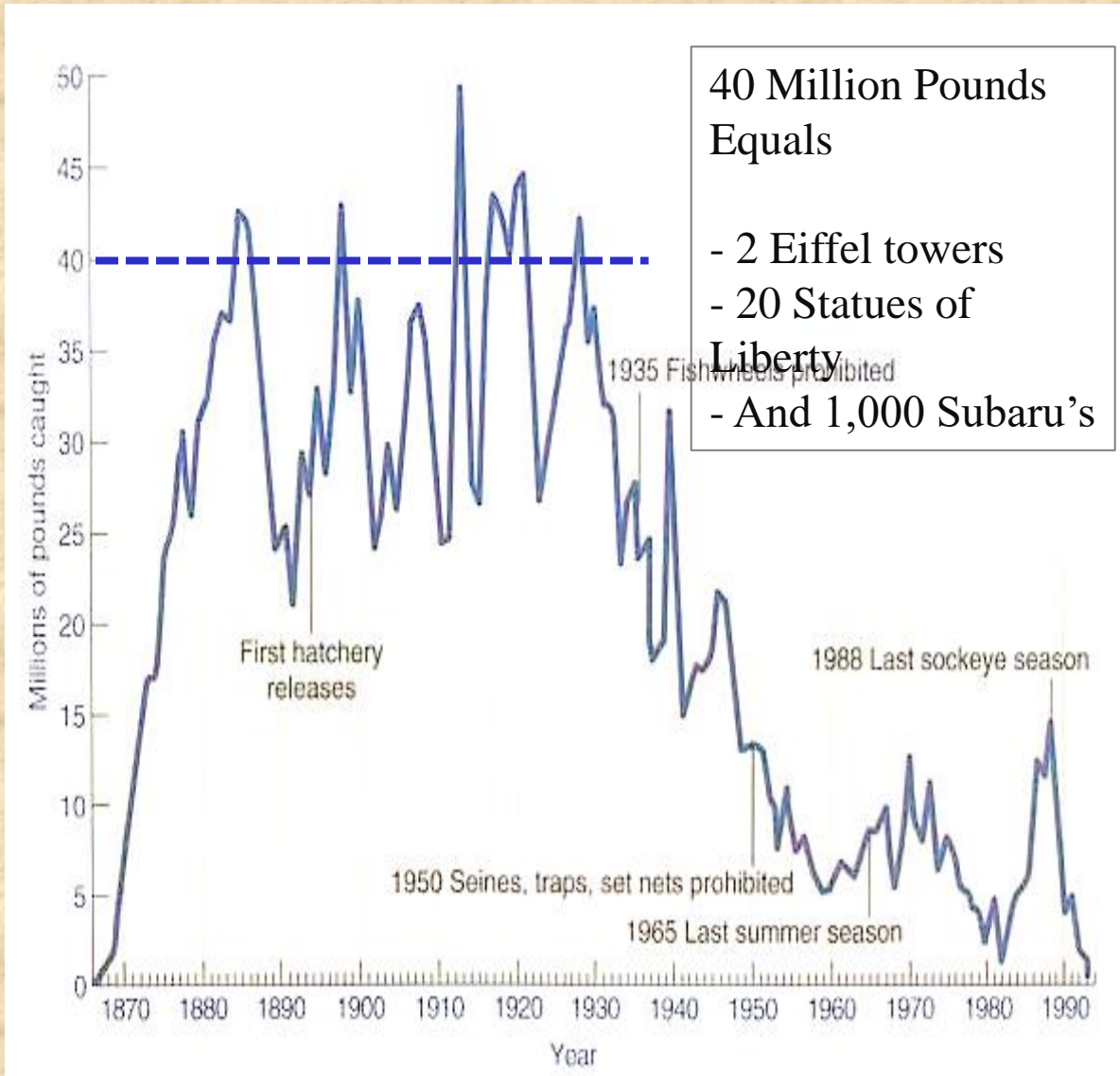
Hatcheries



Hydro



Columbia River Salmon Harvest 1865-



Endangered Species Act

- A recent national water quality survey of the nation's wadeable streams showed that 42% of the nation's stream length is in poor biological condition and 25% is in fair biological condition ([U.S. EPA, 2006](#)).
- Nearly 40% of fish in North American freshwater streams, rivers, and lakes are found to be vulnerable, threatened, or endangered; nearly twice as many as were included on the imperiled list from a similar survey conducted in 1989 ([Jelks et al., 2008](#)).

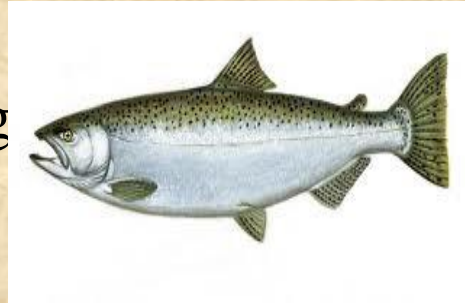
Endangered Species Act

- 1991, The Snake River sockeye is the first salmon in the Pacific Northwest to be listed as endangered.
- By 1999, wild salmon had disappeared from about 40 percent of their historic breeding ranges in Oregon, Washington, Idaho, and California.
- In Washington, the numbers have dwindled so much that salmon and bull trout were listed as threatened or endangered in nearly three-fourths of the state.

