

2023 DREISSENID MUSSEL MONITORING RESULTS

Arick “Kit” Rouhe, Catherine de Rivera, Ashley Newcomb

Columbia River Basin Dreissenid Mussel Monitoring Forum

December 2023



BUREAU OF
RECLAMATION



Seattle City Light



PORT OF PORTLAND



US Army Corps
of Engineers®





Center for Lakes and Reservoirs

Dreissenid sampling program:

1. Local Portland Sampling – POP, BES, APC-WID
2. USACE partners – BPA
3. Boundary Reservoir – Seattle City Light
4. Columbia River sites – BPA
5. Lakes, reservoirs, and rivers across OR
 - Bureau of Rec
 - Oregon Marine Board
 - APC-WID
 - QZAP

Theme for 2023: Expand our effort



Local Portland Sampling

Funded by Port of Portland, Bureau of Env. Services, and APC-WID. Samples collected by PSU field technicians (except Bull Run)

- 21 Water bodies surveyed
- 58 Areas sampled
- 267/84 Veliger tows/Bottles
- 45 Dock pat downs
- 47 Shoreline surveys
- 34 Ponar samples
- 31 Crayfish traps
- 31 eDNA samples
- 30 Calcium samples
- 89 YSI data points

No Dreissenid veliger detections



US Army Corp

- Zachary Day – Chief Joseph Dam
- Jim Day – The Dalles Lock and Dam
- Aaron Young – The Dalles Lock and Dam
- Michael Moreno - The Dalles Lock and Dam
- Katie Payne – Bonneville Lock and Dam
- Damian Water – Walla Walla
- Eric Grosvenor – John Day Dam
- Andrew Huddleston – Albeni Falls Dam
- Alan Mckinley – Albeni Falls Dam
- Greg Hoffman – Libby Dam
- Douglass Garletts – Willamette and Rogue Rivers

Collected field data

- 17 Waterbodies surveyed
- 54 Sampling areas
- 124/74 Veliger tows/sample bottles
- 5/12 Artificial substrates/Checks

