Recycled Water in Washington

Chehalis Basin Partnership

June 28, 2024

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WASHINGTON WATER TRUST

Washington Water Trust

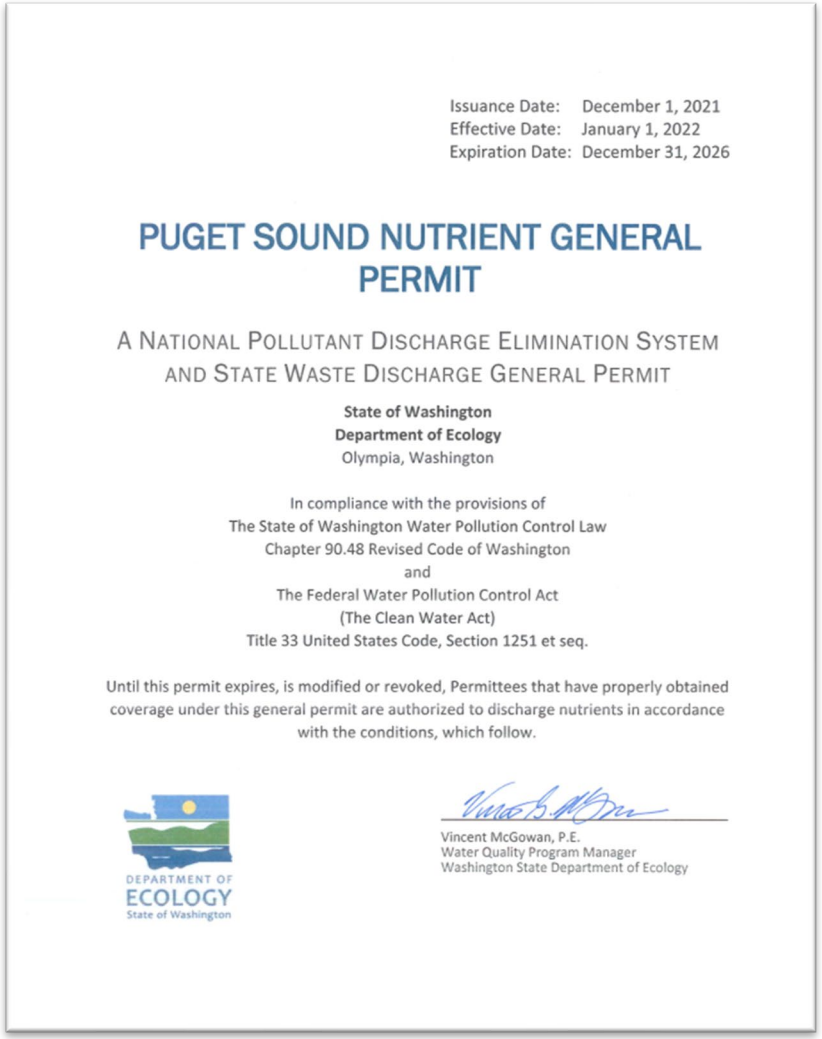
- Non-profit organization founded 1998
- **Improve and protect stream flows and water quality throughout Washington, benefitting fisheries, wildlife and agriculture.**
- Flow restoration projects

What is recycled water?

- Reclaimed water
- Class A+, Class A
- Potential uses:
  - Parks and golf course irrigation
  - Non-potable uses
  - Wetland restoration
  - Groundwater infiltration

Recycled Water Facility Map

Ecology Nutrient General Permit



Issuance Date: December 1, 2021
Effective Date: January 1, 2022
Expiration Date: December 31, 2026

PUGET SOUND NUTRIENT GENERAL PERMIT

A National Pollutant Discharge Elimination System and State Waste Discharge General Permit

State of Washington
Department of Ecology
Olympia, Washington

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge nutrients in accordance with the conditions, which follow.

