



Puget Sound Nutrient Forum

January 30, 2020

We will start the meeting at 10am.

Today's Agenda

- Puget Sound Nutrient Reduction Project
- Ecology's decision on Nutrient Controls
- Stakeholder Engagement Process
- Breakout group discussion
- Permitting process moving forward
- Watershed sources of nutrients

Puget Sound Nutrient Source Reduction Project

*Develop and implement a Puget Sound **nutrient source reduction plan** to **guide regional investments** in **point** and **nonpoint** source **nutrient controls** so that Puget Sound will **meet DO water quality criteria** and **protect aquatic life** designated uses by 2040*

- 1) Communicate and share science
- 2) Collaboratively develop a Puget Sound Nutrient Management Plan
- 3) Implement the Nutrient Management Plan

Nutrient Forum Materials

 Department of Ecology
Committees, Boards, and Workgroups Sign In

Overview [View our committees](#) [Portal ID #1962]

Puget Sound Nutrient Source Reduction Project



[Salish Sea Model & Reports](#) | [Dissolved oxygen water quality standards](#) | [Puget Sound Water Quality Focus Sheet](#)
[Nutrient Watch Blog](#) | [Nitrogen in Puget Sound Story Map](#) | [Learn more about nutrients in Puget Sound](#)

The Puget Sound Nutrient Source Reduction Project is a collaborative effort with Puget Sound communities and stakeholders to address human sources of nutrients. This work focuses on using the latest science to find the right solutions for regional investments to control nutrients from point and non-point sources. The project objective is to improve Puget Sound water quality to support salmon and orca recovery and increase resiliency to climate impacts.

El proyecto para la reducción de fuentes de nutrientes al Puget Sound es un esfuerzo colaborativo con personas interesadas y comunidades del Puget Sound para abordar las fuentes humanas de nutrientes. Este trabajo se concentra en usar la ciencia más avanzada para que las inversiones regionales puedan encontrar soluciones adecuadas para controlar los nutrientes provenientes de fuentes fijas y no-fijas. El objetivo del proyecto es mejorar la calidad del agua del Puget Sound para sostener la recuperación del salmón y las orcas e incrementar su capacidad de recuperación a los impactos climatológicos.

Si desea obtener más servicios de traducción o interpretación en español, por favor comuníquese con Sonia Fernández al (425) 649-7233 o envíenos un correo electrónico a preguntas@ecy.wa.gov

Puget Sound Nutrient Forum

The Puget Sound Nutrient Forum was formed in 2017 as a large public advisory group for the project to discuss, learn, and provide input on how to reduce human sources of nutrients entering Puget Sound. The Forum meets regularly.

2020 Forum Meeting Schedule

Register on our email [listserv](#) for details on upcoming meetings.

January 30, 2020
10am-3pm
Green River College
Please [RSVP for the meeting](#)

Previous Forum Meeting Materials

December 19, 2019

- [Agenda](#)
- Presentation
 - [Science behind nutrients, what we heard in nutrient permit public comments, looking forward to 2020](#)

August 7, 2019

- [Agenda](#)
- Presentations
 - [Opening remarks from Heather Bartlett](#)
 - [Understanding the Value of Marine Water Quality](#)
 - [Nonpoint Source Pollution](#)
 - [Promoting RNG and Nutrient Recovery in Washington State](#)
 - [Dairy-based Anaerobic Digesters and Nutrient Recovery](#)
 - [Qualco Energy BioGas Project with Tulalip Tribes](#)
 - [Funding for Nutrient Reduction](#)
 - [OSS Funding Solutions in Puget Sound](#)
 - [Permitting Options for Controlling Nutrient into Puget Sound](#)

July 17, 2019

- [Agenda](#)
- [Meeting packet](#)
- Presentation
 - [Salish Sea Modeling Scenario 2019-2020](#)