Endangered Species Act

- Upper Columbia Chinook (Spring

ENDANGERED



- Upper Columbia Steelhead

THREATENED



- Upper Columbia Bull Trout

THREATENED



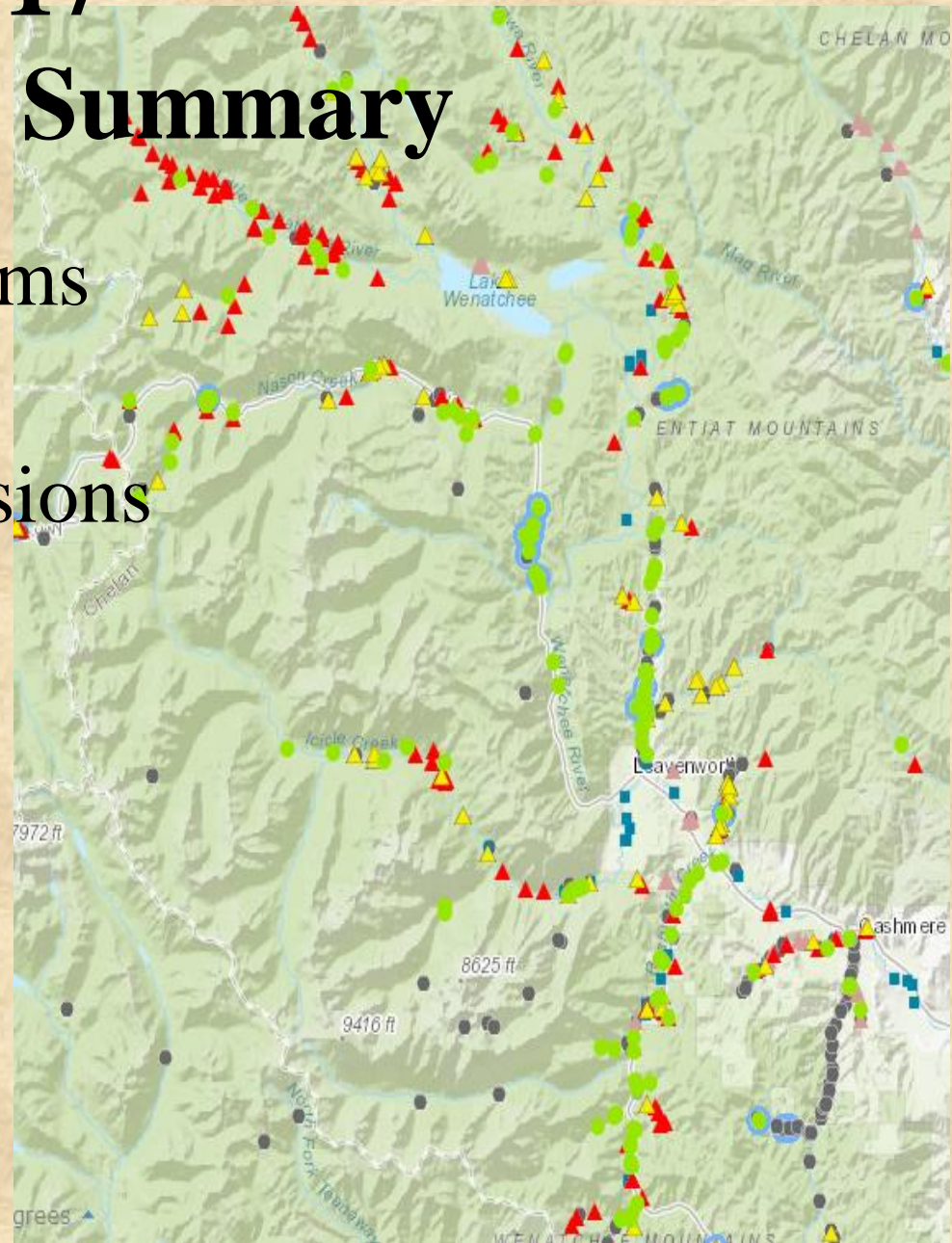
2016-2017

Data Collection Summary

- 53 Dams
 - 63 Diversions
- 605 Sites Surveyed:**

- 423 Culverts
- 132 Non-Culvert Crossings

~90% of culverts are some level of Barrier













Pesticides & Water Quality Mission Creek Community Meeting

Cashmere, WA

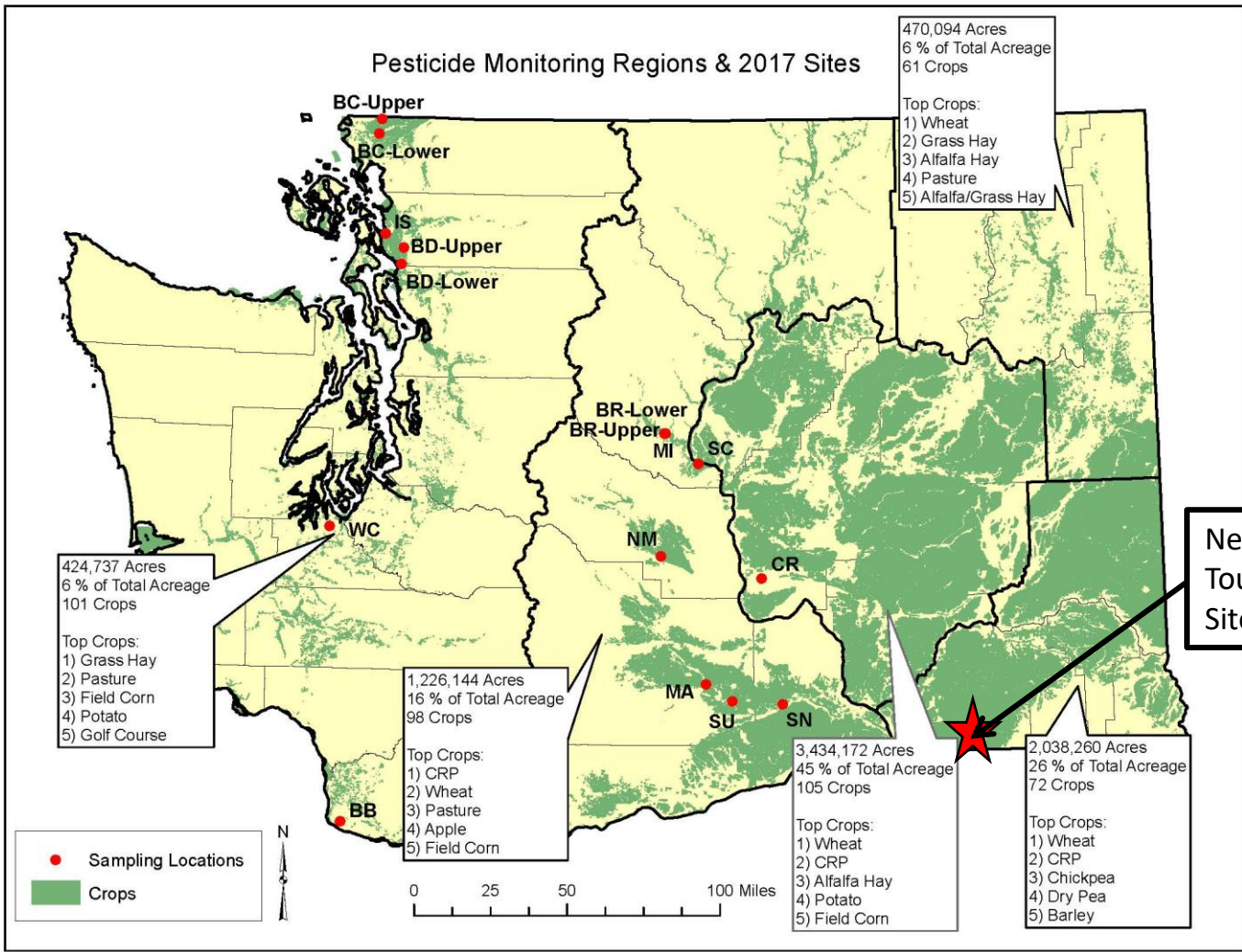
Matthew Bischof
Natural Resources Assessment Section
Washington State Department of Agriculture

