



Apr 6th, 9:45 AM - 10:00 AM

## What's working to restore Puget Sound? Connecting investments, actions, and outcomes

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Fore, Leska S.; Dublanica, Keith; Johnson, Jennifer; and Archer, Jessica, "What's working to restore Puget Sound? Connecting investments, actions, and outcomes" (2018). *Salish Sea Ecosystem Conference*. 492. <https://cedar.wwu.edu/ssec/2018ssec/allsessions/492>

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# What's working to restore Puget Sound?

Connecting investments, actions, and outcomes

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Keith Dublanica, Jennifer Johnson,  
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Jessica Archer, Washington State Dept. of Ecology

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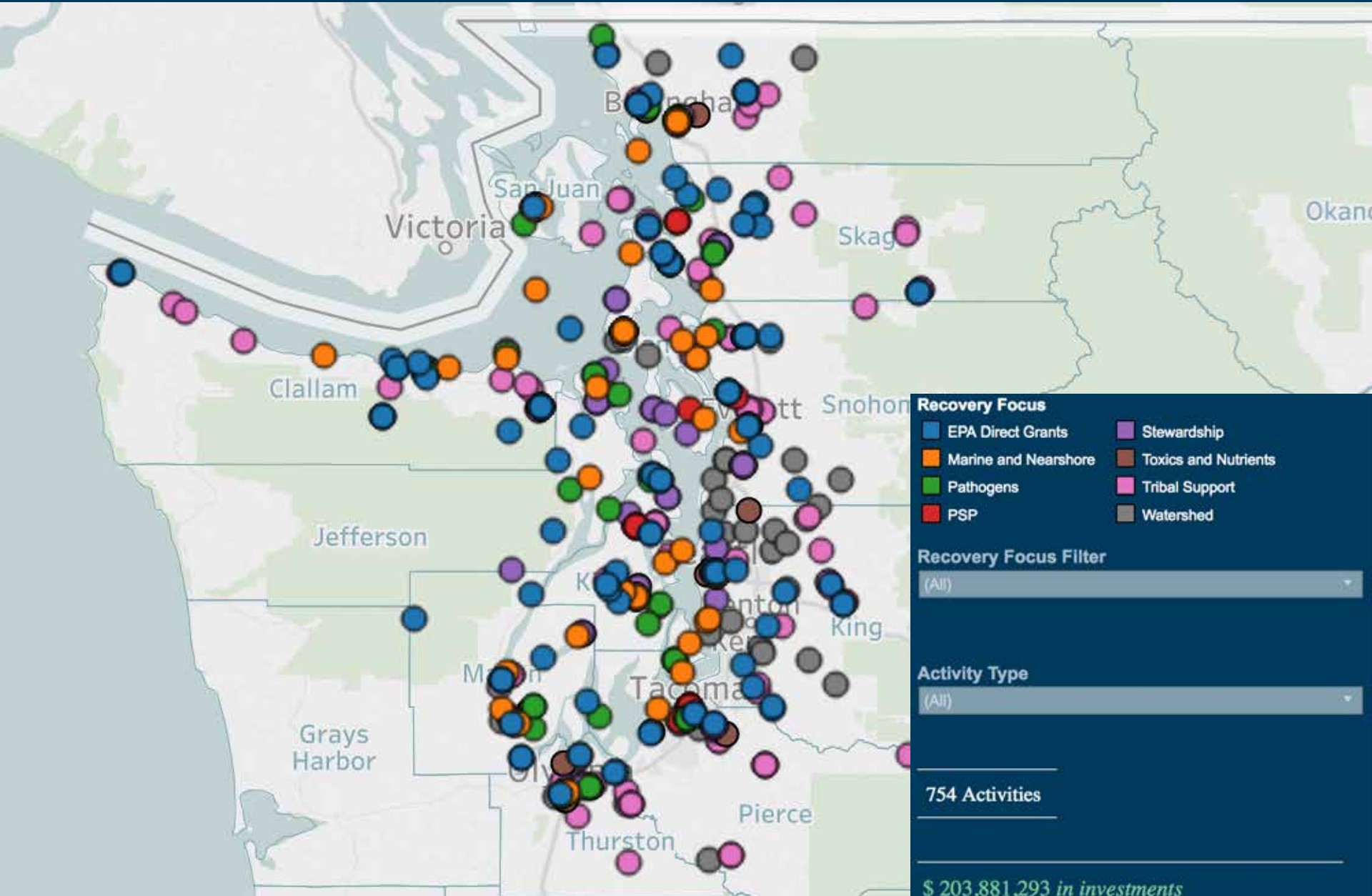