June 4, 2019

- [Agenda](#)
- Presentations
 - [LOTT Clean Water Alliance](#)
 - [Pierce County Chambers Creek Treatment Plant](#)
 - [Snohomish Conservation District](#)
 - [Nooksack-Fraser Transboundary Nitrogen \(NFTN\) Project](#)
 - [Governor's Salmon Recovery Office](#)
 - [2018 Salmon Recovery Effectiveness Monitoring Program](#)

April 30, 2019

- [Agenda](#)
- Presentations and handouts
 - [Meeting packet](#)
 - [Salish Sea Modeling proposed draft scenarios](#)
 - [Summary of Forum feedback on modeling scenarios](#)

Sources of nutrients in Salish Sea Model

Atmospheric Deposition

Deposition of atmospheric nutrients (from natural sources plus emissions) onto watersheds and directly onto marine waters

Rivers

Includes all upstream sources that drain into rivers, and are transformed by stream dynamics, before entering Puget Sound at their mouths

Net Ocean Exchange

Nutrients from the Pacific Ocean and Puget Sound get exchanged at the Strait of Juan de Fuca and Admiralty Inlet

Sources included implicitly:

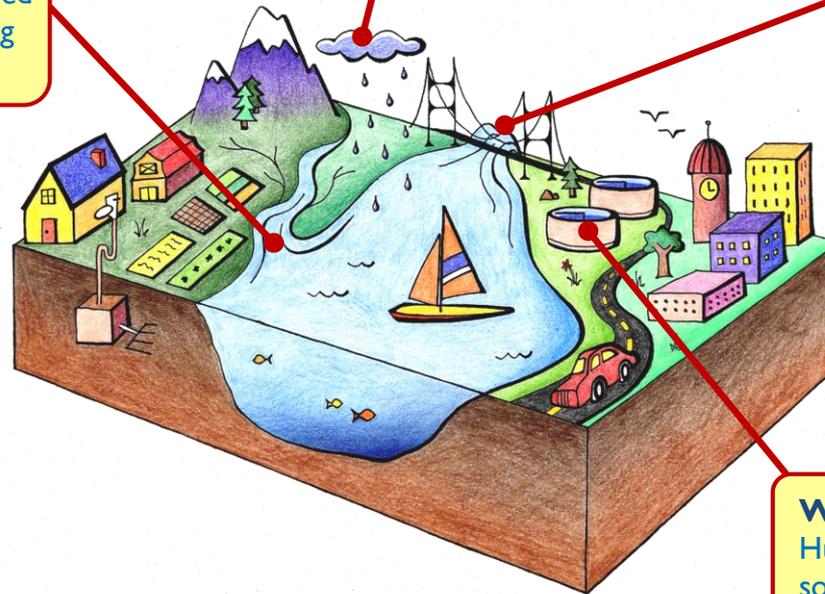
- near-shore septic systems
- direct marine discharge of groundwater

Sources not included:

- net pens
- vessel discharges
- combined sewer overflows

WWTPs + other point sources

Human wastewater and industrial point sources with outfalls in marine waters



2019 Bounding Scenarios report

- **2019 Bounding Scenarios and current conditions report**
 - *Reasonable Potential to Contribute to Pollution* for total anthropogenic nutrient loads during all 3 different annual hydrologic and climate conditions.

Anthropogenic sources in Puget Sound can affect water quality farther away than just their point of discharge.

Anthropogenic depletion is the effect of the additional burden of nutrients from human sources on top of the natural nutrient load.

