

Toxics in Oregon's waters: Statewide Assessment



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DEQ

State of Oregon
Department of
Environmental
Quality

PROGRAM GOAL

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

PROGRAM OBJECTIVES

Statewide
Comparable
Relevant
Sustained

Potential Sources

Point Sources

- WWTPs
- Industrial discharges
- Landfills



Non-point sources

- Stormwater
- Agricultural
- Urban
- Atmospheric



> 500 compounds

- Consumer product constituents
- Current Use Pesticides
- Legacy Pesticides
- Flame Retardants
- Combustion byproducts
- Metals
- Industrial Intermediates
- Steroids and Sterols

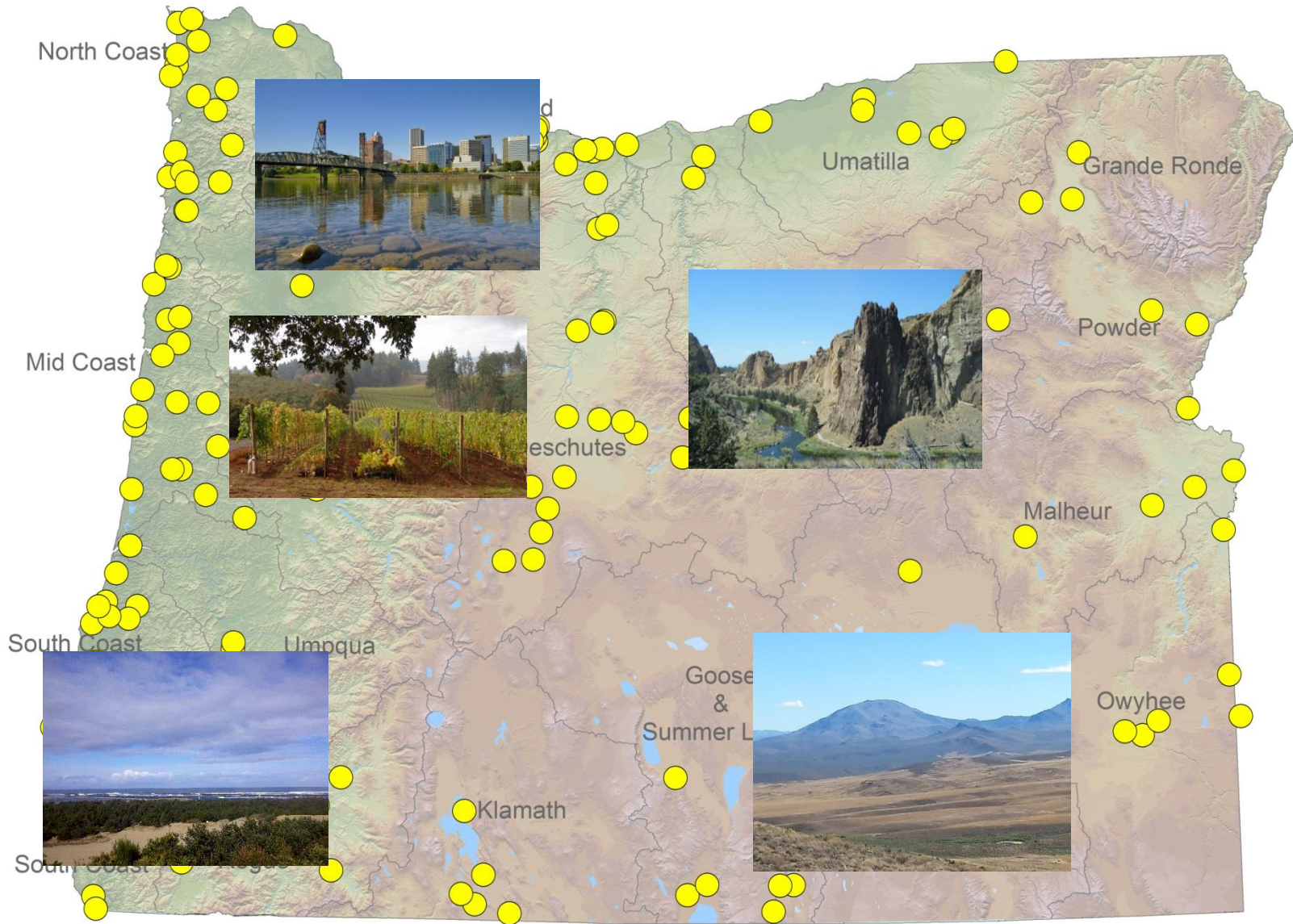


Site Selection

- Sampling is targeted, not random
- 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