# My Story

- 1) Started with statistics
- 2) Many more successful projects than I expected
- 3) Projects are local, but we want regional improvement

# Today's presentation

- 1) ~~Started with statistics~~
- 2) Examples of successful projects
- 3) How to scale up from Local to Regional –  
**Effectiveness & Evaluation Tools (EET)**



**Recovery Focus**

- EPA Direct Grants
- Marine and Nearshore
- Pathogens
- PSP
- Stewardship
- Toxics and Nutrients
- Tribal Support
- Watershed

**Recovery Focus Filter**

(All)

**Activity Type**

(All)

754 Activities

\$ 203,881,293 in investments

A photograph of the Idaho State Capitol building, a grand neoclassical structure with a large dome and a portico supported by columns. The building is surrounded by lush green lawns and several large cherry blossom trees in full bloom, their white and pink flowers framing the scene. In the foreground, a paved walkway leads towards the building, flanked by low greenery and black bollards. A parking lot with various cars is visible to the left and right. The sky is a clear, bright blue with a few wispy white clouds. In the upper right corner, a white speech bubble with a black outline contains the text "Does restoration work?" in a black, sans-serif font.

*Does  
restoration  
work?*

Native  
plants  
grew

*Eelgrass*  
*expanded*

*Salmon*  
*increased*



*Salmon spawned the very next day after opening the levee.  
Skokomish Indian Tribe and Mason Co.*





*Young salmon in restored habitat eat and grow as in natural habitat. Nisqually National Wildlife Refuge, the Nisqually Indian Tribe, Ducks Unlimited, WA Dept. of Fish and Wildlife*



*Smelt laid eggs the very next day after restoration.  
Weaverling Spit, Samish Indian Nation*

6/29/2006 3:30 PM



*Forage fish returned to lay eggs in 9 out of 9 restored sites.*



*Forage fish returned to lay eggs in 9 out of 9 restored sites.*

Cornet Bay

Weaverling Spit

Bowman Bay

Ala Spit

Northwest March's Point

Fidalgo Bay

Elwha R. mouth

Seahurst

Howarth



# FLOODPLAIN HABITAT RESTORATION: KING COUNTY

REDUCING FLOOD RISK AND CREATING HABITAT FOR YOUNG SALMON

Protecting and Restoring Puget Sound  
**EFFECTIVE ACTION**

## A LOOK AT SUCCESSES AND LESSONS LEARNED



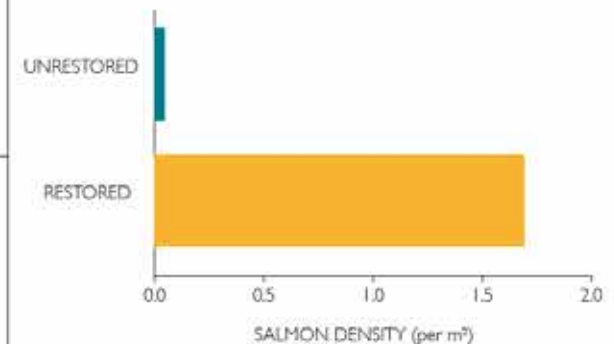
Along the Cedar River, levees were built to reduce flooding and erosion. Over time, these levees narrowed the river channel and made the river run faster, increasing erosion. Flooding and property damage eventually became common along a reach of the river called Rainbow Bend. To increase public safety and buffer against future floods, King County and the Flood Control District helped people in this community move into safer homes and removed the levee at Rainbow Bend, letting the river move into the historical floodplain, slow water flow, and created new habitat where threatened salmon and trout can rest and grow.