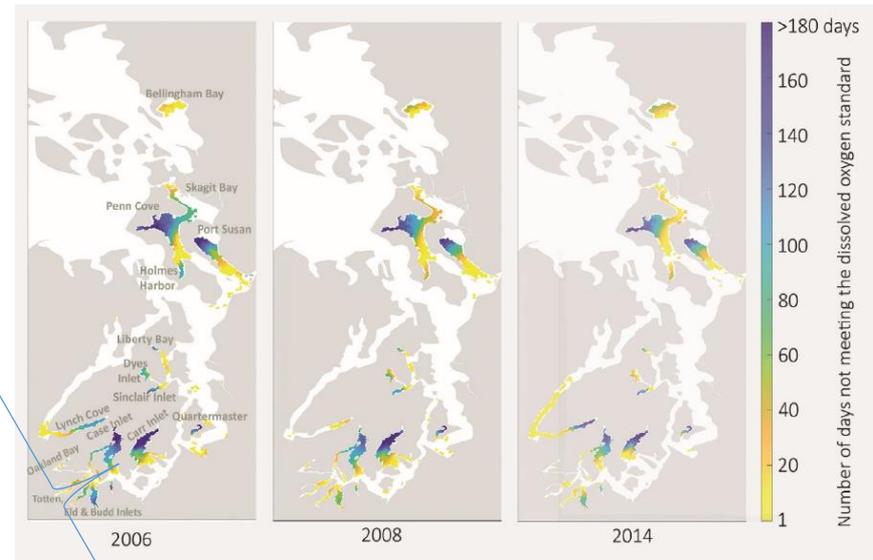


Figure ES2. Number of days not meeting the dissolved oxygen water quality standards for the years 2006, 2008, and 2014.

2019 Bounding Scenarios report

- **2019 Bounding Scenarios and current conditions report**
 - *Reasonable Potential to Contribute to Pollution* for total anthropogenic nutrient loads during all 3 different annual hydrologic and climate conditions.

Table ES1. Improvement in the number of noncompliant days due to nutrient reduction at wastewater treatment plants.

Year	Improvement in dissolved oxygen (% reduction in noncompliant days)		
	All plants	Mid & large plants	Large plants
2006	51%	43%	31%
2008	61%	49%	33%
2014	51%	42%	22%

Table ES2. Improvement in noncompliant area due to nutrient reduction at wastewater treatment plants.

Year	Improvement in dissolved oxygen (% reduction in noncompliant area)		
	All plants	Mid & large plants	Large plants
2006	47%	37%	23%
2008	51%	41%	24%
2014	42%	33%	13%

Year 1 Optimization Scenarios

- **2020 Salish Sea modeling results will help us understand**
 - Significance of watershed loads and marine WWTP loads by basin
 - Effect of increase the human source load burden from population growth

