Apr 27th, 1:30 PM - 3:00 PM

Puget Sound Federal Task Force: Coordinating, leveraging and prioritizing diverse federal programs toward a healthy and sustainable Puget Sound

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See next page for additional authors

Speaker

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Puget Sound Federal Task Force – Salish Sea Ecosystem Conference

April 27, 2022

Topics

1. PSFTF Co-chairs Overview and Relationship to Treaty Rights
2. Cross-cutting Actions
3. Cross-cutting Habitat Actions
4. Nearshore and Shoreline
5. Floodplains, Riparian and Estuaries
6. Fish Passage
7. Stormwater
8. Shellfish
9. Science and Monitoring
10. Coordination

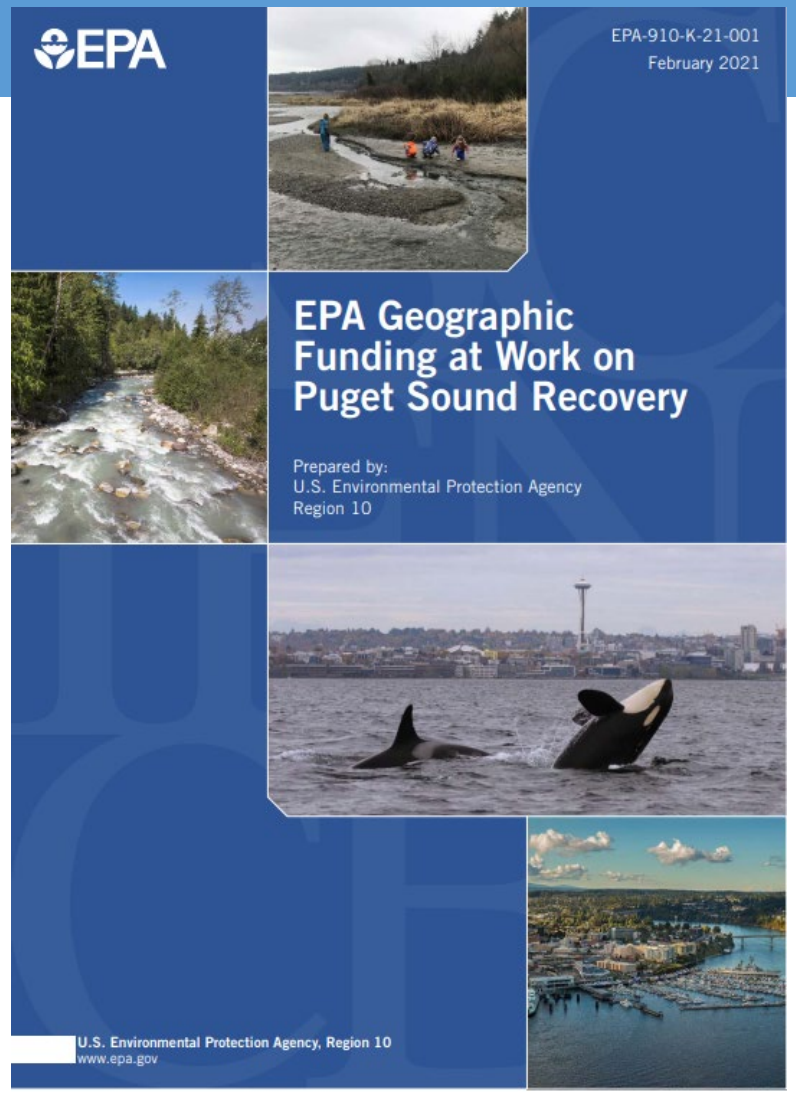
PSFTF Co-chairs overview and relationship to Puget Sound/Salmon Recovery and Treaty Rights

- Overall goal is to prioritize, coordinate and leverage diverse federal programs toward a healthy and sustainable Puget Sound, and honor the rights reserved through treaties.
- 99 of 127 priority federal actions to protect and restore Puget Sound implemented as described
- Regional and state leader support for staff participation in workgroups and subteams
- Regional federal leader meetings with state and tribal leaders, active participation in the Puget Sound Management Conference

PSFTF Co-chairs overview and relationship to treaty rights

Priority Federal Action	Number of Actions
Crosscutting	13
Crosscutting - Habitat	8
Nearshore and Shoreline	6
Floodplains, Riparian and Estuaries	22
Fish Passage	10
Stormwater	12
Shellfish	13
Science and Monitoring	25
Governance	6
Total	**115**

Cross-cutting Actions –EPA's Puget Sound Program



Vision: Puget Sound - Clean waters, thriving ecosystem
Mission: Provide funding and support for Puget Sound recovery efforts via a collaborative governance framework

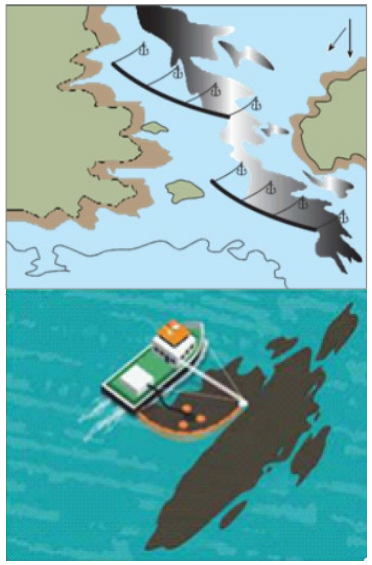
EPA's work with the Puget Sound Partnership, state agencies, tribes and other partners has supported important gains in recovery. Results include, for example:

- Comprehensive regional plans to restore the Sound.
- More than $1 billion leveraged for recovery.
- Partnerships with 19 federally recognized tribes.
- Transboundary collaboration with Canada.
- Scientific gains on toxic effects of urban stormwater.
- Since 2007, a net increase of harvestable shellfish beds.

Looking ahead, EPA recognizes that more must be done to achieve a healthy Puget Sound. To achieve positive trends, EPA will continue:

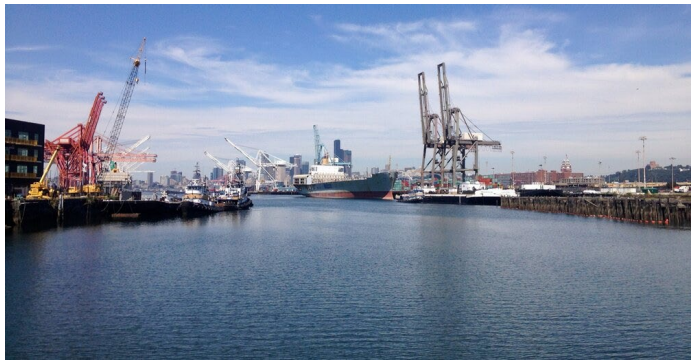
- To enhance Federal Task Force leadership, including a new Action Plan for 2022-2026.
- Cooperation with Canada.
- Fulfillment of National Estuary Program responsibilities, including the approval of a new comprehensive management plan for recovering Puget Sound (the Action Agenda).
- Partnering with tribes.
- Funding and grants, including managing and awarding up to $100 million in projects over the next five years.
- Scientific support.