Ambient Water Quality Monitoring

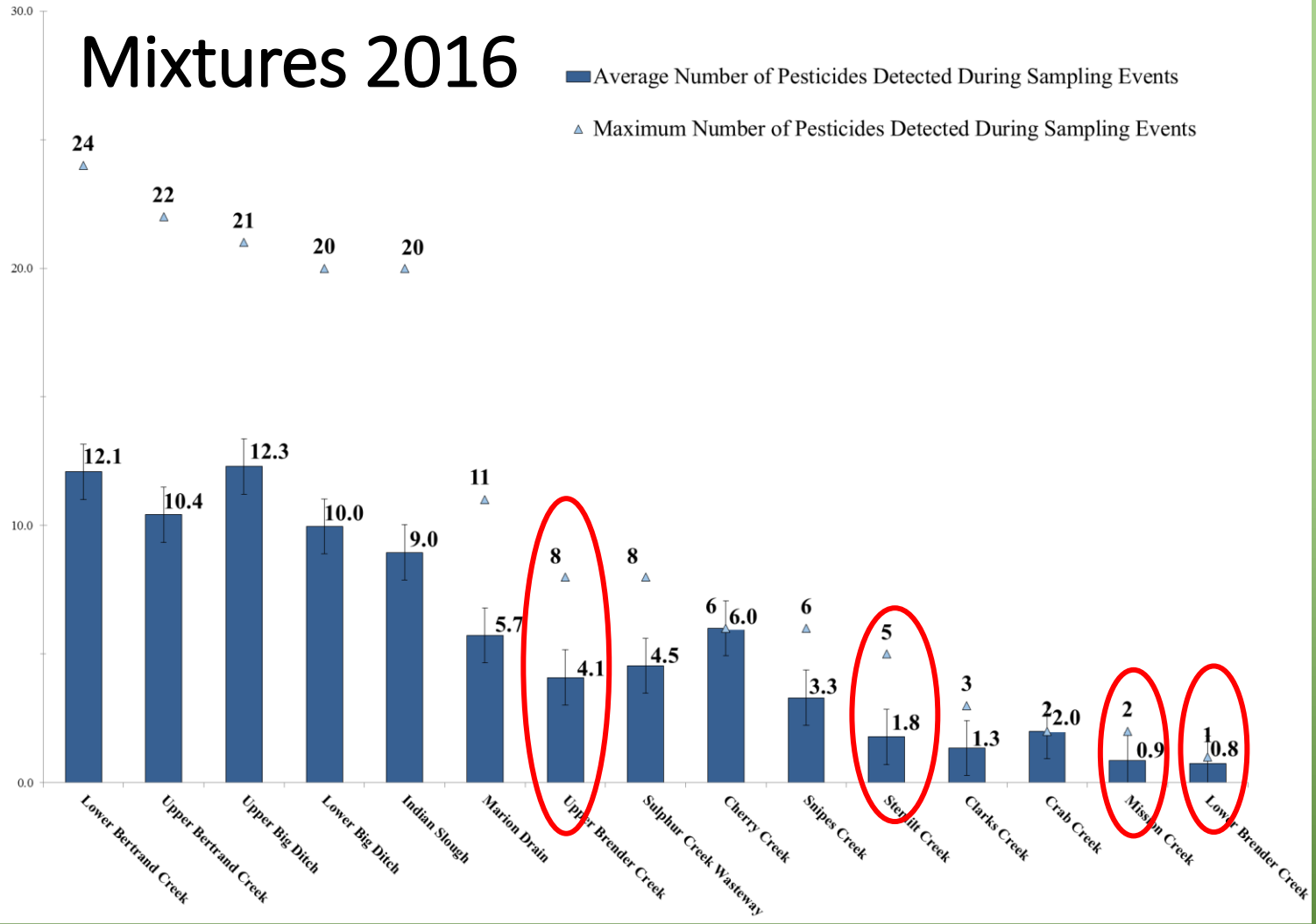
- Monitoring in WA since 2003
 - Wenatchee area since 2007
- Conduct monitoring weekly
- Agriculture cropping patterns, irrigation & urban
- Known pesticide use applications
- Fish status & utilization

