

Oregon's Water Quality Toxics Monitoring Program



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OVERALL PROGRAM GOAL

Monitor & interpret levels of toxics in Oregon's aquatic environment

PROGRAM OBJECTIVES

Statewide
Comparable
Relevant
Sustained

Site Selection

- Sampling is targeted, not probabilistic
- Sites selected based on:
 - Land use
 - Potential sources
 - Discharge
 - Agricultural
 - Urban
 - Beneficial use protection
 - Drinking water source
 - Fishing / shellfishing
 - Access
 - Stakeholder involvement
- Rotating basin approach



Potential Sources

Point Sources

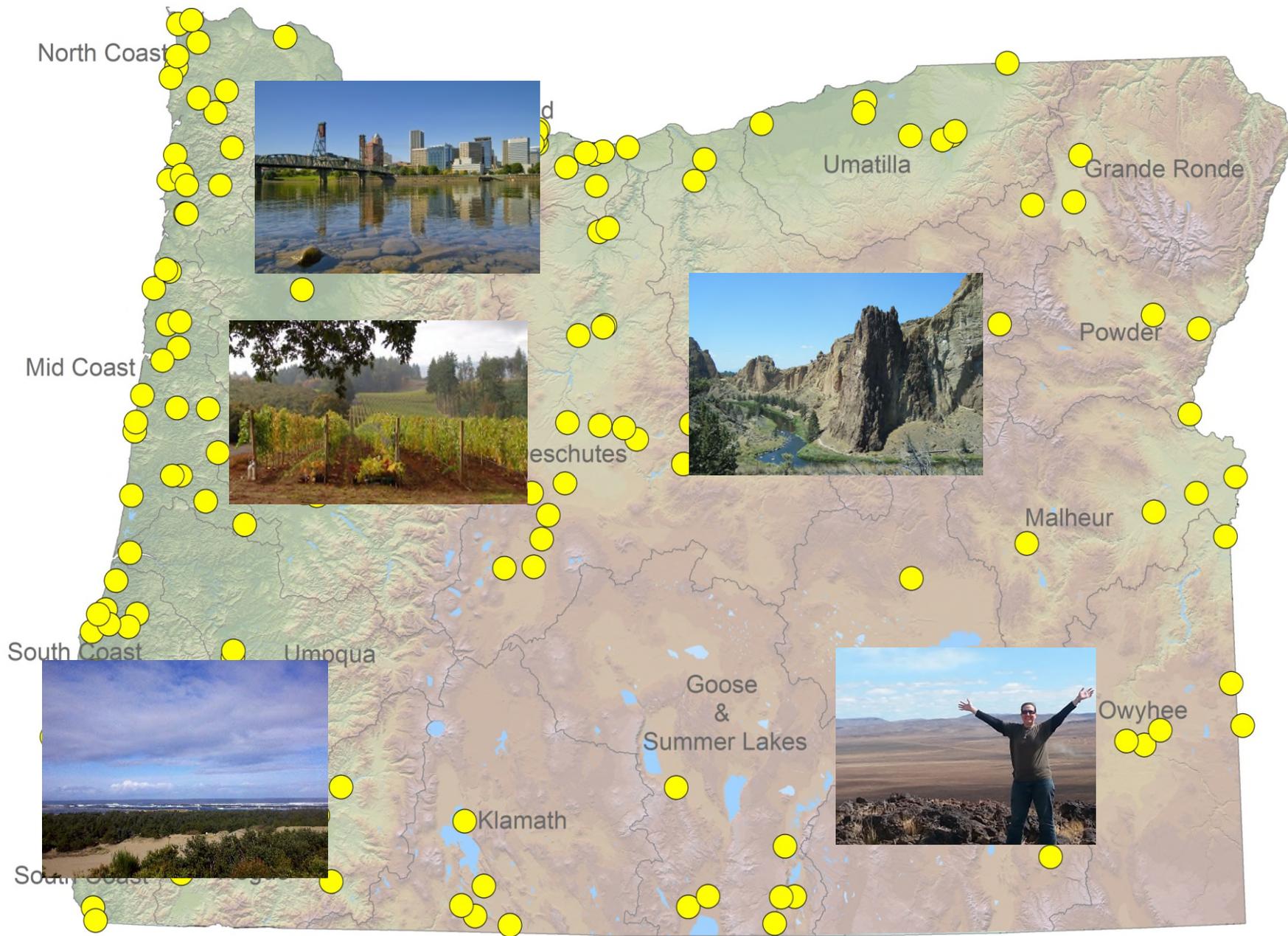
- WWTPs
- Industrial discharges
- Landfills