Cross-cutting Actions – 2022-2026



Summary

- Implement major federal environmental laws
- Environmental benefits from the Infrastructure Law
- Direct and indirect benefits from the Bureau of Indian Affairs and Federal Transit Administration
- Oil spill preparedness from the U.S. Coast Guard
- Green Duwamish Urban Waters Federal Partnership
- Coordination with Canada
- Climate Change and Environmental Justice



Cross-cutting Habitat Actions

Background
- Habitat is major focus of Action Plan
- Actions that involve multiple habitat focus areas and often involve multiple agencies

Examples
- Habitat restoration permitting efficiency
- Habitat Strategic Initiative Lead
- NRCS role riparian habitat
- NOAA/USFWS Pacific Coastal Salmon Recovery Plan
- Navy REPI Reserve Program
- Multi-benefit projects – Emergency Relief on Federal Roads (ERFO)

Nearshore and Shorelines

2017-21 Actions

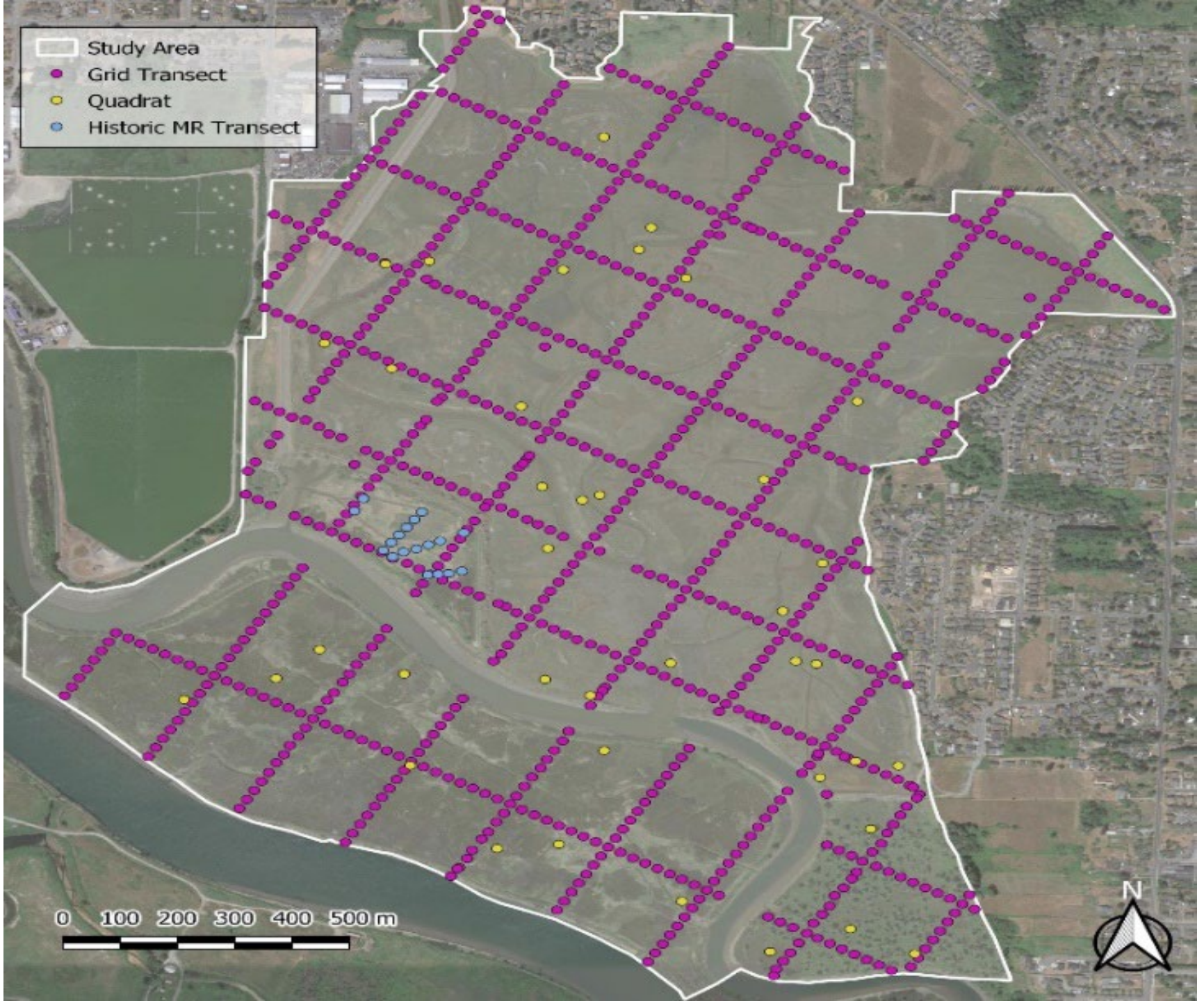
NOAA & Tulalip Tribe

Snohomish Estuary Monitoring Plan

- Developed protocols for monitoring physical and ecological attributes of estuary and restoration action – 10 years of monitoring
- Results and methods are transferable to estuaries in Puget Sound.

Puget Sound Nearshore Ecosystem Restoration Program

- Restore >2,000 acres of estuarine and critical habitat for salmon



Nearshore and Shorelines - Progress

NOAA Coastal Ecosystem Resiliency Funding of Community-Based Restoration

- 2,350 acres of estuary habitat and 37 miles of river habitat – Whidbey Basin
- Partnership: Tulalip Tribes, WDFW, Snohomish Conservation District, The Nature Conservancy

Leque Island Estuary Restoration, Whidbey Basin

Nearshore and Shorelines - Future

Nearshore Programmatic

- NOAA developing in collaboration with USACE and USFWS - Summer 2022 goal

Floodplains, Riparian, Estuaries - Past

Examples:

- **Floodplains by Design**
- **EPA funded: Reach Scale Planning**
- **NRCS Agricultural Conservation Easement Program and Resource Conservation Partnership Program**
- **NOAA, FEMA Floodplain Management Forum**

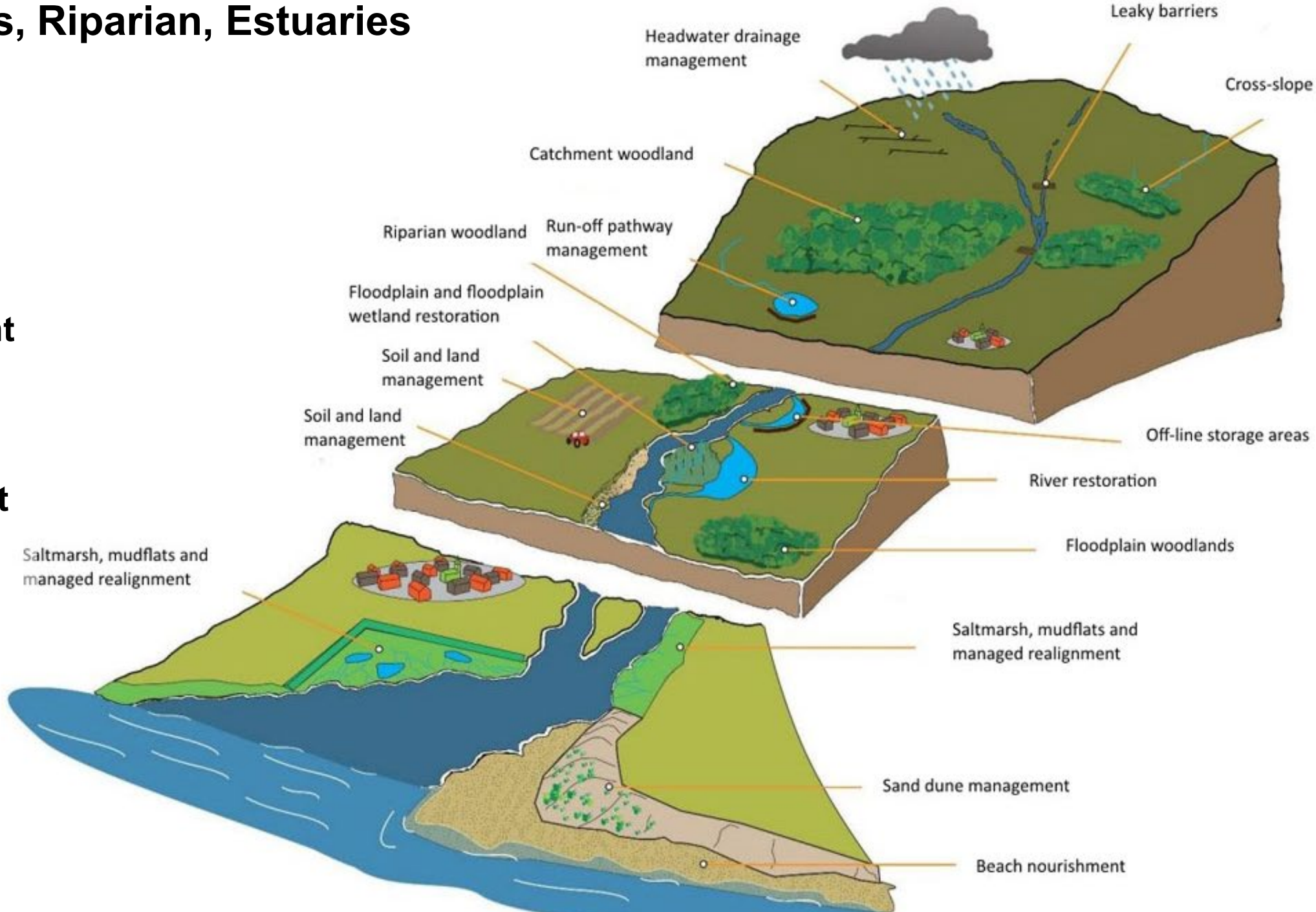
Floodplains, Riparian, Estuaries - Progress