- Samples to ECY MEL, 142 analytes
- Compare data to WQ and aquatic benchmarks





Pesticide Monitoring Regions & 2017 Sites



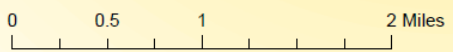
Mixtures 2016



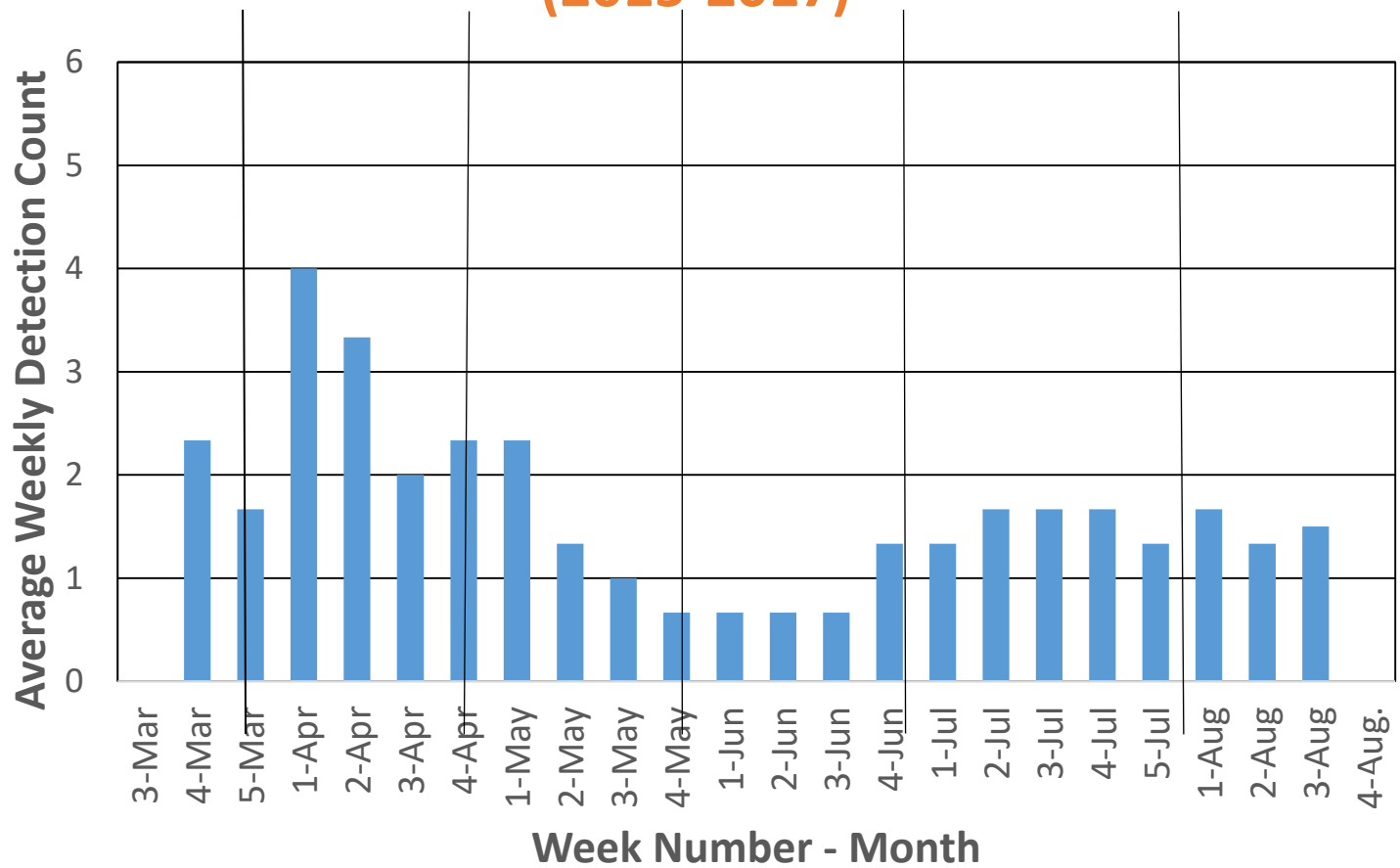
Brender Creek Watershed

-  Monitoring Site
-  BrenderCreek
-  Brender Creek Watershed
-  WSDA Crop 2016

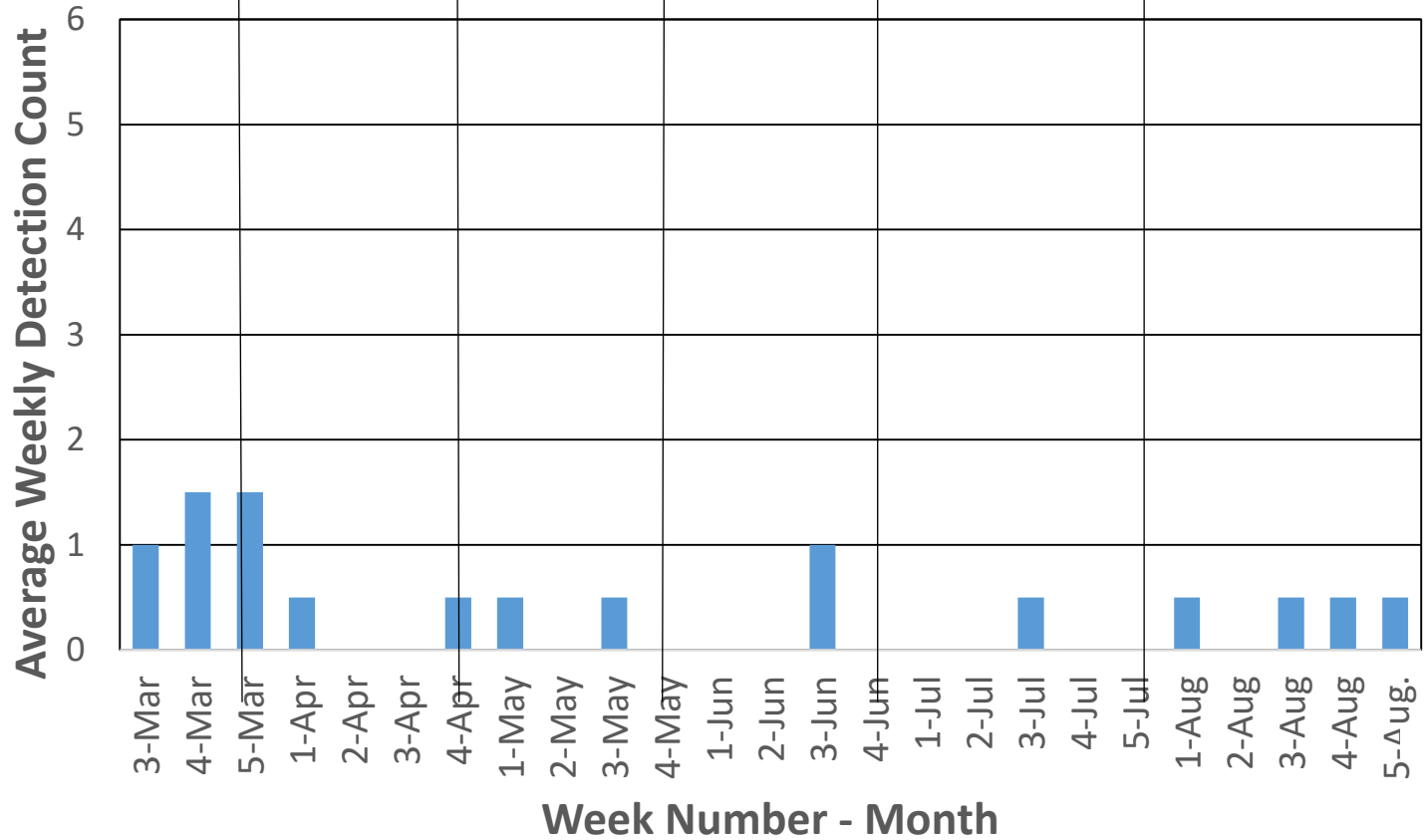
Brender Creek Crops	Acres
Pear	656
Apple	86
Pasture	72
Cherry	68
Fallow	47
Golf Course	35
Alfalfa/Grass Hay	5
Grape, Wine	3
Total Ag Acreage	972
Watershed Acreage	6864



Brender Creek Weekly Average Detections (2015-2017)



Mission Creek Weekly Average Detections (2015-2016)



Brender Creek 1 (BR-1), 2017 - Freshwater Criteria (pesticides in ug/L, TSS in mg/L)

Month		Apr				May					Jun				Jul	
Day of the Month	Use	4	11	18	25	2	10	16	23	31	6	13	21	27	5	10
Chlorpyrifos	I-OP	0.248	0.108	0.052		0.022	0.034				0.013			0.010	0.009	
Malathion	I-OP	0.209	0.080													
Total Suspended Solids	N/A	372.0	1050.0	1310.0	800.0	340.0	264.0	203.0	205.0	155.0	68.0	28.0	46.0	38.0	84.0	91.0

Mission Creek 3 (MI-3), 2017 - Freshwater Criteria (pesticides in ug/L, TSS in mg/L)