DEPARTMENT OF ECOLOGY
State of Washington

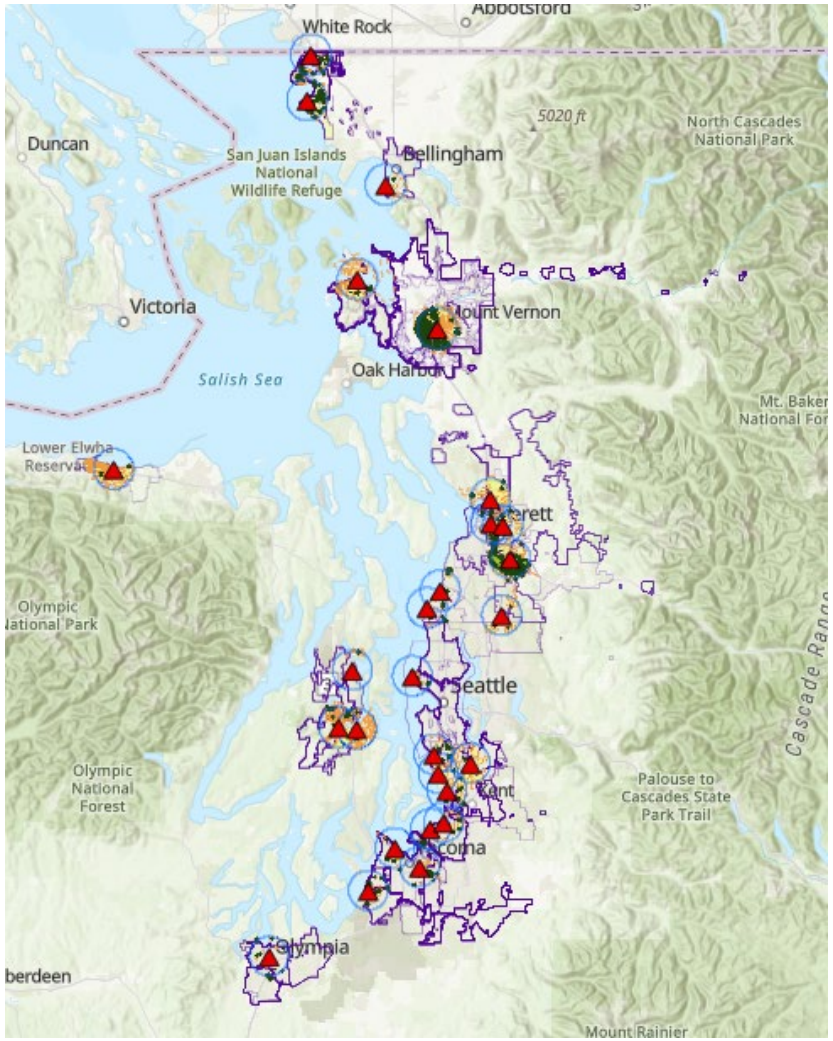
Vincent McGowan, P.E.
Water Quality Program Manager
Washington State Department of Ecology

- Excess nutrients
- Low oxygen levels in Puget Sound
- 58 WWTP facilities
- Nutrient Reduction Evaluation
- Recycled water