FEMA lead:

Federal – State Integrated Floodplain Management Working Group

Multi-benefit projects

Farm, fish, and flood

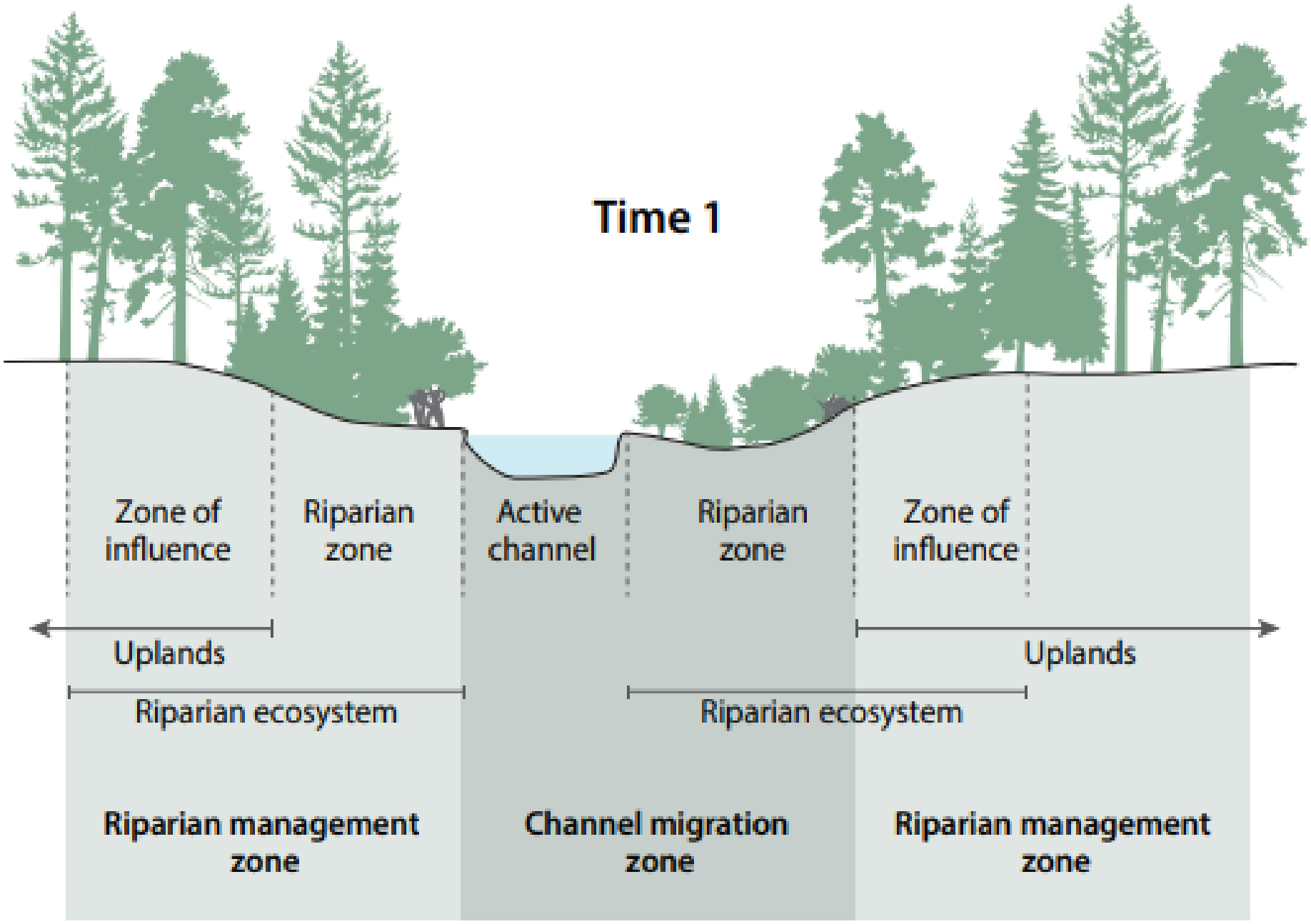


Floodplains, Ripa
Estuaries - Future

Examples:

- **Federal, State, Tribal Coordination: Riparian protection and restoration**
- **Federal competitive grant support for Riparian Habitat Protection/Recovery**

- **FEMA: Climate Adaptation Enterprise Group**



Source: WDFW (2020), Riparian Ecosystems, Vol. 2

2017-2021 Federal Action Plan – Fish Passage

EXAMPLE: Middle Fork Nooksack River Dam Removal (2020)

EXAMPLE: NRCS Fish Passage Restoration in Skagit Co. in partnership with Swinomish Tribe using EQIP funds

2022-2026 Federal Action Plan –

Fish Passage

A re-focus on being in tune with State FBRB priorities and needs, including Federal funding match opportunities to accomplish more fish passage projects

Continue to stay abreast of FBRB strategies and needs and do what Federal agencies can to rotate funding support and other management actions to connect with those priorities