Oregon DEQ Toxics Monitoring Program

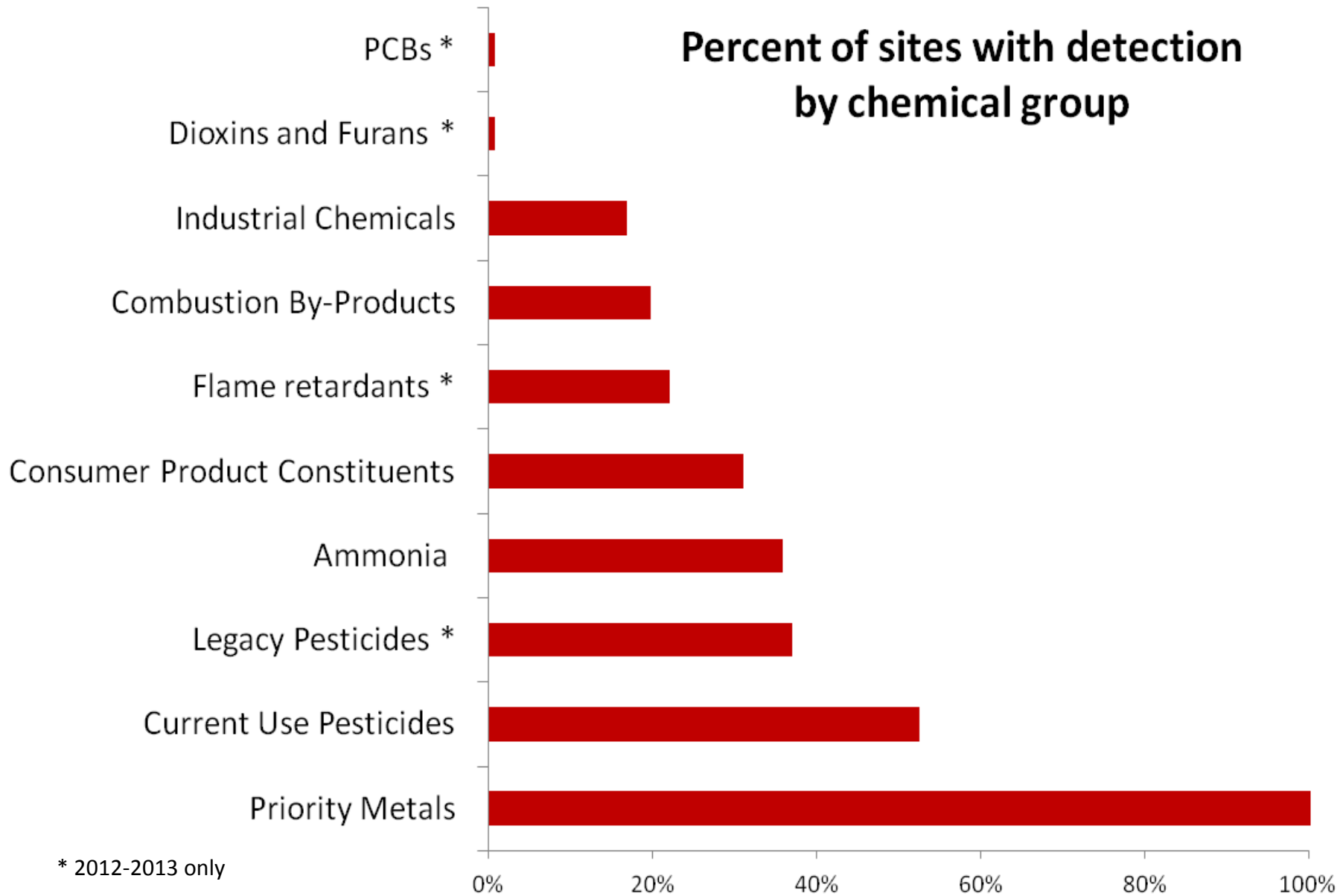


● Water

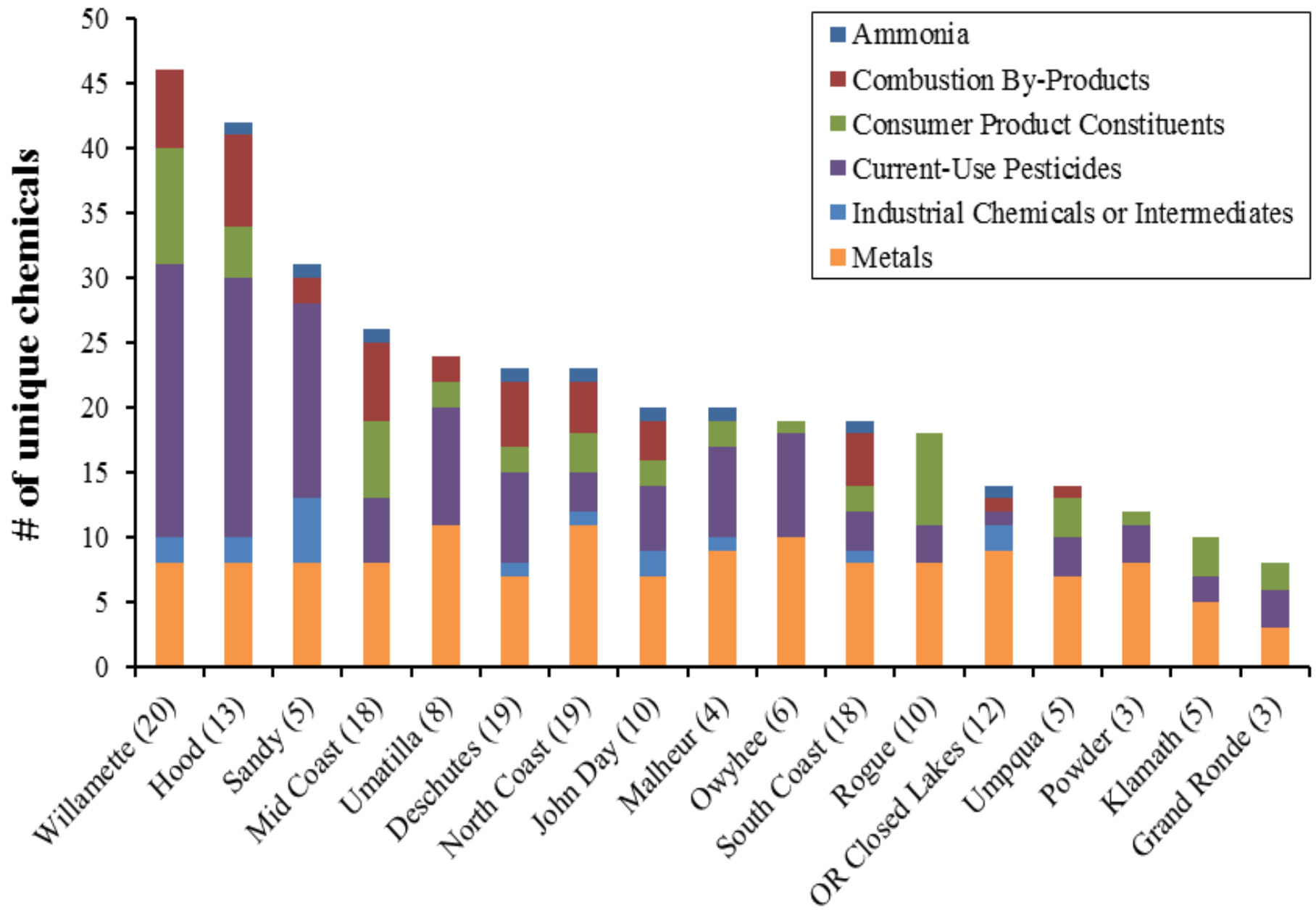
Results

- 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 criteria in areas
 - Priority metals over criteria, mostly in urban areas
 - Arsenic over human health criteria in eastern basins & coastal estuaries