## WHAT WORKED

- ▶ Relocating residents eliminated flood risk to 56 homes.
- ▶ Creating side channels and backwater areas allowed the river to move into its floodplain and increased salmon habitat by 84%.
- ▶ Young salmon preferred natural habitat 27 times more than rock-armored banks and levees.
- ▶ Removing the levee slowed the river and reduced erosion which helped protect a state highway and a popular recreational trail.

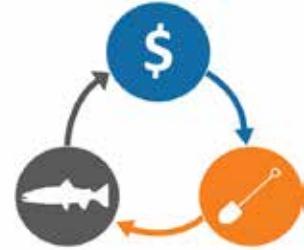
*Juvenile salmon prefer slow-flowing backwater habitat compared to rock-armored levees.*

### SALMON PREFER NATURAL HABITAT OVER ROCK-ARMORED BANKS.





# Effectiveness & Evaluation Tools



**PURPOSE:** Communicate what's working to restore water quality, salmon, and shellfish beds

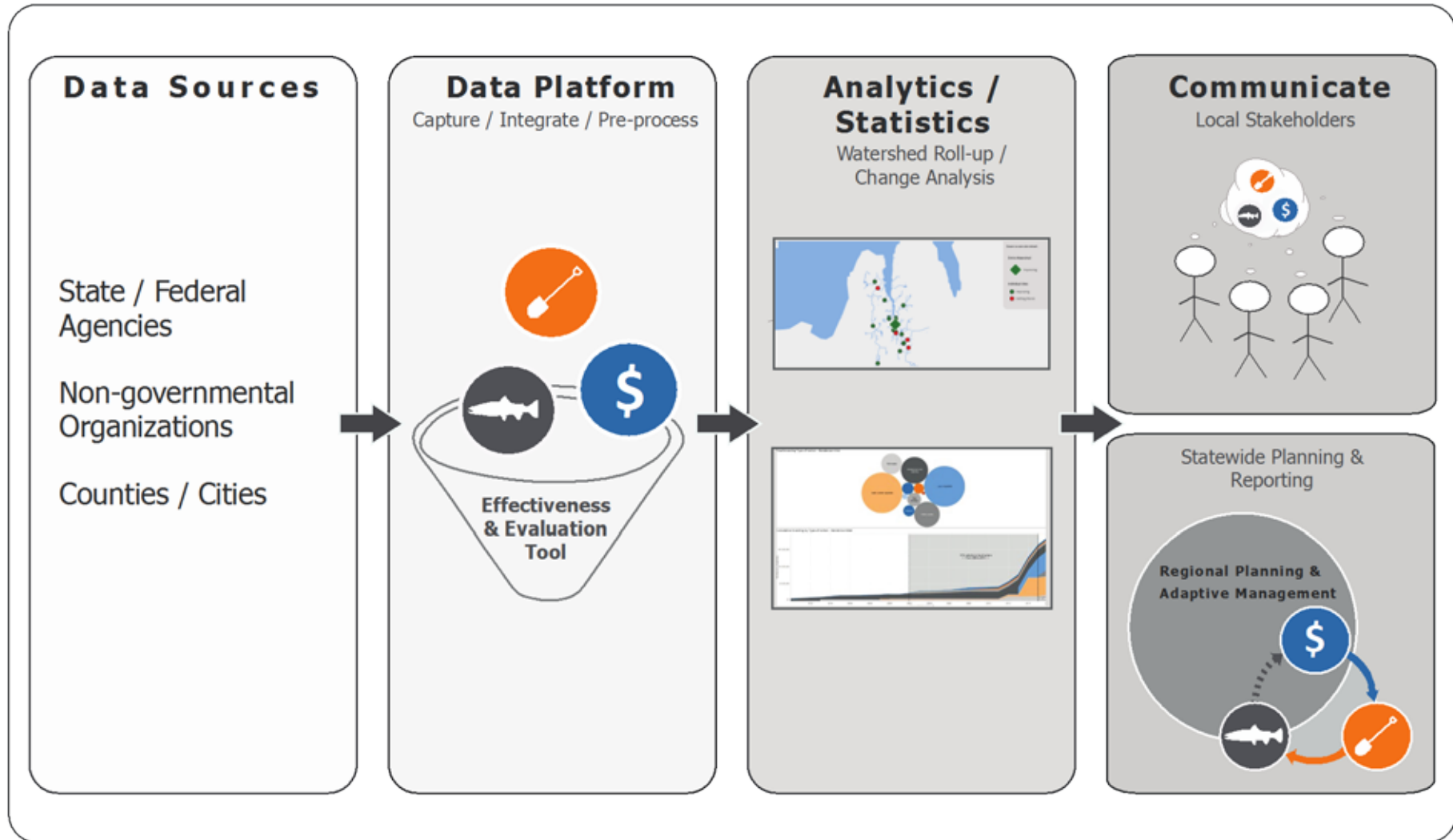
**WHAT IS IT?** A set of query tools to gather information about recovery actions and outcomes in order to evaluate which actions are effective