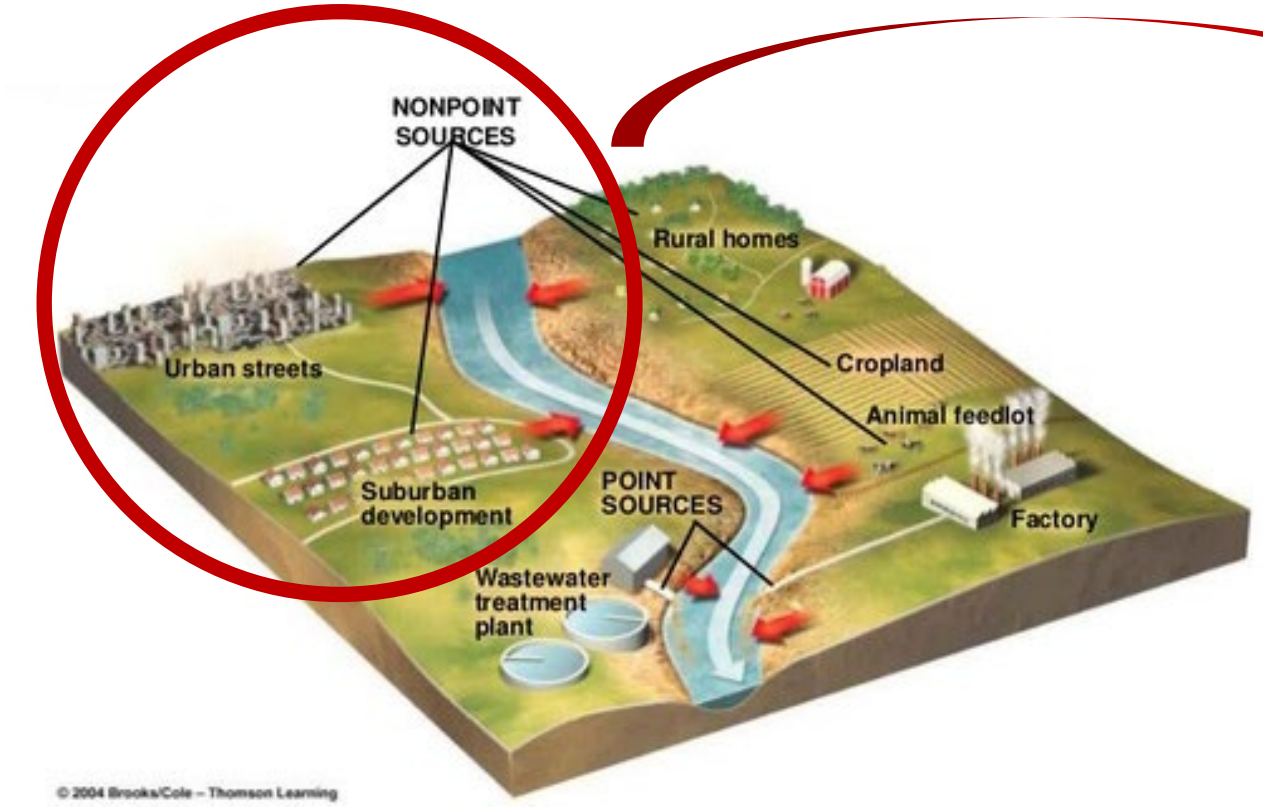
Explore ways to take additional steps to restore fish passage in a more watershed approach.

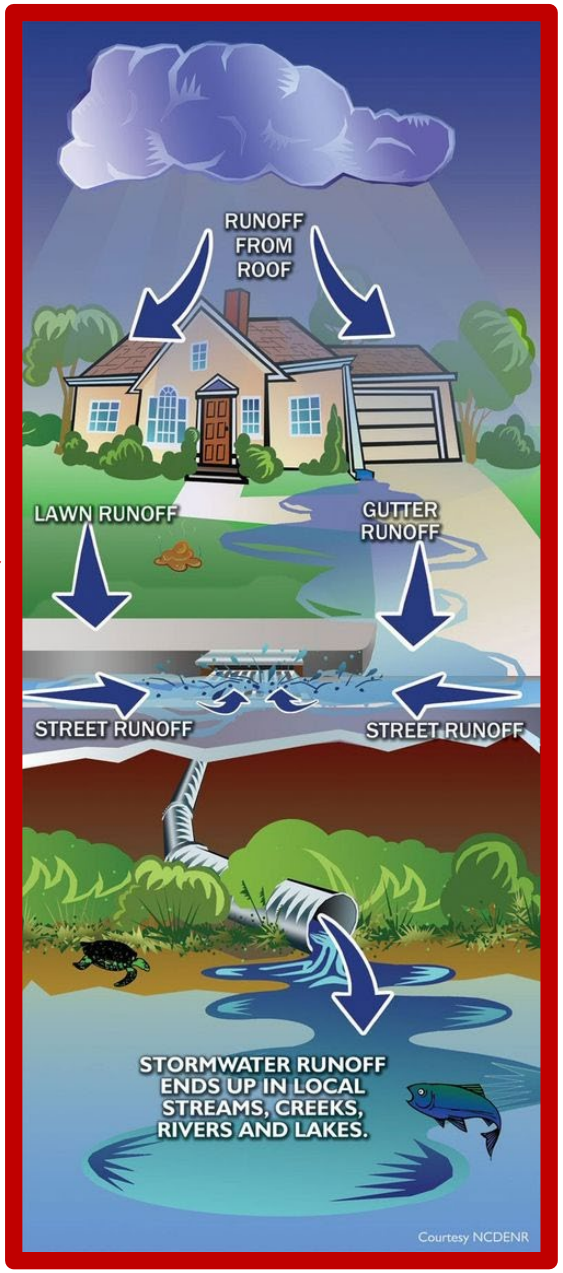
Explore ways to upkeep/improve/create streamlined regulatory mechanisms in order to be efficient for project implementation

INFRASTRUCTURE INVESTMENT AND JOBS ACT – Could aid in accelerating fish passage restoration!!

2017-2021 Federal Action Plan - Stormwater

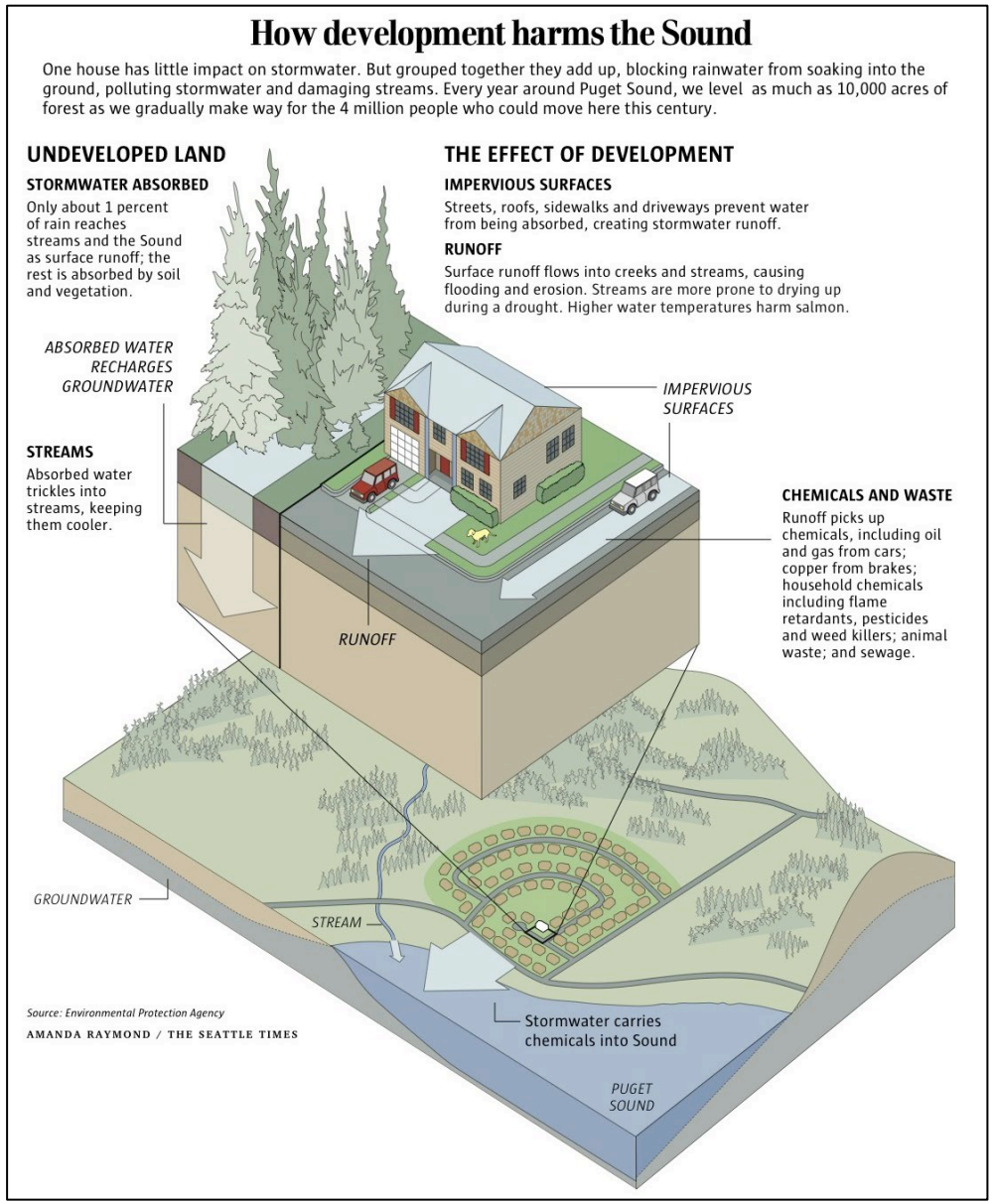
Stormwater is a major driver of non-point source pollution from forested, agricultural, urban, and suburban land uses. Ongoing Puget Sound federal actions are particularly focused on ***urban runoff***