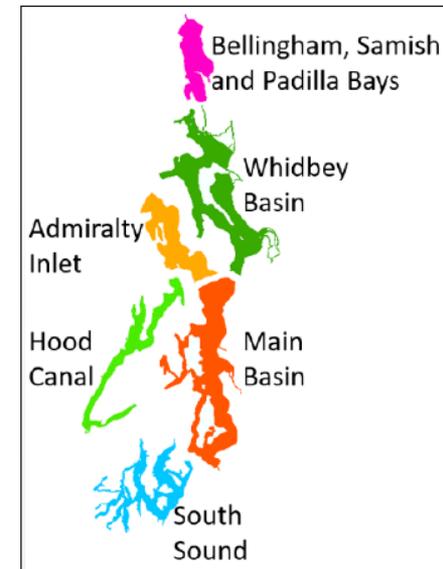
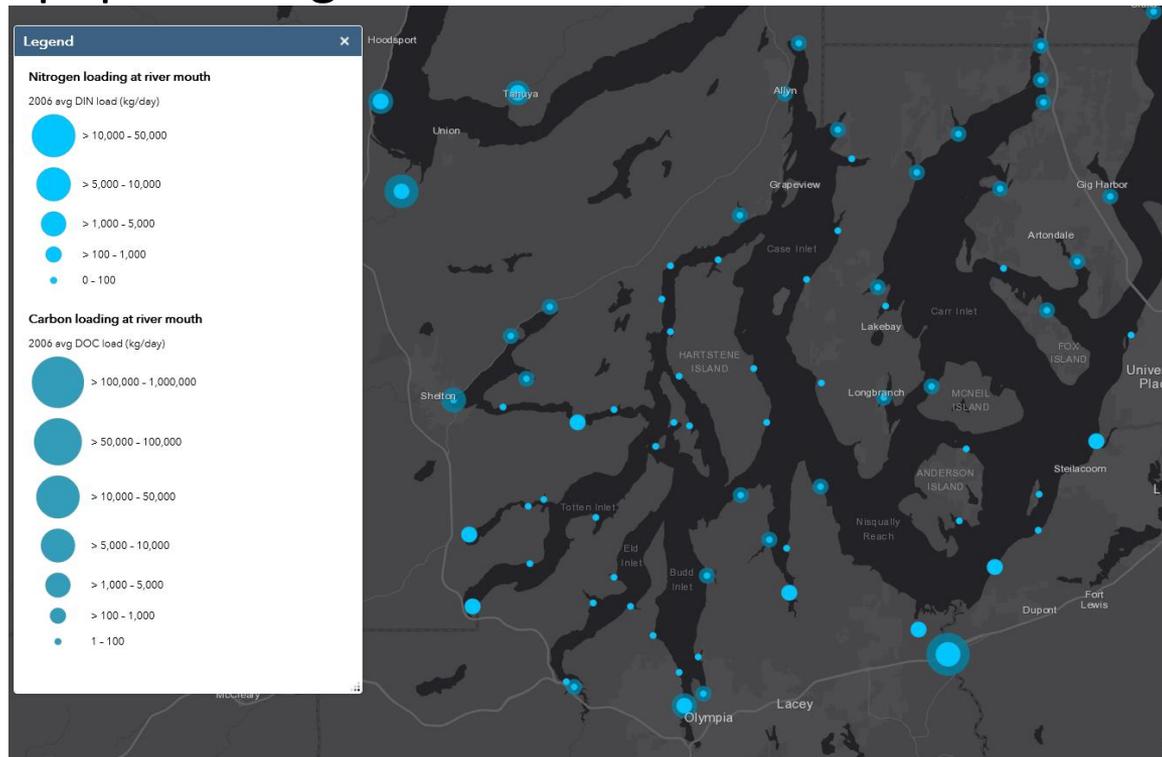


Figure 28. Basins in the greater Puget Sound.

Year 2 Optimization Scenarios

- **2021 Year 2 optimization scenarios will**
 - Test different combinations and ranges of marine and watershed reductions
 - Establish nutrient loading capacity for Puget Sound and potential load allocations

