Wenatchee Watershed Community Meetings

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

Nason Creek
Saturday, May 14th, 10:00 am to noon
Lake Wenatchee Fire Hall (FD #9)

Chumstick Creek
Wednesday, May 18th, 6:30 pm to 8:30 pm
Leavenworth Fire Hall (FD #6)

Upper Wenatchee River (including Lake Wenatchee, Little Wenatchee River, White River and Chiwawa River)
Saturday, May 21st, 10:00 am to noon
Lake Wenatchee YMCA Camp

Mission Creek
Wednesday, May 25th, 6:30 pm to 8:30 pm
Cashmere Riverside Center

Lower Wenatchee River (Leavenworth to Columbia River)
Wednesday, June 1st, 6:30 pm to 8:30 pm
Cashmere Riverside Center

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

Topics discussed at Watershed Community Meetings will include:

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

Need More Information?

Please contact:
Mary Jo Sanborn
Chelan County Natural Resource Dept.
411 Washington Street, Suite 201
Wenatchee, WA 98801
509.667.6532
maryjo.sanborn@co.chelan.wa.us

Visit our website for meeting information

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

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

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

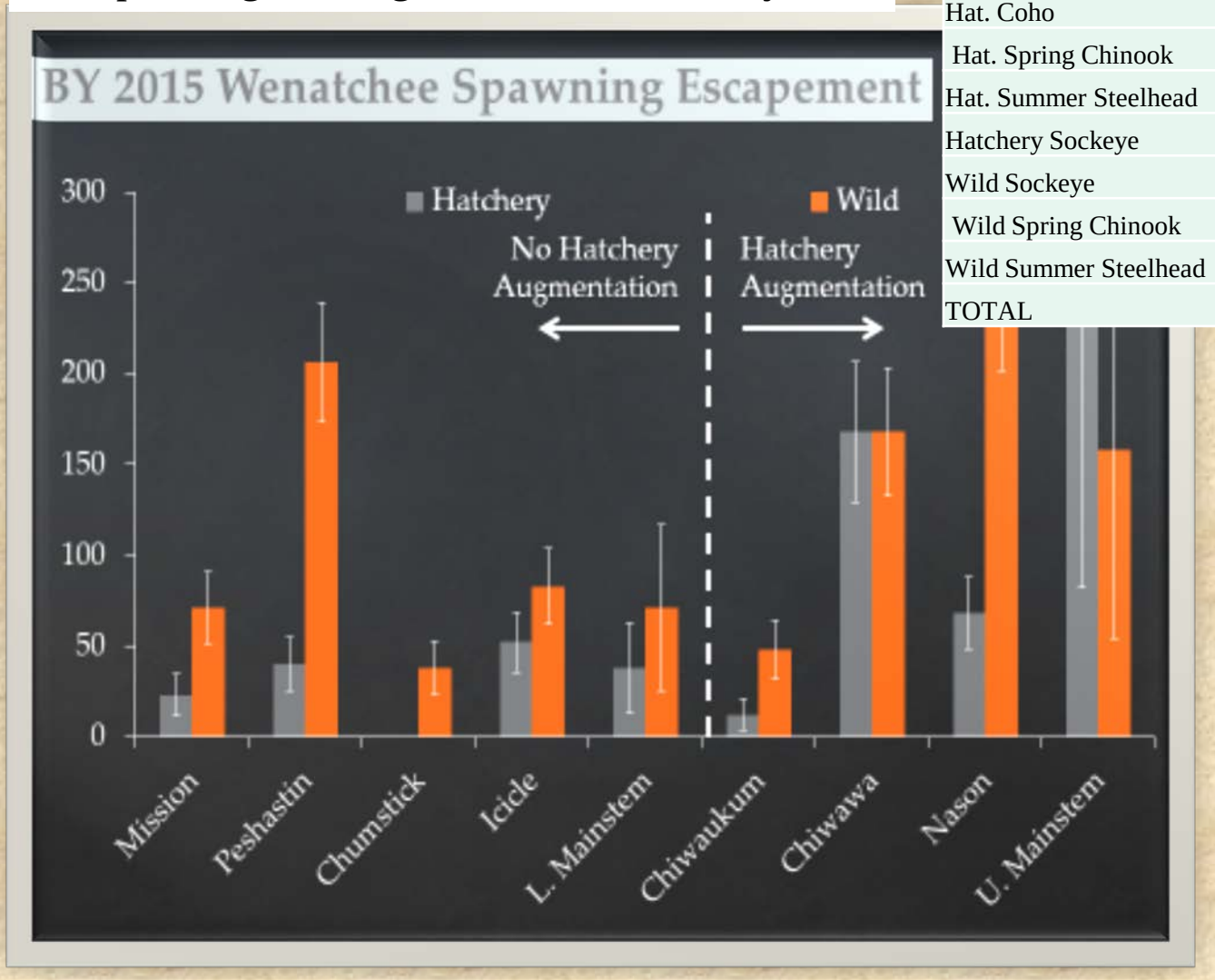
- Address water quality issues for temperature, fecal coliform and DDT (TMDL/Water Clean-up Plan)
- Increase water availability for instream and out-of-stream uses; Implement instream flow rule
- Improve side channel and wetland connections
- Reduce sediment and restore habitat diversity and complexity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

Data from Ben Truscott of WDFW

Wenatchee Watershed Work Completed to Date

Table 11. Comparison of Projects Completed to Priorities Identified in Table 7 of the Biological Strategy (UCRTT 2013)

Sub-Watershed	# Projects	Amt Spent	Ecological Concern											
			Channel Structure and Form		Peripheral and Transitional Habitat	Riparian	Habitat Quantity	Water Quantity	Water Quality	Sediment Conditions	Injury Mortality	Food	Species Interaction	Protection
Nason	10	**$7,962,563**	.37 mile	51 logs/log structures	202.38 acres									80 acres
Upper Wenatchee	5	**$2,322,313**	.2 mile	7 ELJ's			8 barriers removed							
Icicle Creek	6	**$741,663**				0.69 miles	3							286 acres
Peshastin	8	**$1,774,533**			0.3 acres		9 barriers removed	1.2 cfs						
Lower Wenatchee	30	**$8,318,978**	.39 miles	16 large wood structures	1.98 miles	11.6 acres		16 cfs			1			3.5 acres
Mission Creek	10	**$514,948**	.62 miles			3.66 acres	3 barriers removed							
Little Wenatchee		**$0**												
White River	17	**$4,387,028**		128 logs/log structures		0.81 acres	12 barriers removed			1.46 miles				601.4 acres
Middle Wenatchee														
Chumstick	15	**$5,843,670**				6.54 acres	36 barriers	0.02 cfs			1 screen			
Chiwawa	7	**$914,514**				32.6 acres	5 barriers removed			2.5 miles	1 structure upgrade			
	Total	**$32,780,211**												