The Urban Stream Syndrome: a global phenomenon of ecological decline

- The Urban Stream Syndrome describes a consistently observed ecological degradation of streams draining urban land.
- Mechanisms are complex and interactive, but are primarily driven by urban stormwater runoff delivered to streams by hydraulic drainage systems.
- Symptoms include a flashier hydrograph, elevated contaminants and nutrients, altered channel morphology, and reduced biotic richness, with increased dominance of tolerant species.



Global perspectives on the urban stream syndrome

Derek B. Booth[1,5], Allison H. Roy[2,6], Benjamin Smith[3,7], and Krista A. Capps[4,8]

[1]Bren School of Environmental Science and Management, University of California Santa Barbara, Santa Barbara, California 93106 USA

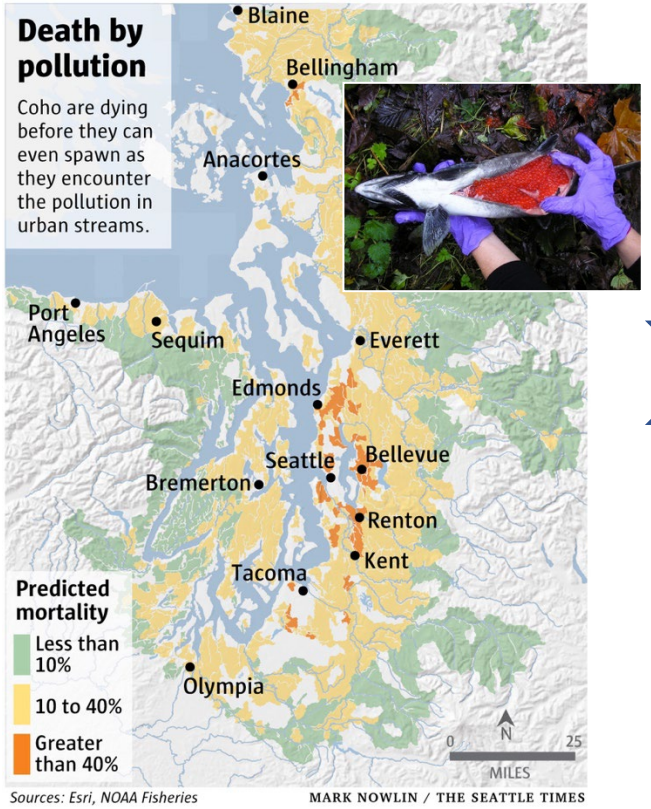
[2]US Geological Survey, Massachusetts Cooperative Fish and Wildlife Research Unit, University of Massachusetts, Amherst, Massachusetts 01003 USA

2017-2021 Federal Action Plan – Stormwater

Overarching and shared goals across federal natural resource agencies

1

Define the nature and extent of stormwater threats to Puget Sound



2

Identify affordable and effective clean water mitigation strategies

3

Promote the building of green cities and communities

2017-2021 – Stormwater Accomplishments

Accomplishments – spotlight on the the coho urban mortality syndrome

1

Define the nature and extent of stormwater threats to Puget Sound

ENVIRONMENTAL Science & Technology

Article

Cite This: *Environ. Sci. Technol.* 2018, 52, 10317−10327

pubs.acs.org/est

Using High-Resolution Mass Spectrometry to Identify Organic Contaminants Linked to Urban Stormwater Mortality Syndrome in Coho Salmon

Katherine T. Peter, Zhenyu Tian, Christopher Wu, Peter Lin, Sarah White, Bowen Du, Jenifer K. McIntyre, Nathaniel L. Scholz, and Edward P. Kolodziej

pubs.acs.org/est

Article

Treading Water: Tire Wear Particle Leachate Recreates an Urban Runoff Mortality Syndrome in Coho but Not Chum Salmon

Jenifer K. McIntyre,* Jasmine Prat, James Cameron, Jillian Wetzel, Emma Mudrock, Katherine T. Peter, Zhenyu Tian, Cailin Mackenzie, Jessica Lundin, John D. Stark, Kennith King, Jay W. Davis, Edward P. Kolodziej, and Nathaniel L. Scholz

EMBARGOED UNTIL 2:00PM US ET, THURSDAY 3 DECEMBER 2020

Science

REPORTS

6PPD/6PPD -quinone

Cite as: Z. Tian *et al.*, *Science* 10.1126/science.abd6951 (2020).

A ubiquitous tire rubber–derived chemical induces acute mortality in coho salmon

Zhenyu Tian[1,2], Haoqi Zhao[3], Katherine T. Peter[1,2], Melissa Gonzalez[1,2], Jill Wetzel[4], Christopher Wu[1,2], Ximin Hu[3], Jasmine Prat[4], Emma Mudrock[4], Rachel Hettinger[1,2], Allan E. Cortina[1,2], Rajshree Ghosh Biswas[2], Flávio Vinicius Crizóstomo Kock[2], Ronald Soong[5], Amy Jenne[5], Bowen Du[6], Fan Hou[3], Huan He[3], Rachel Lundeen[1,2], Alicia Gilbreath[7], Rebecca Sutton[7], Nathaniel L. Scholz[8], Jay W. Davis[9], Michael C. Dodd[3], Andre Simpson[2], Jenifer K. McIntyre[4], Edward P. Kolodziej[1,2,3]*

[1]Center for Urban Waters, Tacoma, WA 98421, USA. [2]Interdisciplinary Arts and Sciences, University of Washington Tacoma, Tacoma, WA 98421, USA. [3]Department of Civil and Environmental Engineering, University of Washington, Seattle, WA 98195, USA. [4]School of the Environment, Washington State University, Puyallup, WA 98371, USA. [5]Department of Chemistry, University of Toronto, Scarborough Campus, 1265 Military Trail, Toronto, ON M1C1A4, Canada. [6]Southern California Coastal Water Research Project, Costa Mesa, CA 92626, USA. [7]San Francisco Estuary Institute, 4911 Central Avenue, Richmond, CA 94804, USA. [8]Environmental and Fisheries Sciences Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Seattle, WA 98112, USA. [9]United States Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, WA 98503, USA.