Potential Watershed and Marine Source Reduction Scenarios



Controlling Nutrients into Puget Sound From Domestic Wastewater Treatment Plants

Path Forward

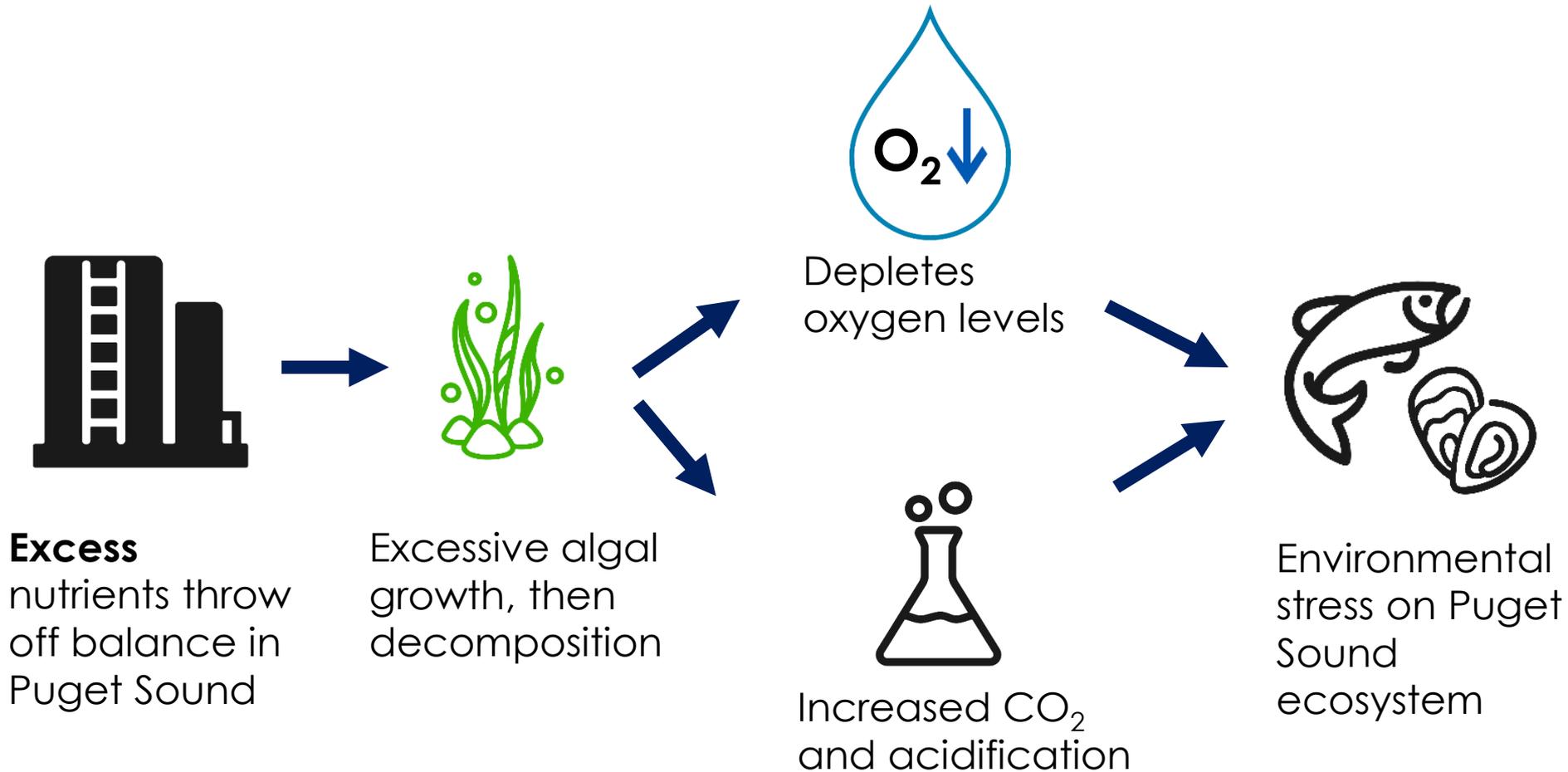
Rachel McCrea

Ecology Northwest Regional Office
Water Quality Section Manager

January 30, 2020