Percent of sites with detection by chemical group

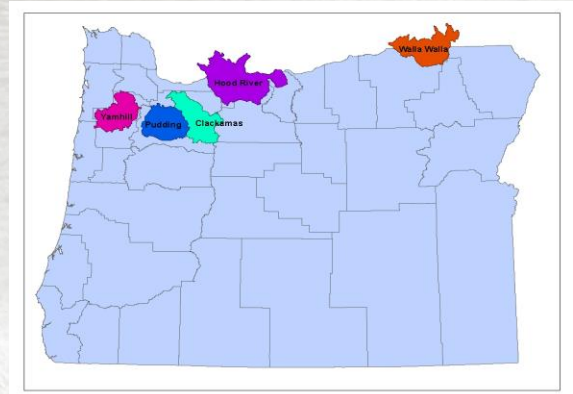


* 2012-2013 only

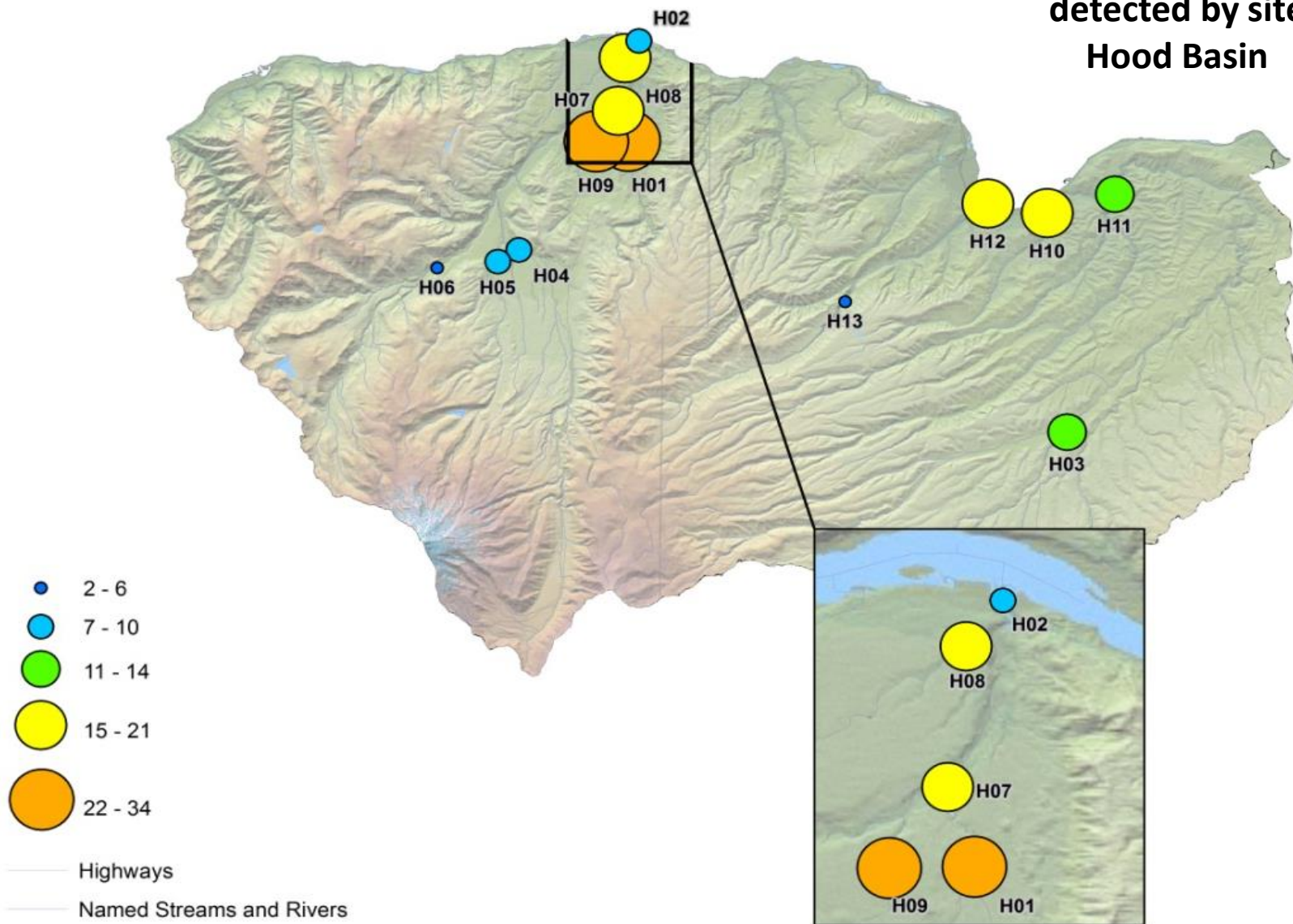


Hood-Mid Columbia Basin

- Sampled 2012 – spring (May), summer (August), fall (November)
- 13 locations in Hood – Mid-Columbia basin
 - 8 sites Hood basin
 - 5 sites Mid-Columbia / Wasco County
- PSP Overlap
 - 2 sites Hood
 - Lenz Creek at mouth
 - Neal Creek at mouth
 - 2 sites Wasco
 - Threemile Creek at Hwy 197
 - Mill Creek at 2nd Street, The Dalles

