Water Quality Status and Trends in The Upper Chehalis River Basin: Are We Making Progress?

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Environmental Assessment Program

DEPARTMENT OF ECOLOGY
State of Washington

Ecology's Role

Clean Water Act

Water Quality Standards

Designated uses

PROTECT

When a stream is not meeting water quality standards, Ecology begins a formal process to clean up that water body – a TMDL

Total
Maximum
Daily
Load

Study

- Identifies sources of pollution
- Calculates amounts from each source
- Estimates necessary pollutant reductions

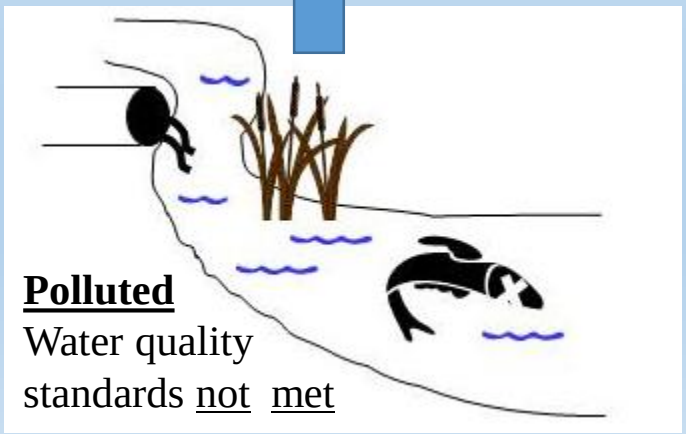
Implementation Plan

- Identifies controls or best management practices needed

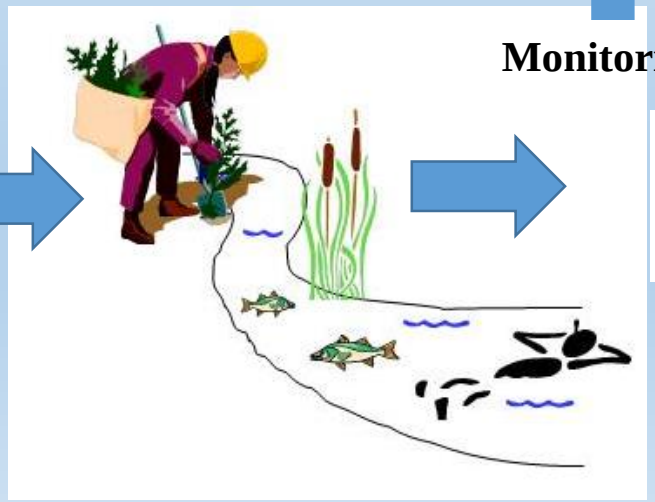
Implementation

- Grants and loans made available to implement plan

Monitoring

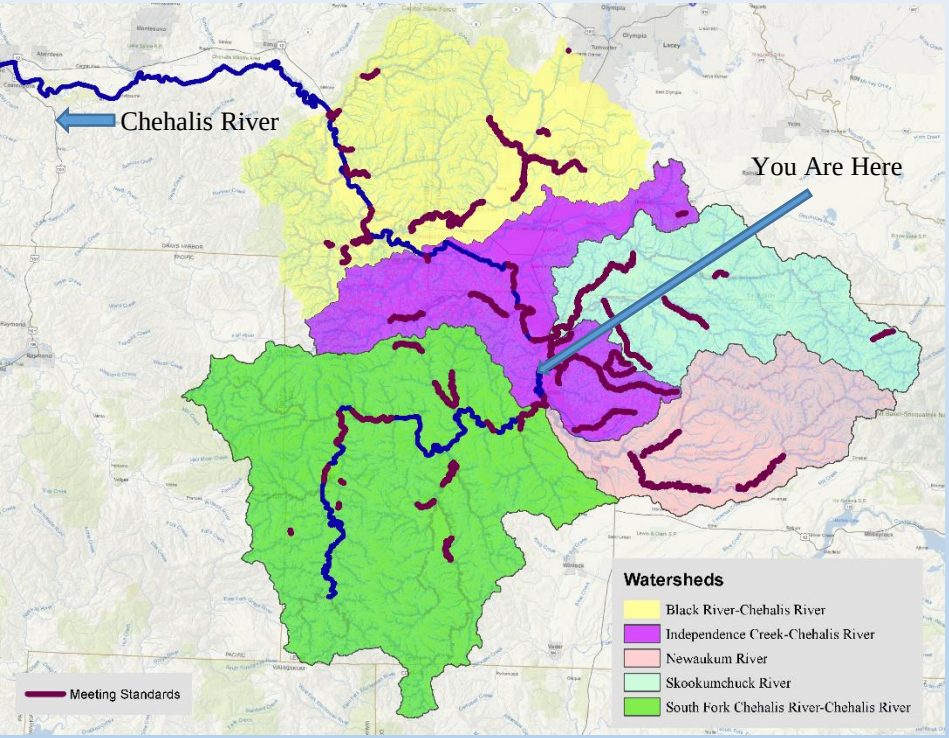


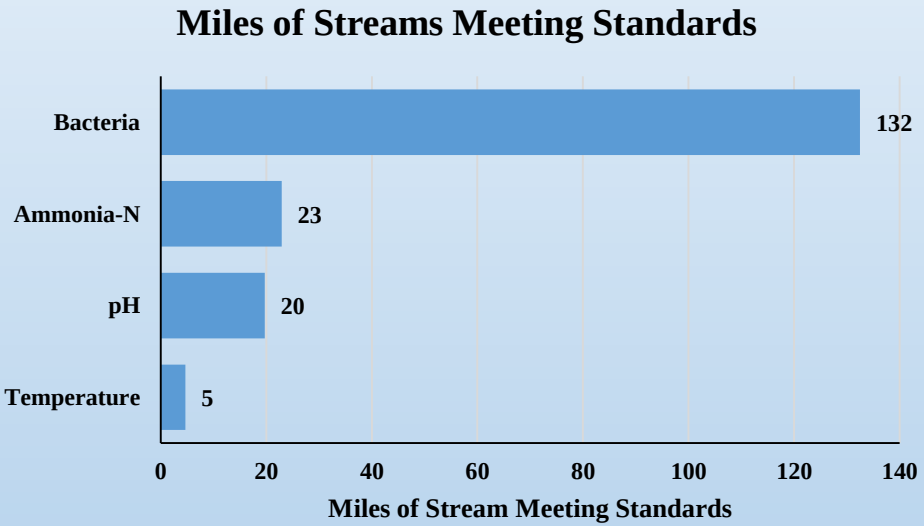
Polluted
Water quality standards not met