2

Identify affordable and effective clean water mitigation strategies

Journal of Applied Ecology

Journal of Applied Ecology 2016, **53**, 398–407

doi: 10.1111/1365-2664.12534

Coho salmon spawner mortality in western US urban watersheds: bioinfiltration prevents lethal storm water impacts

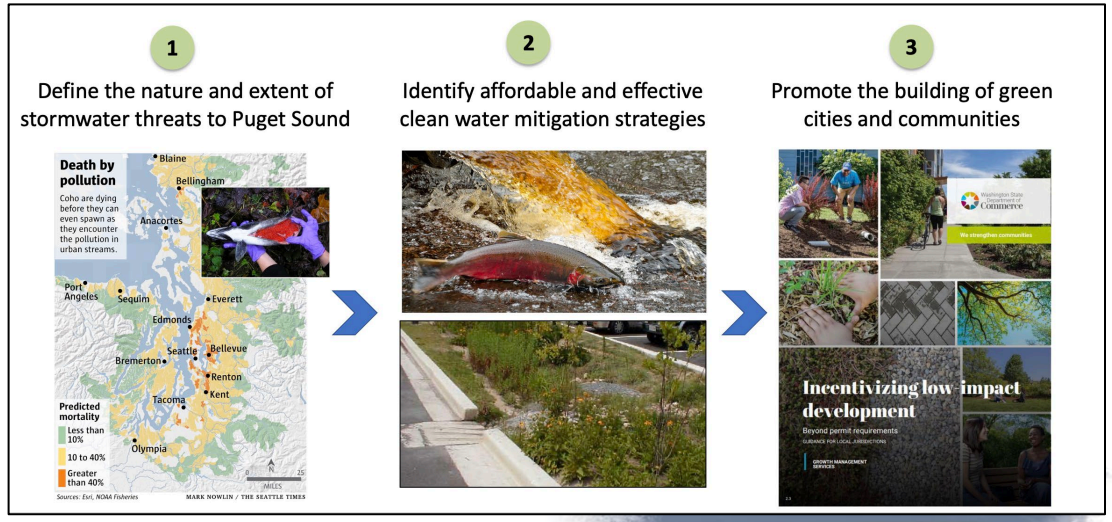
Julann A. Spromberg[1], David H. Baldwin[2], Steven E. Damm[3], Jenifer K. McIntyre[4], Michael Huff[5], Catherine A. Sloan[2], Bernadita F. Anulacion[2], Jay W. Davis[3] and Nathaniel L. Scholz[2]*

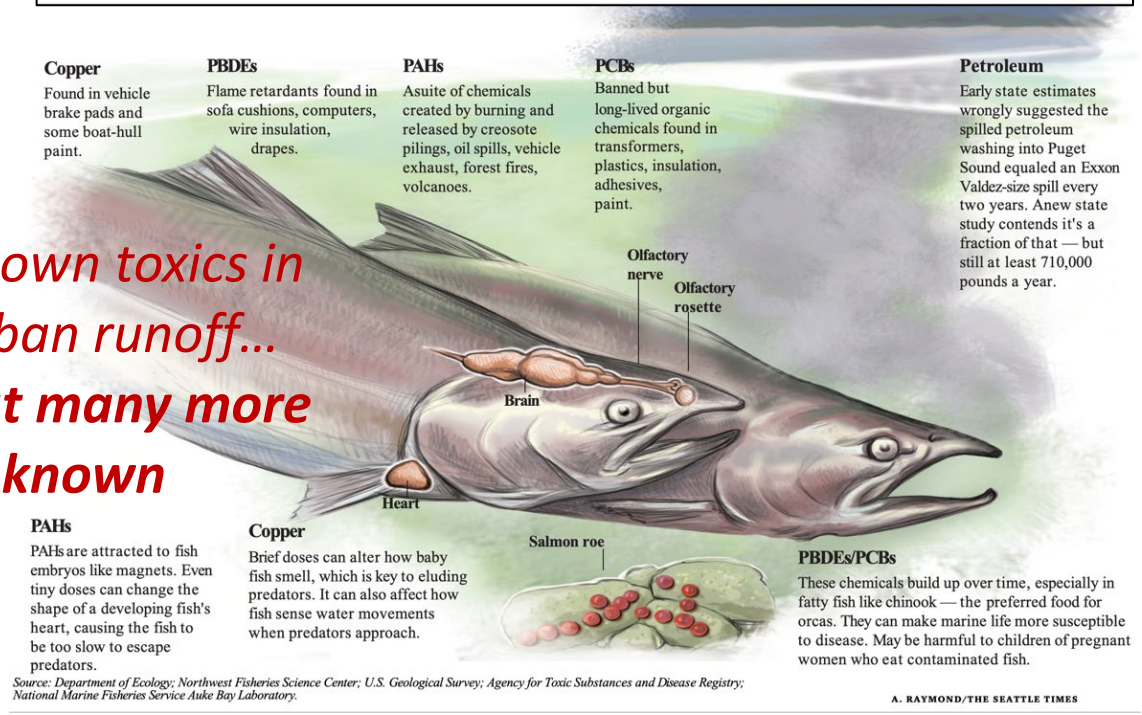
[1]Ocean Associates, Under Contract to Northwest Fisheries Science Center, National Marine Fisheries Service, NOAA, 2725 Montlake Blvd. E., Seattle, WA 98112, USA; [2]Environmental and Fisheries Science Division, Northwest Fisheries Science Center, National Marine Fisheries Service, NOAA, 2725 Montlake Blvd. E., Seattle, WA 98112, USA; [3]U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, 510 Desmond Dr. S.E., Lacey, WA 98503, USA; [4]Puyallup Research and Extension Center, Washington State University, 2606 W. Pioneer Ave., Puyallup, WA 98371, USA; and [5]Suquamish Tribe, PO Box 498, 18490, Suquamish Way, Suquamish, WA 98392, USA

3

Promote the building of green cities and communities

2022-2025 Federal Action Plan – Stormwater Goals





Known toxics in urban runoff… ***but many more unknown***

- Continue research on the large list of unidentified chemicals in urban runoff
- Develop consistent monitoring methods for priority emerging threats (e.g., 6PPD-q)
- Incorporate other major habitat co-stressors (e.g., climate) into salmon vulnerability forecasts