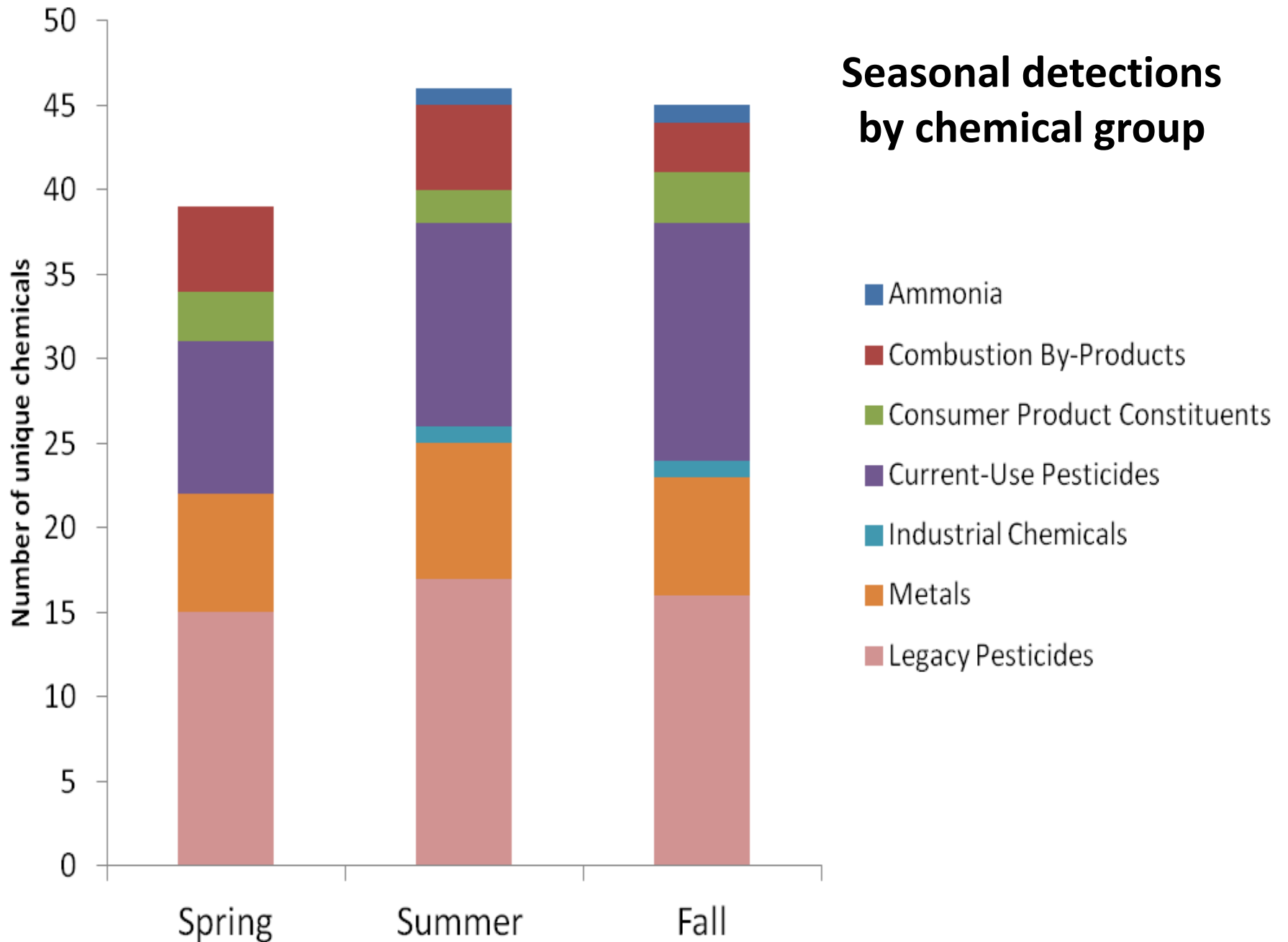


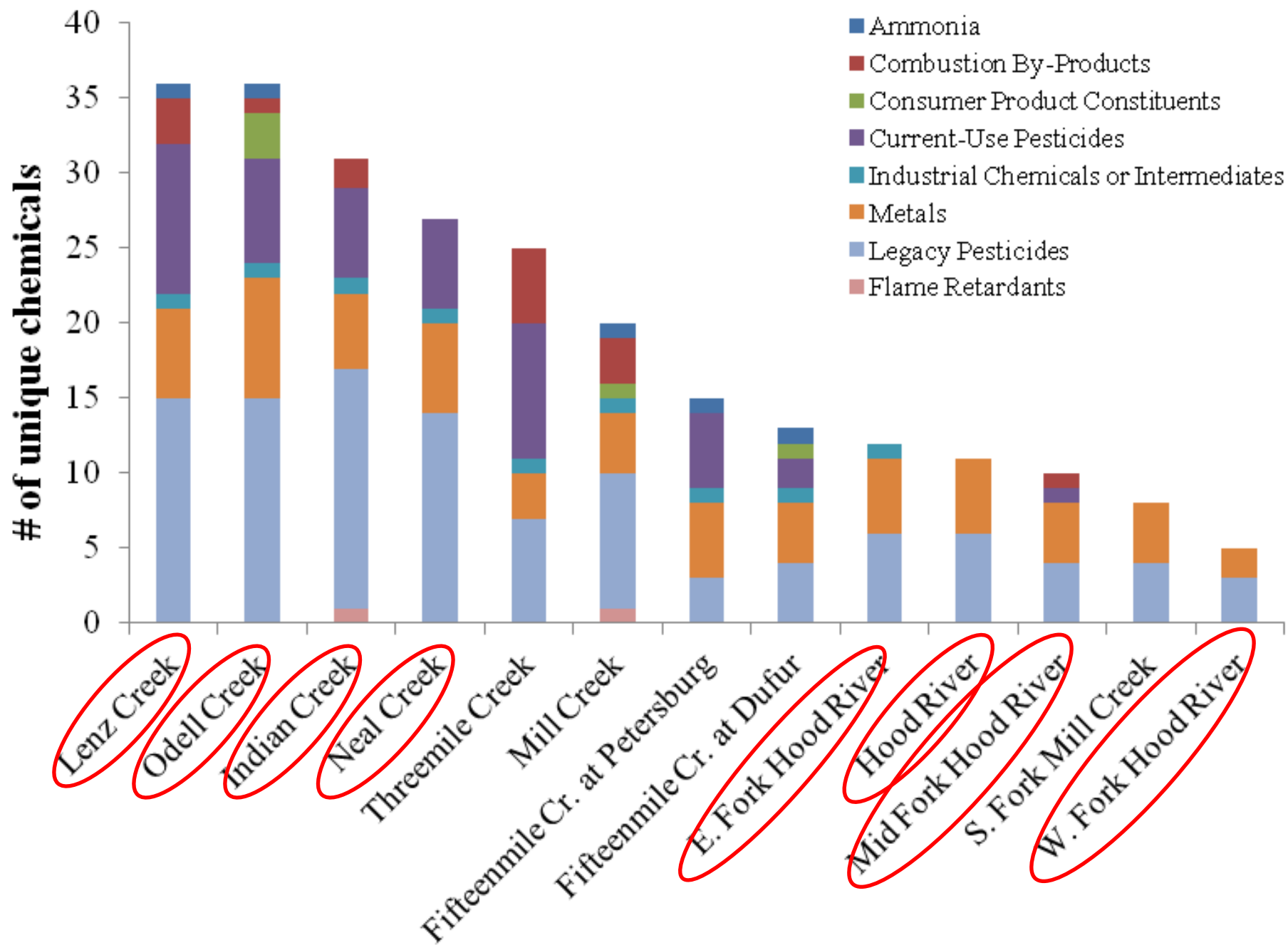
Number of unique chemicals detected by site Hood Basin