Month		Apr				May	
Day of the Month	Use	4	11	18	25	2	10
Chlorpyrifos	I-OP	0.383	0.327				
Malathion	I-OP	0.223	0.273				
Total Suspended Solids	N/A	63.0	188.0	64.5	46.0	22.0	7.0

Stemilt Creek 1 (SC-1), 2017 - Freshwater Criteria (pesticides in ug/L, TSS in mg/L)

Month		Apr				May	
Day of the Month	Use	4	11	18	25	2	10
Chlorpyrifos	I-OP	0.036	0.043	0.049	0.019		
Diazinon	I-OP		0.120				
Malathion	I-OP	0.047					
Total Suspended Solids	N/A	21.0	21.0	19.0	13.5	9.0	46.0

Fisheries Acute Exceedance		Invertebrate Acute Exceedance		WAC Exceedance	
ESLOC Exceedance		Invertebrate Chronic Exceedance		Detection did not exceed criteria	

Example of Lorsban 4E label

Environmental Hazards

This pesticide is toxic to fish, aquatic invertebrates, small mammals and birds. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

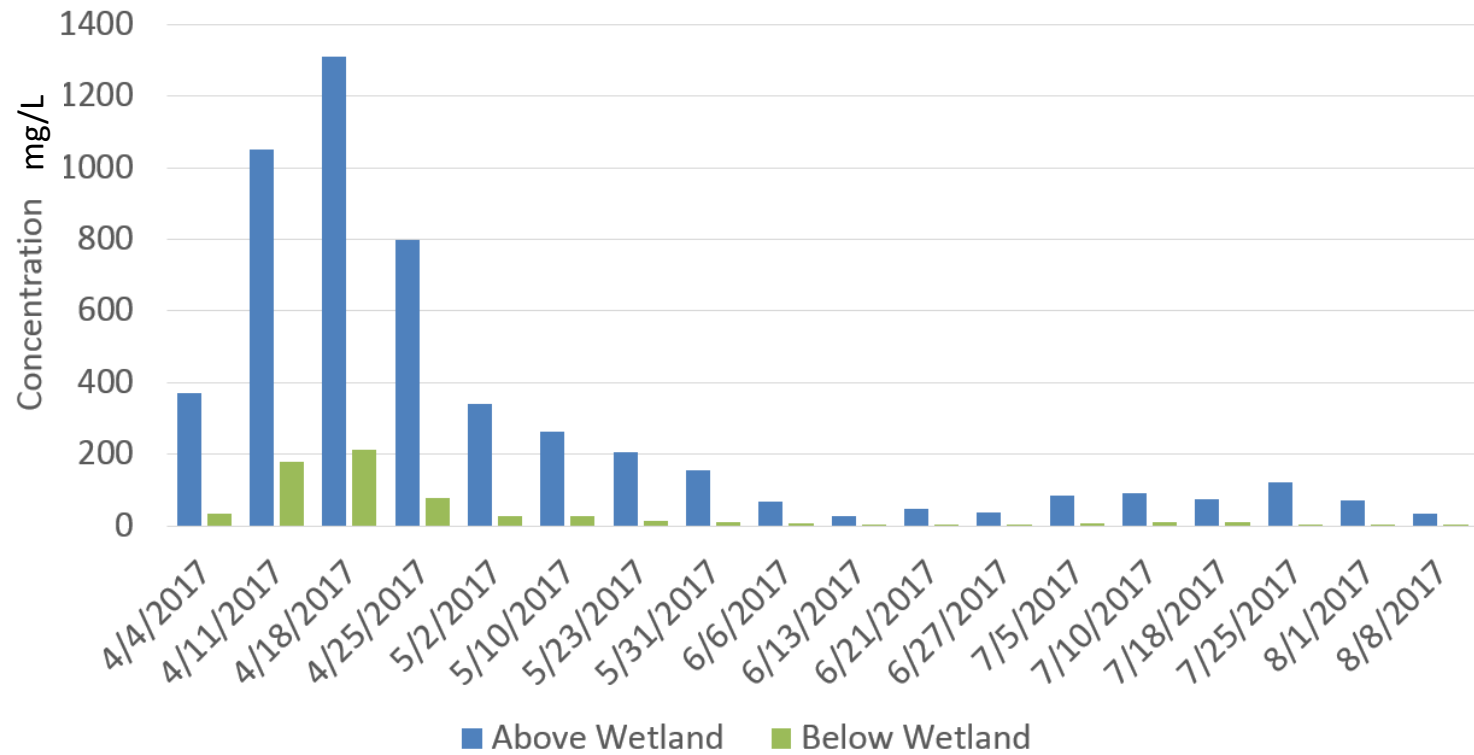
Brender Creek Wetland Study – 2016/2017

- BMP effectiveness study
- Cooperated with Cascadia Conservation District
- Water samples collected every-other week
 - Upstream & Downstream of wetland (mid-March – August)
 - Is there a reduction in DDT + degradate levels in Brender Creek after flowing through a wetland?