Clean
Water quality standards met

Upper Chehalis – Status
Meets standards



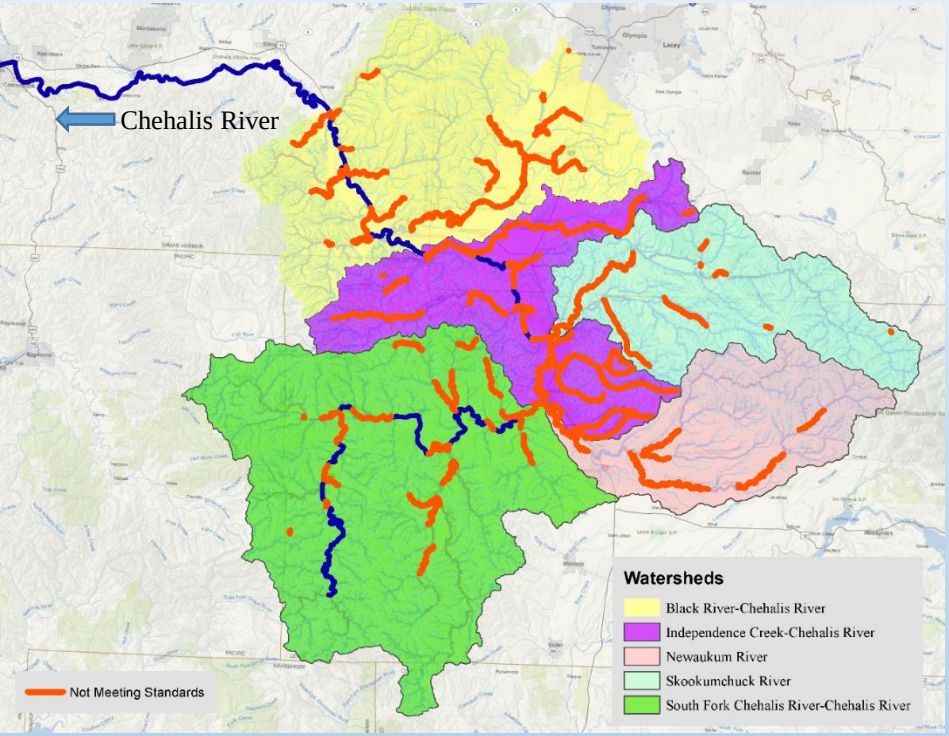


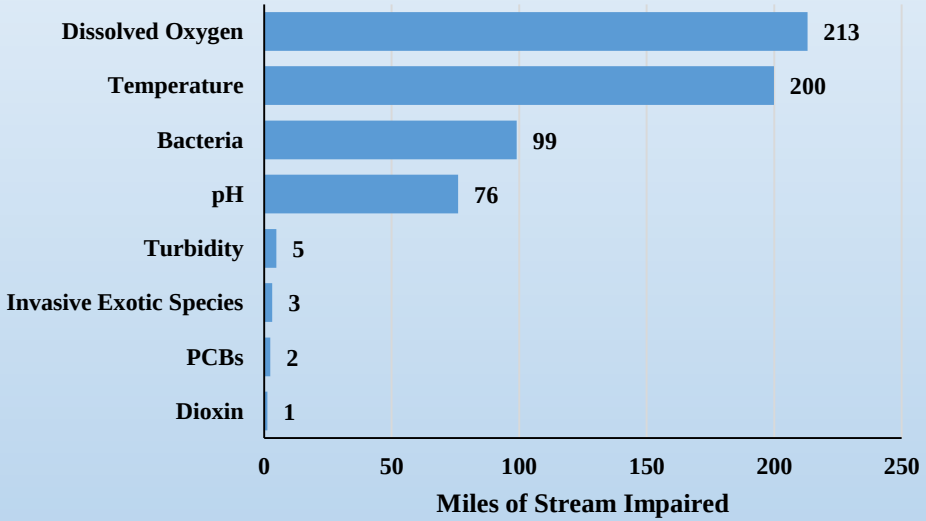
-9257 miles of waterways in Upper Chehalis
-780 miles assessed (8% of Watershed)
-30% of waters assessed meeting water quality standards

Data Sources WRIA 23
WA State 2013 303(d)/305(b) list
https://fortress.wa.gov/ecy/approvedwqa/ApprovedSearch.aspx

Upper Chehalis – Status

Not meeting standards

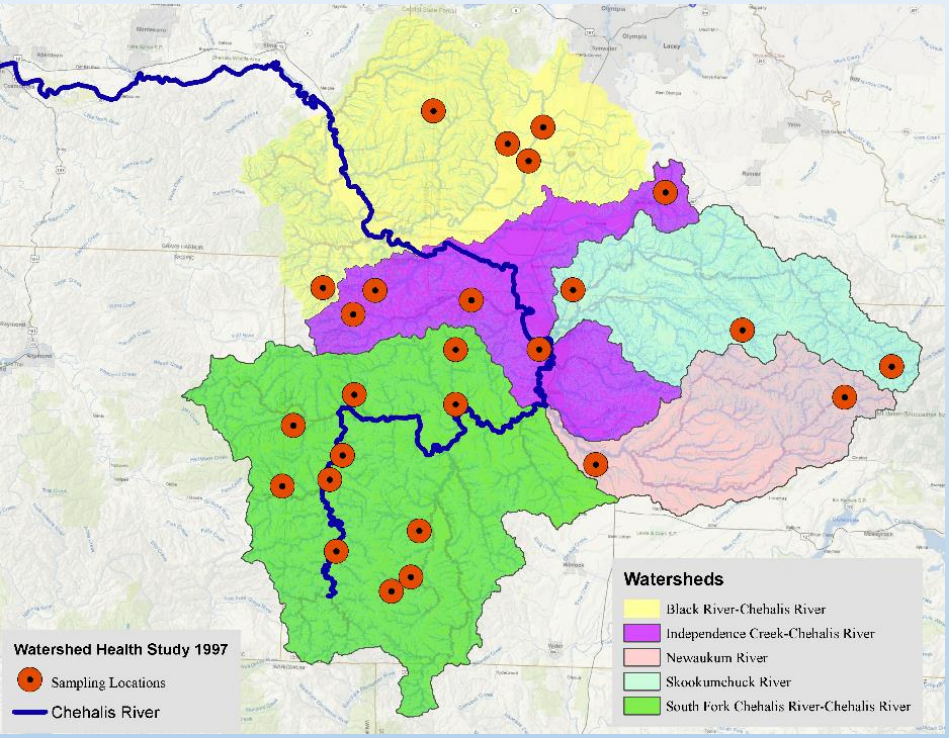




-9257 miles of streams in Upper Chehalis
-780 miles assessed (8% of Watershed)
-70% of water assessed not meeting water quality standards

Data Sources WRIA 23
WA State 2013 303(d)/305(b) list
https://fortress.wa.gov/ecy/approvedwqa/ApprovedSearch.aspx

Upper Chehalis – Status (1997)



1997 EMAP Survey of Ecological Condition

What is the condition of rivers and streams across the upper Chehalis?

