

Welcome

Please connect your audio using steps 1, 2, and 3

We will do a sound check shortly

1 Move cursor to bottom of your screen to show Webex controls.

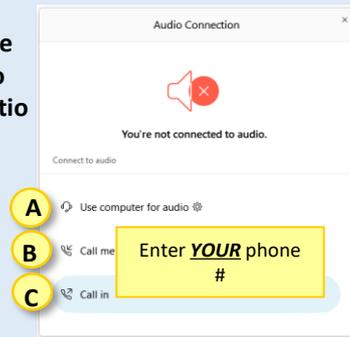


2 Select "Connect to Audio" icon.



3 Choose Audio Connection

3 Options



A. Use computer for audio

B. Call me at (enter your phone number)

- WebEx calls you.
- You listen through your phone

C. Call in (using your phone)

- Call toll free: 855-929-3239
- Enter meeting code

NOTHING WORKING? Use the chat box to send us a message.



Puget Sound Nutrient Source Reduction Project Update

Puget Sound Nutrient Forum Meeting
August 11, 2020



DEPARTMENT OF
ECOLOGY
State of Washington

Contact:

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Webinar feature: Chat box

The screenshot displays the Cisco Webex Events interface. At the top, the title bar reads "Cisco Webex Events" and "Connected". Below the title bar is a menu with "File", "Edit", "View", "Communicate", "Participant", "Event", and "Help". The main area shows a large circular logo with the letters "WH" and the text "Water Quality HQ (Host)". A bottom toolbar contains icons for mute, video, chat, and other controls. On the right side, there is a "Participants" panel showing "Panelist: 1" (Water Q... (Host)) and "Attendee: YN Your Name (me)". Below this is a "Chat" panel with a "To: Host" dropdown and a text input field labeled "Enter chat message here".

Click on this symbol to open the chat box

Type here to chat with host



Today's Agenda

Nutrient Management Plan
outline feedback

Salish Sea Modeling

SSM Center

Nutrient Science Workshop

General permit

Q&A



Current Timeline

2006-2017

- South Sound DO Model Development
- Salish Sea Model Development

2018

- Initiation of PSNSRP and Nutrient Forum

2019

- SSM Report Vol I: Existing Conditions & Bounding Scenarios

2020-2021

- Optimization Scenarios Modeling
- Year 1 results technical memo
- **Nutrient General Permit first issuance**

2022

- SSM Report Vol II
- Draft Nutrient Reduction Plan

2023

- **Final Nutrient Reduction Plan**

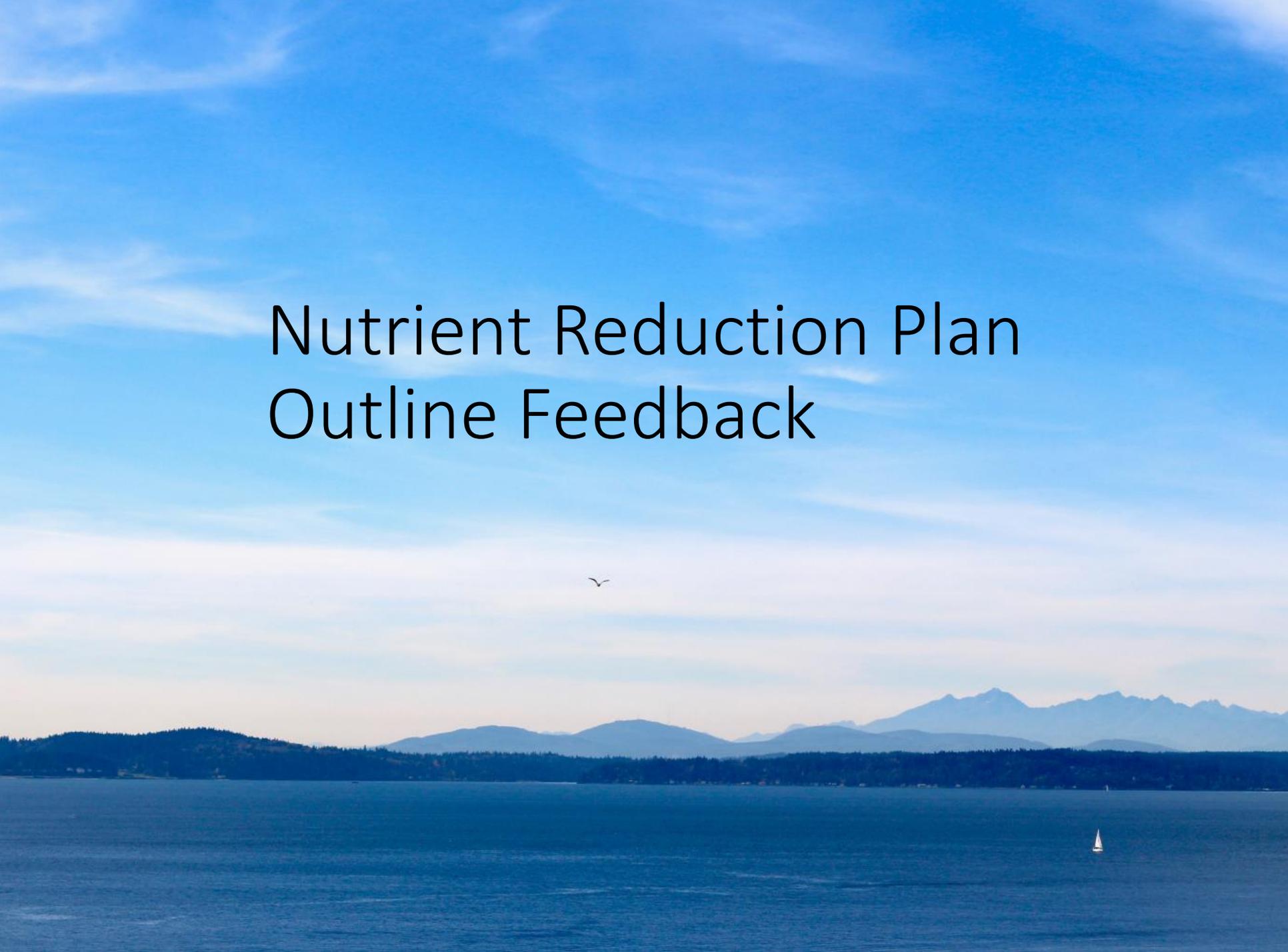
2023-2025

- Further modeling to support permit development

2026

- **Nutrient General Permit second issuance**

Nutrient Reduction Plan Outline Feedback



What is the Puget Sound Nutrient Reduction Plan?