Non-point sources

- Stormwater
- Agricultural
- Urban
- Atmospheric

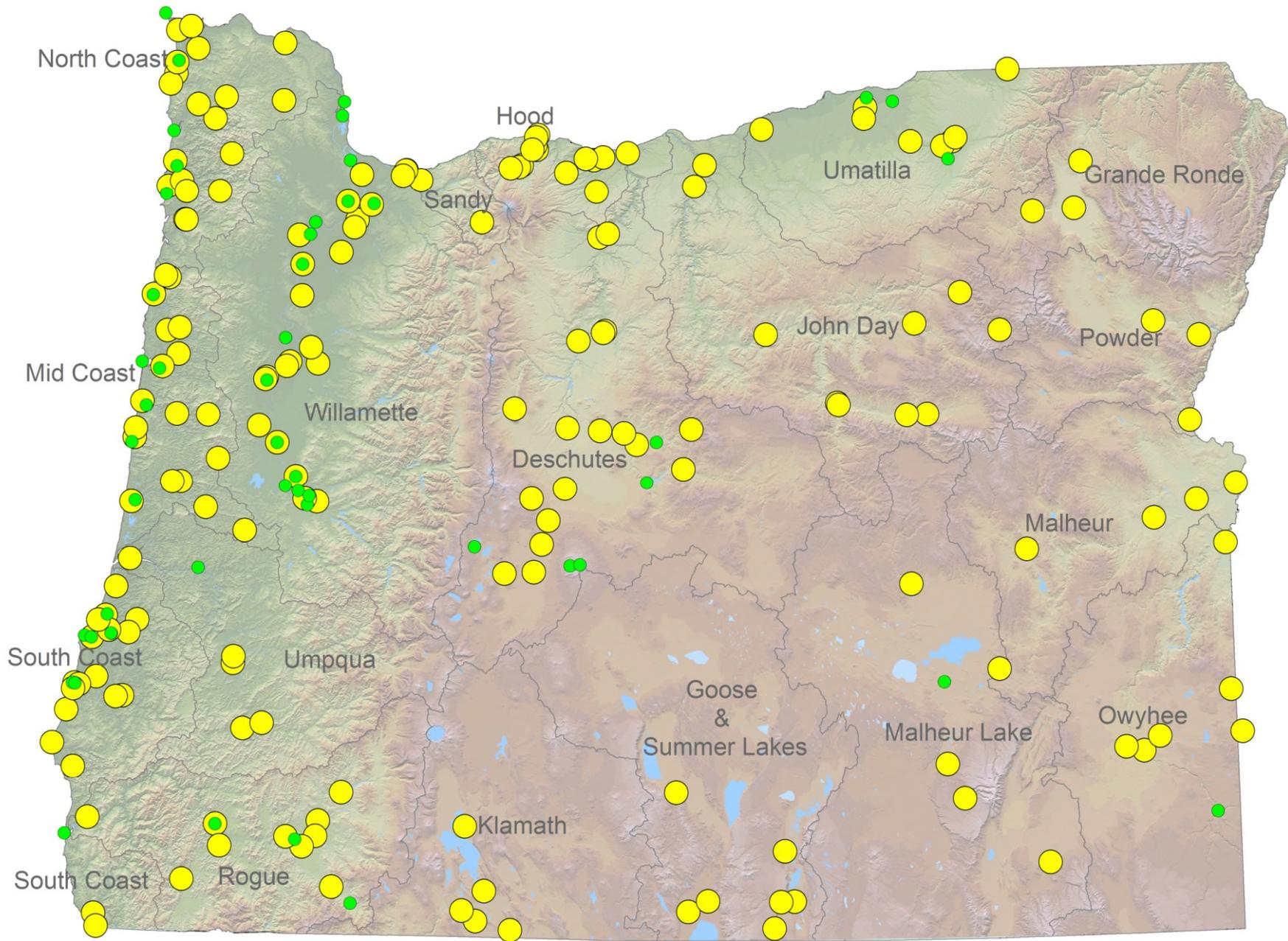


Oregon DEQ Toxics Monitoring Program



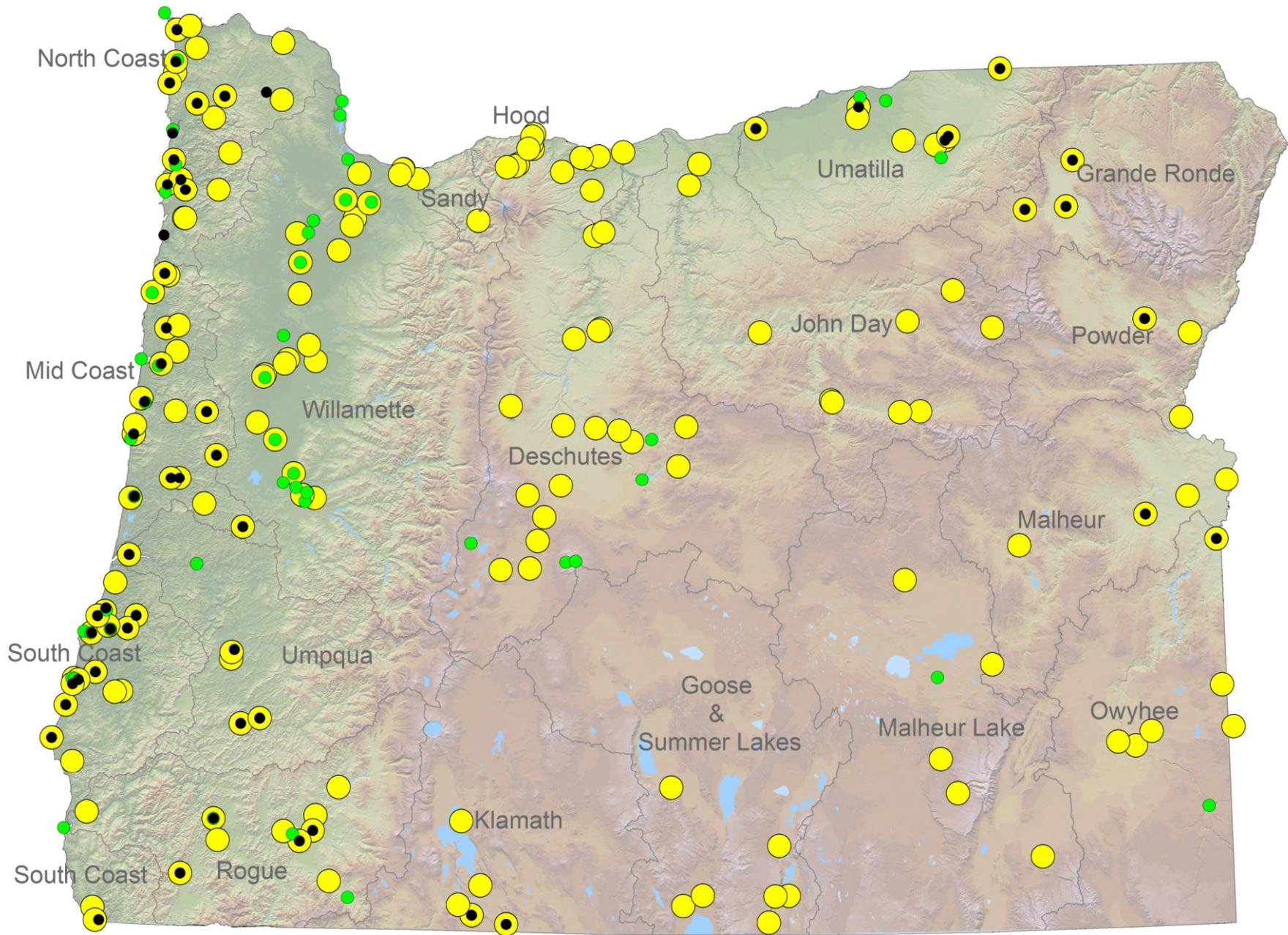
● Water

Oregon DEQ Toxics Monitoring Program



● Water ● Tissue

Oregon DEQ Toxics Monitoring Program



● Water ● Tissue ● Sediment

METHODS

- > 500 analytes
 - Consumer product constituents
 - Current Use Pesticides
 - Legacy Pesticides
 - Flame Retardants
 - Combustion by-products
 - Metals
 - Industrial Intermediates
 - Steroids and Sterols



	Water	Sediment	Fish	Shellfish
Consumer product constituents	X			
Current Use Pesticides	X			
Legacy Pesticides	X	X	X	X
Flame Retardants	X	X	X	X
Combustion byproducts	X			
Metals	X (no Hg)	X	X (limited)	X (limited)
Industrial Intermediates	X			
Steroids and Sterols	X			
PCBs, Dioxins / Furans	X	X	X	X

Sampling Frequency / Method

- Water

- Whole water, unfiltered (exceptions)
- Grab samples
- 3 collections during the year