Nutrient imbalance impacts Puget Sound ecology

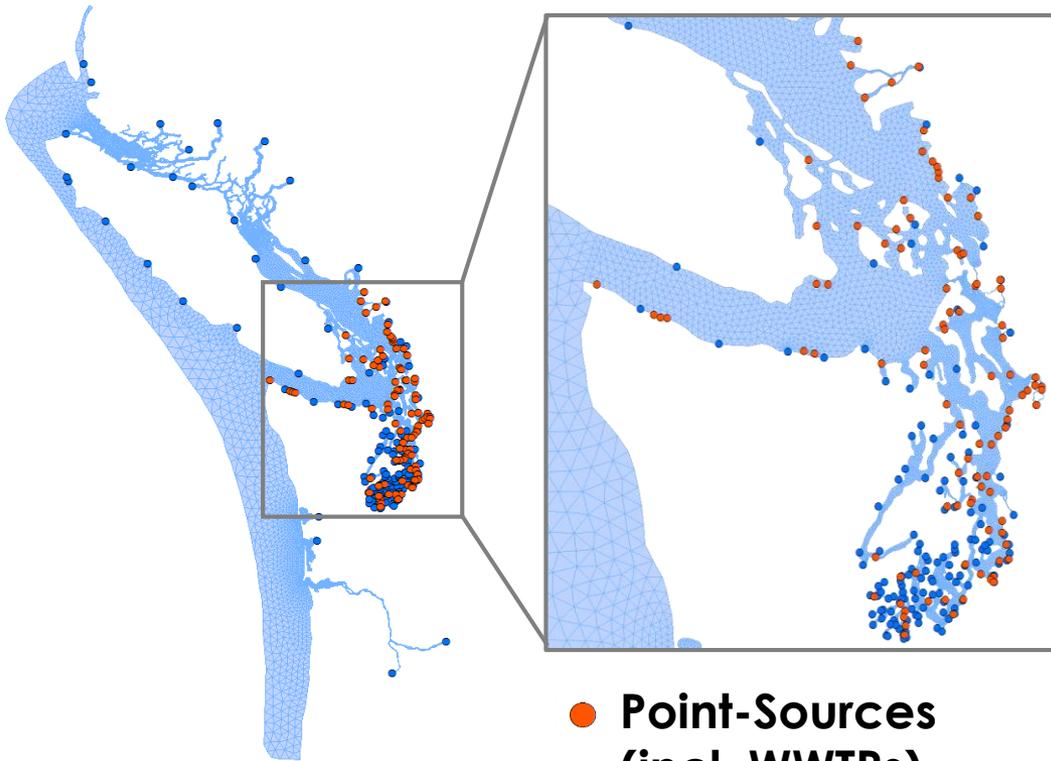


Eutrophication Indicators

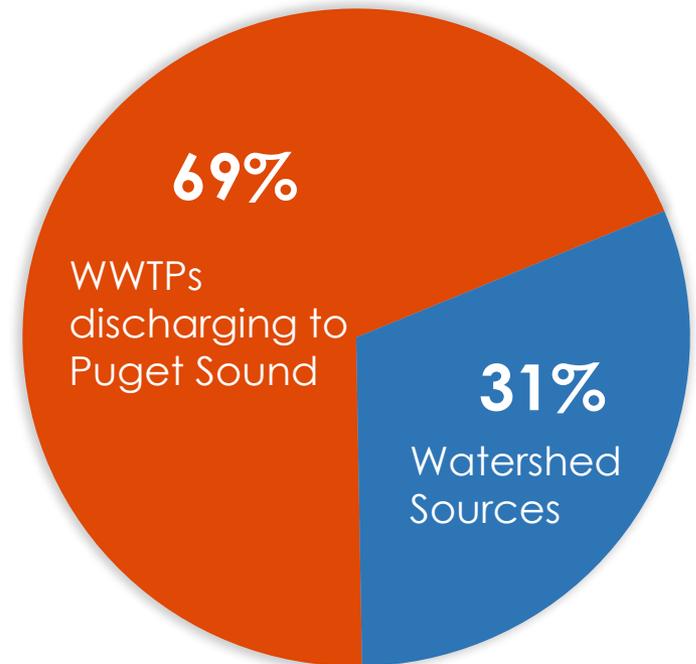


Anthropogenic Sources of Nutrients

January 2019 Bounding Scenarios Report
(Publication No. 19-03-001)



- Point-Sources
(incl. WWTPs)
- Rivers
(Watersheds)