Establish nutrient load
allocations for both marine
point sources and
watershed inflows

Strategy to implement
actions necessary to achieve
dissolved oxygen criteria

Monitor for effectiveness and
adaptively manage the plan



Thank you for your feedback

- King County
- Northwest Indian Fisheries Commission
- WA Association of Water and Sewer Districts
- Puget Soundkeeper
- Capitol Lake Improvement and Protection Association (CLIPA)
- Gary Lindsay
- Caitlin Dwyer



We heard your feedback

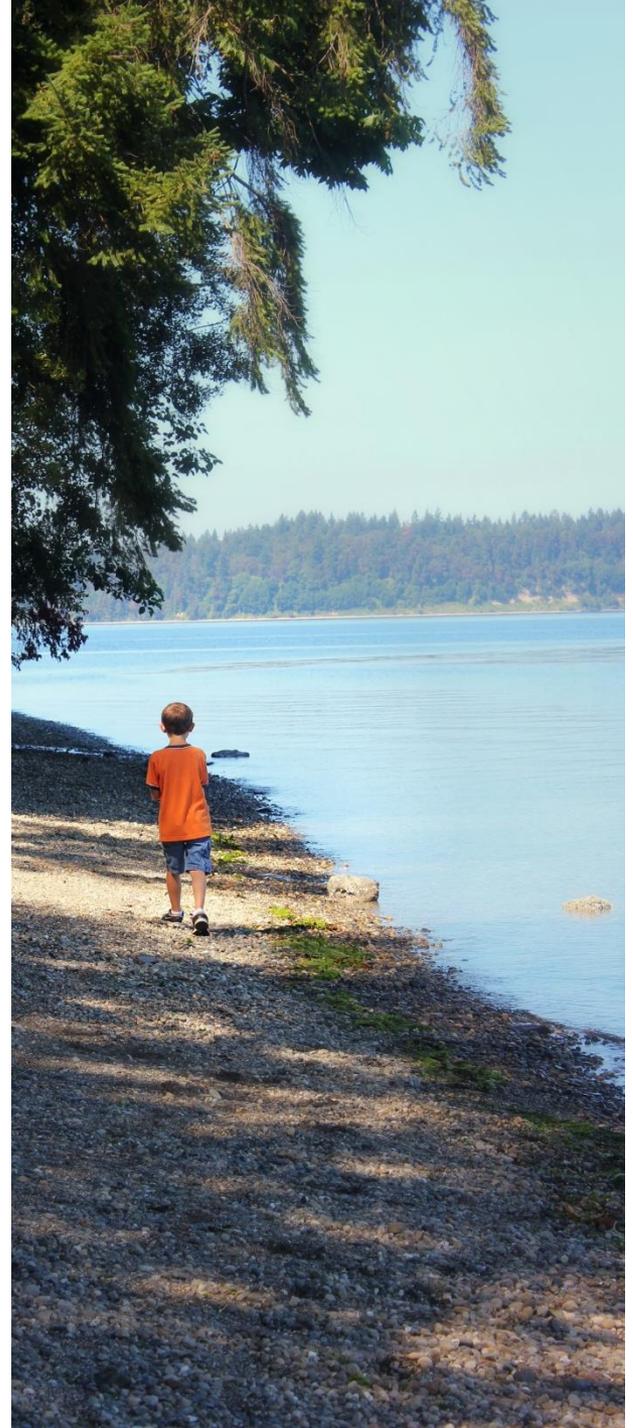
Major themes:

- 1) More discussion of how SSM will be used as tool for developing nutrient reduction strategies
- 2) Concerns about regulation and strategy for point and nonpoint sources
- 3) Want more information on adaptive management and evaluation progress
- 4) Environmental Justice and Tribal Treaty Rights



Nutrient Reduction Plan Outline

- Comments and updated outline on Nutrient Forum webpage
- Transparency about what we are producing
- Future Forums used to get input on major sections
- Continuing to evolve



Salish Sea Modeling Update



Salish Sea Modeling Update

Year 1 Optimization Scenarios:

- Improve our understanding of near-field impacts of watershed and marine WWTP loads
- Evaluate annual wastewater treatment effectiveness
- Define a range of impacts from regional population growth
- Begin to explore combination of reductions that will meet DO standards

Revised Salish Sea Modeling Schedule

Fall
2020

● Finish Year 1 Optimization scenario runs

Early
2021

● Technical Memo: Year 1 Optimization Scenarios Results
Share Year 1 Results with Forum
Design Year 2 Optimization Scenarios

Mid
2022

● Volume 2: Optimization Scenarios Results

Questions?

Please type your questions
into the chat box.

