

Update On Oregon Water Science Center Columbia River Basin Contaminant Studies

By Sean Payne*

USGS Oregon Water Science Center



Photo Credit: Sean Payne

Why look for toxic contaminants in the food web?

Four contaminant classes:

1. Organochlorine (OC) pesticides
2. Industrial or personal care products (IPCP)
3. Polybrominated diphenyl ether (PBDE) congeners
4. Polychlorinated biphenyl (PCB) congeners

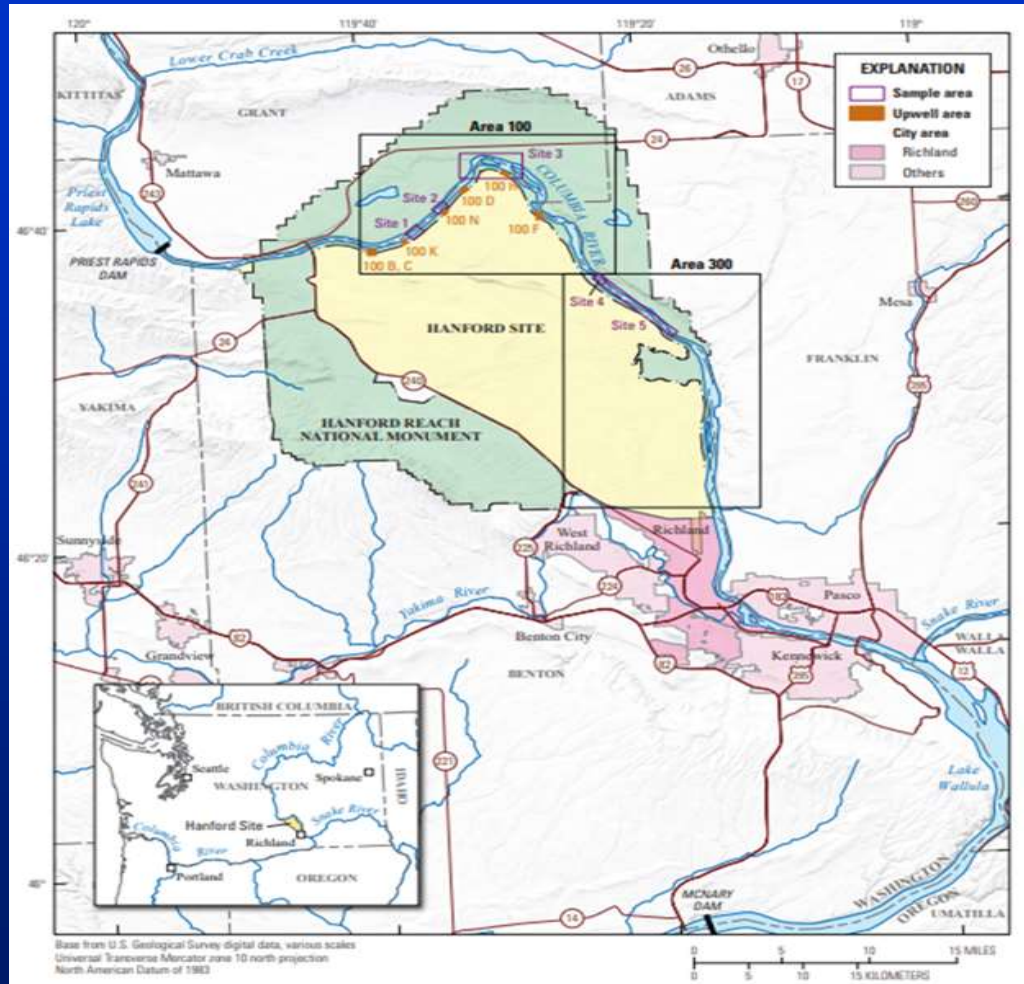


Image source: Rinella and others, 1993



Image source: Jack Ohman, The Oregonian

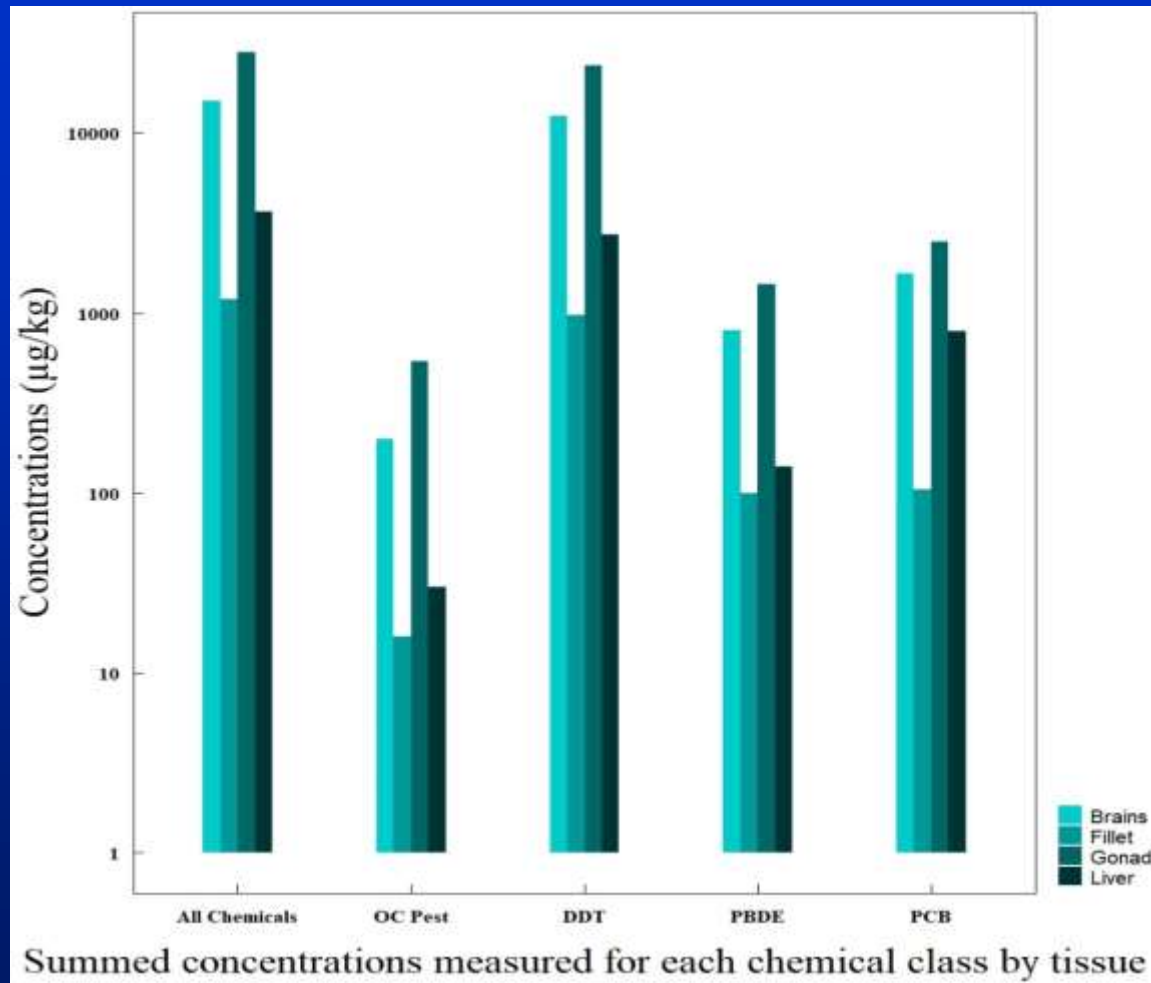
Assessment of persistent chemicals of concern in white sturgeon (2022)