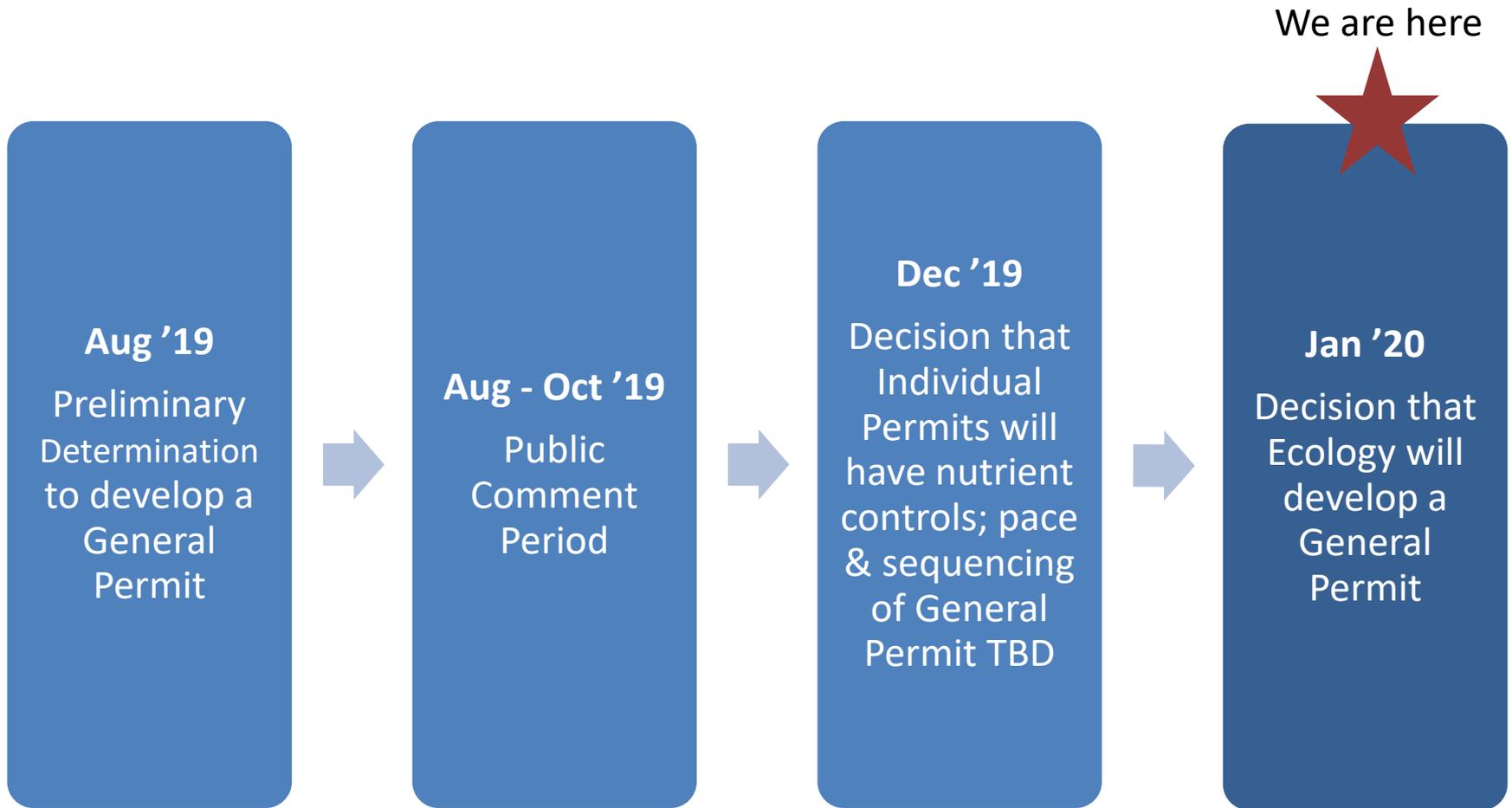
What is “reasonable potential”?

- A regulatory threshold
 - 40 CFR § 122.44(d)(1)(i)
 - *Establishing limitations, standards, and other permit conditions*

[Permit] Limitations must control all pollutants or pollutant parameters that **are or may be** discharged at a level which **will cause, have reasonable potential to cause, or contribute** to an excursion above any state water quality standard.