Restoration Priorities:
#1 Ecological Concern to be addressed
#2 Ecological Concern to be addressed
#3 Ecological Concern to be addressed

Protection Priorities: Tier 1 = Nason, White, Upper Wenatchee, Chiwawa, Tier 2 = Little Wenatchee, Middle Wenatchee, Tier 3 = Icicle Creek, Lower Wenatchee, Tier 4 = Mission, Chumstick, Peshastin

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

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 do we increase instream flow?

- Conservation and Efficiencies
- Water purchased for Water Trust
- Establish a Water Bank
- Improve Stream Conditions
- Creative water solutions
- Cooperative approach

Ongoing and Upcoming Efforts

- Mission Creek Water Quality Plan
  - Water Quality
  - Habitat
  - Instream Flow

Riparian Restoration to improve water quality

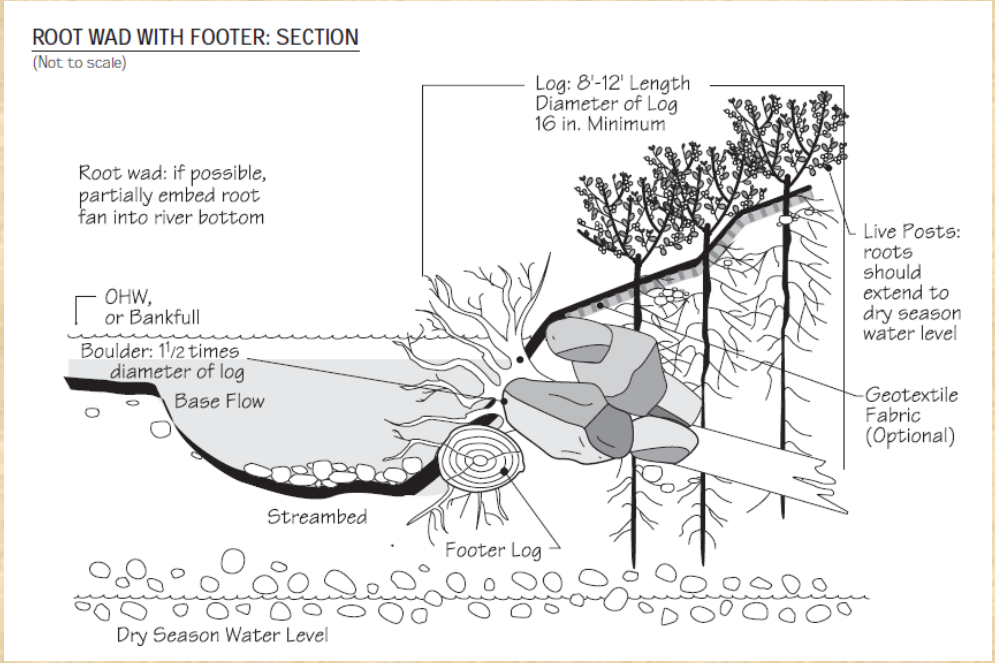
- 900’ Linear by 35’ buffer width
- Eradication of noxious species, natives installed
- Long term improvements benefits

Bank Stabilization to reduce erosion, loading & improve habitat

- 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

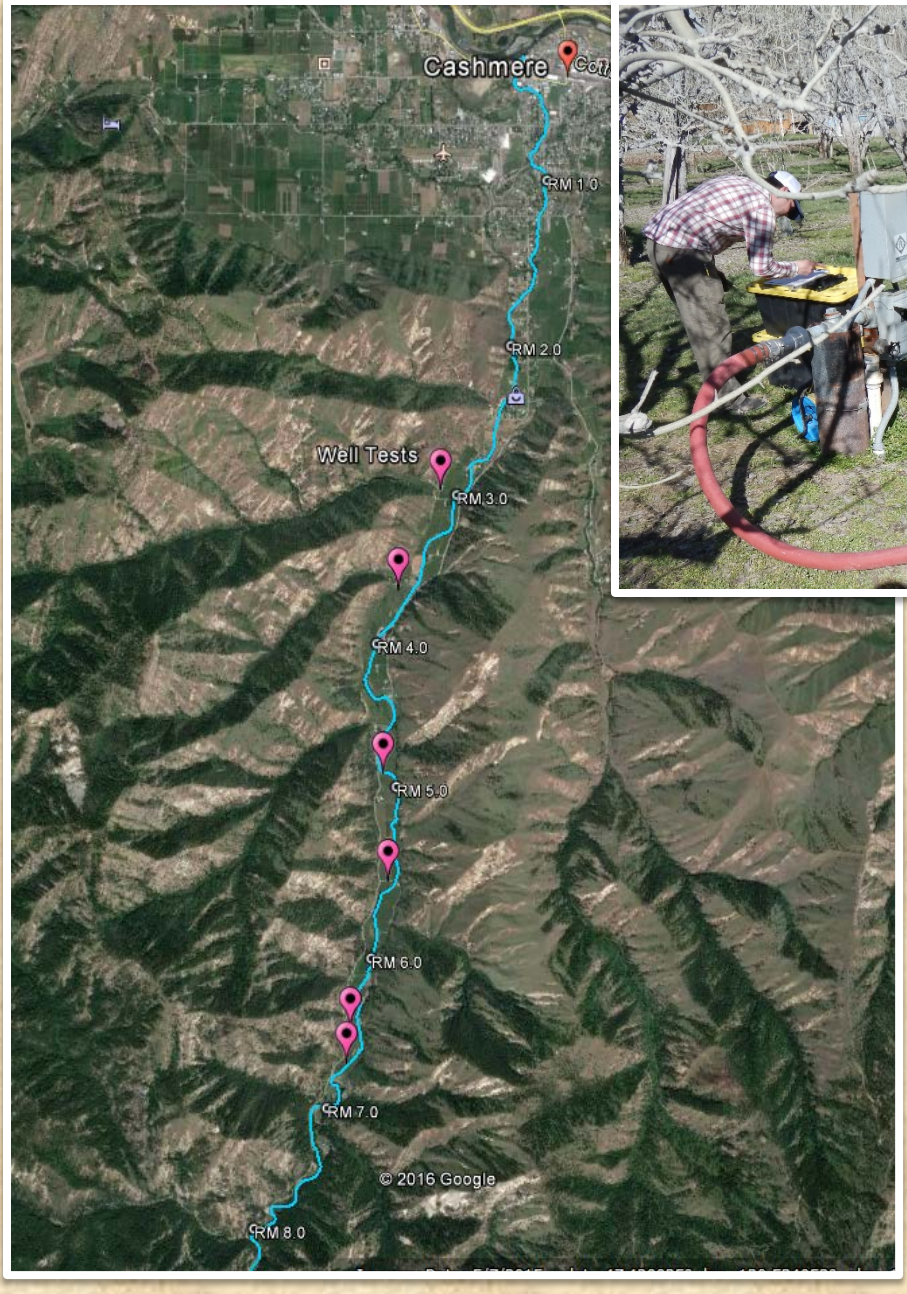
Bank Stabilization to reduce erosion, contaminant loading & improve habitat