Map source: Payne and others, 2022

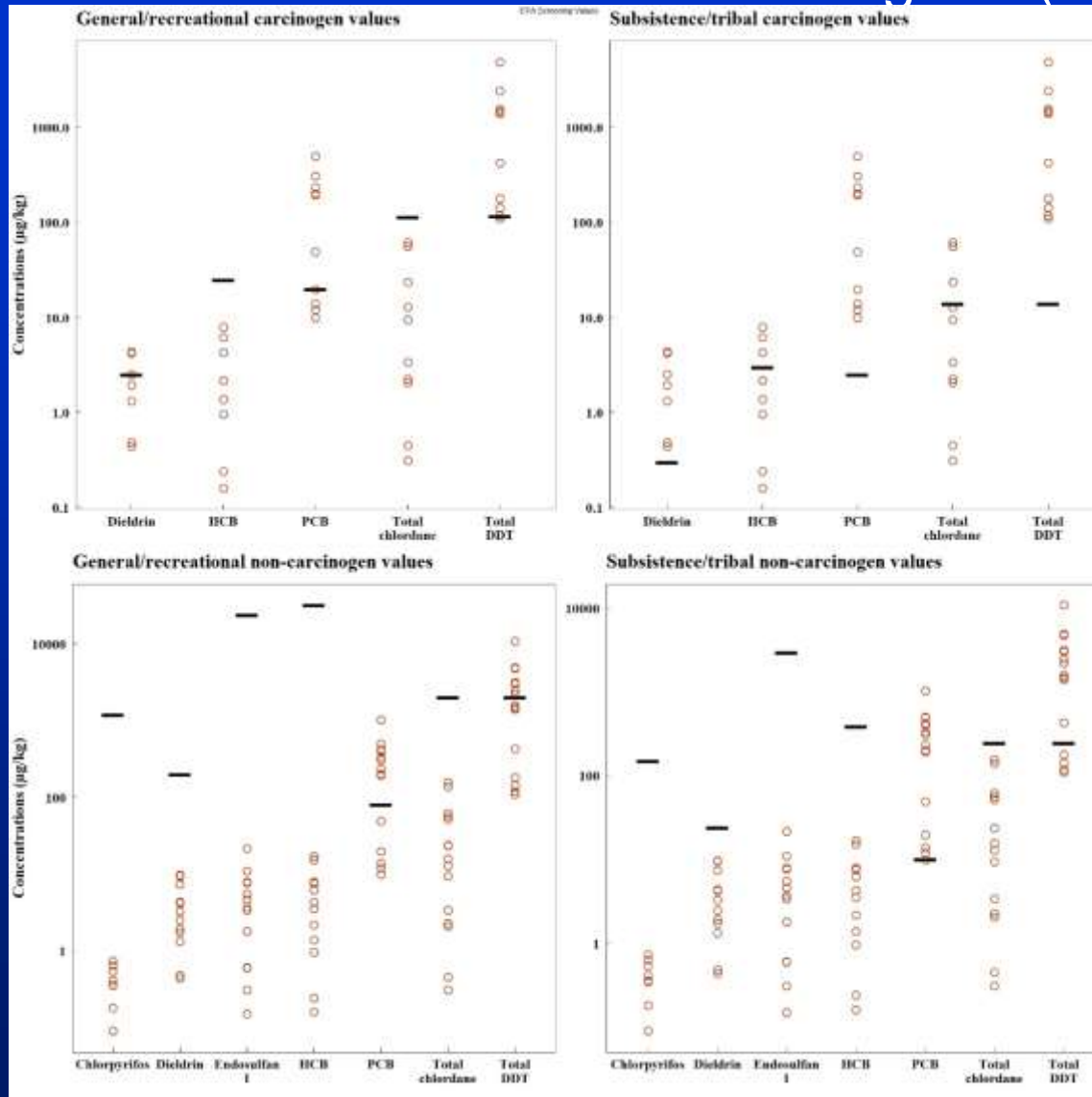
Chemicals of concern in white sturgeon (2022)

Tissue burden: gonads > brain > liver > fillet



Payne and others, 2022

Chemicals of concern in white sturgeon (2022)



Payne and others, 2022

Current and on-going contaminant studies

1. Contaminants in multiple life stages of the Pacific lamprey (*Entosphenus tridentatus*), Oregon, USA (2019- in draft)
2. Target and Suspect Per- and Polyfluoroalkyl Substances in Fish from AFFF-impacted waterways (2019- in draft)
3. Tracking Toxics in the Lower Columbia (2023)