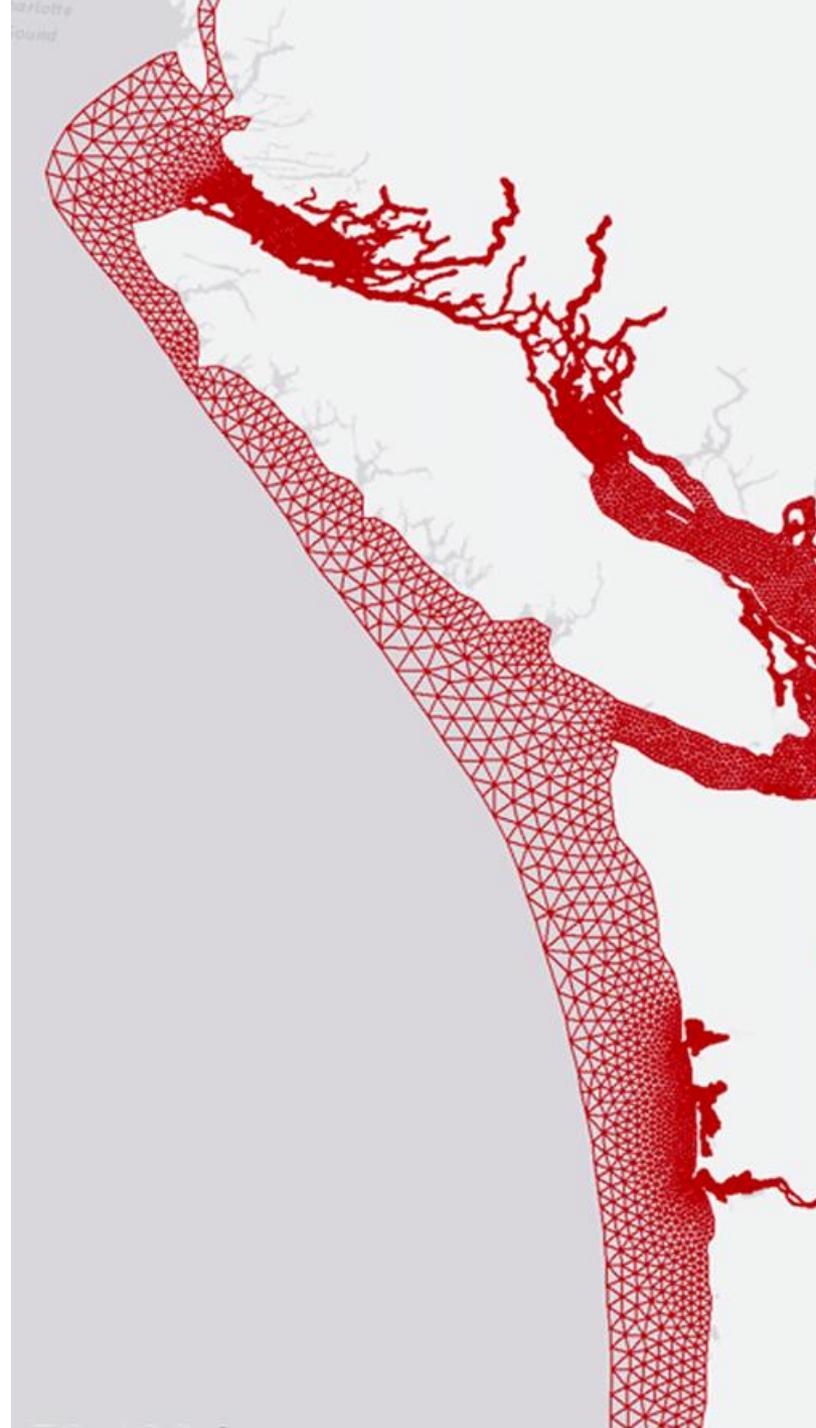


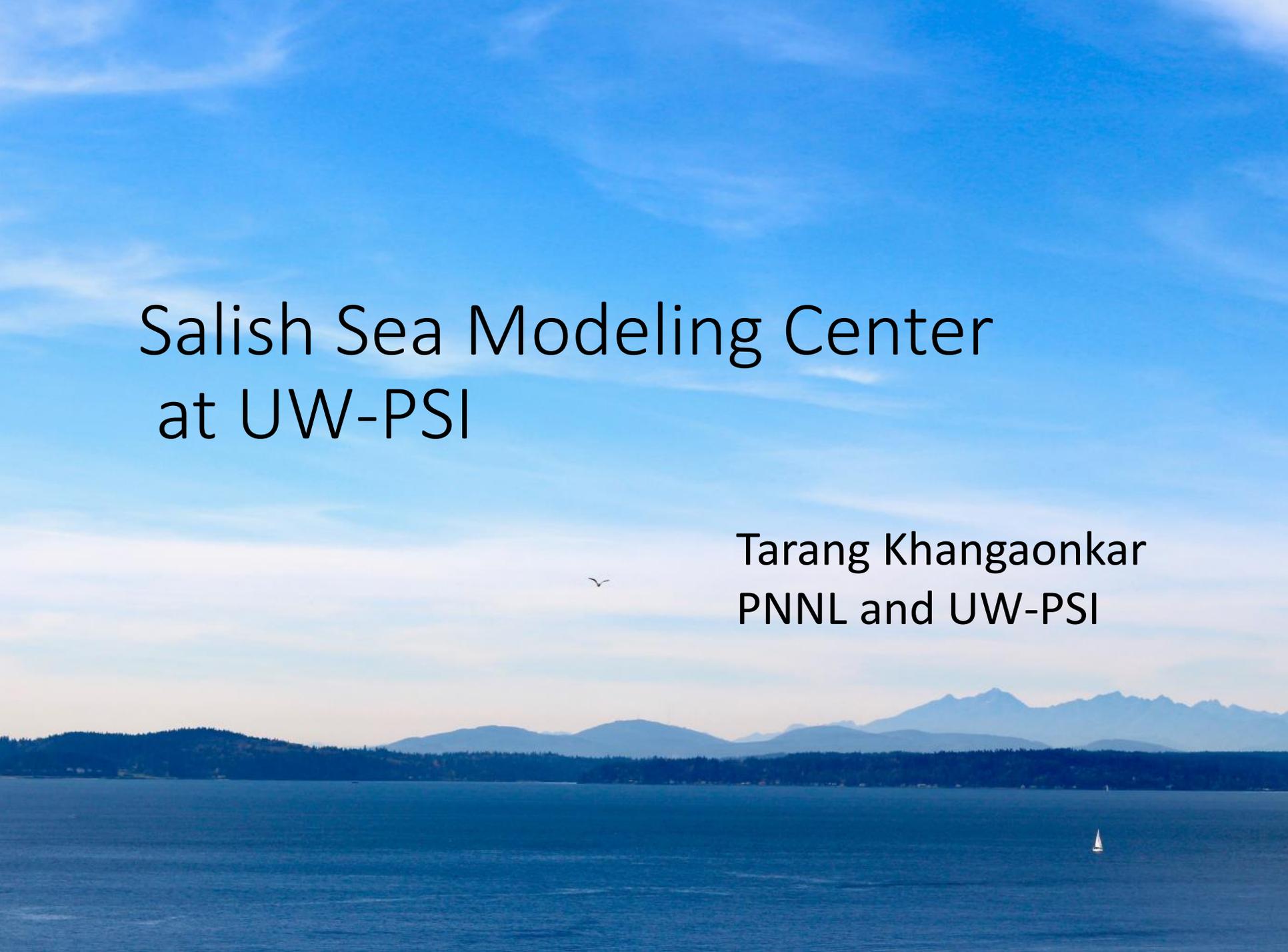
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Salish Sea Model move to SSM Center