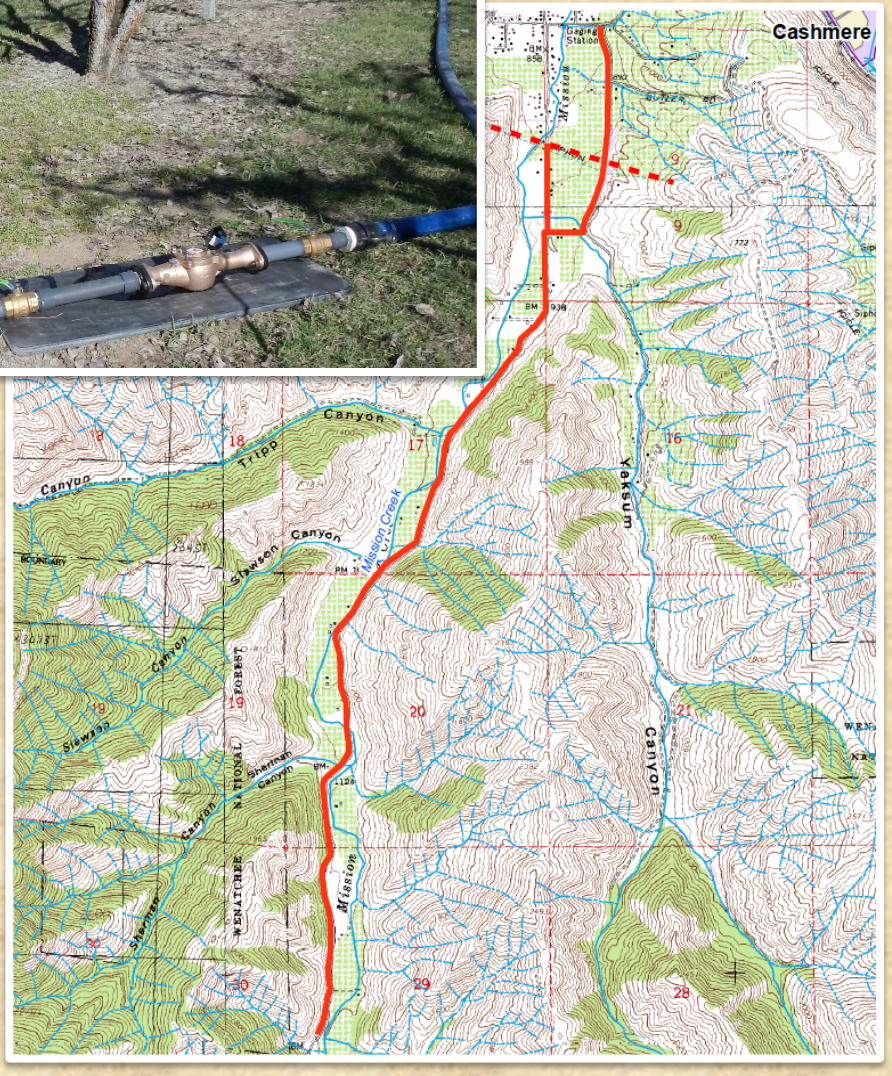


Flow Improvement

- Currently working on feasibility of multiple options:
  - "Pump and Dump" of irrigation wells during low flow period (September/October)
  - Transfer of use from surface diversions to deep wells
  - Extension of regional water services to landowners
  - Extension of regional water services to spill water directly into Mission Creek
  - Water banking of surface water rights into a trust
- All options shown are continually vetted by landowners and refined by engineers to arrive at a community supported outcome

Flow Improvement





Community Involvement & Next Steps:

- Assemble Mission Creek Watershed Council
- Continue well testing, flow augmentation pilot program in Fall 2016
- Voluntary Stewardship Program
- Construct a watershed specific Vegetation Management Plan to aid in making informed decisions that meet landowner & environmental needs

Contact:

Pete Cruickshank 667-6612

pete.cruickshank@co.chelan.wa.us

Water Quality and Agriculture in Washington State

Natural Resources Assessment Section
Washington State Department of Agriculture
http://www.agr.wa.gov/PestFert/NatResources/

Matthew Bischof

Natural Resource Scientist

"The Washington State Department of Agriculture serves the people of Washington by supporting the agricultural community and promoting consumer and environmental protection."