Photo credits: USGS staff

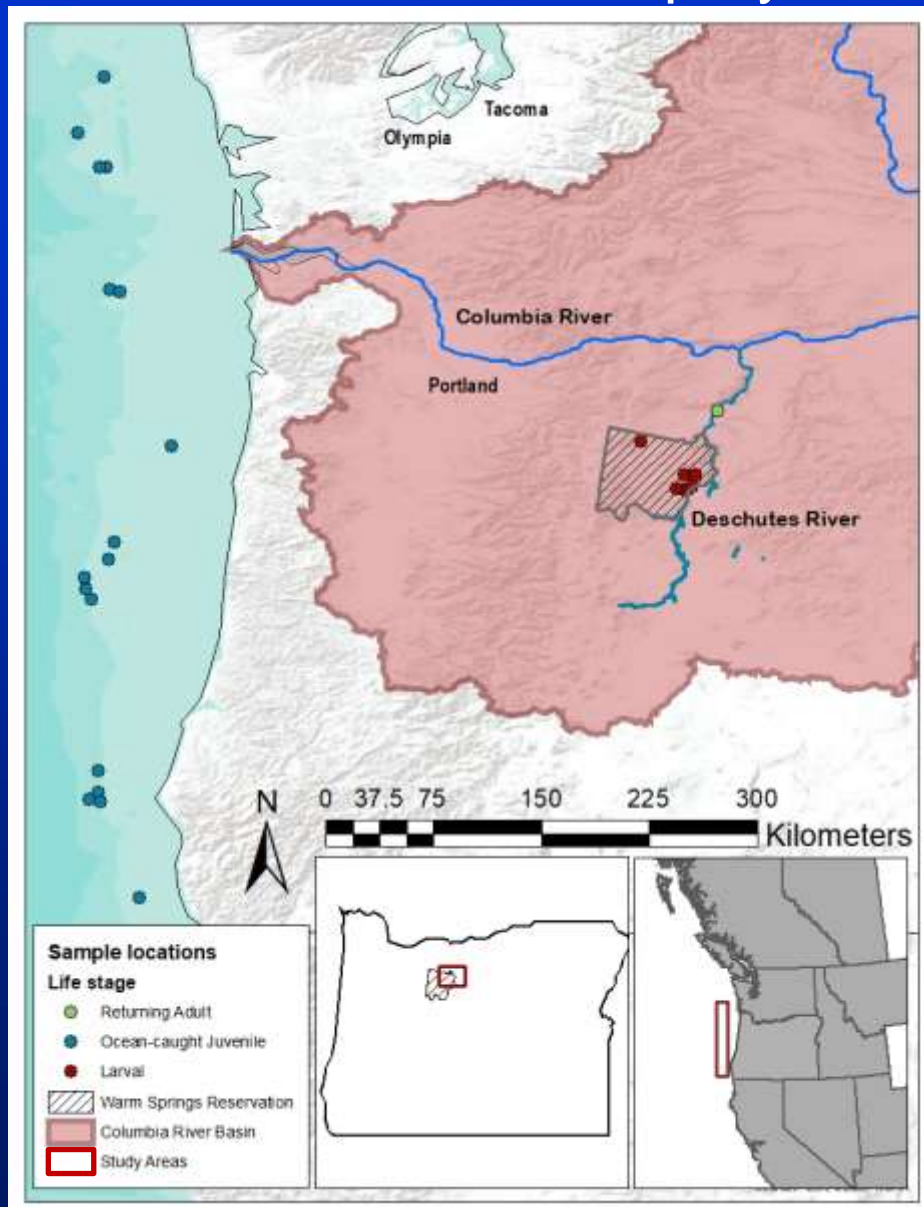
Contaminants in Pacific Lamprey life stages

1. Characterize the contaminants
2. Potential contaminant sources Warm Springs Reservation
3. Compared to human health benchmarks



Photo credits: USGS staff

Contaminants in Pacific Lamprey life stages



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Contaminants in Pacific Lamprey life stages

Larval and sediment sample collection – Shitike Creek and Beaver Creek, Warm Springs Reservation