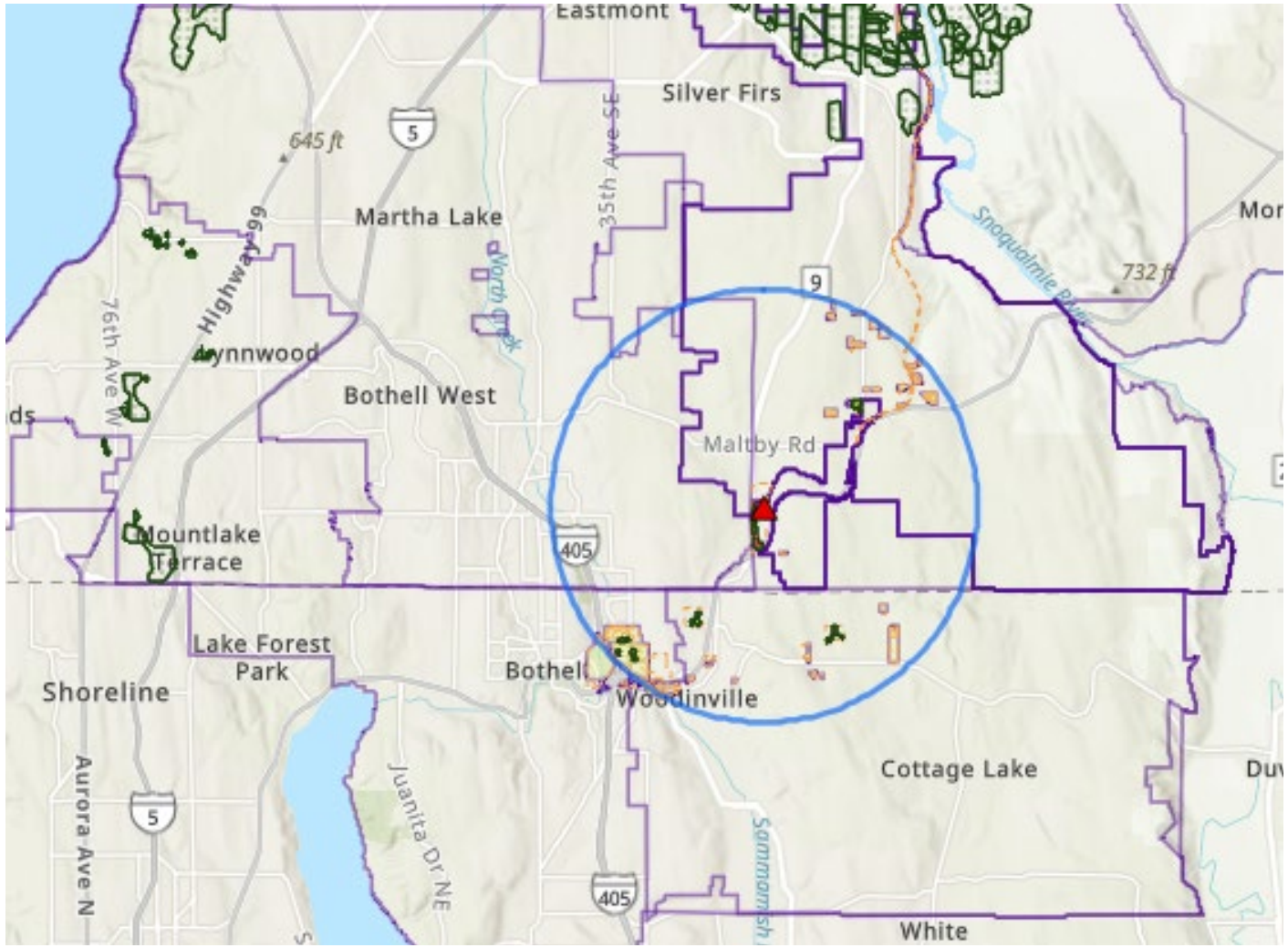
WWT Regional Recycled Water (RRW) Project

Are there opportunities to improve streamflows and reduce nutrients in the Puget Sound Region using recycled water?