- Fish / Shellfish
 - Target resident fish
 - 1 collection

- Sediment

- Surface sediment
- Depositional areas
- 1 collection

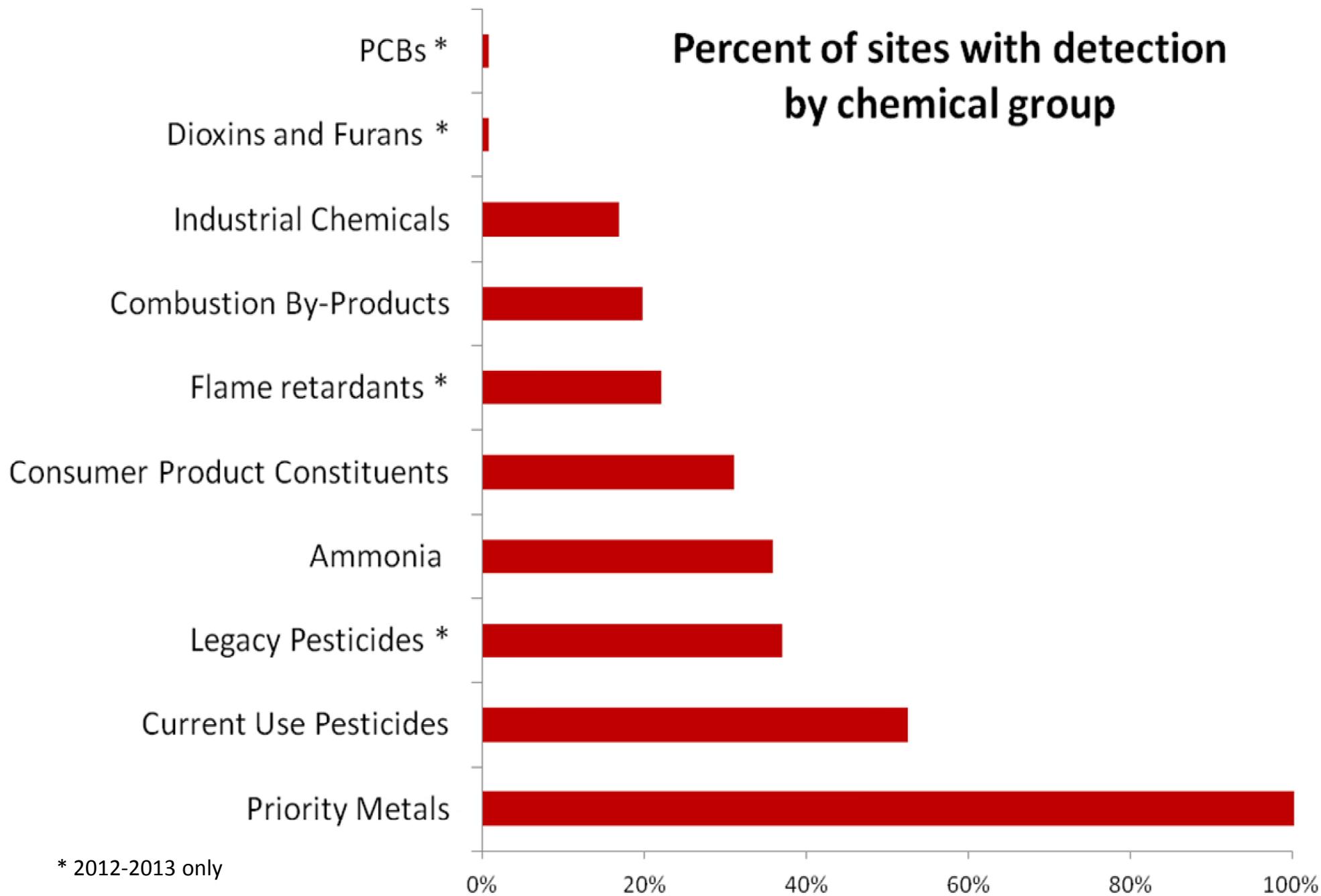


Water Results Summary

- Detections of emerging chemicals as well as legacy chemicals
 - At least one pharmaceutical or personal care product at 31% of sites
 - Flame retardants in urban and rural areas
 - Legacy pesticides over Oregon criteria in areas
 - Priority metals over Oregon criteria, mostly in urban areas
 - Inorganic arsenic over Oregon human health criteria in eastern basins & coastal estuaries