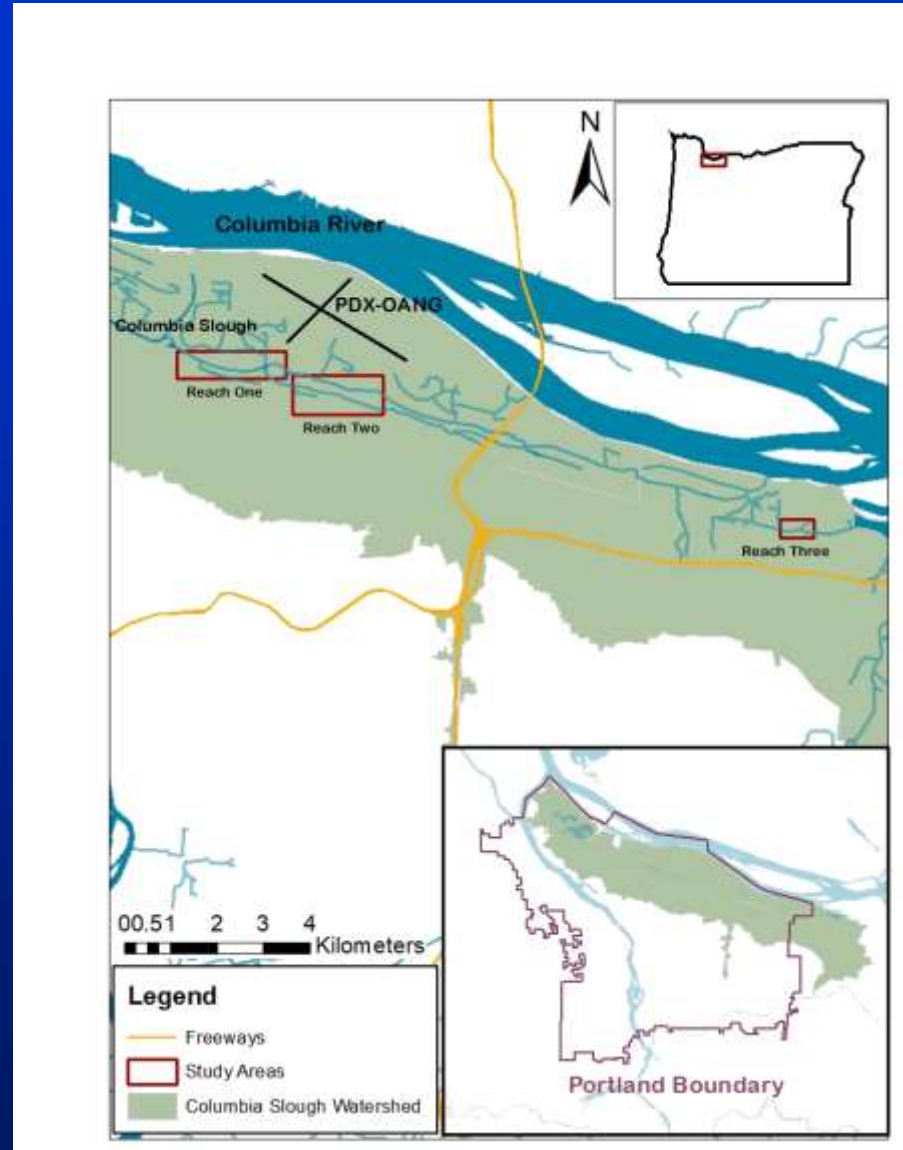
Returning adult sample collection at Sherars Falls, Deschutes River, OR