RRW Dashboard



RRW Dashboard Overview Snapshot



RRW Dashboard King County Brightwater WWTP Snapshot

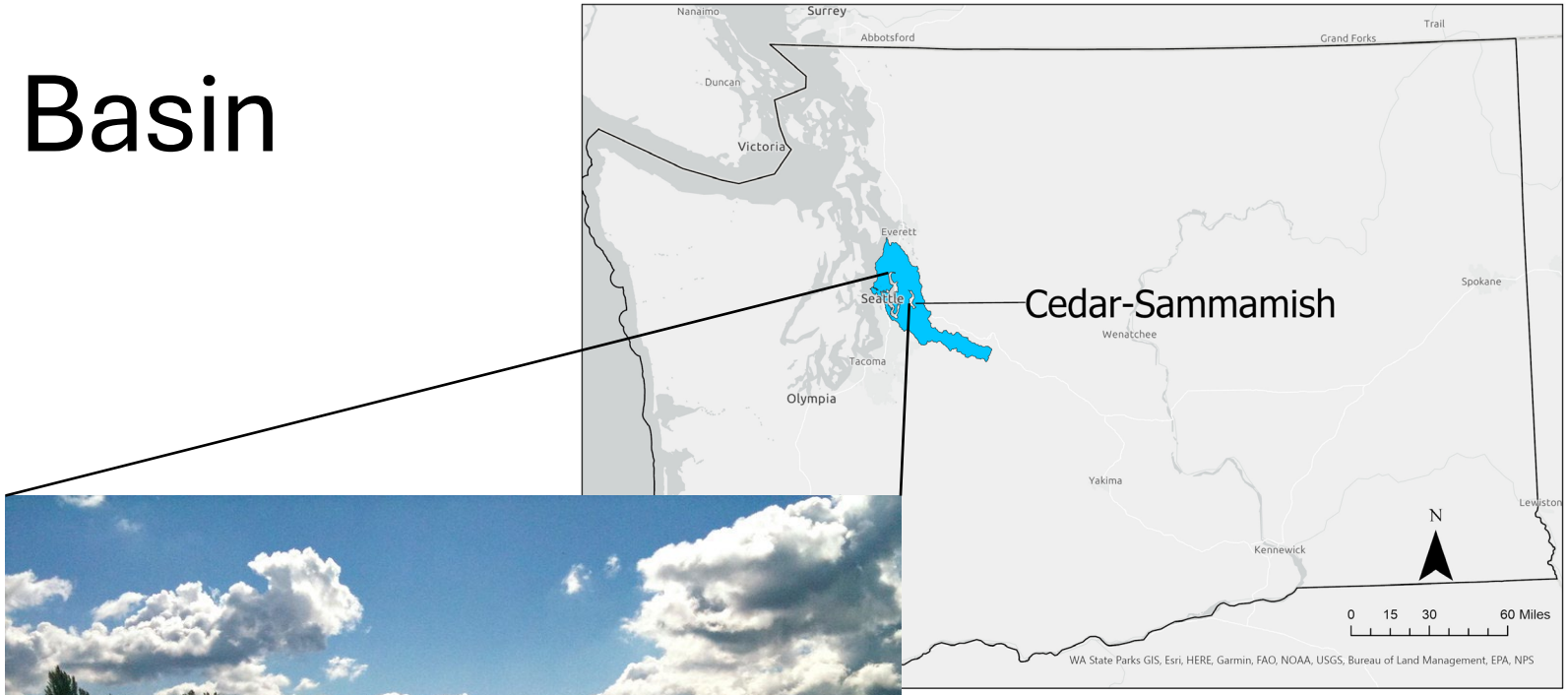
RRW Goals

- Outreach to WWTPs
- Restore instream flow in fish critical basins
- Incentive Recycled Water production
- Identify source switch opportunities