What does that mean for Ecology's work and the SSM?

- Continue relationship with Salish Sea Modeling Center as we have with PNNL
- Ecology will lead operational use of SSM for regulatory purposes
- We continue using the model in an open source manner





Salish Sea Modeling Center at UW-PSI

Tarang Khangaonkar
PNNL and UW-PSI



**Pacific
Northwest**
NATIONAL LABORATORY

SALISH SEA MODELING CENTER

UW Puget Sound Institute

Overview

August 11, 2020

TARANG KHANGAONKAR

Director - Salish Sea Modeling Center

*Affiliate Professor, School of Interdisciplinary Arts & Sciences
University of Washington, Puget Sound Institute*

&

*Principal Program Manager – Coastal Ocean Modeling
Pacific Northwest National Laboratory*

Puget Sound Nutrients Forum Meeting

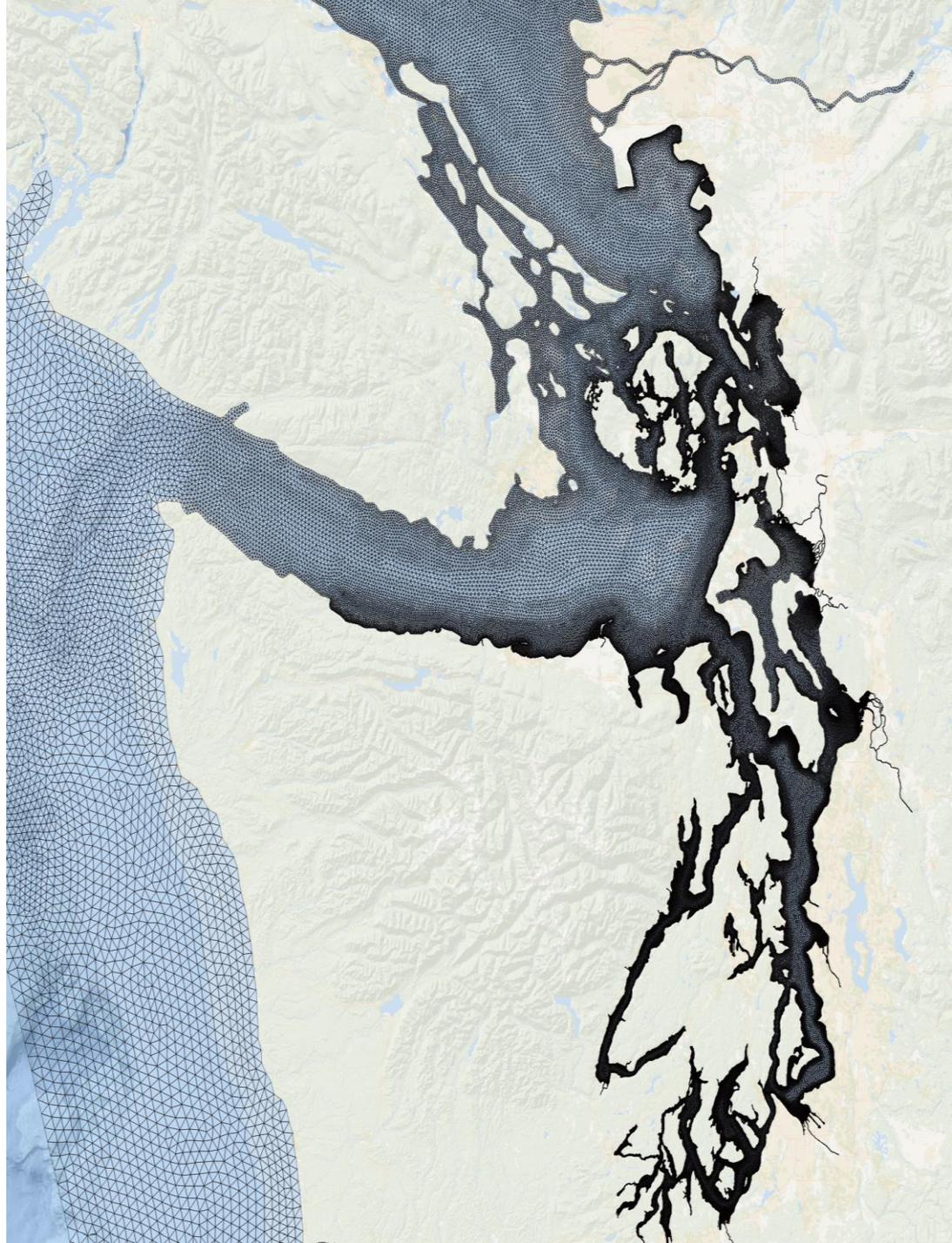
Washington State Department of Ecology

PUGET SOUND INSTITUTE

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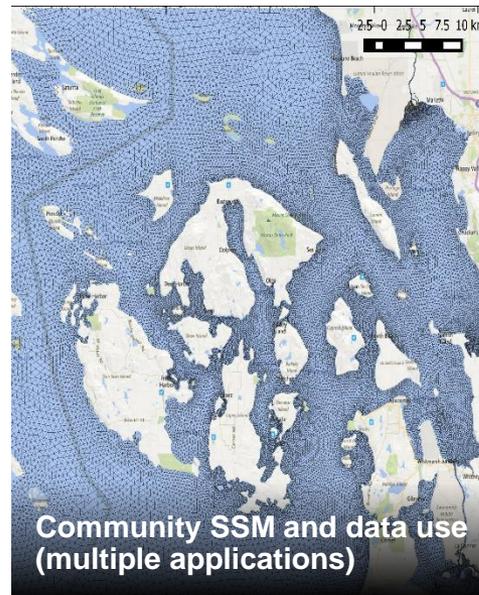