Percent of sites with detection by chemical group

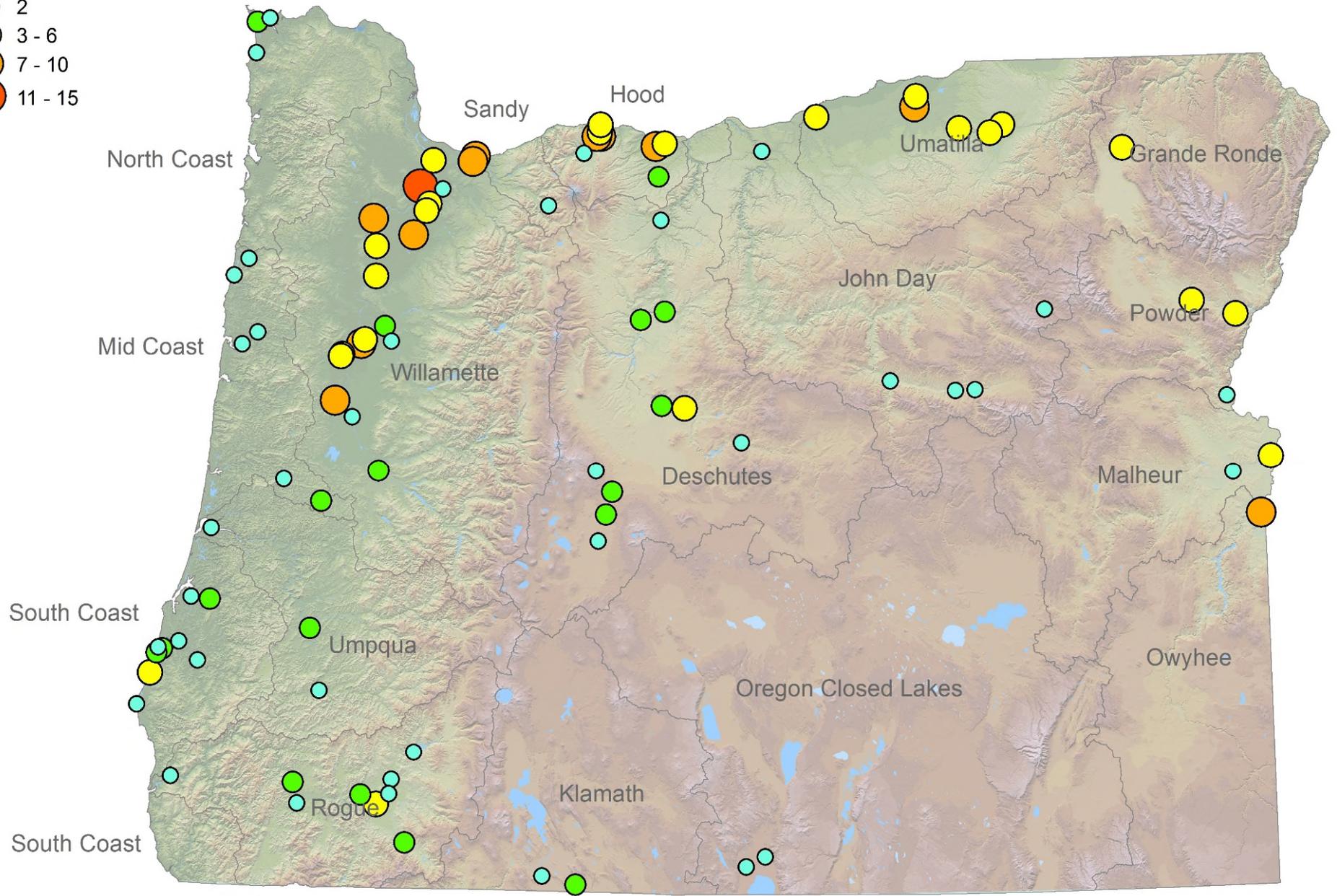


* 2012-2013 only

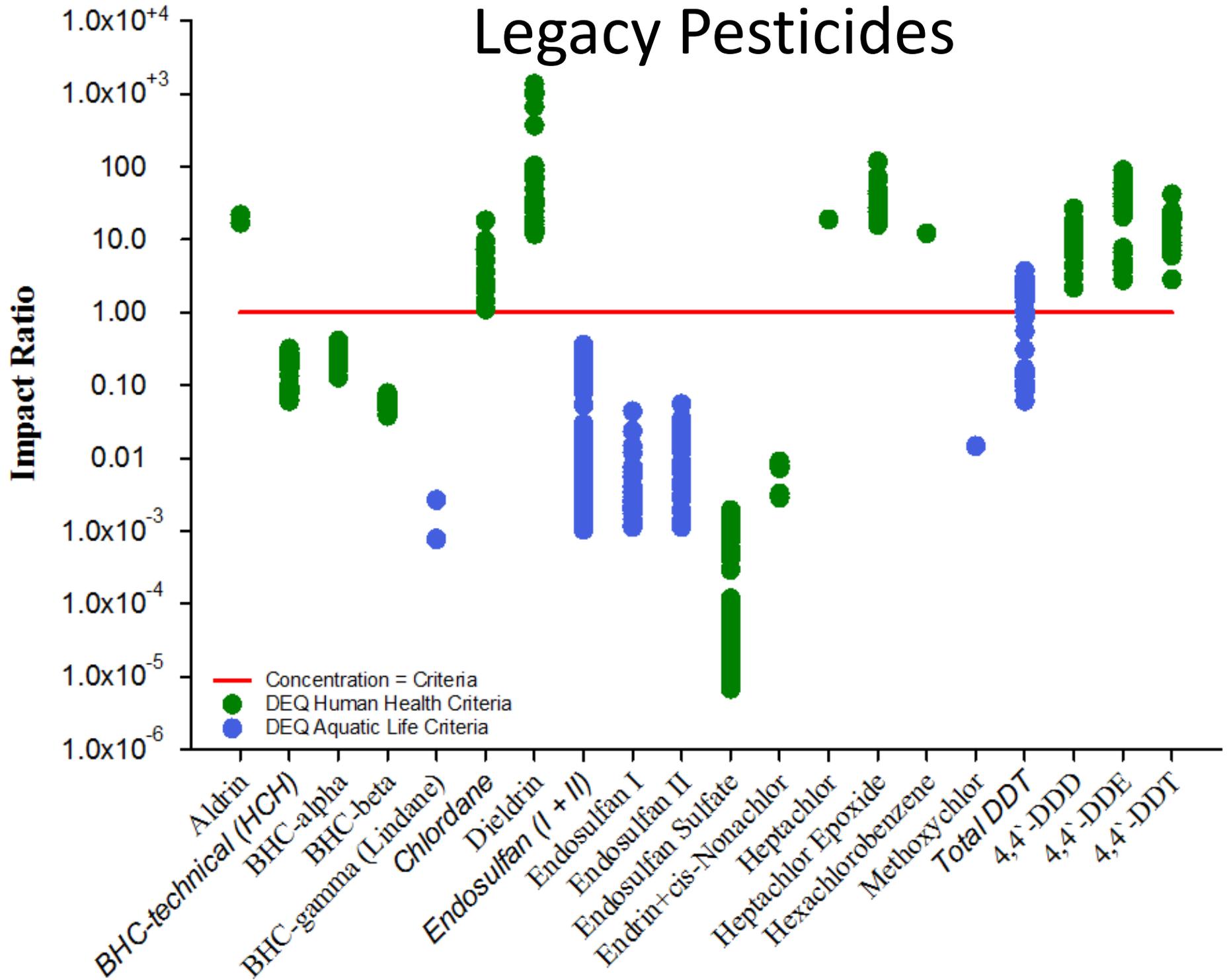
Parameter Group	# of different compounds detected	Most Common Compounds	% sites with detection
Consumer Products	16	Sulfamethoxazole	15
Current Use Pesticides	40	Atrazine & degradates	27
		Diuron	32
Legacy Pesticides	16	Endosulfans (all registrations end 2016)	23
		HCH (BHCs)	13
		DDTs / Dieldrin	11
Priority Metals	13	Copper	82
		Lead	79