Sammamish River Recycled Water Project

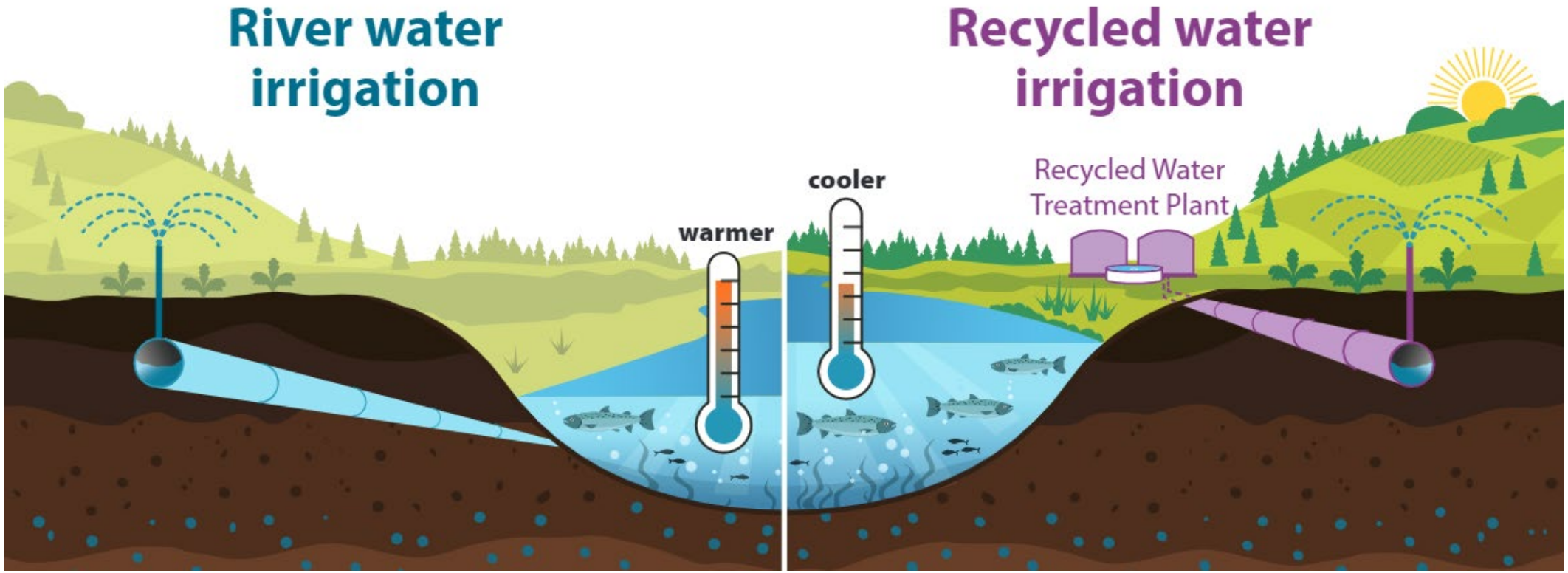
Sammamish River Basin

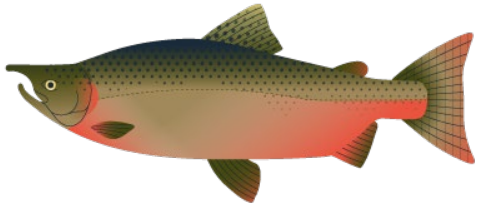
- Connects Lake Sammamish to Lake Washington
- Supports five species of salmon
- Agricultural Production District
- Poor fish habitat (channelized, minimal riparian zone, low flows)



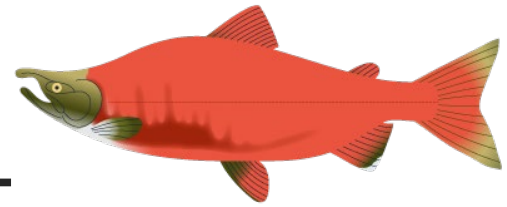
Restoring Sammamish River water to save salmon

LEAVING WATER IN THE RIVER MEANS BETTER HABITAT FOR FISH





Sammamish Valley Recycled Water Project



PROJECT OBJECTIVES	PROJECT COMPONENTS
Assess the impact of irrigating food crops with recycled water.	✓ Conducted an in-basin research study that evaluated the impact of recycled water vs. Sammamish River water on soil and produce.
Identify and address perceptions and concerns of irrigating food crops with recycled water throughout the food supply chain.	✓ Conducted producer and consumer outreach to identify concerns and perceptions related to the use of recycled water.
Reduce irrigation diversions from the Sammamish River and improve instream habitat for salmon.	✓ Identify potential source switch opportunities which could restore up to **5 CFS** with Irrigation Water Rights