Columbia Slough PFAS

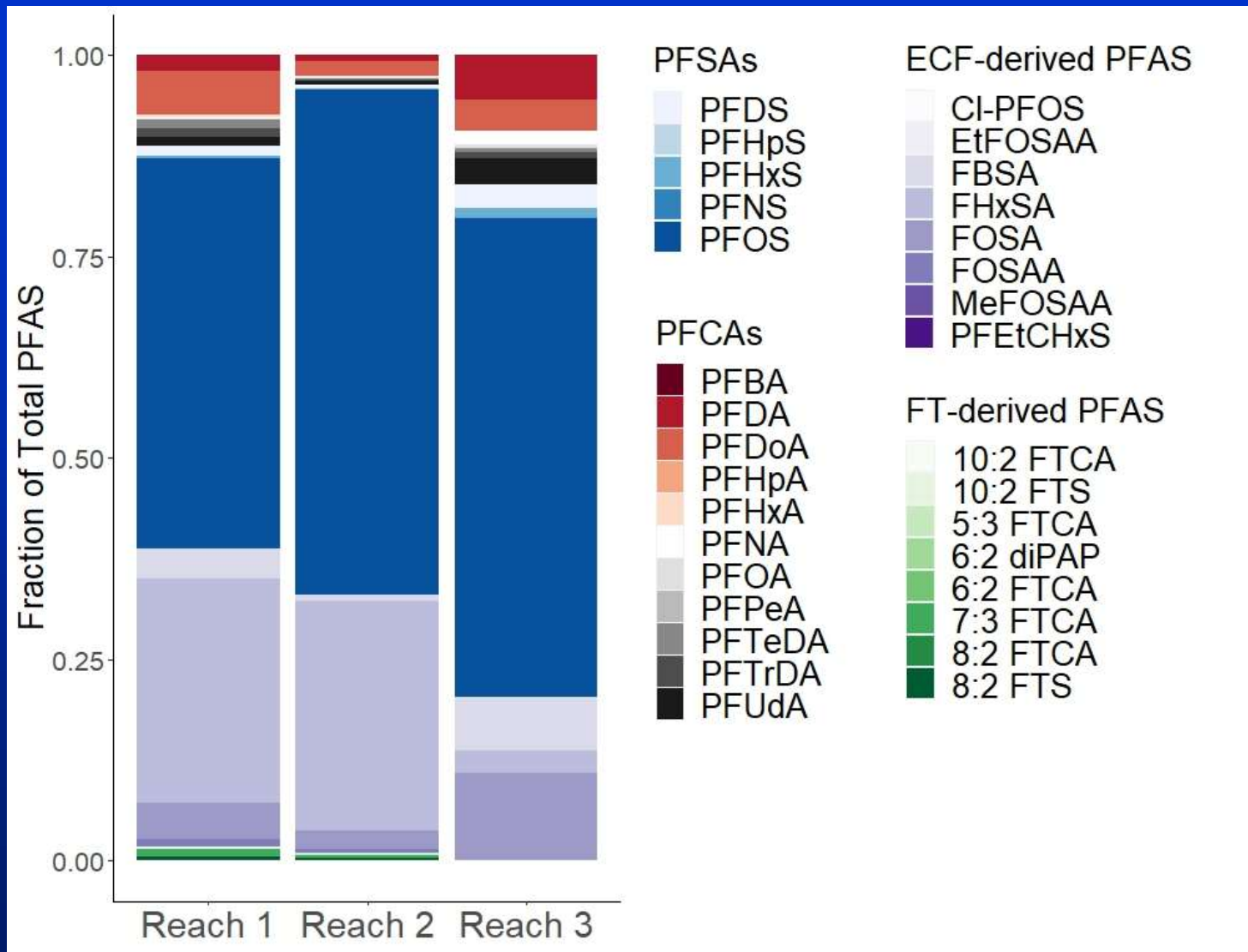


Photo credits: USGS staff



Map credit: Sean Payne

Columbia Slough PFAS



Nilsen and others, 2022 (<https://www.sciencebase.gov/catalog/item/6168407bd34e653770010a52>)