WSDA

Natural Resources Assessment Section

Who is NRAS?:

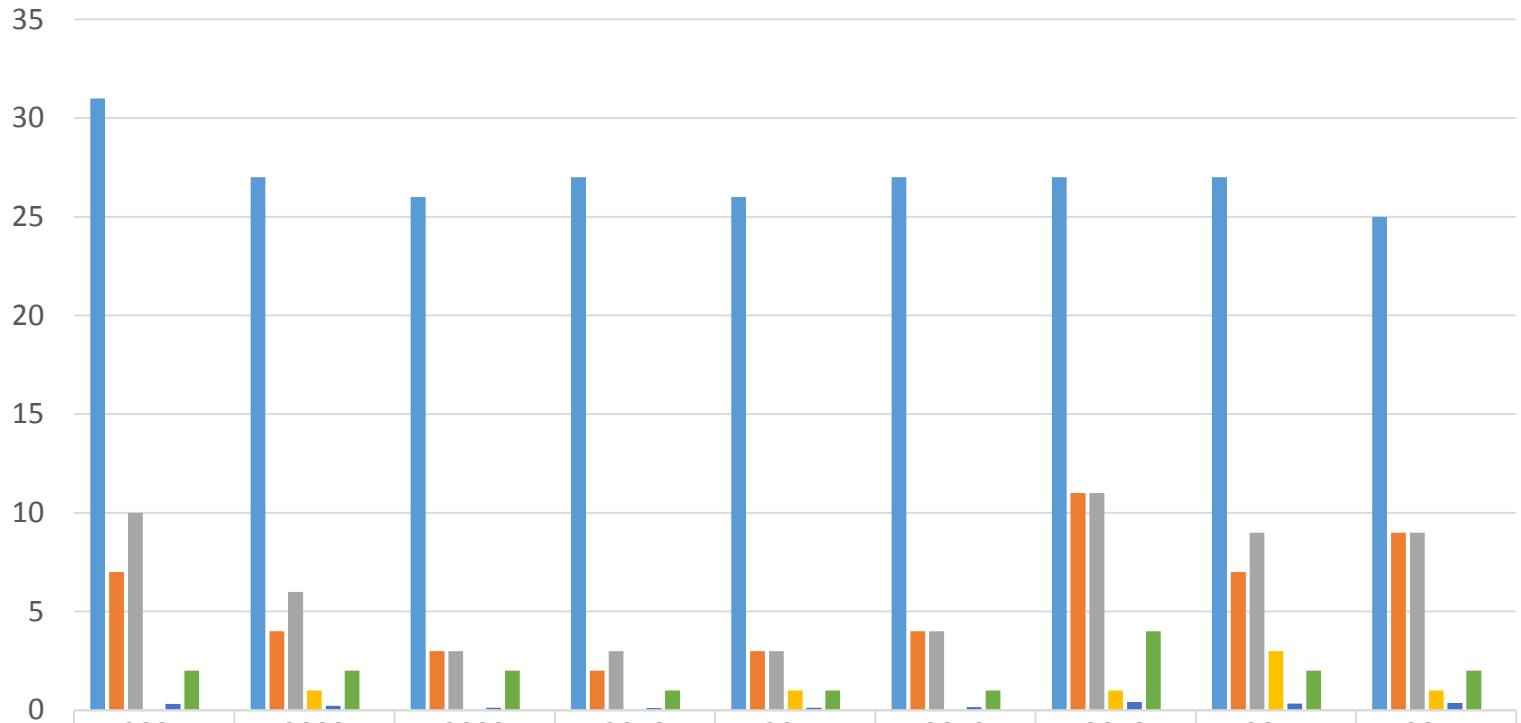
- **Research group in the Director's office**
- **Staff have a wide range of expertise**
- **Our primary goal is to assess effects of pesticides on endangered species and water quality**
- **Core program data components**
  - **Collect Pesticide Use Information**
  - **Agricultural Land use Mapping**
  - **Ambient Surface Water Monitoring**
  - **Groundwater**
- **Numerous special projects**

Water Quality: Surface Water and Groundwater

- Different challenges for each
  - Surface water: Mostly pesticide related activities, ESA and CWA driven

  - Groundwater: Pesticide and Nitrate related activities, e.g. exceeding drinking water standards

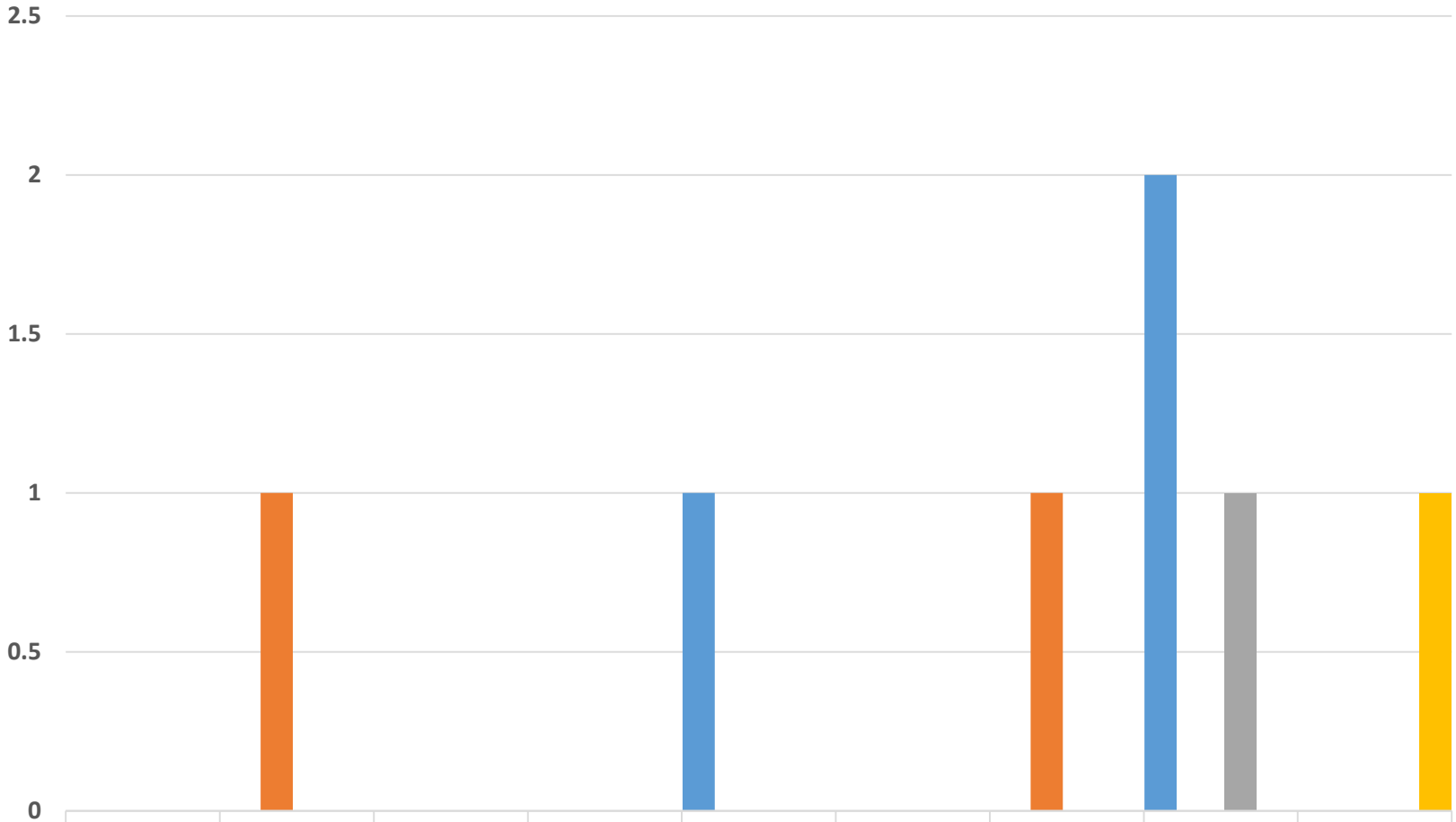
Mission Creek 2007-2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Weeks Sampled	31	27	26	27	26	27	27	27	25
Pesticides Detected	7	4	3	2	3	4	11	7	9
Total Detections	10	6	3	3	3	4	11	9	9
Exceedances	0	1	0	0	1	0	1	3	1
Average Pest. Count	0.32	0.22	0.12	0.11	0.12	0.15	0.41	0.33	0.36
Max. Count	2	2	2	1	1	1	4	2	2
Min. Count	0	0	0	0	0	0	0	0	0