Project Team

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Ed Kolodziej

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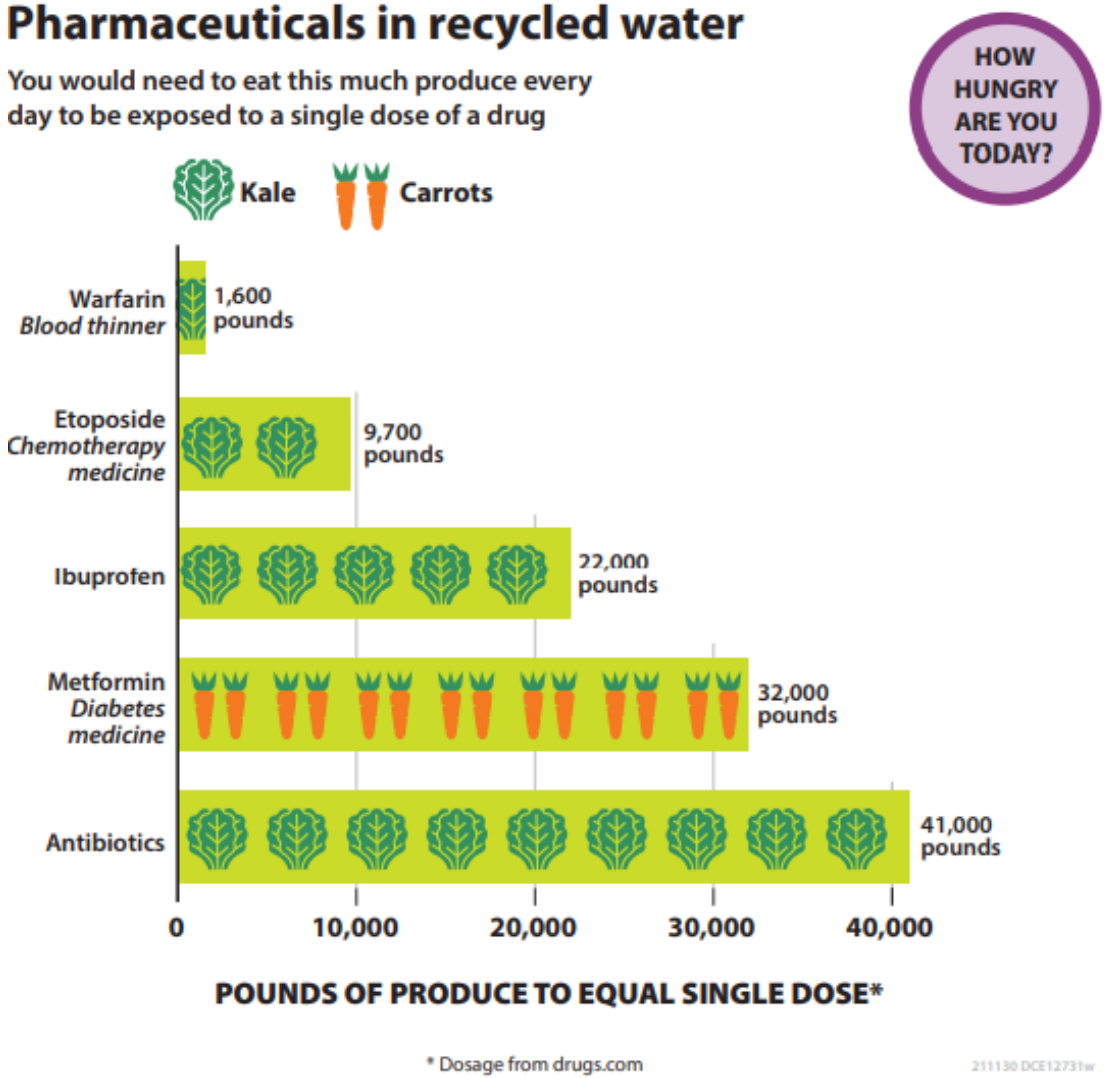
Drew Thompson
Kristina Westbrook

Human Exposure

Thousands Of Pounds Of Produce

=

A Single Dose Of Pharmaceutical Chemicals of Emerging Concern (CECs)



Based on 2020 Plant Concentrations

SAMMAMISH RESEARCH CEC INITIAL CONCLUSIONS

CECs are everywhere, come from multiple sources

CEC detections align with other recycled water research; Brightwater recycled water tends to have low concentrations (relatively)

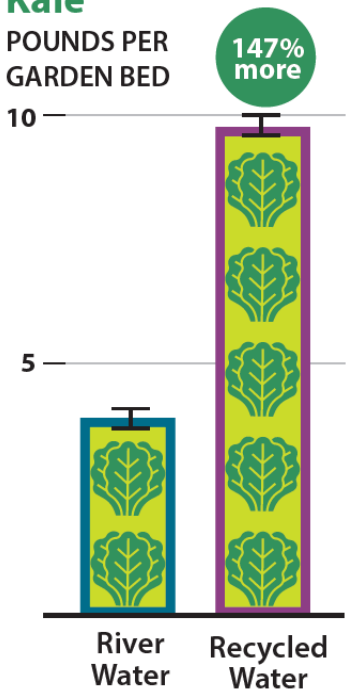
CEC compositions in natural waters correlate with land use