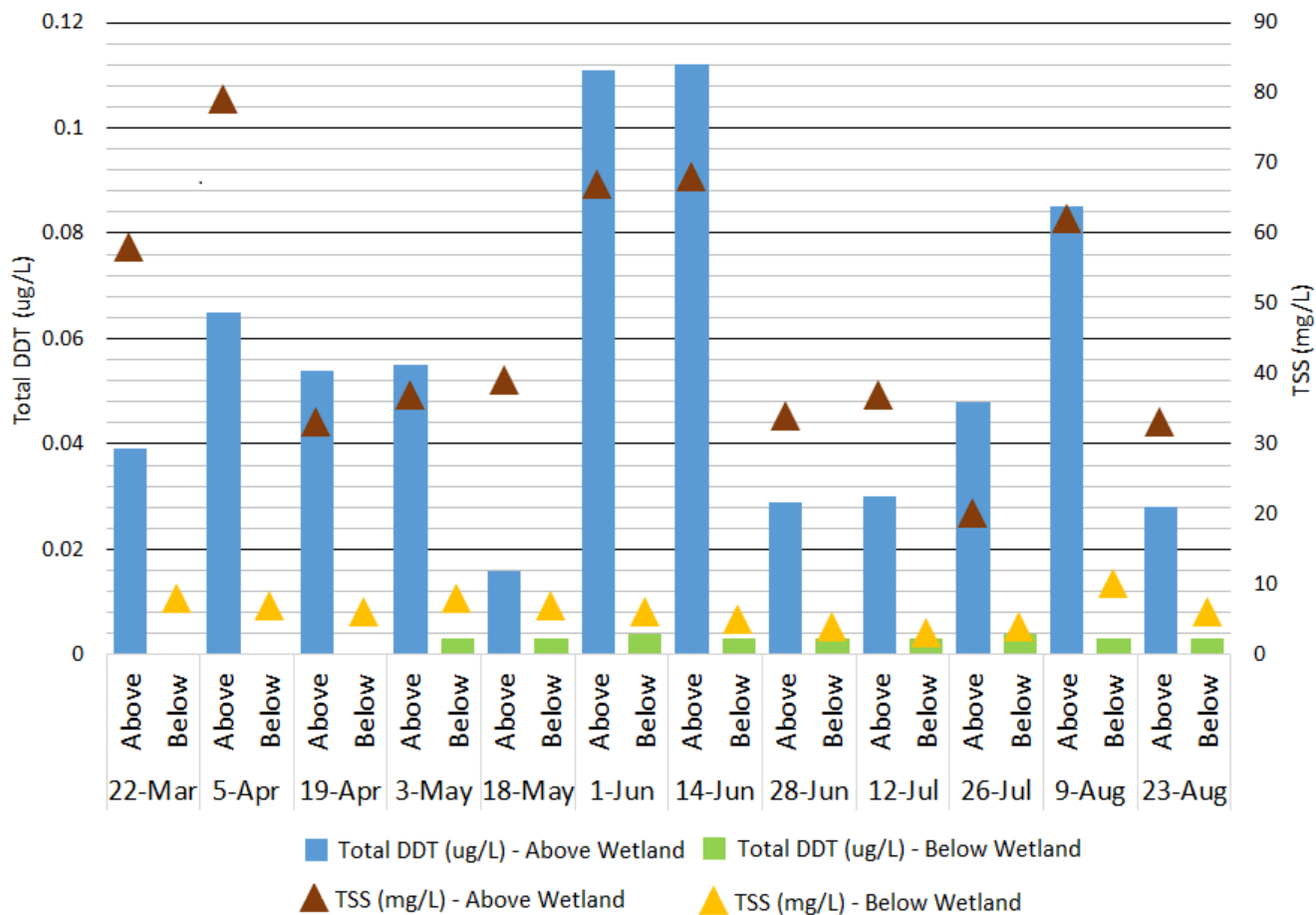


Brender Creek Above/Below Wetland 2017

Total Suspended Solids



Brender Creek 2016 - Above/Below Wetland Total DDT Concentrations (ug/L) & TSS (mg/L)



Looking Forward

- ✓ **Next up in ESA**
 - ✓ **Bulletins**
 - ✓ **Malathion, chlorpyrifos, diazinon re-registration and implementation**
 - ✓ **Carbaryl and methomyl Bi-Op expected by late 2018**
- ✓ **Surface water monitoring expansion to Eastern Wa**

Questions?

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Factsheets



Pub No.

DDT Removal by the Brender Creek Wetland

Summary of 2016 Brender Creek Wetland Study Results

Washington State Department of Agriculture
Natural Resources Assessment Section
January 2018

Introduction

The Washington State Department of Agriculture (WSDA) has monitored pesticide concentrations in surface water throughout the state since 2003, and specifically in the Wenatchee River watershed since 2007. DDT has been detected in Brender Creek consistently since 2007, when WSDA began monitoring there (at Upper Brender Creek). DDT is not very soluble in water and binds strongly to soil, especially soil with high organic matter.¹ Once bound to soil, DDT and its breakdown products often persist for decades. DDT was widely used in orchards prior to its banning in 1972. The Washington State Department of Ecology tested upland orchard soils adjacent to Brender Creek in 2003 and found that they were high in DDT.⁴

In 2015, the Cascadia Conservation District restored a wetland downstream from the current WSDA monitoring site to enhance riparian habitat. When water flows through a wetland, it slows down because of the reduction in slope and the increase in aquatic vegetation. As a result suspended sediment settles out of the water.^{2,3} WSDA and the Cascadia Conservation District cooperated to study whether the wetland was effectively removing suspended sediment (and the DDT bound to it) from the water. WSDA began collecting samples at an additional site on Brender Creek downstream of the wetland (Lower Brender Creek) to compare suspended sediment and total DDT (both DDT and DDT breakdown products) in the water at the upstream and downstream sites.

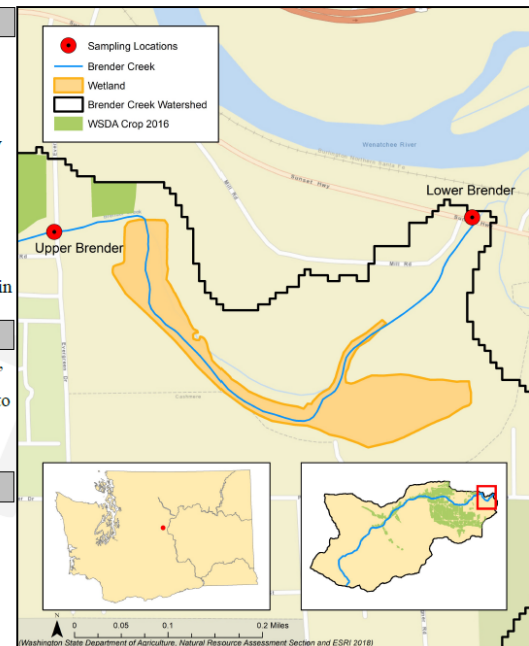
Study Area

WSDA has been testing water from Upper Brender Creek from 2007 through 2016. The watershed drains about 6,900 acres, and about 13% (approx. 900 acres) of the watershed is used for agriculture. The main crops are pears, apples, cherries, and pasture. Growers in the watershed try to maintain vegetated cover along the stream and in orchards to reduce DDT loading to streams. Below Evergreen Drive, Brender Creek provides habitat for spring Chinook and summer steelhead. Above Evergreen Drive, Brender Creek is blocked to fish passage*.

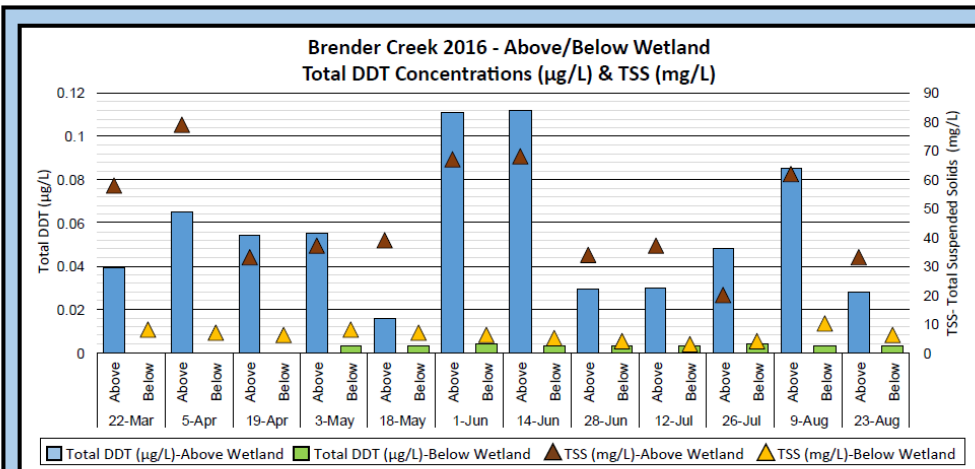
* Washington State Department of Fish and Wildlife Salmon Scape, (<http://apps.wdfw.wa.gov/salmonscape/>)