- Biological condition: 5 % poor, 35% fair, 60% good

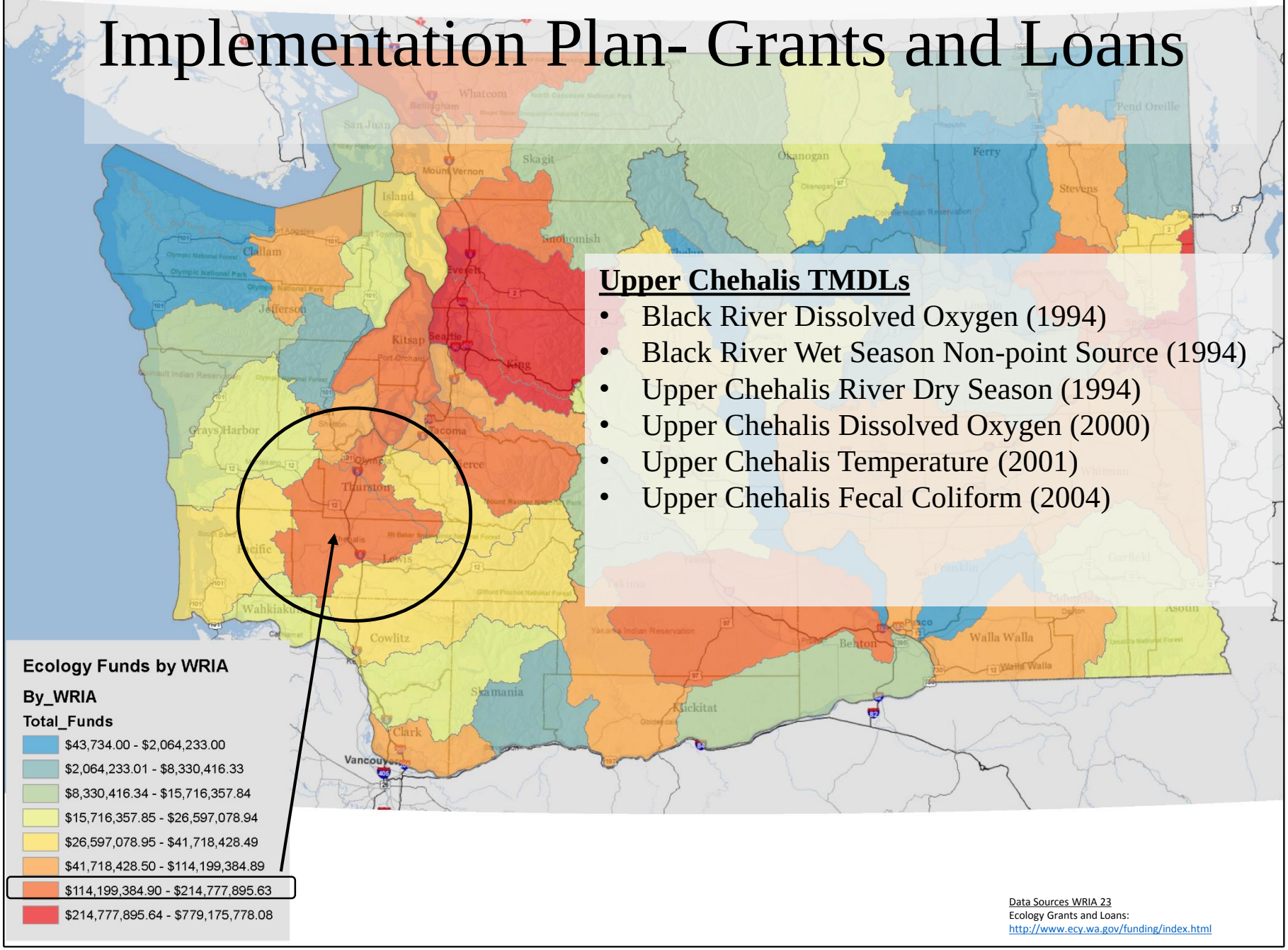
What are the leading problems in rivers and streams within the upper Chehalis?

- >40% Nutrient pollution
- 24% Riparian vegetation-poor
- 20% Riparian disturbance-high
- 15% Sediments-excess

Data Source:

Results of a 1997 EMAP assessment using a probability-based selection of sampling locations.