**WHAT QUESTIONS DOES EET ANSWER?**

*Where are water quality, fish numbers, or shellfish beds improving?*

*What actions were done in those subwatersheds?*

# What is the Effectiveness & Evaluation Tool (EET)?





# STORYBOARD

<https://ejclarke.shinyapps.io/tek-capstone/>

The storyboard is divided into four main sections:

- Interactive map controls, including:**
  - toggle between granular and rolled-up (HUC-12) views
  - Map feature selectors
  - HUC-12 selectors
  - More TBD
- Granular data controls**  
(Potentially) data export controls
- Map:** A map of the Puget Sound region with location pins for Lillwaup, Dewatto, Hoodspart, Union, Tahuya, Skokomish, Belfair, and Allyn-Grapeview. A blue callout box says "Mouseover with broad data measures" and another says "Click through to granular data". A red arrow points from the map to the charts.
- Charts:** Two identical charts showing "Amount" (red bars) and "Cases" (blue line). The x-axis categories are File Folders, Paper, Pens, Staplers, and Total. The left y-axis is Amount (0-16000) and the right y-axis is Cases (0-250).

Category	Amount	Cases
File Folders	4000	100
Paper	4000	50
Pens	3000	50
Staplers	6000	100
Total	17000	250

E. Clarke, T. Blankemeyer, K. Gertz, MLIS students, Information School, UW



**Select variable:**

- Summer Chum
- Turbidity
- TSS
- Investment

**Watershed size:**

- HUC 10
- HUC 12

**Select sites:**

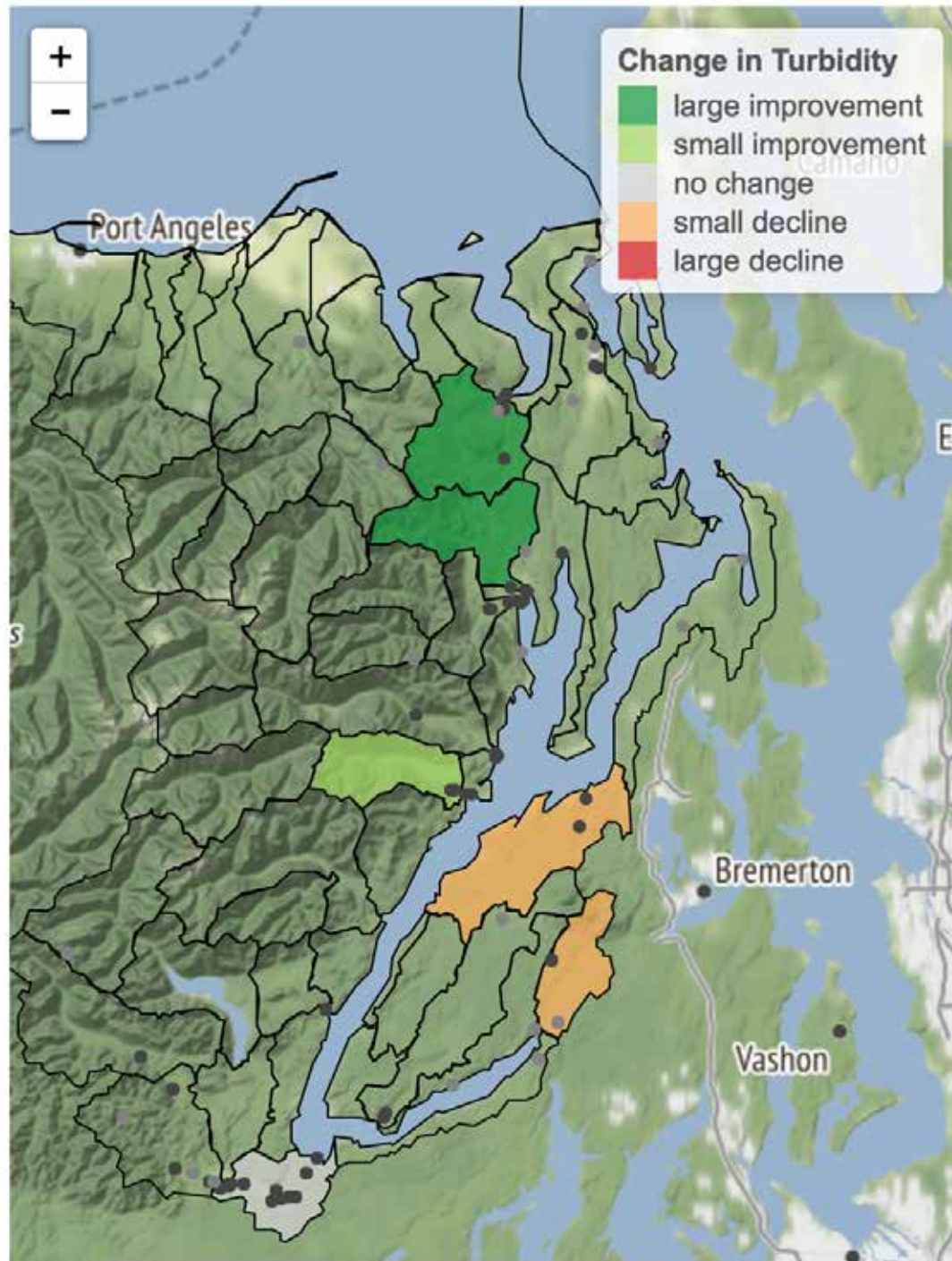
- PRISM projects ●
- EAGL projects ●
- Chum sites □