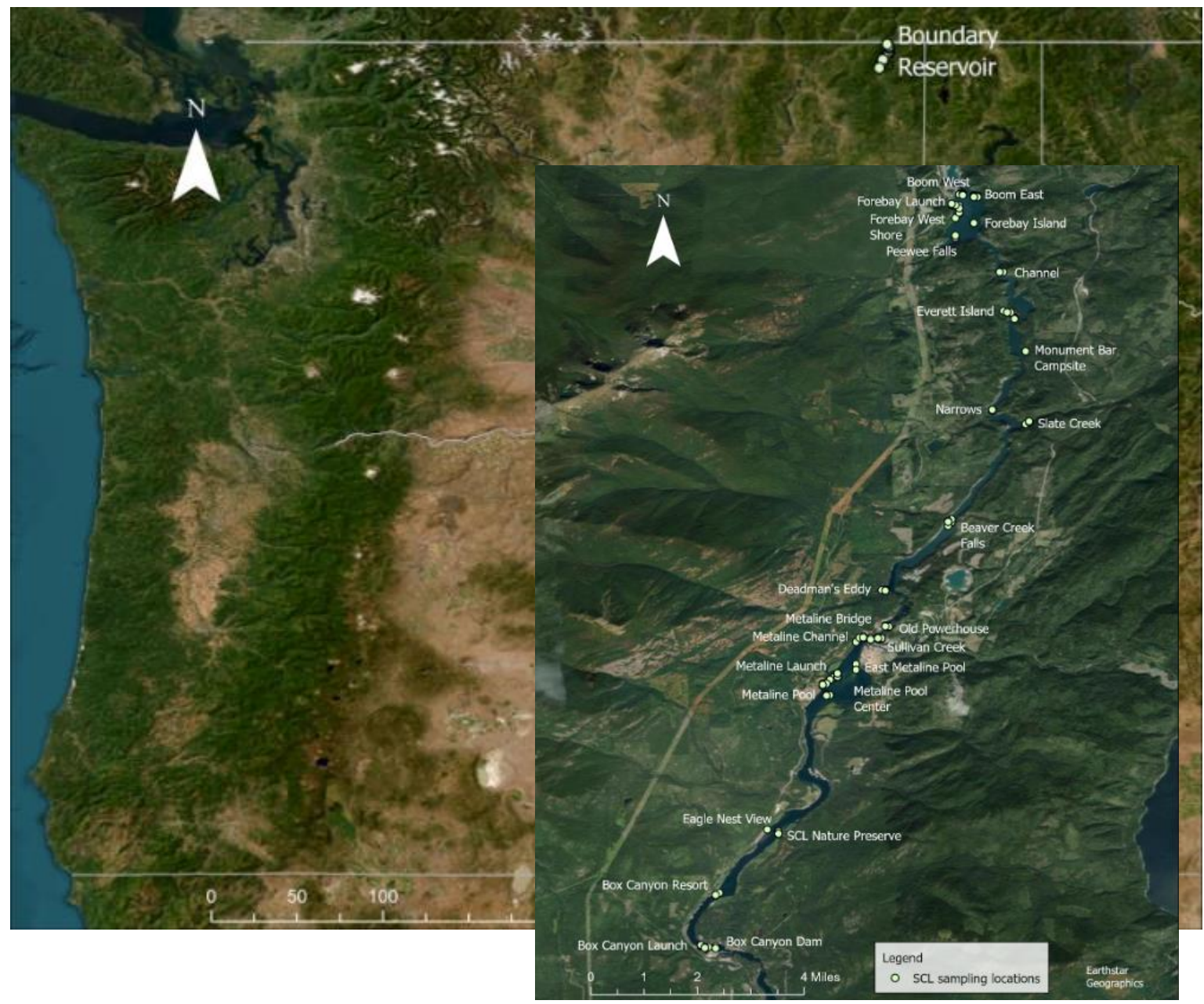


Boundary Reservoir

This project is funded by Seattle City Light with a long-term agreement. Reservoir is sampled 3 times per year.

- 15 Locations sampled each trip
- 54 Total veliger tows
- 54 Total veliger samples collected
- 6 Total boom pat downs
- 15 Total rock/stanchion pat downs
- 18 Total Portland sampler checks
- 6 Total dock pat downs
- 15 Total shoreline surveys
- 21 Total ponar/shovel samples
- 3 Total YSI data points

No Dreissenid veliger detections



Non-Local or USACE monitoring

Funded by Bureau of Rec, APC-WID, Oregon Marine Board, QZAP. Samples collected by PSU field technicians

- 51 Water bodies surveyed
- 133 Areas sampled
- 580/213 Veliger tows/Bottles
- 91 Dock pat downs
- 74. Plant rakes
- 105 Shoreline surveys
- 50 Ponar samples
- 87 Crayfish traps
- 37 eDNA samples
- 28 Calcium samples
- 164 YSI data points

No Dreissenid veliger detections



CLR Goal: Double our effort

2022 Sampling

- 60/67 Water bodies surveyed
- 121 Areas sampled
- 363/130 Veliger tows/Bottles
- 1,654 m³ Tow volume
- 119 Dock pat downs
- 3,925 m Total dock length
- 87 Plant rakes
- 115 Shoreline surveys
- 4,719 m Total shoreline length
- 45 Ponar samples
- Crayfish traps
- eDNA samples
- Calcium samples
- YSI data points

2023 Non-Local Sampling

- 51 Water bodies surveyed
- 133 Areas sampled
- 580/213 Veliger tows/Bottles
- 2,896 m³ Tow volume
- 91 Dock pat downs
- 2,576 m Total dock length
- 74 Plant rakes
- 105 Shoreline surveys
- 2,802 m Total shoreline length
- 50 Ponar samples
- 87 Crayfish traps
- 37 eDNA samples
- 28 Calcium samples
- 164 YSI data points

2023 Local Sampling

- 21 Water bodies surveyed
- 58 Areas sampled
- 267/84 Veliger tows/Bottles
- 1,067 m³ Tow volume
- 45 Dock pat downs
- 1,607 m Total dock length
- 21 Plant rakes
- 47 Shoreline surveys
- 1,151 m Total shoreline length
- 34 Ponar samples
- 31 Crayfish traps
- 31 eDNA samples
- 30 Calcium samples
- 89 YSI data points