Implementation Plan- Grants and Loans

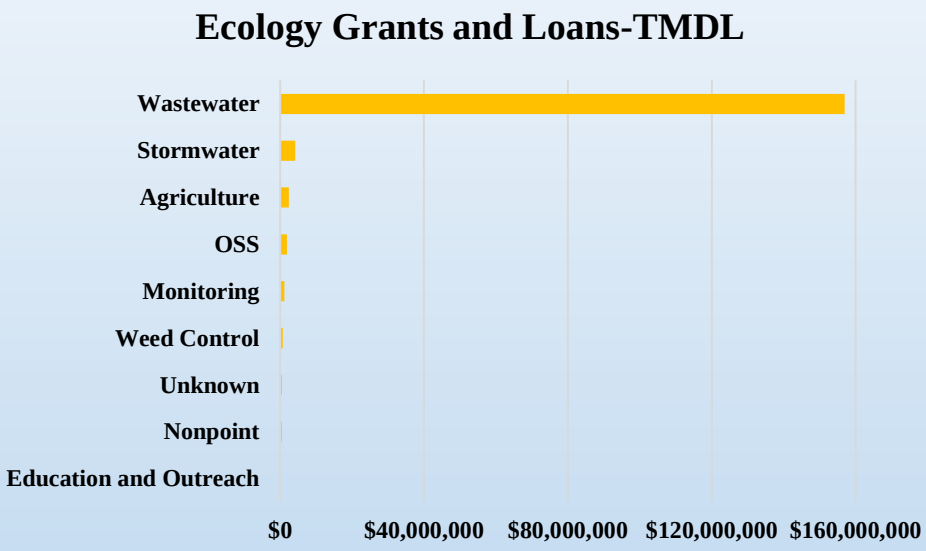


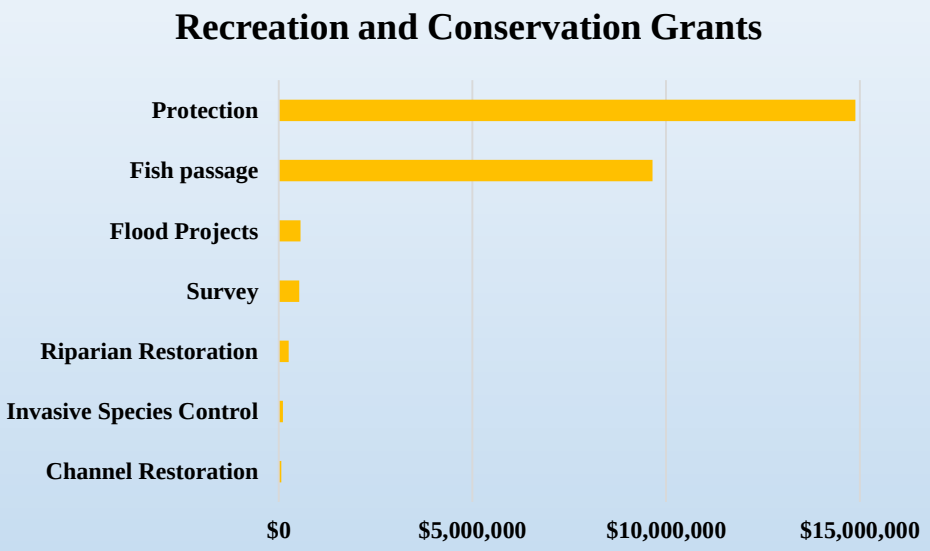
Upper Chehalis TMDLs

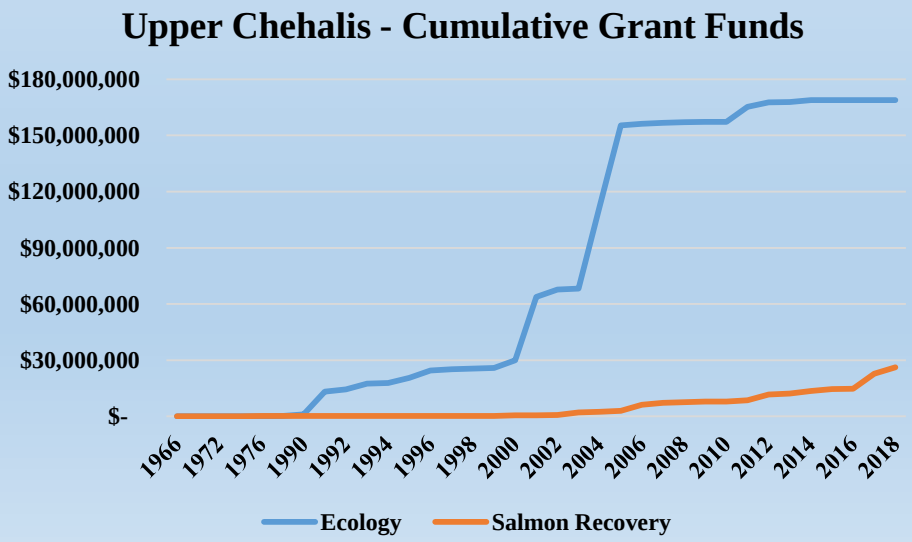
- Black River Dissolved Oxygen (1994)
- Black River Wet Season Non-point Source (1994)
- Upper Chehalis River Dry Season (1994)
- Upper Chehalis Dissolved Oxygen (2000)
- Upper Chehalis Temperature (2001)
- Upper Chehalis Fecal Coliform (2004)

Data Sources WRIA 23
Ecology Grants and Loans:
http://www.ecy.wa.gov/funding/index.html