of current use pesticides

- 1 detection
- 2
- 3 - 6
- 7 - 10
- 11 - 15



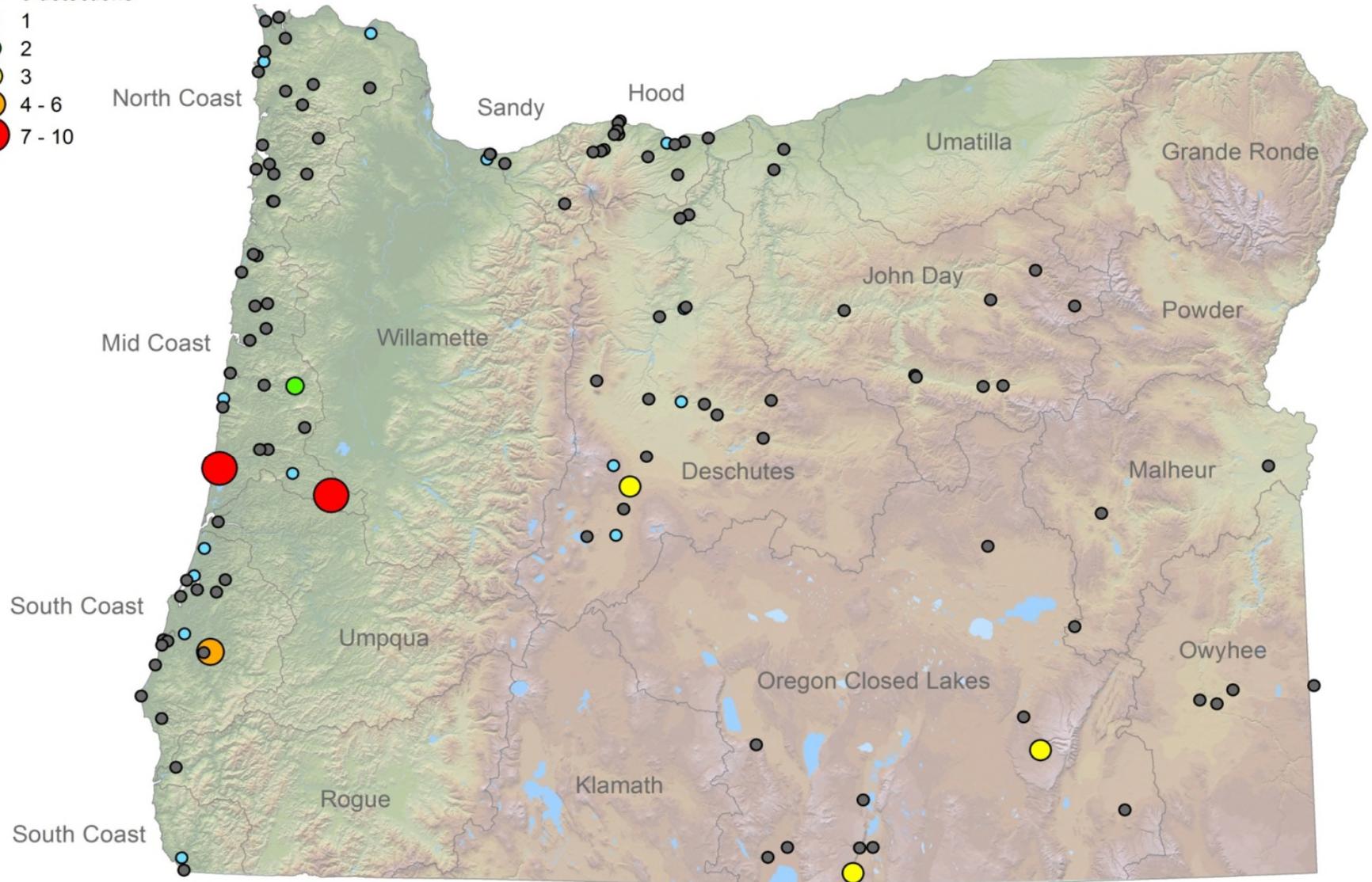
Legacy Pesticides



of PBDEs detected

- 0 detections
- 1
- 2
- 3
- 4 - 6
- 7 - 10

of PBDEs detected at each site



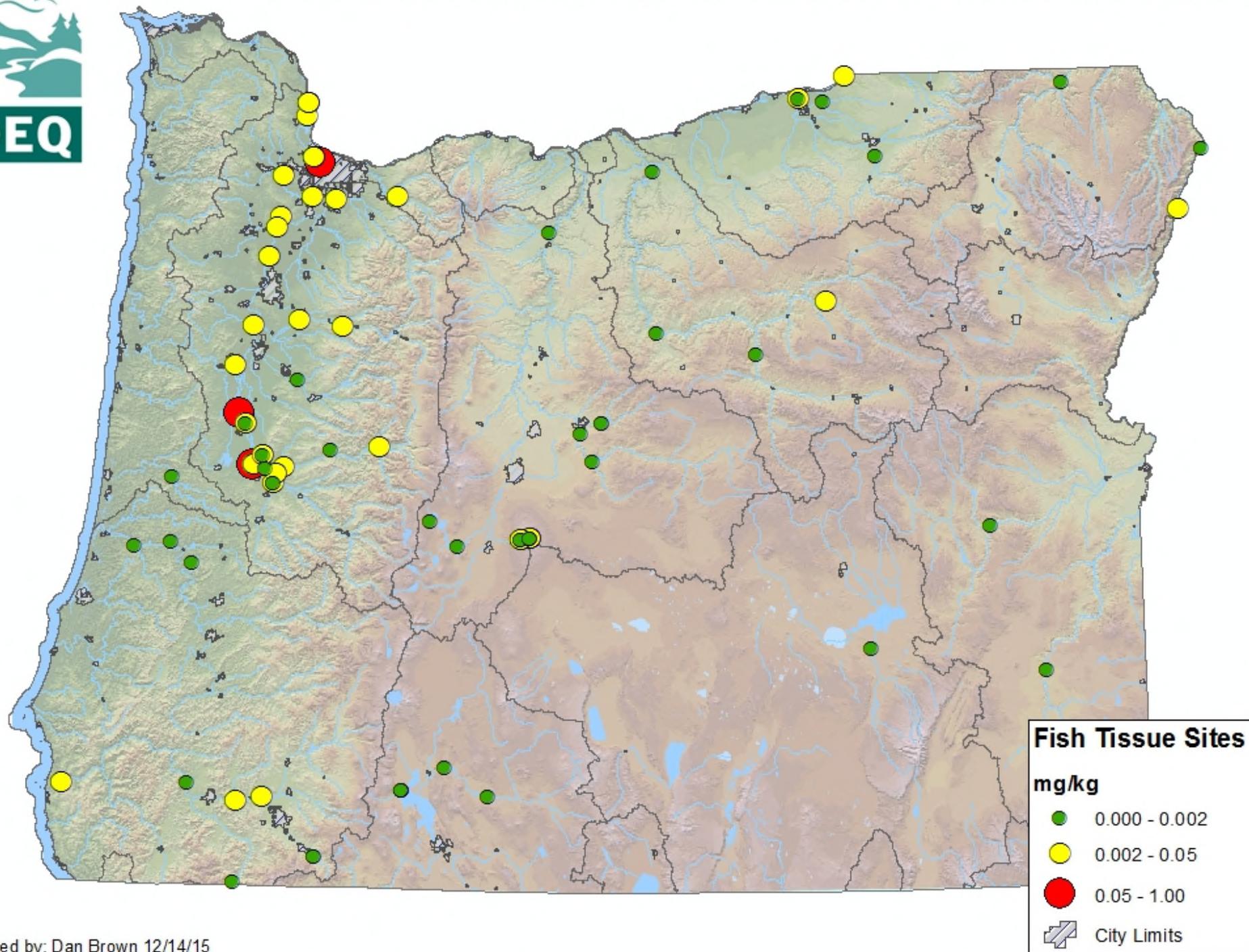
Tissue Summary

- Mercury
 - over DEQ's WQ criterion in resident fish statewide
 - Over OHA's screening level at some locations
 - Data used as part of recent statewide advisory for bass
- PCBs
 - Selected sites over OHA screening level
- Chlorinated pesticides
 - No values over screening levels