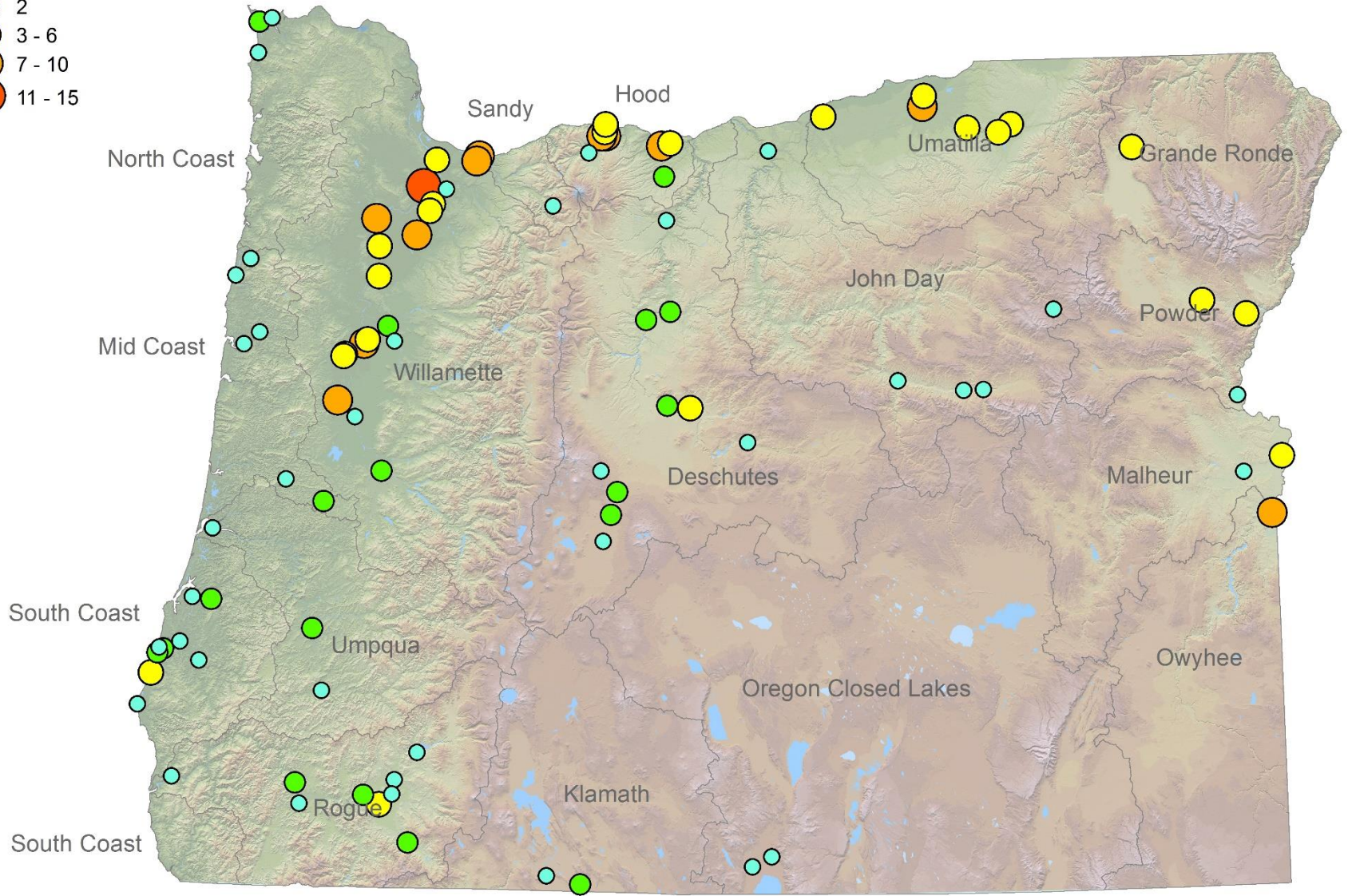
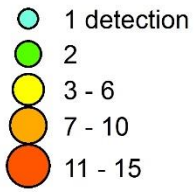
0 3.5 7 14 Miles