Implementation- Grants and Loans



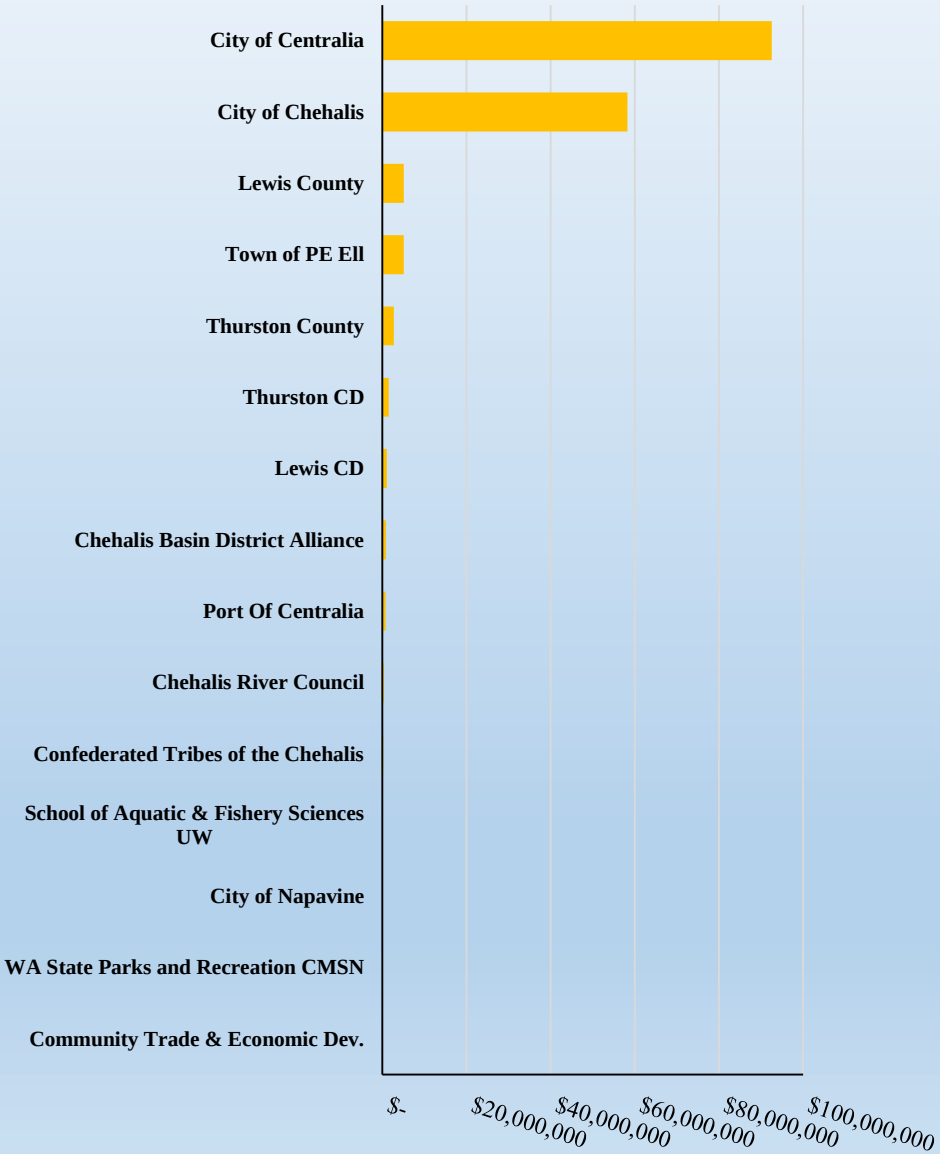




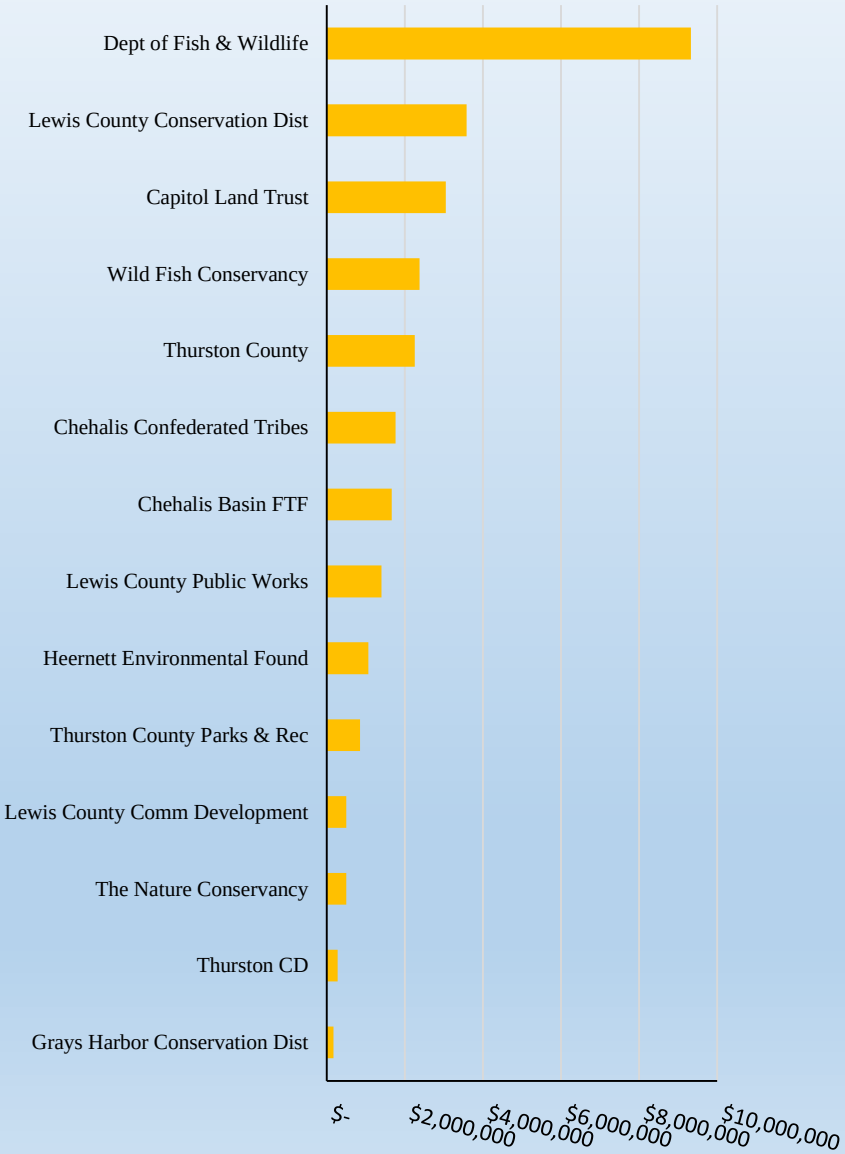
Data Sources WRIA 23
Recreation and Conservation Grants:
http://www.rco.wa.gov/prism_app/about_prism.shtml
Ecology Grants and Loans:
http://www.ecy.wa.gov/funding/index.html