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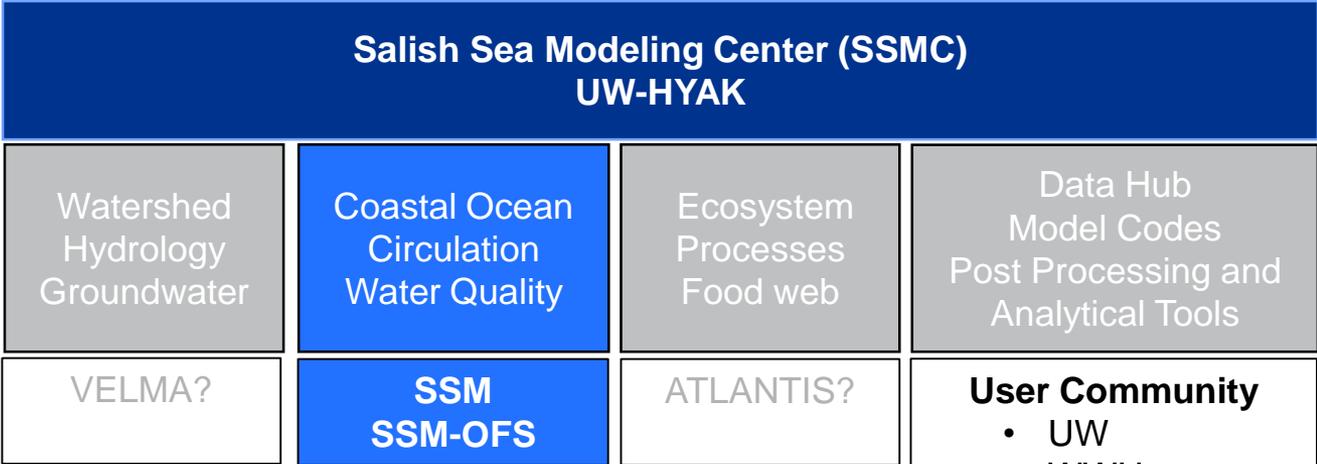
PNNL is operated by Battelle for the U.S. Department of Energy



SSMC Vision

- A powerful computational platform for Salish Sea community of scientists and researchers
 - Collaboration space for modeling and data analysis supporting basin-wide water quality protection and ecosystem restoration efforts

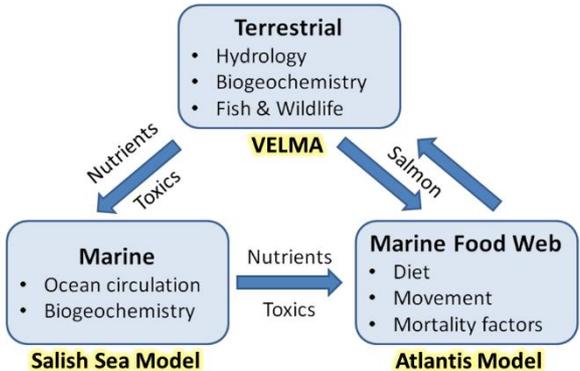




SSMC - Mission

- Foster R&D using Salish Sea basin-wide state-of-the-art comprehensive aquatic fate and transport models
 - Provide computing resources, access, and support to the user community

Puget Sound Systems Modeling Framework



Source: McKane et al. 2018, U.S. EPA

Initial SSMC Setup – City of Tacoma Grant to UW PSI (*in progress*)

- Planned purchase of HYAK Compute Nodes
 - 13-40 core, 185 GB memory nodes (520 cores)
 - 50 TB storage
- Setup of SSMC space
- Full scale SSM compilation and scale-up tests completed (using 2 nodes)