Irrigating with recycled water provides many benefits and is a low risk exposure pathway for CECs. "Generally accepted as safe"

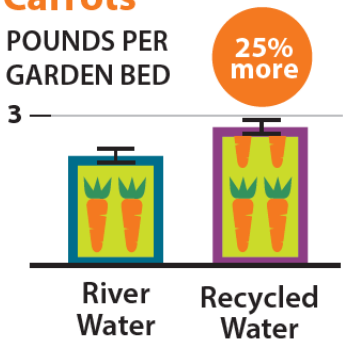
Agronomic Results

Recycled water test garden: Year 1 crop yield and soil health results

Kale



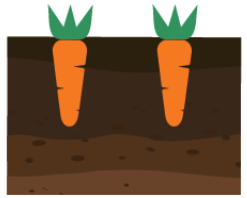
Carrots



NUTRIENTS IN RECYCLED WATER MEANS MORE CROP YIELD

Recycled water supports healthy soil and plants

- Soil pH
- Salts
- Conductivity



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Food Supply Chain Outreach

Farmers

- Structured Interviews
- Field Days
- Technical Presentations

Consumers

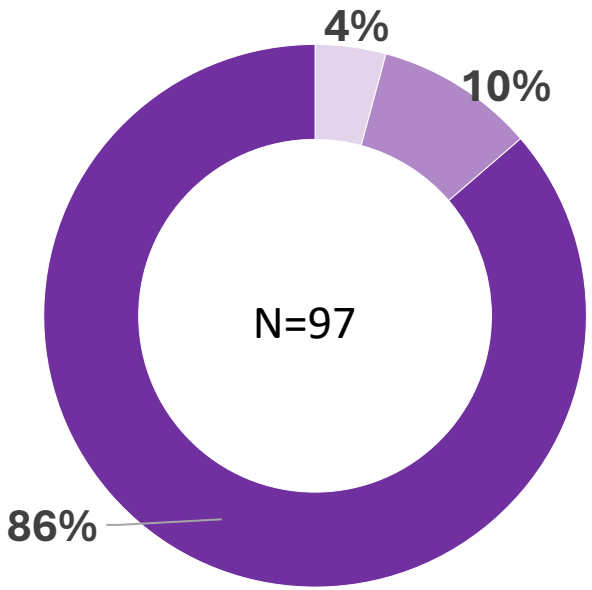
- Tabled at 7 farmers markets
- Consumer Surveys
- Focus Groups

"If those farmers that I trust are on board with this and feel like this is the best solution, and they feel safe and it meets their needs, then that would be really important information for me."

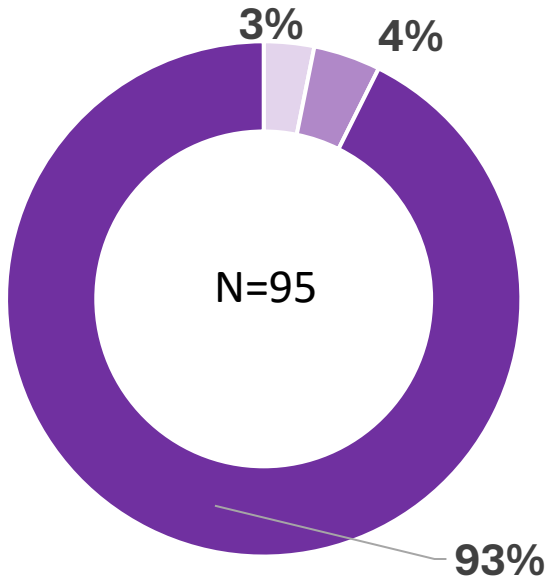
Consumer Survey Results

2021 Baseline Survey

Would you eat crops grown with recycled water?



Would you eat crops grown with recycled water if it helped protect endangered salmon?



No Not Sure Yes

Next Steps

Phase 1

- Finalize Technical and Social Science Reports

Phase 2

- Continue Outreach along the Food Supply Chain
- Establish Four On-Farm Demonstration Projects
- Continue to assess potential source switch opportunities in the Sammamish and beyond!

Connect with us!

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King County

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King Conservation District

The Russell Family Foundation

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