Implementation- Grants and Loans

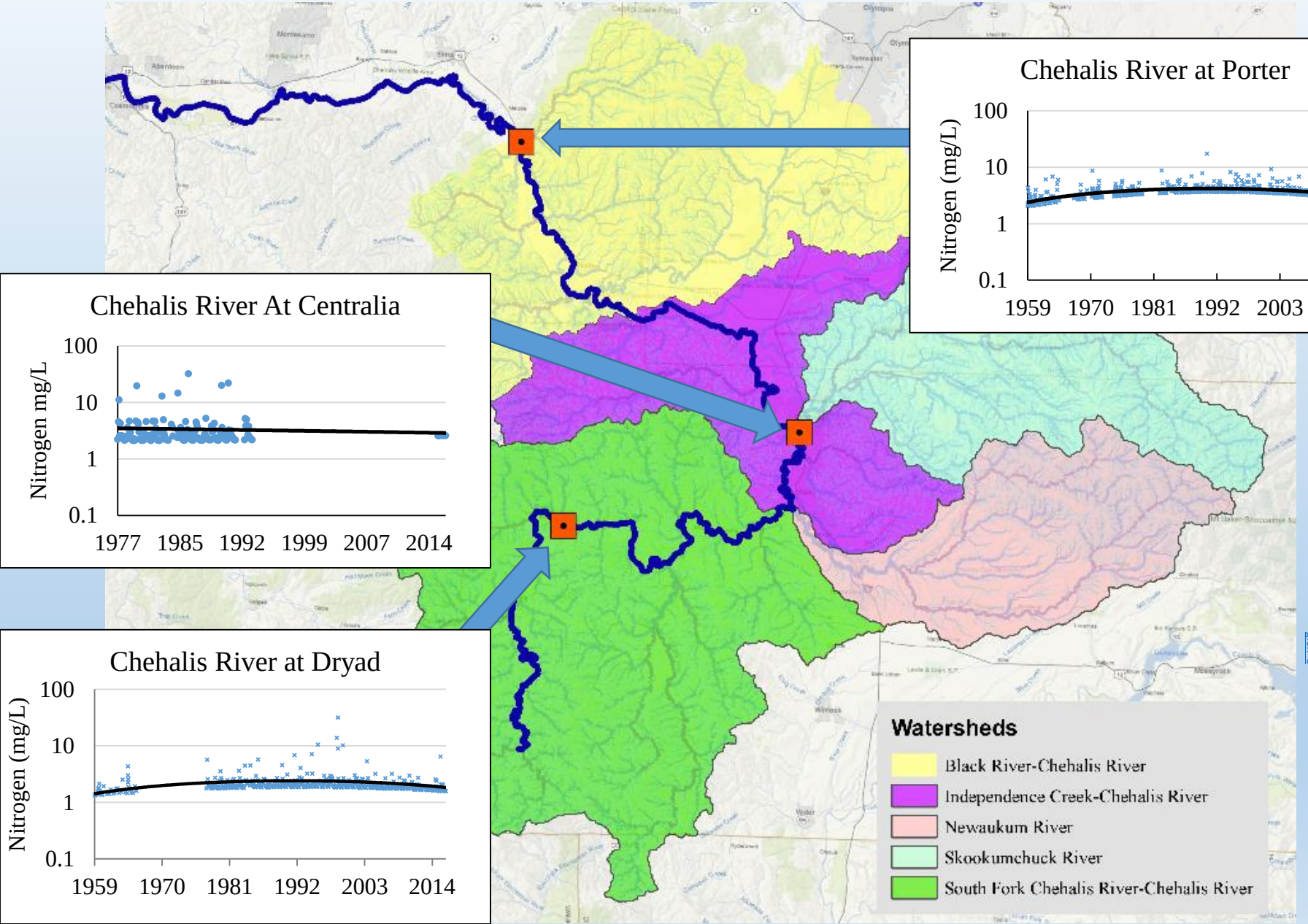
Ecology- Grant Recipiants



Recreation and Conservation Grants

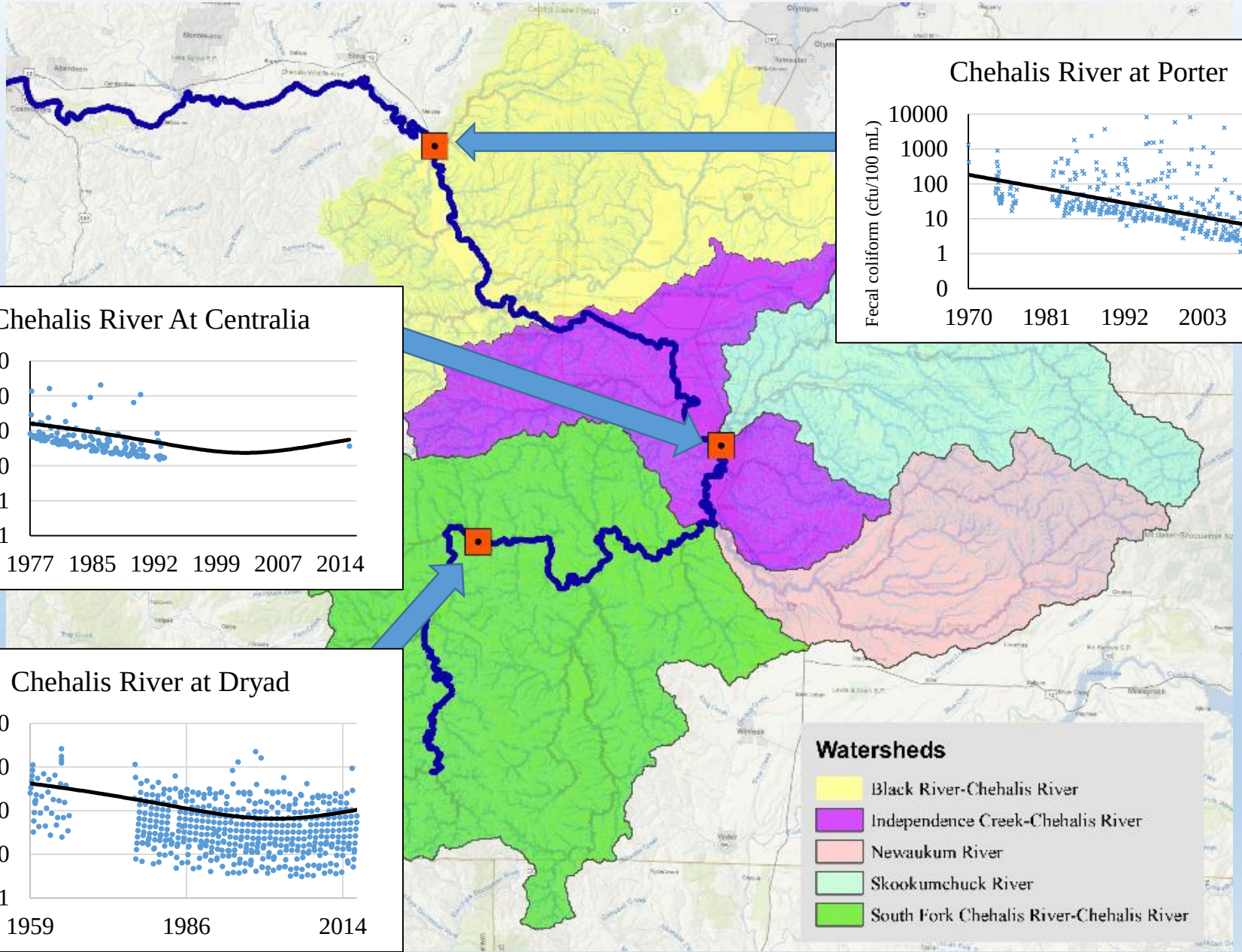


Upper Chehalis – Trends (Nutrients)