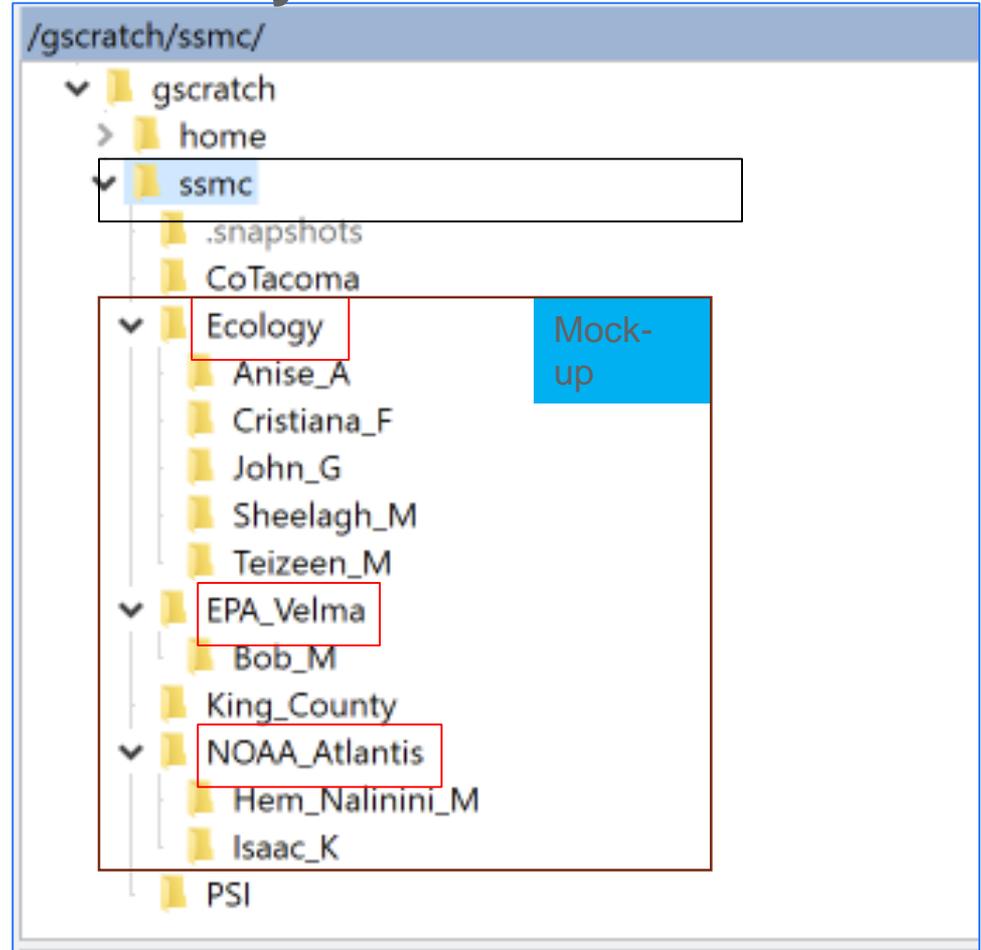
- Located at the Center for Urban Waters, Founded in 2010
- Funded by EPA National Estuary Program
 - science support for Implementation Strategies
 - ecosystem-wide science synthesis and integration for policy applications



SSMC – Access and Collaboration

- SSMC staff scientists: model developers and coastal ocean modeling experts
 - Proposals, grants, and projects through UW Tacoma, PSI contracts
- SSMC shared space – Hyak Unix Group access to Salish Sea Models, utilities, and solution data sets

@mox.hyak.uw.edu



Researchers

[Tarang Khangaonkar](#), Director, Salish Sea Modeling Center

[Stefano Mazzilli](#), Research Scientist, Puget Sound Institute

[Adi Nugraha](#), Research Scientist, Coastal Modeling

[Lakshitha Premathilake](#), Research Scientist, Coastal Modeling

[Sukyong Yun](#), Project Intern

Sponsors



City of Tacoma
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Thank you

<https://www.pugetsoundinstitute.org/salish-sea-modeling-center/>

Tarang Khangaonkar / UW PSI

<https://salish-sea.pnnl.gov>

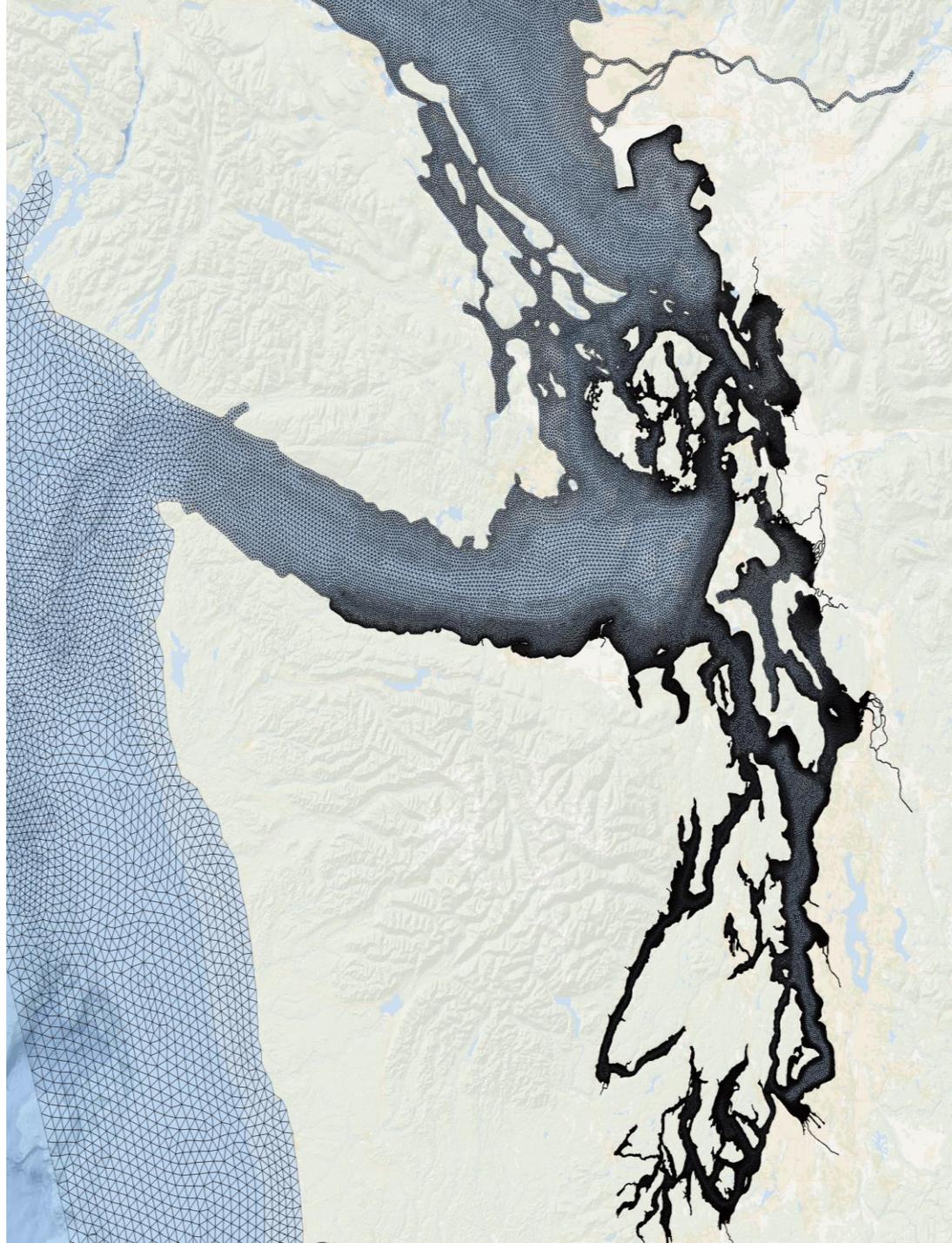
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Nutrient Science Workshop