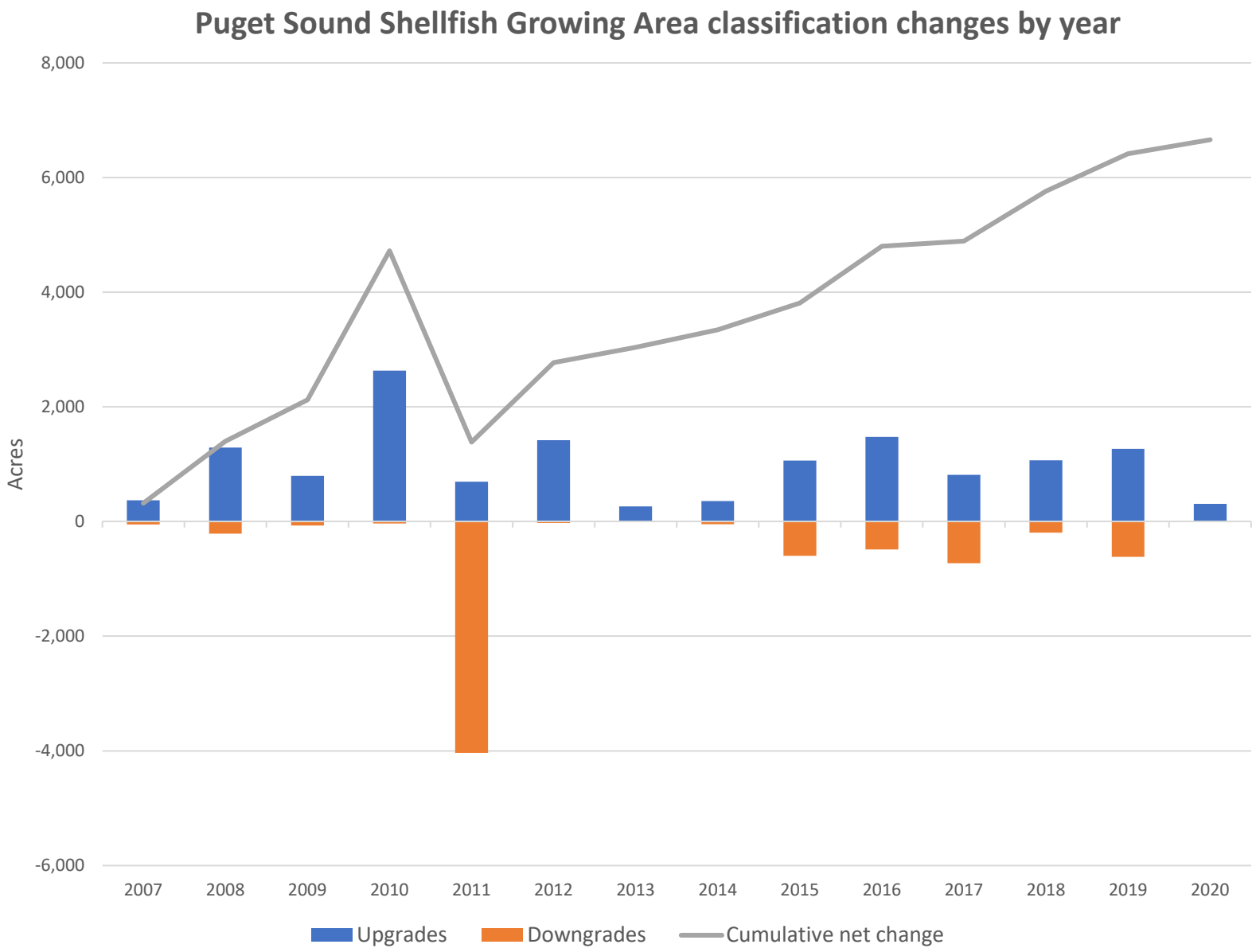
RESEARCH

MANAGEMENT

- Develop and implement effective clean water strategies (watershed and decadal scales)
- Streamline federal interagency consultations under the ESA (e.g., transportation sector)
- Continue close coordination with Tribal comanagers and non-federal stakeholders

Shellfish

Two cameras stand above a section of an oyster farm in Samish Bay, Washington, at low tide. They become submerged at high tide and collect underwater video of marine life inhabiting the area. Photo by Northwest Fisheries Science Center.



Shellfish

EPA Laboratory Support for Microbial Source Tracking

Water quality teams sample streams and ditches and use DNA analysis methods to help evaluate whether the fecal bacteria are more likely from dogs, humans, cattle, or other animals.

This information sheds light on trouble spots, and helps the counties hone their management actions (e.g., whether to focus on onsite sewage systems or pet waste).

Microcentrifuge tubes at the EPA lab containing the extracted, purified DNA from MST samples (Stephanie Bailey)

Shellfish

Advancing Research and Restoration for Olympia oysters, pinto abalone, basket cockles, sea cucumbers and native kelp species throughout Puget Sound

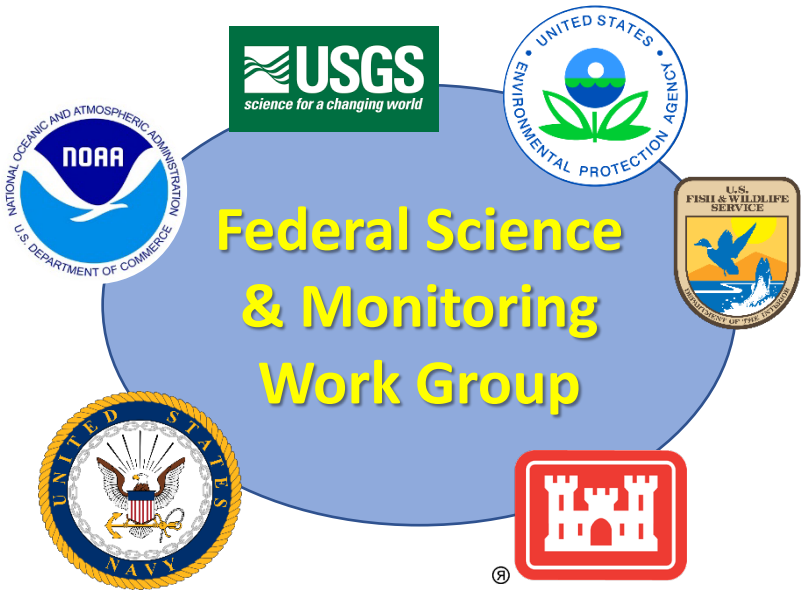
Since 2017, NOAA has provided nearly $450,000 to support a variety of research, restoration and operations associated with kelp, including activities at the hatchery.

EPA's Puget Sound Shellfish Strategic Initiative is providing $100,000 to support climate change research related to cockles and Olympia oysters.

Puget Sound Restoration Fund Washington Conservation Corps team member, Jackelyn Garcia, tending to the Olympia oyster spat on bags of Pacific oyster shell at the Chew Center.

Agency	Proposed Shellfish Action - 2022-2026 Federal Task Force Action Plan
EPA	Shellfish Strategic Initiative funding to reduce fecal pathogens and upgrade shellfish beds
NOAA	Implement ESA and EFH aquaculture regulatory framework
NOAA	Ocean Acidification Monitoring
NOAA	Harmful Algal Bloom Detection and Prediction
EPA	Harmful Algal Bloom Response
NOAA	Pathogenic Vibrio Detection and Prediction
NOAA	Conservation Genetic Risk Assessment
NOAA	Habitat Value of Shellfish
NOAA	Native Shellfish Hatchery
NRCS	Native Oyster Restoration Projects
NOAA	Support Shellfish Aquaculture Readiness
EPA	Microbial Source Tracking of Fecal Pathogen Pollutions
EPA, NOAA, USFWS	Washington Sea Grant European Green Crab Monitoring & Control