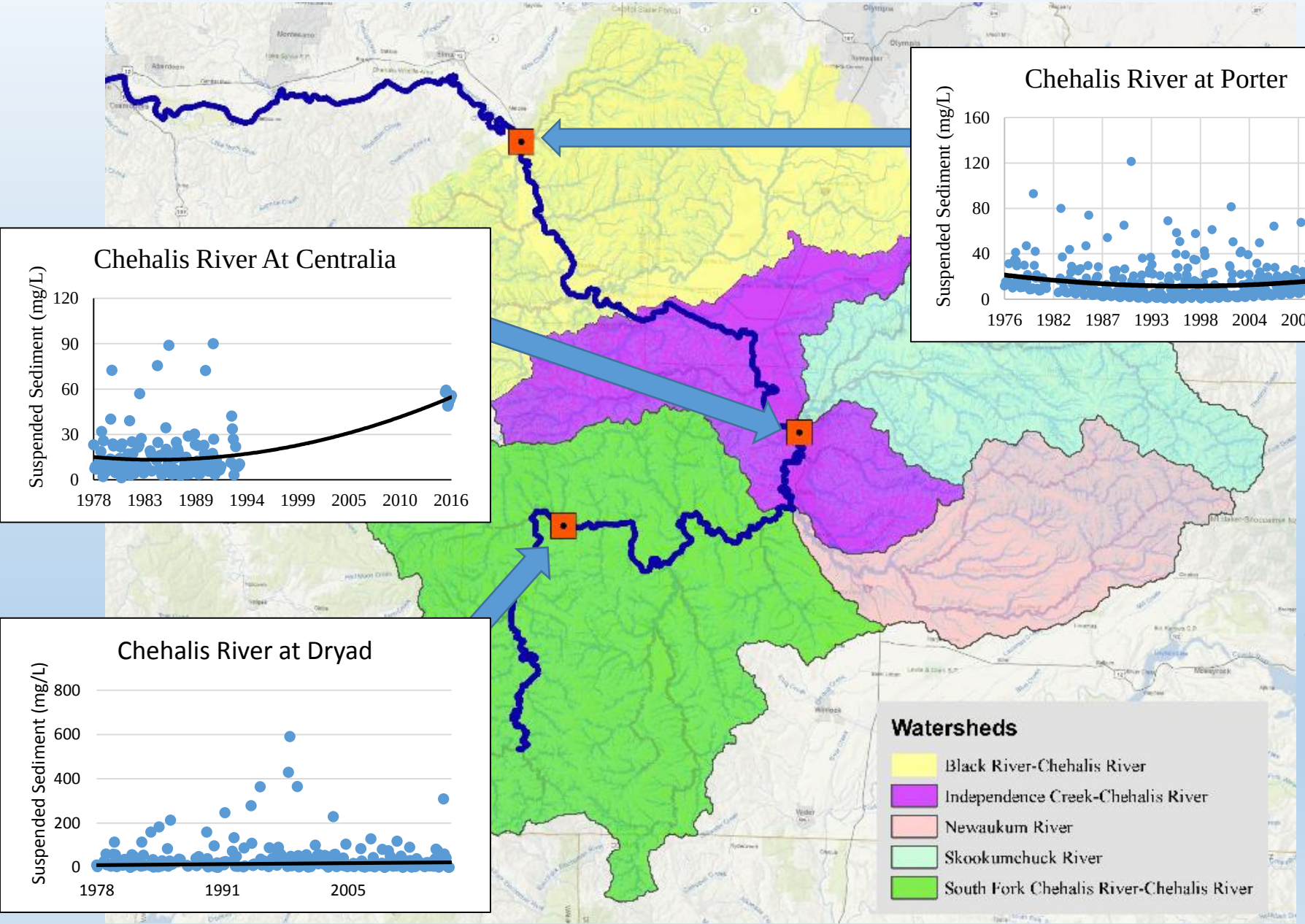
Trend Analysis
OLR regression analysis. Dependent variable: parameter, Independent variables, flow, month, year, year2.
Data Source
https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=1

Upper Chehalis – Trends (Fecal)



Trend Analysis
OLR regression analysis. Dependent variable: parameter, Independent variables, flow, month, year, year2.
Data Source
https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=1

Upper Chehalis – Trends (Sediment)



Trend Analysis
OLR regression analysis. Dependent variable: parameter, Independent variables, flow, month, year, year2.
Data Source
https://fortress.wa.gov/ecy/eap/flows/regions/state.asp?region=1