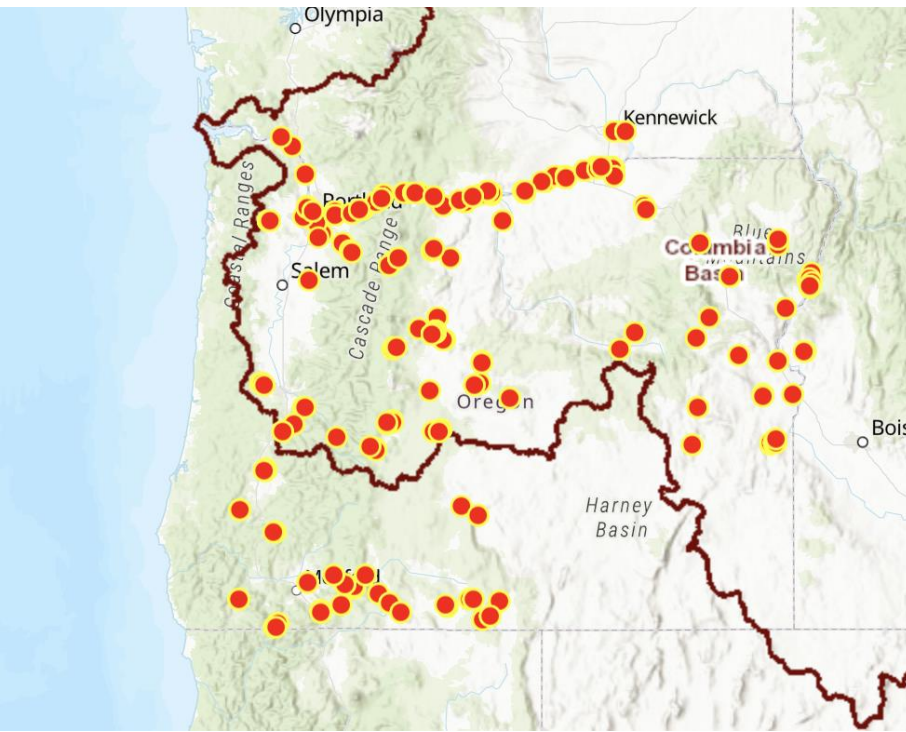
Findings

Adult AIS Surveys

- No adult Dreissenid mussels found
- New Zealand mudsnails found in Lake Wallula (Hat Rock State Park) Lake Umatilla (Irrigon Marina), Snake River (Farewell Bend State Recreation Area), Lake Simtustus, Prineville Reservoir, Columbia (Celilo, Rufus Landing, Maryhill SP), Owyhee dam outflow

Veliger AIS Surveys

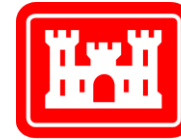
- No Dreissenid veliger detections using cross-polarized light microscopy (Aquaticus LLC)
- Juvenile *Corbicula fluminea* in Columbia River and reservoirs, Snake River Reservoirs, Malheur River, Willamette River and reservoirs, Tualatin River, Multnomah Channel.



Plans for 2024

1/3rd increase our effort for veliger and adult Dreissenid mussel monitoring by:

- Continued funding from QZAP, Oregon Marine Board, City of Portland and Port of Portland.
- Continue in funding from APC-WID in match with other partners
- Continued partnership with USACE, BOR, BPA, Seattle City Light
- Visit ~100 water bodies (up from ~72), collect ~500 veliger samples
- Continue with 3 field crews, effort at each water body will increase
- Collect calcium, eDNA, in-situ water chemistry
- Coordination to compliment efforts of others in Oregon (e.g. Oregon Dept. of Fish and Wildlife)



US Army Corps
of Engineers®

Bonneville
POWER ADMINISTRATION



BUREAU OF
RECLAMATION



Seattle City Light



PORT OF PORTLAND



Questions

Arick Rouhe | arouhe@pdx.edu

Catherine de Rivera | derivera@pdx.edu