Sampling Details

- Samples were collected every week at Upper Brender Creek for 22 weeks, from March 22 through August 23, 2016.
- Water samples from Upper Brender Creek were tested for 152 chemicals: current and legacy insecticides, herbicides, fungicides, rodenticides, wood preservatives, pesticide degradates and total suspended solids (only TSS and total DDT data are shown here).
- Samples were collected at Lower Brender Creek every other week for 22 weeks, from March 22 through August 23.
- Water samples from Lower Brender Creek were tested for 8 chemicals: legacy organochlorine pesticides and pesticide degradates (including DDT and DDT degradates).
- Sample analysis was conducted at Manchester Environmental Laboratory in Port Orchard, WA.



Brender Creek Factsheet - back



Conclusions and Recommendations

- The wetland is removing both suspended solids and total DDT from the water; suspended solids and total DDT were lower in water samples collected below the wetland throughout the season.
- To help reduce suspended solids and DDT in streams, **control bank erosion** to prevent the movement of upland soils contaminated with DDT into streams.
- Implement management practices including **conservation buffers**, **vegetative filter strips**, maintenance of **ground cover** to reduce erosion, **sediment basins**, and **setbacks from streams**.
- Make sure streams are off limits to livestock. They can contribute to bank erosion and stir up sediment.
- If you have any unneeded pesticides, WSDA hosts waste pesticide collections; apply here to participate https://agr.wa.gov/PestFert/Pesticides/WastePesticide_apply.aspx.

For More Information

- Contact **Cascadia Conservation District** for more information on implementing some of the listed management practices. (509) 436-1601 or sandyv@cascadiacd.org
- Download an electronic version of this factsheet at the NRAS publications website: <https://agr.wa.gov/PestFert/natresources/SWM/>
- Factsheets for other watersheds, and information on other pesticide detections in Brender Creek can also be found at the web URL provided above.

Results Summary

- The figure above shows 2016 results for total DDT and total suspended solids (TSS) - at all site visits water from below the wetland (Lower Brender) had lower total DDT and TSS than water collected above the wetland (Upper Brender).
- Water samples from upstream and downstream of the wetland had detectable levels of total DDT for most of the season. On March 22, April 5, and April 19, DDT was not present or was present in concentrations too low to identify.
- Upstream of the wetland, concentrations of total DDT exceeded the state water quality standard (0.01 $\mu\text{g/L}$). The health of aquatic organisms such as fish and macroinvertebrates may be compromised when these standard concentrations are exceeded.
- Present-day detections of DDT like those in Brender Creek are due to the way DDT and its breakdown products persist in the environment and bind to soil particles.
- Other studies have also found wetlands to be effective at removing organochlorine pesticides such as DDT through retention and filtration processes that remove suspended solids from water.²⁵

References

- Harris, M.J., L.K. Wilson, J.E. Elliot, C.A. Bishop, A.D. Tomlin, and K.V. Henning. 2000. Transfer of DDT and Metabolites from Fruit Orchard Soils to American Robins (*Turdus migratorius*) Twenty Years after Agricultural Use of DDT in Canada. Archives of Environmental Contamination and Toxicology. 39:205-220. <https://link.springer.com/content/pdf/10.1007%2Fs002440010098.pdf>
- Hruby, T, S. Stanley, T. Granger, T. Duebendorfer, R. Friesz, B. Lang, B. Leonard, K. March, and A. Wald. 2000. Methods for Assessing Wetland Functions Volume II: Depressional Wetlands in the Columbia Basin of Eastern Washington. WA State Department Ecology Publication #00-06-47. <https://fortress.wa.gov/ecv/publications/documents/0006047.pdf>
- Mitsch, W.J. and J. G. Gosselink. 2015. Wetlands, 5th edition. John Wiley & Sons, Inc.
- Serdar, D. and Era-Miller, B. 2004. DDT Contamination and Transport in the Lower Mission Creek Basin, Chelan County, Total Maximum Daily Load Assessment. Olympia, WA: Washington State Department of Ecology. Publication No. 04-03-043. <https://fortress.wa.gov/ecv/publications/publications/0403043.pdf>
- Vymazal, J. and Brezinova, T. 2014. The use of constructed wetlands for removal of pesticides from agricultural runoff and drainage: a review. Environmental International 75:11-20. <https://www.sciencedirect.com/science/article/pii/S0160412014003201?via%3Dihub>

Detections Exceeding WSDA's Assessment Criteria 2012 to 2016 (> 50% of an aquatic benchmark)

Seventeen Pesticides of Concern (POC)	
Atrazine	Fipronil
Azoxystrobin	Imidacloprid
Bifenthrin	Malathion
Captan	Metolachlor
Chlorothalonil	Oxamyl
Chlorpyrifos	Pyridaben
Diazinon	Simazine
Diuron	Sulfometuron Methyl
Ethoprop	

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Month		Apr				May					Jun				Jul				Aug	
Day of the Month	Use	4	11	18	25	2	10	16	23	31	6	13	21	27	5	10	18	25	1	8
2,6-Dichlorobenzamide	D-H					0.015	0.024	0.022		0.011	0.013	0.014	0.019		0.011	0.021	0.019	0.024	0.012	
4,4'-DDD	D-OC									0.010					0.008	0.015	0.014	0.017		
4,4'-DDE	D-OC	0.017		0.014	0.023	0.023	0.024	0.021	0.023	0.034	0.021	0.012	0.022	0.021	0.021	0.033	0.026	0.049		
4,4'-DDT	I-OC															0.019	0.015	0.021		
Chlorpyrifos	I-OP	0.248	0.108	0.052		0.022	0.034				0.013			0.010	0.009					
Diuron	H													0.058	0.021					
Imazapyr	H	0.072	0.066	0.034	0.021	0.010		0.009												
Imidacloprid	I-N																		0.028	
Malathion	I-OP	0.209	0.080																	
Metsulfuron-methyl	H	0.018	0.017	0.015																
Piperonyl butoxide (PBO)	Sy	0.070																		
Propiconazole	F		0.006																	
Pyridaben	I												0.038							
Spirotetramat	I								0.754										0.054	
Sulfometuron methyl	H	0.019	0.015	0.015	0.013	0.010														
Thiamethoxam	I-N						0.036													
Total Suspended Solids	N/A	372.0	1050.0	1310.0	800.0	340.0	264.0	203.0	205.0	155.0	68.0	28.0	46.0	38.0	84.0	91.0	73.0	122.0	72.0	35.0