Seasonal detections by chemical group





of current use pesticides

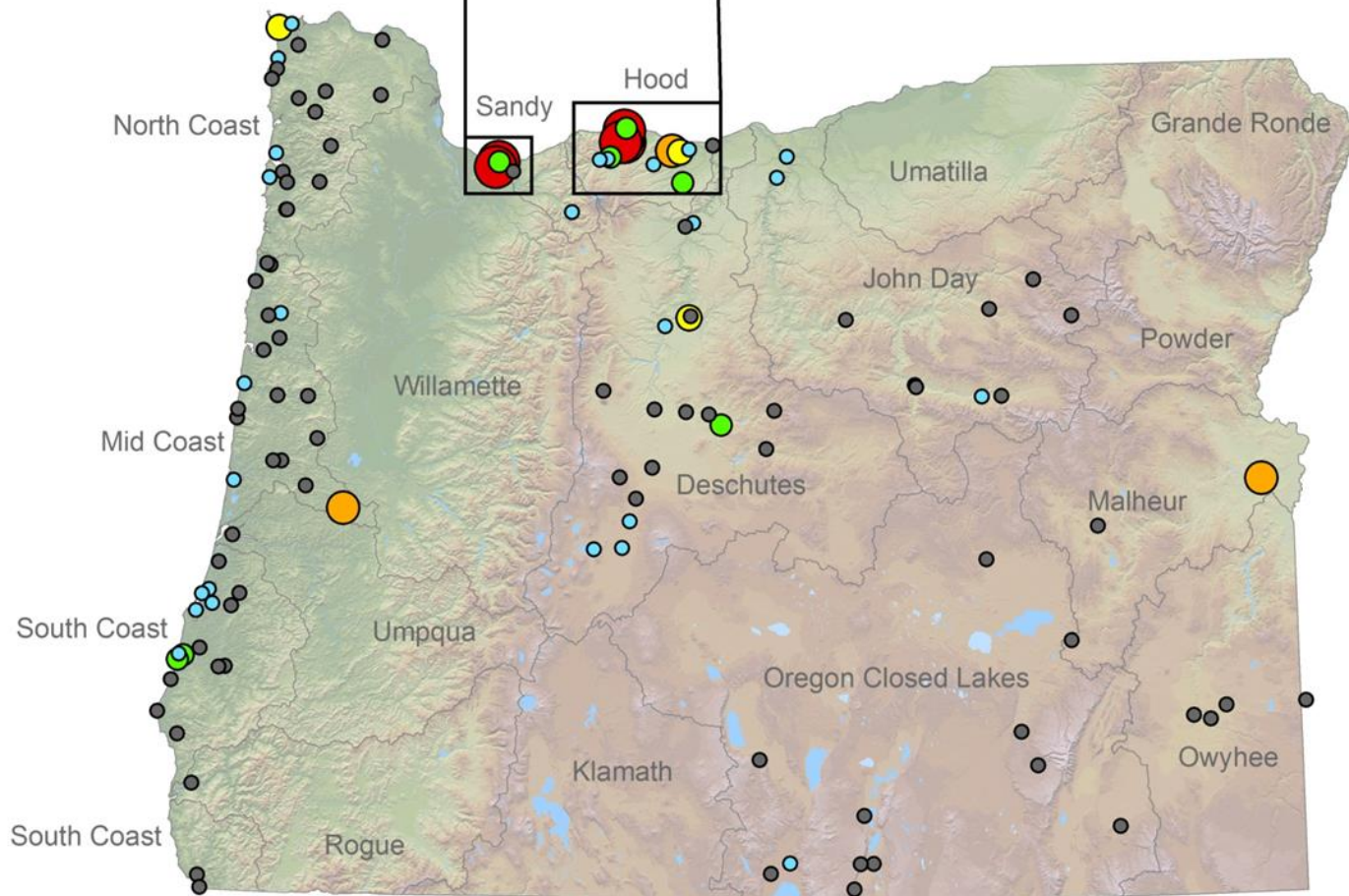
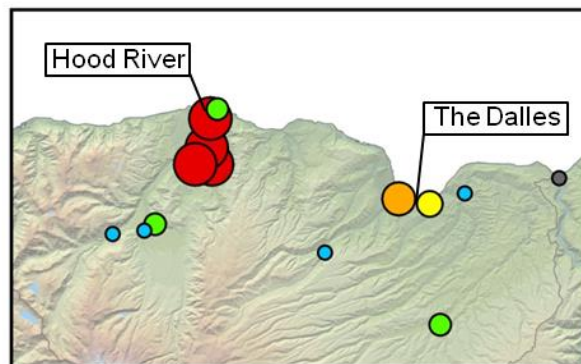
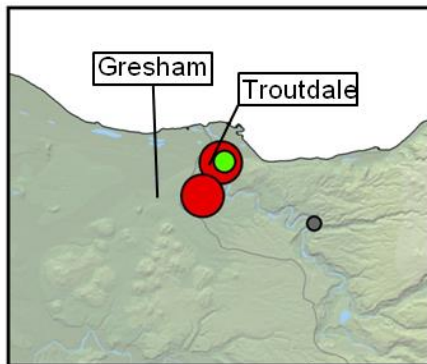