Columbia Slough PFAS

PFOS Compound Structure



Storm Outfall



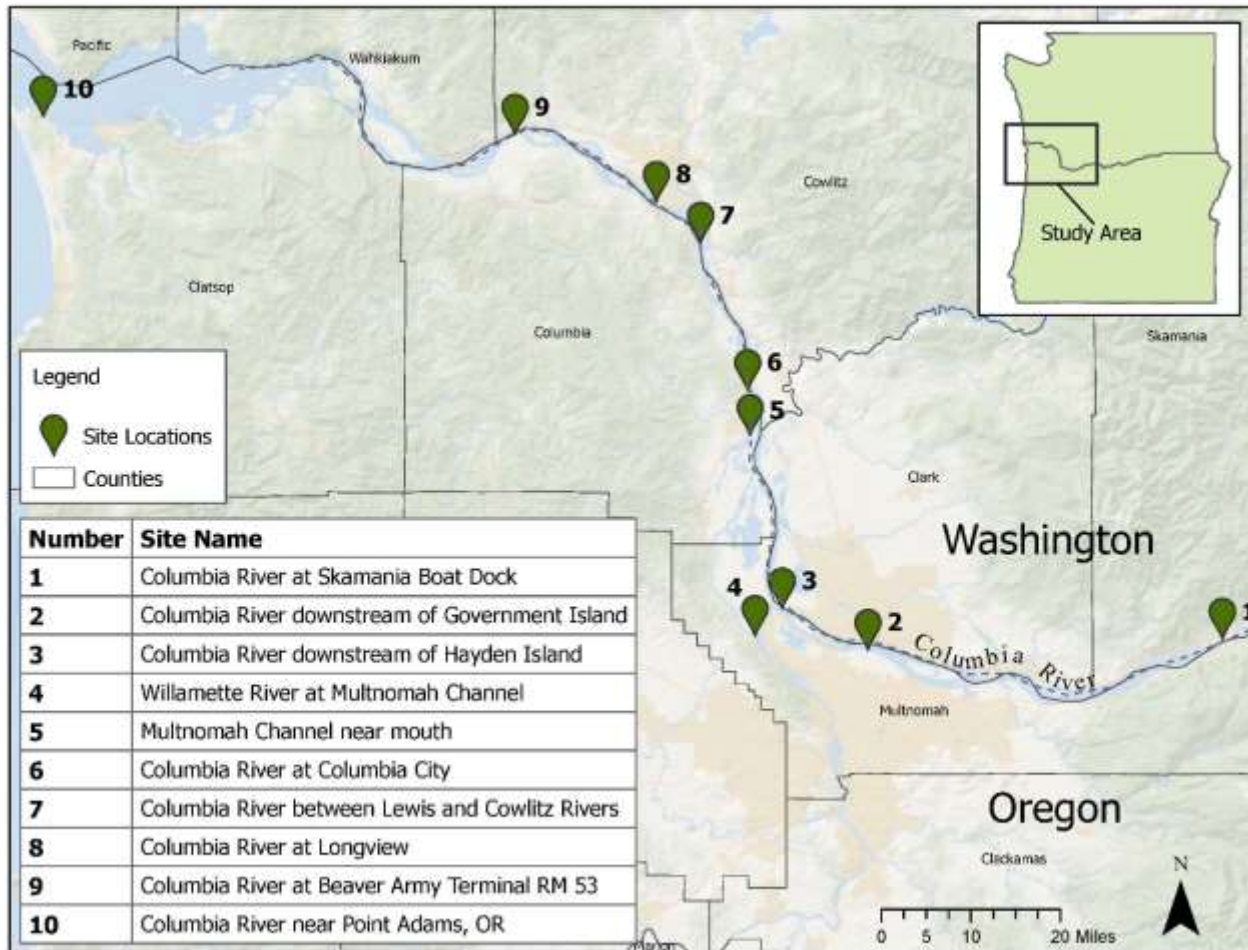
Fish Processing



Columbia Slough



Tracking Toxics in the Lower Columbia (2023)



Map credit: Kiomi Pavlock

Acknowledgments

Organizations

City of Portland

Columbia River Inter-Tribal Fish
Commission

Lower Columbia Estuary Partnership

Multnomah County Drainage District

NOAA

Oregon Department of Environmental
Quality

Oregon Fish and Wildlife

Oregon Health Authority

Oregon State University

U.S. EPA

U.S. Fish and Wildlife Service

Colleagues and Partners

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Catherine Corbett, Lower Columbia Estuary Partnership

Dan Wise, U.S. Geological Survey

Daniel Hafley, Oregon Department of Environmental Quality

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Jennifer Field, Oregon State University

Jennifer Morace, U.S. Geological Survey

Jennifer Peterson, Oregon Department of Environmental Quality

Kiomi Pavlock, Portland State University

Lya Carini, Oregon State University

Tammi Fierro, Portland State University

Questions?