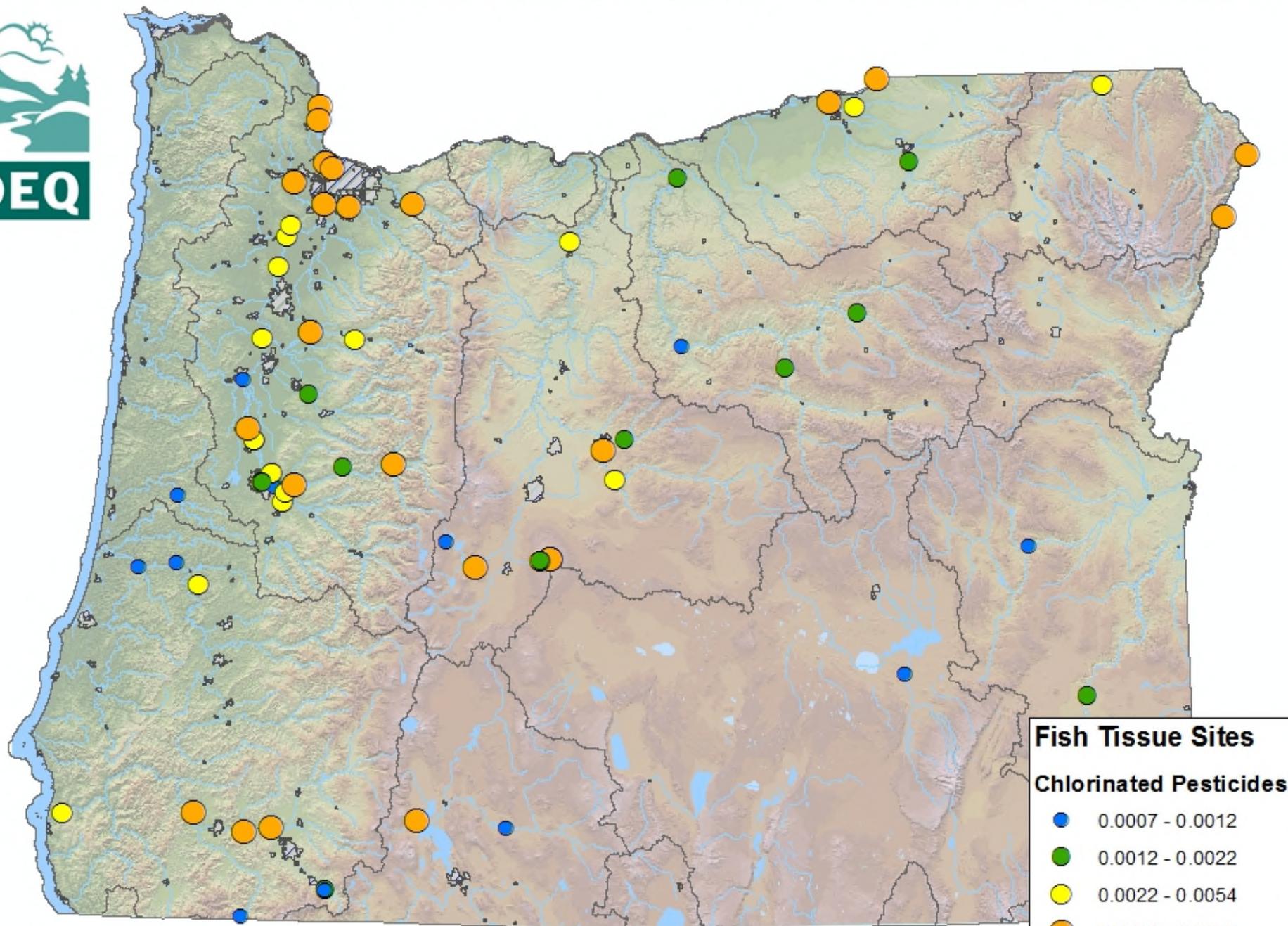




PCB Concentrations in Tissue of Resident Fish



Chlorinated Pesticide Concentrations in Resident Fish Tissue



Fish Tissue Sites

Chlorinated Pesticides

- 0.0007 - 0.0012
- 0.0012 - 0.0022
- 0.0022 - 0.0054
- 0.0054 - 0.1350

⊞ City Limits

Shellfish

Join me on THURSDAY

**K4 – West Coast Connections: From Fresh Water
to the Sea**

*What's in a bivalve? A comparison of
contaminants in shellfish on the Oregon coast.*



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How is this data used?

- Water quality assessments (CWA 305b, 303d)
- Identify emerging contaminants & issues
- Oregon Health Authority – fish consumption advisories
- NPDES Permitting
- Focus stakeholder & partner efforts
- Informs other monitoring efforts both internal & external
- Part of DEQ's Toxics Reduction Strategy



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Next Five Years ...

- 2015 – 2019
 - next rotation around the state (average 2-3 basins per year)
 - Revisit some sites, add new sites to increase geographic coverage
 - Expanded sediment collection to most sites
 - Still limited tissue sampling (always looking for partners!)
- 2017 – Statewide Lakes Assessment in conjunction with EPA NARS
- Hope to expand analytical suite to include
 - Glyphosate (DONE!!)
 - Alkyl phenols
 - Additional current use pesticides
 - Additional pharmaceuticals (beta-lactam antibiotics, etc.)



DEQ

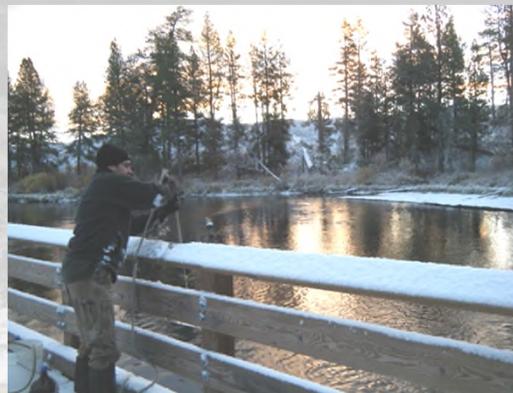
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Resources

DEQ's WQ Toxics website

<http://www.deq.state.or.us/lab/wqm/toxics.htm>

- Final report on water
- Basin specific water reports
- Data Downloads – water, sediment, & tissue



Contributors



Oregon
Department
of Agriculture





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Questions?

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GO BOLT