Weeks Sampled Pesticides Detected Total Detections Exceedances Average Pest. Count Max. Count Min. Count

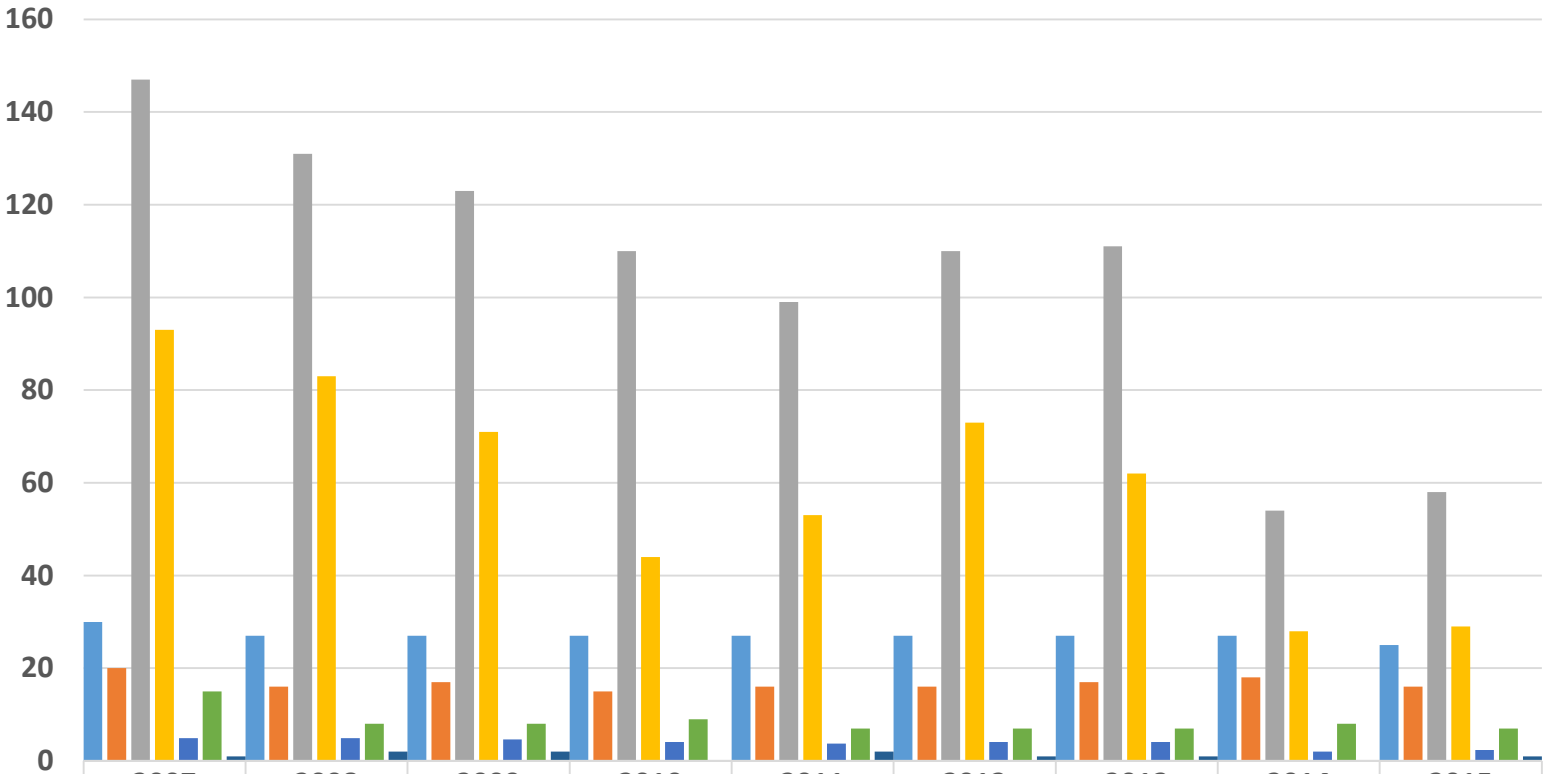
Mission Creek Exceedances 2007-2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chlorpyrifos					1			2	
Endosulfan		1					1		
Etoxazole								1	
Pyridaben									1