Current Use Pesticides

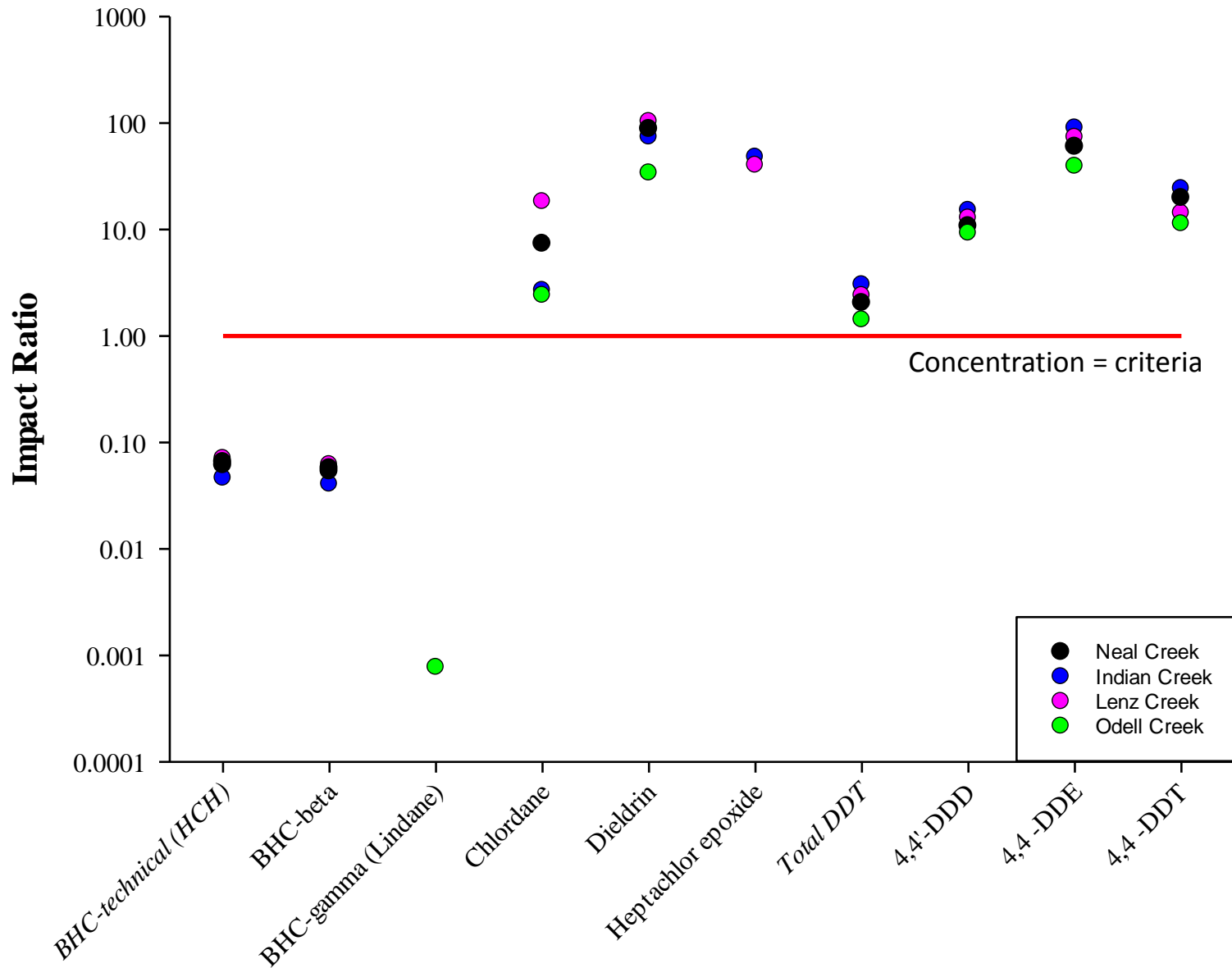
- Endosulfan compounds – detected at all sampling locations
- Most unique compounds detected at four sites:
 - Lenz Creek at mouth (13)
 - Neal Creek at mouth (9)
 - Indian Creek (9)
 - Threemile Creek at Hwy 197 (11)

of legacy pesticides exceeding criteria

- 0 detections
- 0 exceedances
- 1
- 2
- 3 - 5
- 6 - 8

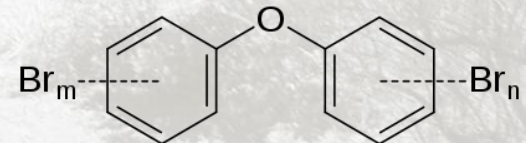
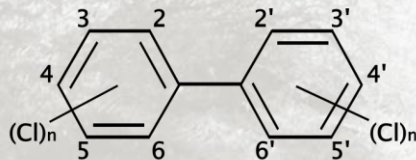


Impact Ratio – Legacy Pesticides



Other chemical groups

- Combustion by-products –
 - 7 compounds
 - 6 sites with at least one detection
 - Mill Creek over criteria – benzo(b)fluoranthene
- Metals – detected, not frequently
 - Threemile Creek – criteria exceedance for inorganic arsenic
- Flame retardants detected but not frequently (2 sites, 1 compound each)
- Consumer products – Odell Creek
- No PCBs or dioxins/furans detected in water



Next Phase - Monitoring

- Begin next rotation cycle
- Repeat some sites, add new sites to increase geographic coverage
- Collect water, sediment, possibly tissue at each site
- 2015 – begin in North Coast, Rogue, Umpqua, Klamath
- Add lakes as part of the cycle (target 2017)

How is this data used?

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

Resources

- DEQ's WQ Toxics Monitoring Program Website
 - Download Statewide WQ Toxics Assessment Report
 - Download all data collected during 1st round
- <http://www.deq.state.or.us/lab/wqm/toxics.htm>
- DEQ's Toxics Reduction Strategy
 - <http://www.oregon.gov/deq/Pages/ToxicsReduction.aspx>



Questions?

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