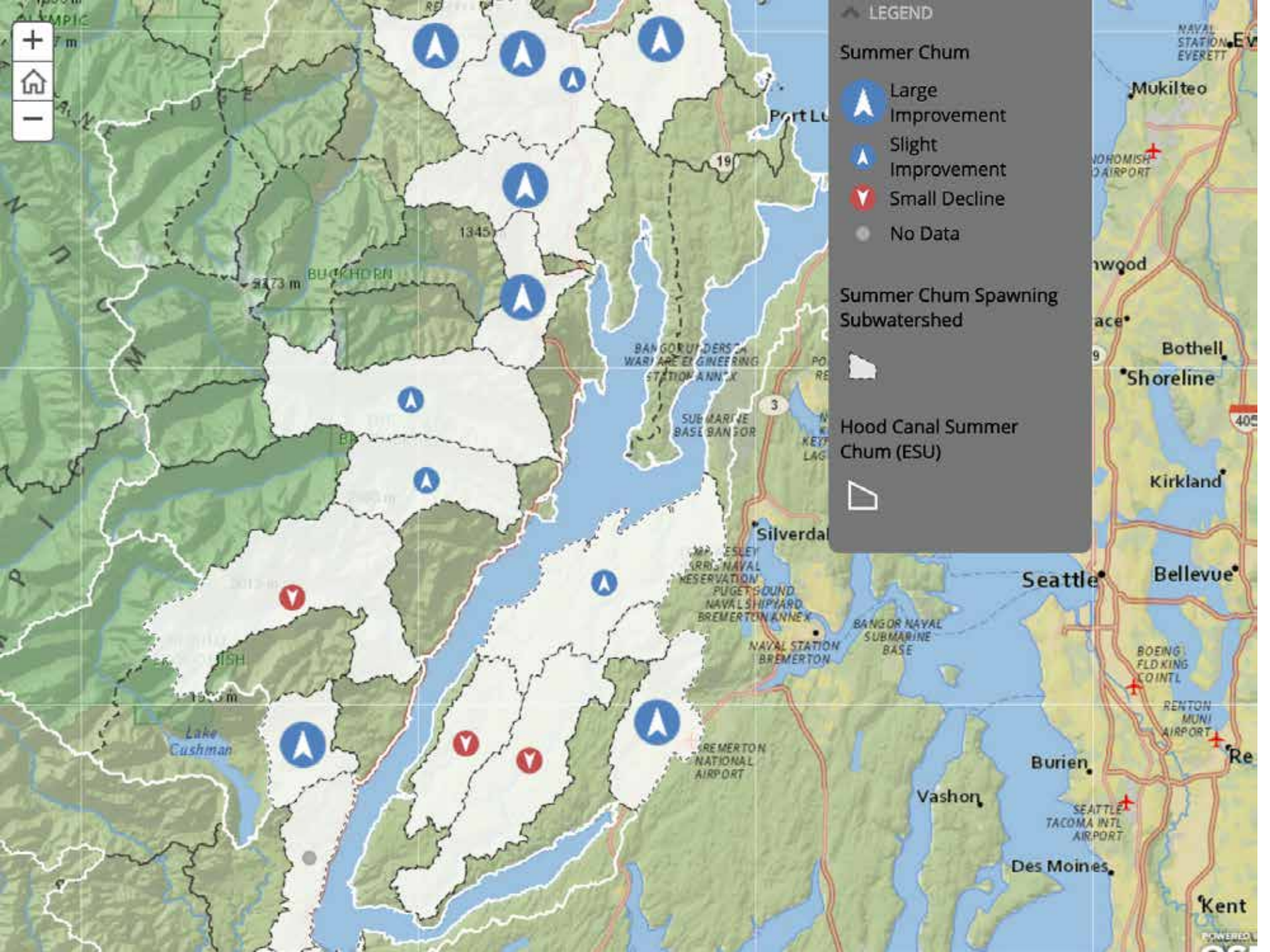
**Colorblind friendly:**

- on

RESET GRAPHS

**Choose dataset:**





# What's working to restore Puget Sound?

- Effectiveness Fact sheets, Puget Sound Partnership
  - <http://www.psp.wa.gov/evaluating-effective-action.php>
- Stormwater Action Monitoring (SAM), PSEMP Stormwater Work Group
  - <https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/SAM-effectiveness-studies>
- Strategic Initiative Leads, Puget Sound National Estuary Program
  - <https://pugetsoundestuary.wa.gov/>
- Puget Sound Innovation Stories, The Nature Conservancy and Puget Sound Partnership
  - <https://pugetsoundinnovationstories.blog/>