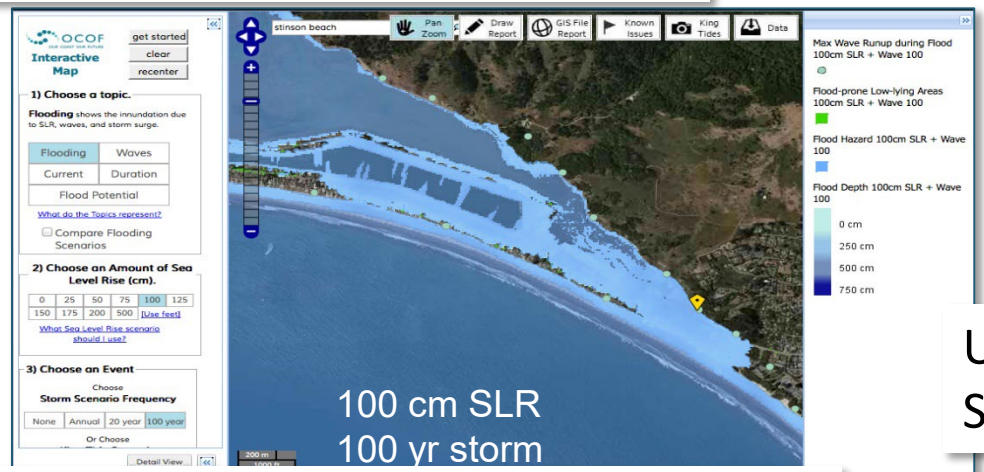
Science and Monitoring - Progress



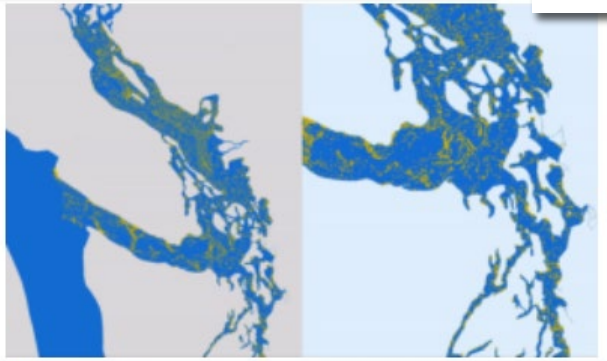
- Improved interagency coordination, information sharing
- Interagency Agreements to support unfunded priority science
- Improved alignment of Agency science programs
- Inventory of Federal science actions supporting Puget Sound recovery

Science and Monitoring – EPA Funded Interagency Agreements, FY17 – FY21

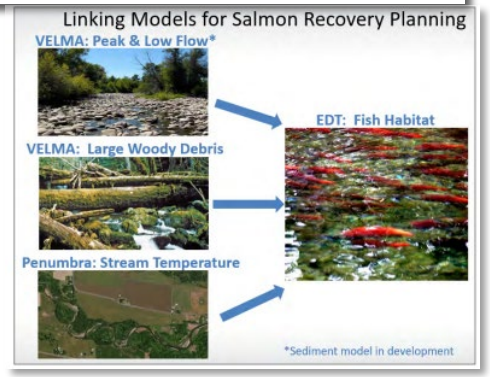
USGS Puget Sound Coastal Storm Modeling System, PS-CoSMoS



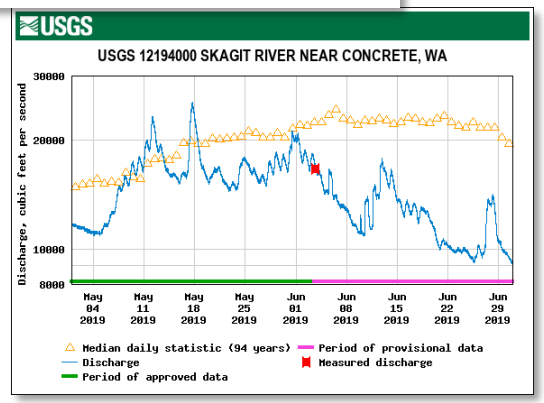
PNNL Salish Sea Model



EPA ORD VELMA Model



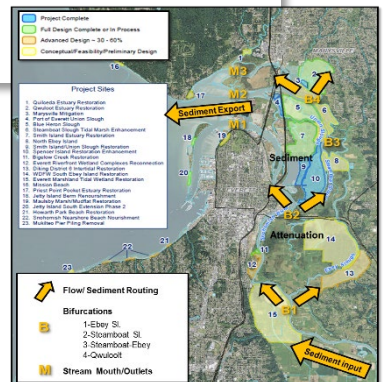
USGS Water Availability for Summer Low Flows



USFWS Stormwater Center

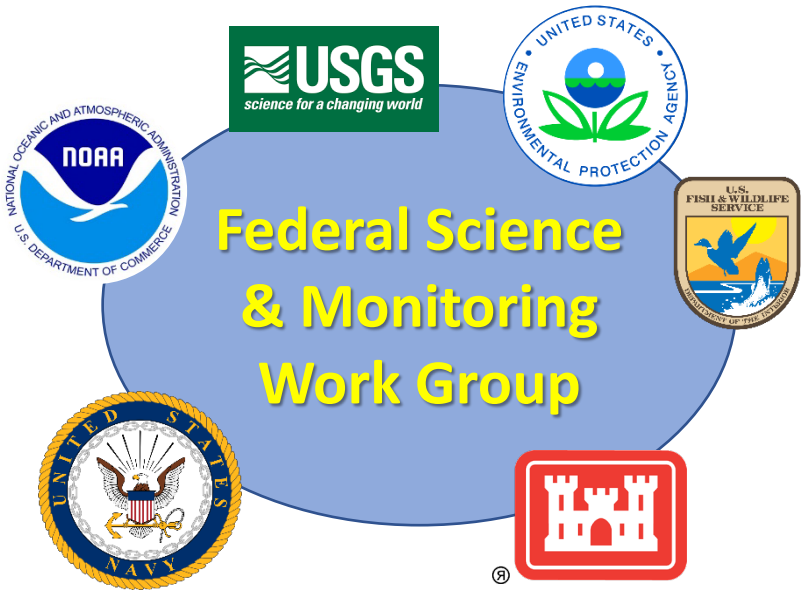
Photo: A returning Coho Salmon at the Suquamish Tribe's Grovers Creek Hatchery. Credit: K. King/USFWS

USGS Snohomish Estuary Sediment Dynamics with SLR/Flooding



Agency	Proposed Science Actions, ex. - 2022-2026 Federal Task Force Action Plan
EPA, NOAA, USGS	Inter-Agency Science Coordination across Agencies, Missions, and National Programs; Coordinated Federal Science Planning across All Recovery Partners
FWS, NOAA, EPA	Stormwater Toxics Studies
EPA	6PPD-quinone and 6PPD Toxicology Research
USGS, EPA	Coupled Monitoring and Modeling of Sediment Fluxes in Puget Sound Estuaries
EPA, PNNL	Estuarine Pathogens Modelling, Salish Sea Model
USGS, EPA	Puget Sound Coastal Storm Modeling System (PS-CoSMoS): Coastal flooding under sea-level rise and climate change
USGS, EPA, PNNL	Updating and improving nutrient loading and source predictions of Puget Sound Rivers; VELMA, SPARROW, Salish Sea Model
EPA, NOAA, and USGS	Development of toxicity benchmarks to support protection and recovery of endangered Puget Sound species
USGS, USFWS	Adapting to Climate Change with an Aquatic Disease Rapid Response Program
NOAA	Salmon Life Cycle Models to Identify Priority Habitat Restoration Actions and Climate Resilience Strategies
NOAA	Puget Sound Habitat Status and Trends Monitoring
USGS	Improved Framework to Determine how ESA-Listed Species are Responding to Climate Change and other Stressors
EPA, USFWS, BIA, NOAA, USGS, PNNL	Improved Early Detection and Monitoring of European Green Crab in Puget Sound

Science and Monitoring - Future



- Addressing Federal Agency and National Program silos through coordination and alignment
- Leveraging infrastructure funding with Puget Sound recovery science
- Coordination with State, Tribal, academic, and NGO science community
- Prioritizing Federal science activities, aligning resources and priorities
- Outreach, engagement, training, and tech transfer

Coordination

- Coordination with tribes to improve consistency between federal actions and honoring reserved treaty rights
- Engagement with the Puget Sound Partnership and other state entities to align federal actions with the Action Agenda
- Coordination and elevation of issues with federal headquarters counterparts in Washington D.C.
- Identification of key perspectives and contributors among tribal and federal partners in the coalition of working groups
- Alignment of Action Plan with tribal requests around Riparian Habitat

Federal and Tribal leaders Meeting: November 4th, 2021

Questions and Input