Mission Creek 3 (MI-3), 2017 - Freshwater Criteria (pesticides in ug/L, TSS in mg/L)

Month		Apr				May	
Day of the Month	Use	4	11	18	25	2	10
4,4'-DDE	D-OC						
Chlorpyrifos	I-OP	0.383	0.327				
Difenoconazole	F						
Fipronil Sulfide	D-Py						
Imidacloprid	I-N						
Malathion	I-OP	0.223	0.273				
Piperonyl butoxide (PBO)	Sy	0.113	0.176				
Spirotetramat	I						
Total Suspended Solids	N/A	63.0	188.0	64.5	46.0	22.0	7.0

Stemilt Creek 1 (SC-1), 2017 - Freshwater Criteria (pesticides in ug/L, TSS in mg/L)

Month		Apr				May	
Day of the Month	Use	4	11	18	25	2	10
2,6-Dichlorobenzamide	D-H	0.012	0.012				
Boscalid	F						
Bromacil	H						
Chlorpyrifos	I-OP	0.036	0.043	0.049	0.019		
Diazinon	I-OP		0.120				
Imidacloprid	I-N						
Malaoxon	D-OP						
Malathion	I-OP	0.047					
Methoxyfenozide	I						
Picloram	H						
Total Suspended Solids	N/A	21.0	21.0	19.0	13.5	9.0	46.0



CASCADIA

CONSERVATION DISTRICT

The Cascadia Conservation District is a non-regulatory, grant-funded organization dedicated to encouraging the wise stewardship and conservation of all natural resources in Chelan County.

Our board and staff members work cooperatively with local landowners and communities to provide technical and financial assistance for soil, water, forest, fish, and wildlife conservation efforts. We currently serve all of Chelan County.

www.cascadiacd.org

How do we protect our rivers?

- ▶ Riparian Projects
- ▶ Water Conservation
- ▶ Wildfire Risk Reduction Projects
- ▶ Soil Tests
- ▶ Education and Outreach

Riparian

- ▶ Over 3,000 feet of Riparian restored in Cashmere to Mission Creek and tributaries
- ▶ Work with landowners to develop stewardship plans to clean up waste and plan for long term stewardship of the land
- ▶ Education and community involvement!



Water Conservation

- Work with private landowners to implement BMP's on their property with cost sharing
- Watering conservation, weed management, fuels reduction, etc.
- 14 acres of irrigation upgrade on pear orchard in Cashmere
 - Impact Sprinklers to Micro
 - Will result in 115,000 gallons reduction in water use in the summer, and 1.3 million over a season
 - Return water into Peshastin Irrigation Ditch System
 - Reduce nutrient leaching and runoff in rivers



Wildfire Risk Mitigation

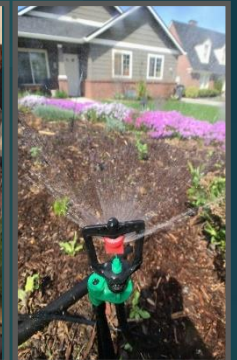
- ▶ Catastrophic wildfire in a watershed can increase erosion and sediment, turbidity, flooding, increased water temperature
- ▶ Fuels Reduction Treatment in Forests with the Cost Share Program
- ▶ Spring and Fall “Free Roving Chipper” Program
- ▶ Working on forest restoration projects that span private and public lands by connecting landowners, Firewise Communities and Forest Health Collaboratives (CWSC, NCWFHC)



Urban Ag and more

- ▶ Work with landowners to promote healthy soils and ag practices :
 - ▶ Composting manure, soil tests to reduce fertilizer runoff, native plantings and irrigation planning to conserve water.
 - ▶ Community Gardens
 - ▶ Container gardening workshops

- ▶ Learn more about all these programs
www.cascadiacd.org or (509) 436 -1601



Education & Outreach

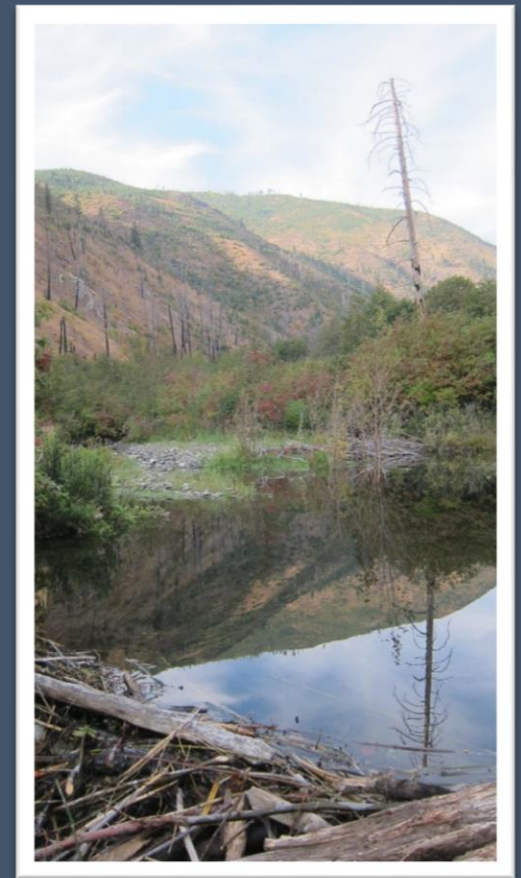
- ▶ Kids in the Creek
- ▶ Wheat Week and Water on Wheels
- ▶ Salmon Festival
- ▶ After School Program
- ▶ Participation in community events including: Earth Day Fairs, Farmer's Markets, river cleanups
- ▶ Native Plant Sale and Native Planting 101 Workshop
- ▶ Quarterly newsletter sent to all of Chelan County



Wenatchee Beaver Project

Goal: Re-establish beavers in Wenatchee Basin tributaries for habitat enhancement, flow augmentation and storage, and amelioration of climate-related impacts

- Loss of beaver among most profound causes of habitat alteration in headwater systems
- Beavers - Create complex stream habitat, recruit wood mitigate floods, reduce incision and promote floodplain interaction & enhance biodiversity
- Project will relocate 'nuisance' beavers through public and private land partnership for 10-15 pairs or family groups & conduct monitoring
- Assist landowners with management techniques for human-beaver compatibility.





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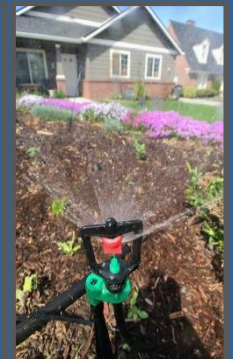
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