Summary

Chehalis River Main Stem

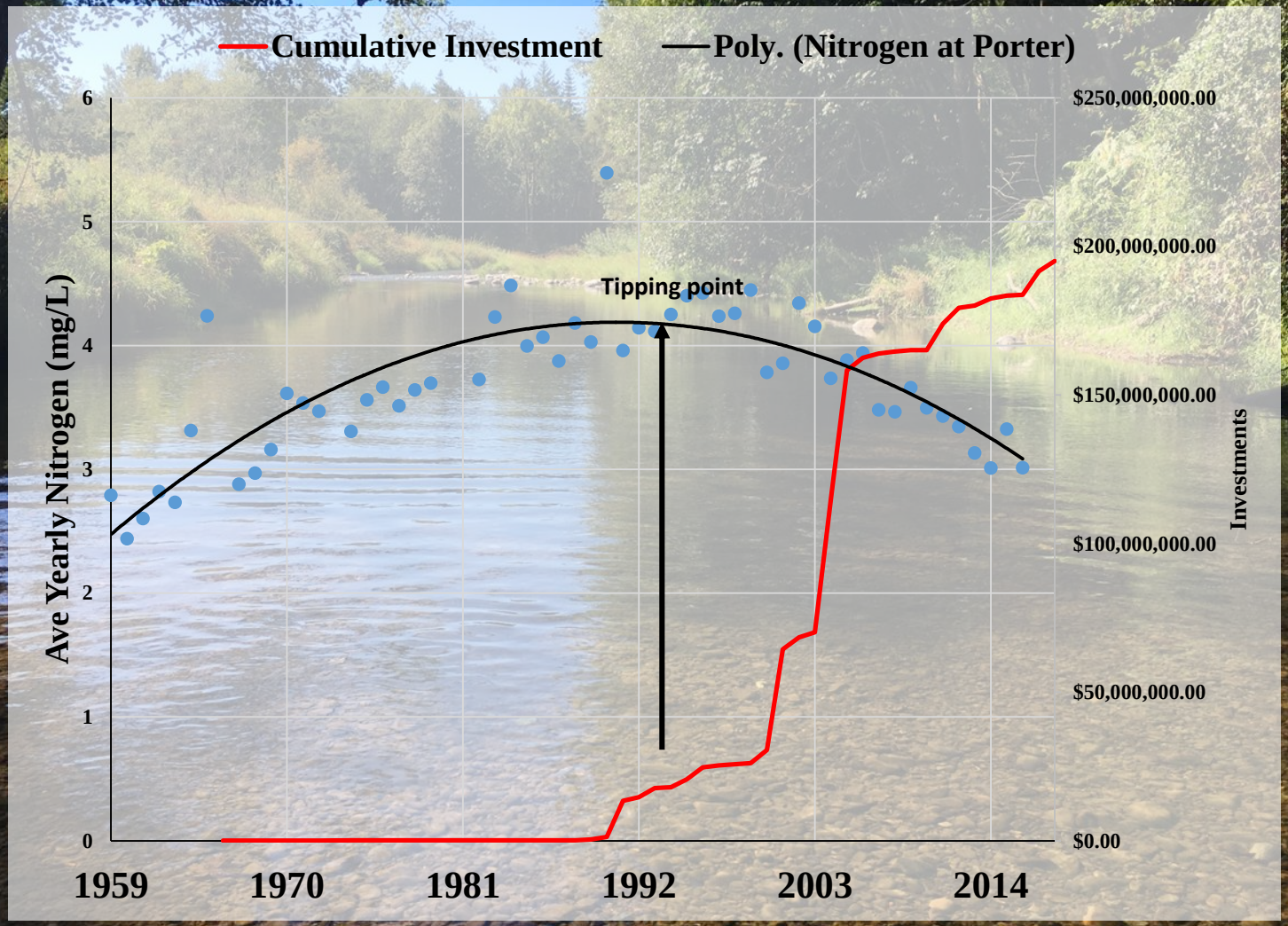
- Nutrients Trending **Downward**
  - ❖Not significant, however trends are consistent
- Fecal coliform Trending **Downward**
  - ❖ > 50 miles of streams delisted
  - ❖ Recent upward trend above Centralia
- Sediment Trending **Upwards**
- Greatest Investments made in wastewater management, habitat protection, Stormwater and Agriculture projects

Cause and Effect

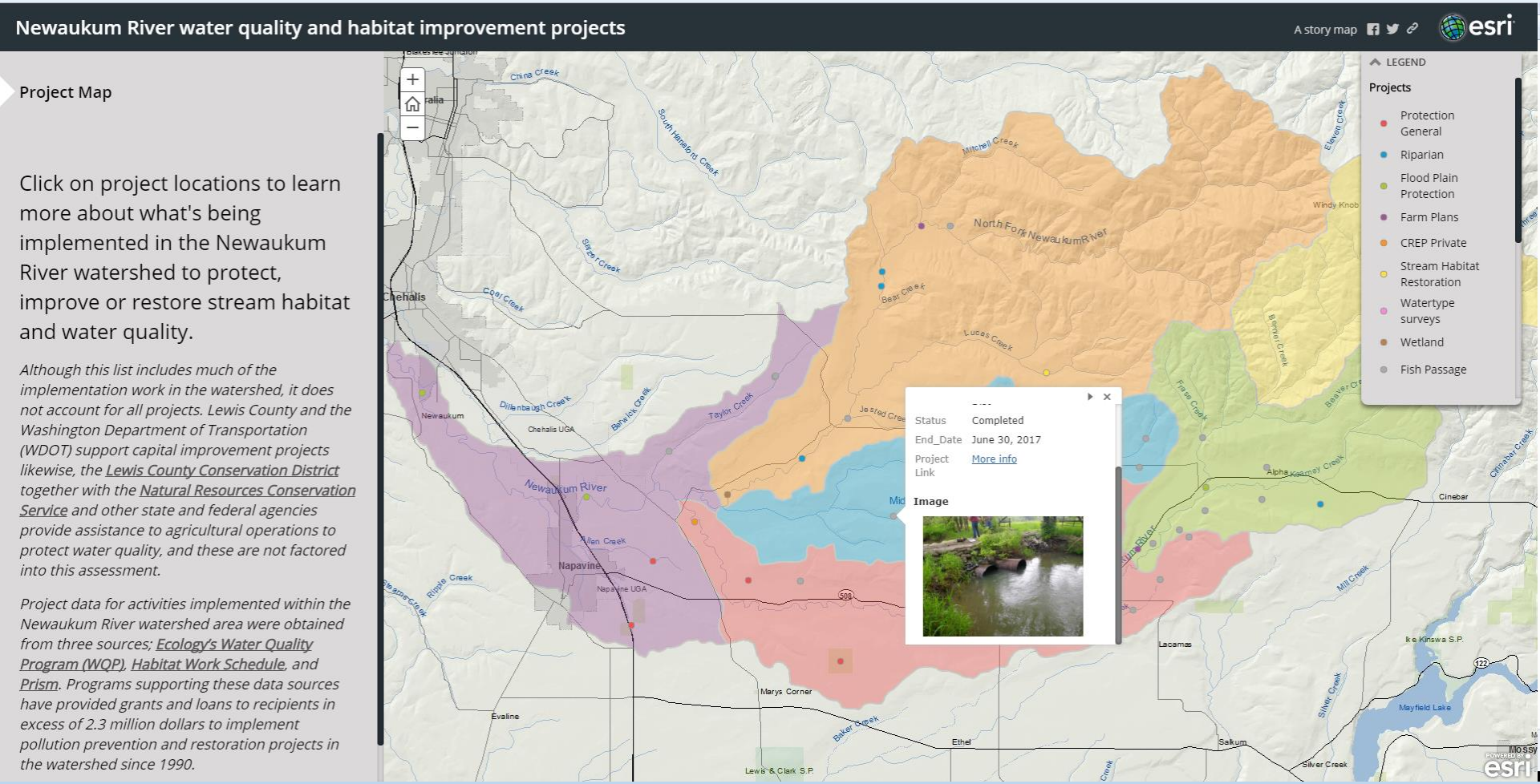
Difficult to link actions with improvement

- Tracking locations of projects
- Other efforts contributing to improvement
  - ❖Land use planning/changes
  - ❖Permits and local ordinances
  - ❖Other conservation programs (Agricultural)
- Lack of long-term monitoring data
- Scale of monitoring studies
- Monitoring is not holistic

Investment vs Nitrogen



Newaukum River



Questions?

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