Chlorpyrifos Endosulfan Etoxazole Pyridaben

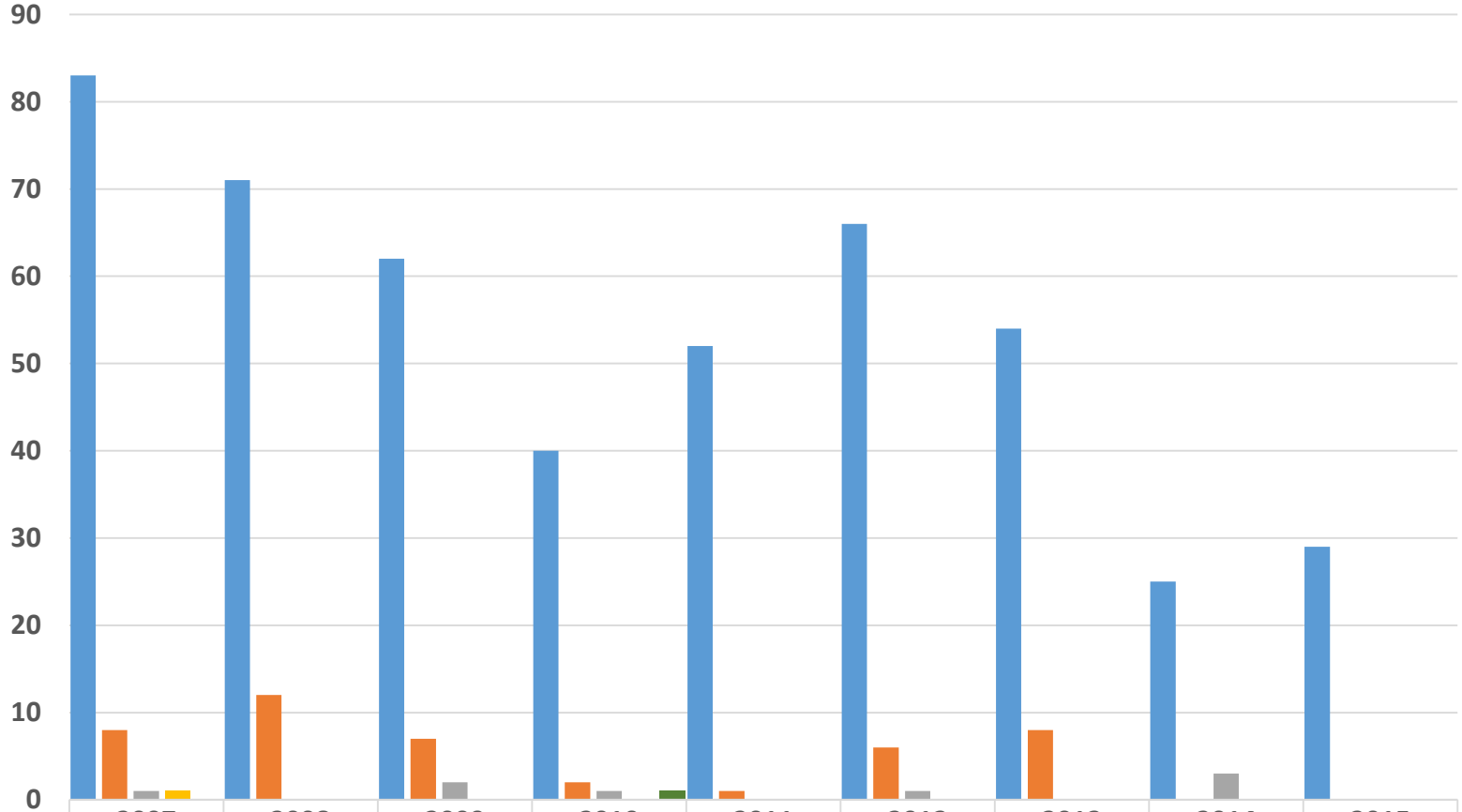
Brender Creek 2007-2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Weeks Sampled	30	27	27	27	27	27	27	27	25
Pesticides Detected	20	16	17	15	16	16	17	18	16
Total Detections	147	131	123	110	99	110	111	54	58
Exceedances	93	83	71	44	53	73	62	28	29
Average Pest. Count	4.9	4.9	4.6	4.1	3.7	4.1	4.1	2	2.32
Max. Count	15	8	8	9	7	7	7	8	7
Min. Count	1	2	2	0	2	1	1	0	1

Weeks Sampled Pesticides Detected Total Detections Exceedances Average Pest. Count Max. Count Min. Count