Scott Redman

Puget Sound Partnership

Scott.redman@psp.wa.gov

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into the chat box.



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Nutrients General Permit

Eleanor Ott

General Permit Writer

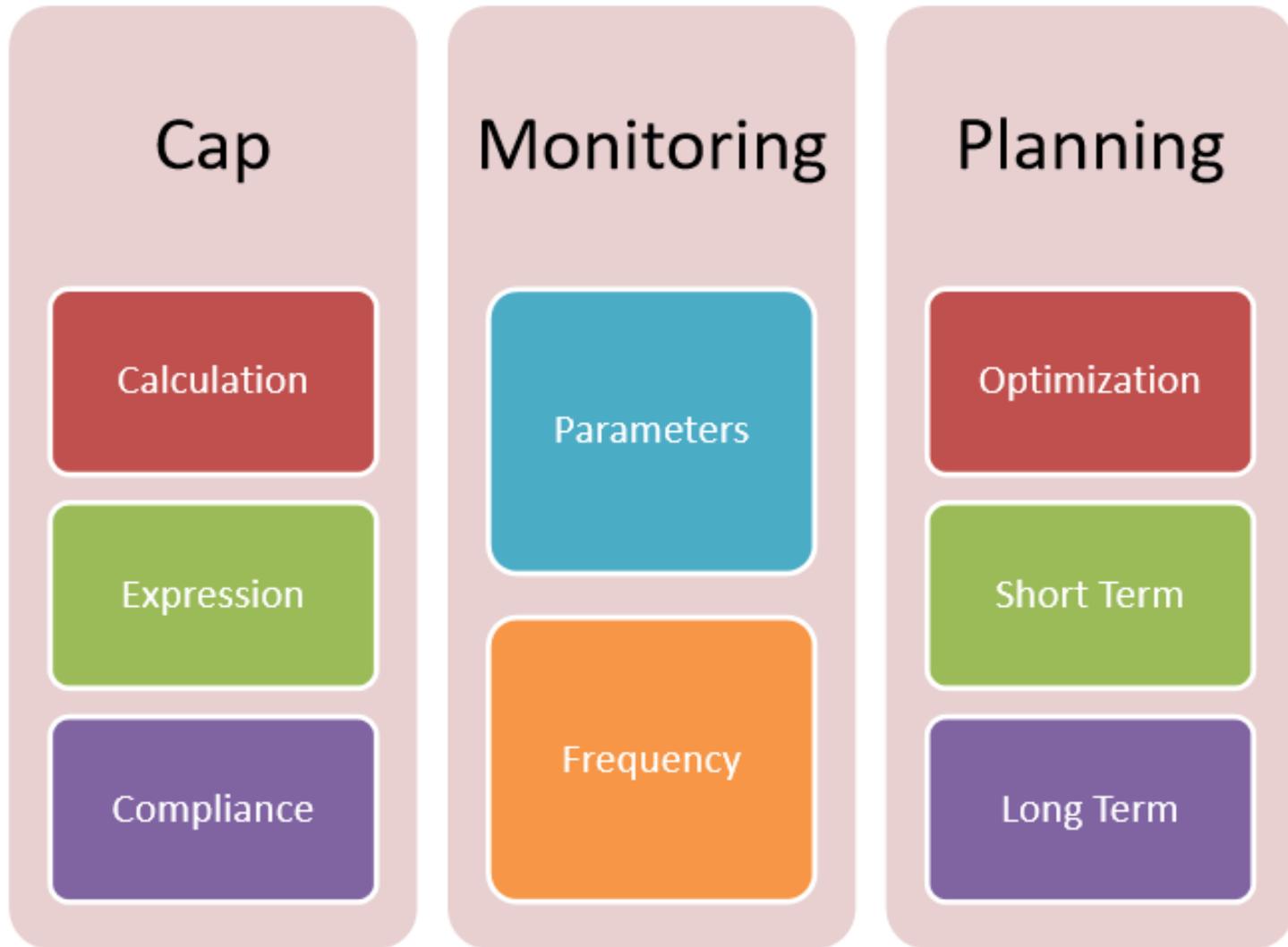
Department of Ecology



General Permit Process

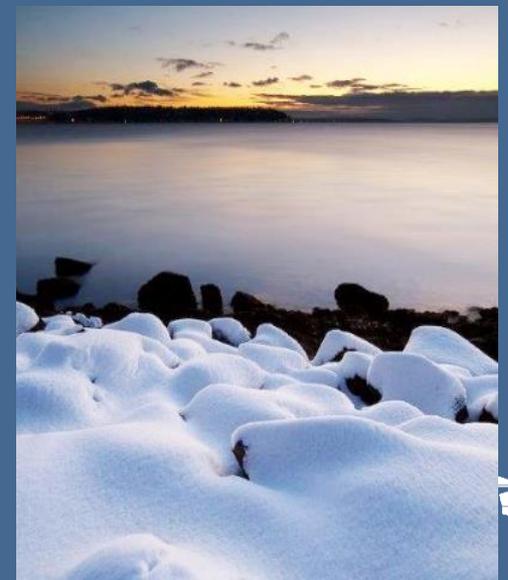
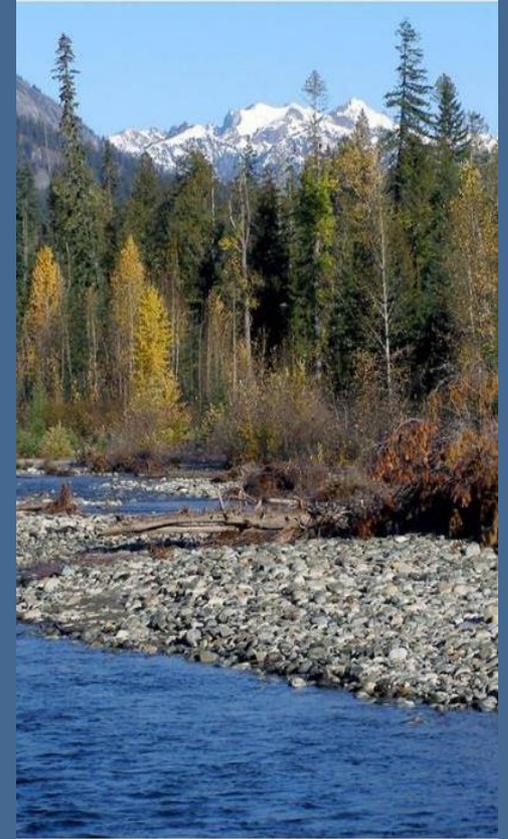


AC Discussion Topics

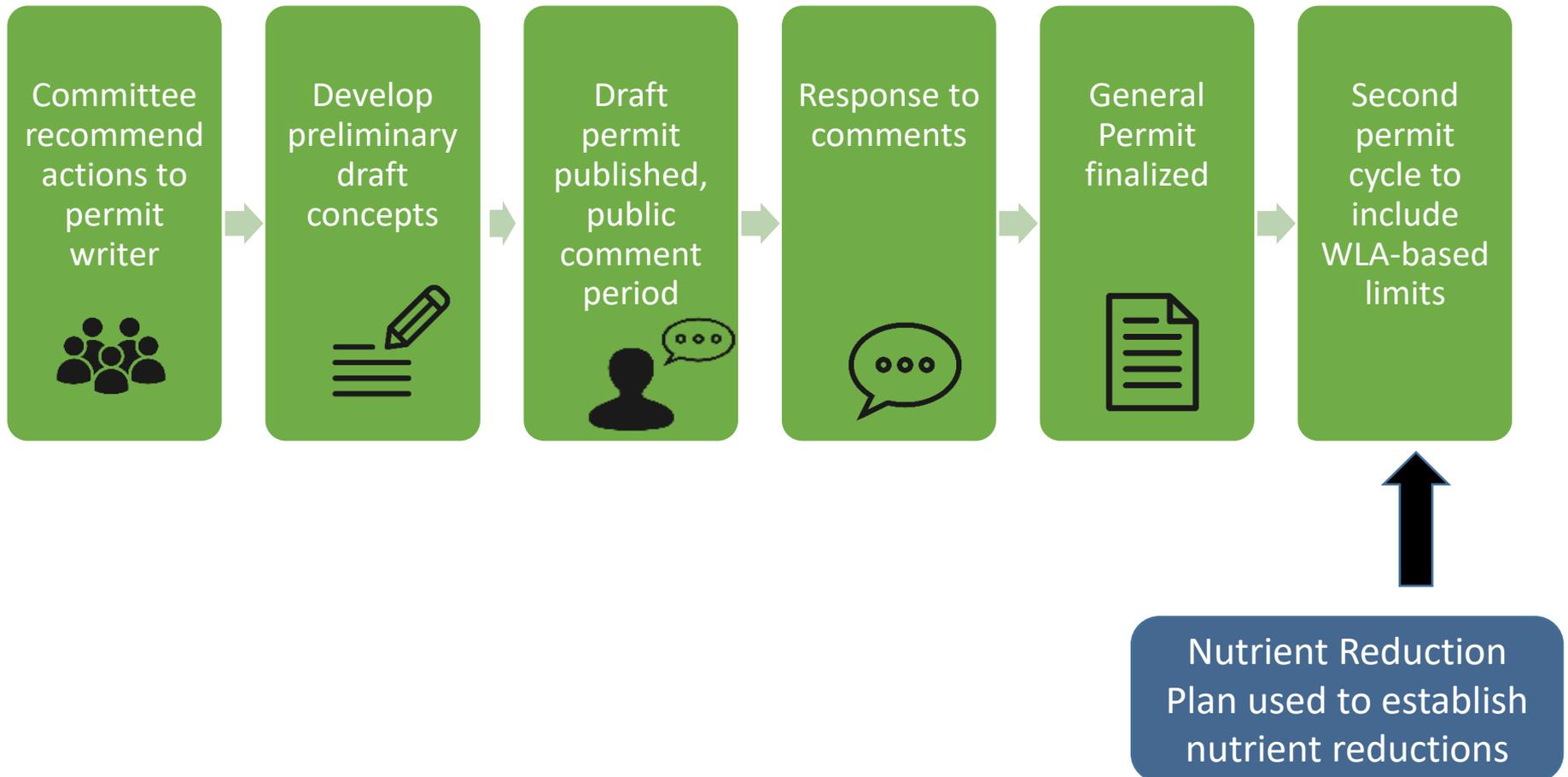


How to stay involved with Advisory Committee

- All meetings are virtual and open to the public:
 - August 20
 - Sept 30
 - Oct 21
- All meeting materials are online
- Final deliverable: recommendations
- Committee will present recommendations to Forum



Moving towards first Nutrients General Permit



Upcoming Forum Meetings

Fall 2020:

- Emerging Technology Workshop & Advisory Committee Update
- SSM application for regulatory purposes

2021:

- Year 1 Modeling Results
- Salish Sea Modeling Year 2
- Watershed sources



Questions?

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Thank you!



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