Brender Creek Exceedances 2007-2015

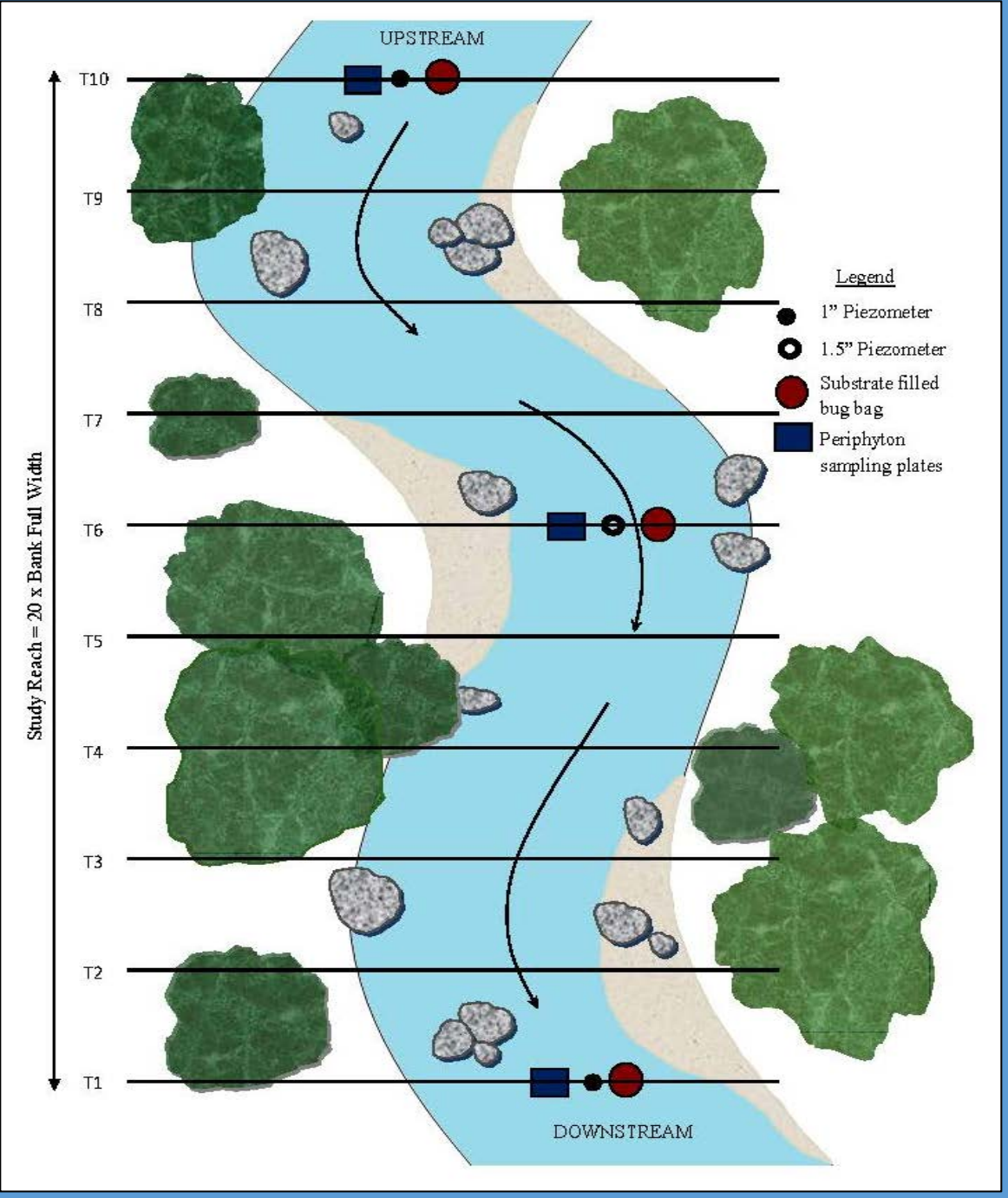


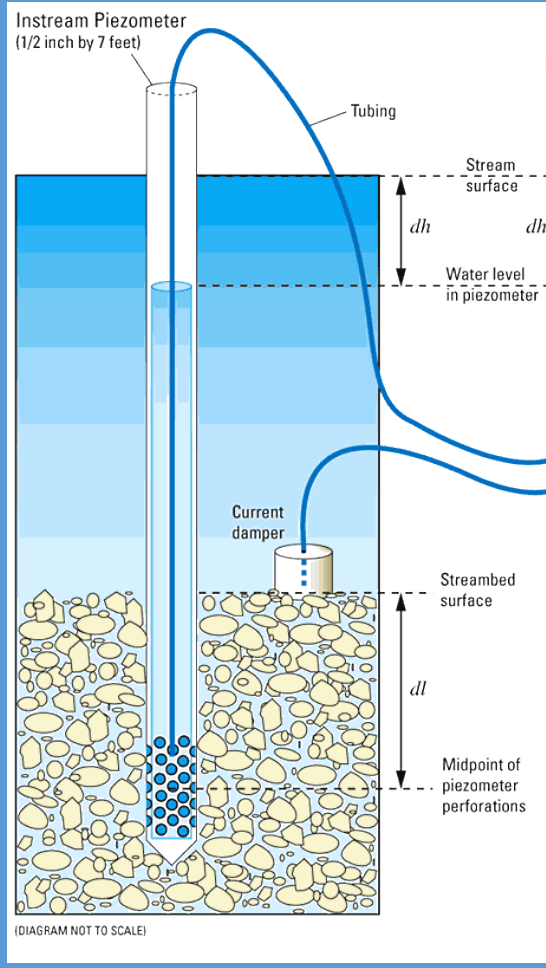
	2007	2008	2009	2010	2011	2012	2013	2014	2015
DDT	83	71	62	40	52	66	54	25	29
Endusulfan	8	12	7	2	1	6	8		
Chlorpyifos	1		2	1		1		3	
Azinphos-methyl	1								
Diazinon				1					

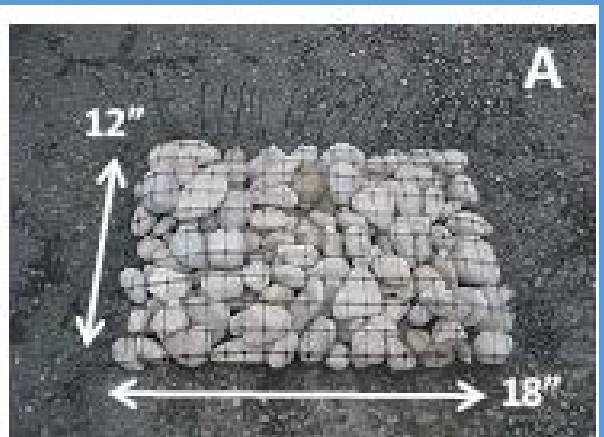
DDT Endusulfan Chlorpyifos Azinphos-methyl Diazinon

Our Questions

- Are the invertebrate/periphyton communities in Brender and Mission influenced, and to what degree (spp. presence/absents & abundance) by pesticide detections?
  - What pesticides are in the GW?
    - Possible contribution to surface water?

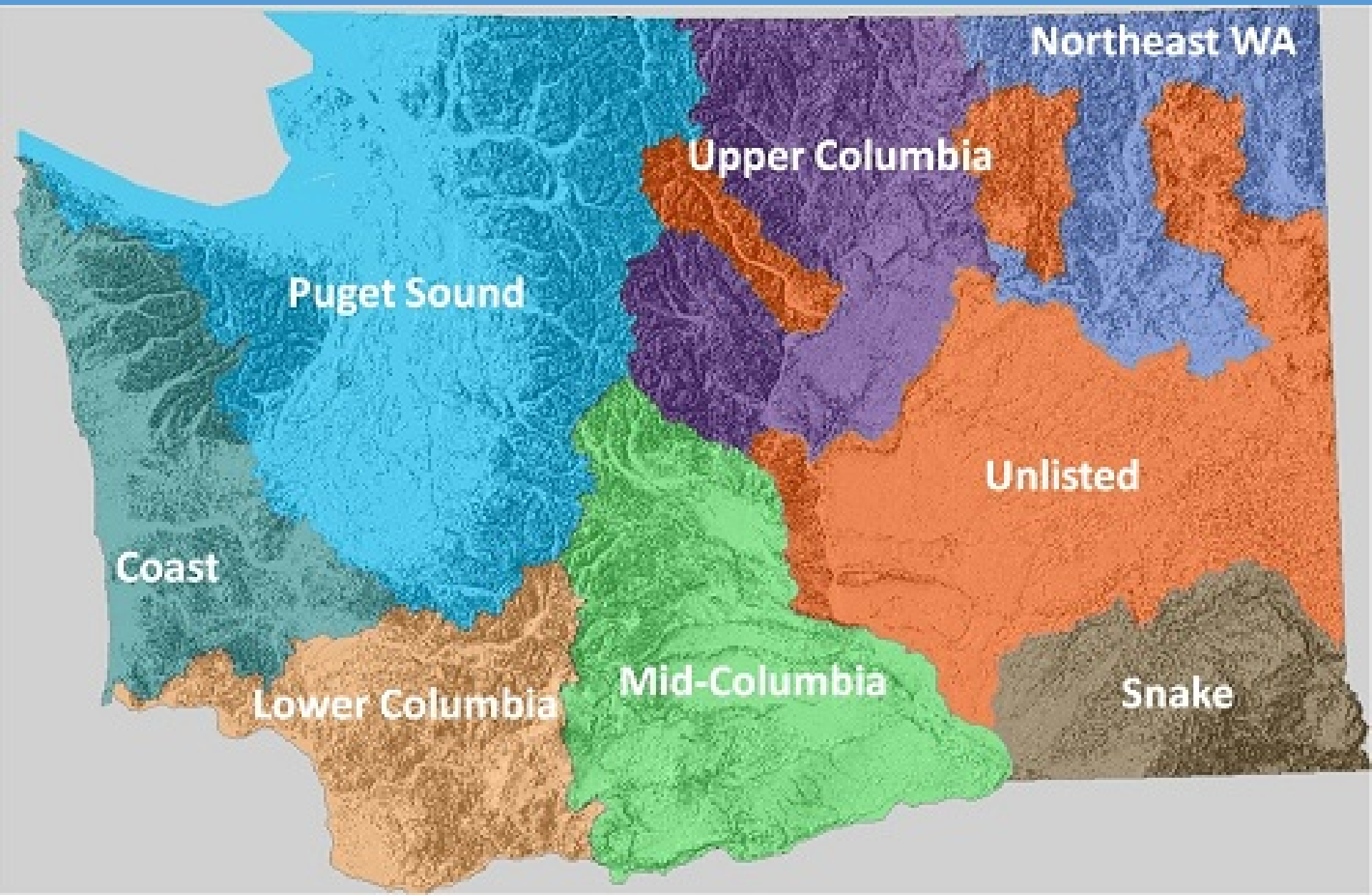

UPSTREAM
T10
T9
T8
T7
T6
T5
T4
T3
T2
T1
Study Reach = 20 x Bank Full Width
Legend
1" Piezometer
1.5" Piezometer
Substrate filled bug bag
Periphyton sampling plates
DOWNSTREAM


Instream Piezometer
(1/2 inch by 7 feet)
Tubing
Stream surface
dh
dh
Water level in piezometer
Current damper
Streambed surface
dl
Midpoint of piezometer perforations
(DIAGRAM NOT TO SCALE)


A
12"
18"

- Ephemeroptera

Ecoregions


Northeast WA
Upper Columbia
Puget Sound
Unlisted
Coast
Lower Columbia
Mid-Columbia
Snake

Index of Biological Integrity (IBI)

Metric	Sampled 7/30/2012 Peshastin Ck Quantities	Scores		
Taxa Richness	43	5.5		Fair
Ephemeroptera Richness	14	10		Excellent
Plecoptera Richness	2	1.4		Very Poor
Trichoptera Richness	3	2.5		Poor
EPT Richness	19	n/a		
Clinger Richness	25	10		Excellent
Long-Lived Richness	4	2.5		Poor
Intolerant Richness	10	10		Excellent
Percent Dominant	44.2	6.7		Good
Predator Percent	7.6	3.3		Poor
Tolerant Percent	10	7.7		Good
Number of Organisms	500	n/a		
Overall Score (B-IBI)		59.6		Fair

Very Poor	Poor	Fair	Good	Excellent

Metric	Sampled 7/29/2012 Upper Wenatchee R. Quantities	Scores		
Taxa Richness	72	10		Excellent
Ephemeroptera Richness	15	10		Excellent
Plecoptera Richness	4	4.3		Fair
Trichoptera Richness	9	10		Excellent
EPT Richness	28	n/a		
Clinger Richness	34	10		Excellent
Long-Lived Richness	4	2.5		Poor
Intolerant Richness	7	10		Excellent
Percent Dominant	38.2	8.3		Excellent
Predator Percent	3.6	1.3		Very Poor
Tolerant Percent	0.2	10		Excellent
Number of Organisms	500	n/a		
Overall Score (B-IBI)		76.4		Good

Very Poor	Poor	Fair	Good	Excellent

Percent Dominance = The sum of individuals in the 3 most abundant taxa, divided by the total number of individuals in the sample.

Upper Columbia Basin – V. Poor vs Excellent IBI

Metric	Sampled 8/27/2012 Yaksum Ck Quantities	Scores		
Taxa Richness	25	0		Very Poor
Ephemeroptera Richness	1	0		Very Poor
Plecoptera Richness	0	0		Very Poor
Trichoptera Richness	0	0		Very Poor
EPT Richness	1	n/a		
Clinger Richness	4	0		Very Poor
Long-Lived Richness	2	0		Very Poor
Intolerant Richness	0	0		Very Poor
Percent Dominant	55.4	3.7		Poor
Predator Percent	0.2	0		Very Poor
Tolerant Percent	3	9.3		Excellent
Number of Organisms	500	n/a		
Overall Score (B-IBI)		13		Very Poor

Very Poor	Poor	Fair	Good	Excellent

Metric	Sampled 8/22/2012 S. Fork Gold Ck. Quantities	Scores		
Taxa Richness	50	7.9		Good
Ephemeroptera Richness	11	10		Excellent
Plecoptera Richness	10	10		Excellent
Trichoptera Richness	8	8.8		Excellent
EPT Richness	29	n/a		Excellent
Clinger Richness	24	10		Excellent
Long-Lived Richness	11	10		Excellent
Intolerant Richness	10	10		Excellent
Percent Dominant	39.2	8.1		Excellent
Predator Percent	16.4	7.7		Good
Tolerant Percent	0	10		Excellent
Number of Organisms	495	n/a		
Overall Score (B-IBI)		92.4		Excellent

Very Poor	Poor	Fair	Good	Excellent

Questions?