WWTP Permitting Decisions



Ecology will develop a general permit
to implement nutrient control
requirements at domestic WWTPs



General Permit Goals

- Consolidated and enhanced public involvement process
- Shared foundation for WWTP communities to work together to achieve nutrient reduction
- Timely initiation of nutrient controls Sound-wide



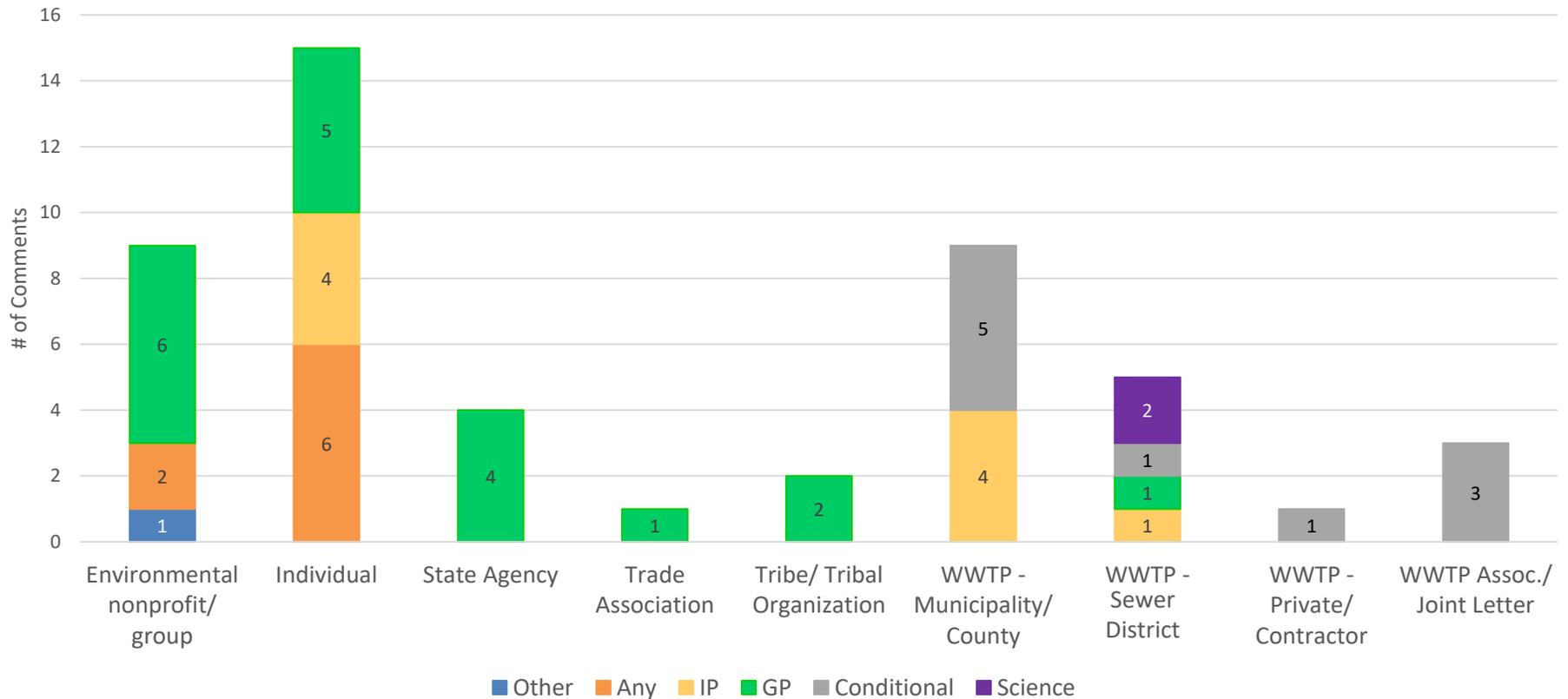
How will a Nutrients General Permit work?

- Focus on controlling nutrients
- In conjunction with individual permits
 - Permittees would have 2 permits for WW
 - Individual permits proceed independently
- Apply to WWTPs discharging to Puget Sound
 - Approximately 70 WWTPs in the Salish Sea Model
- Future versions would reflect research and modeling results



Preliminary Determination Comment Summary

Preliminary Determination Comment Overview
49 comments received



Conditional support of a general permit

Stakeholder Process

- There should be a strong stakeholder group to foster collaboration on solutions and guide permit development.

Watershed Work

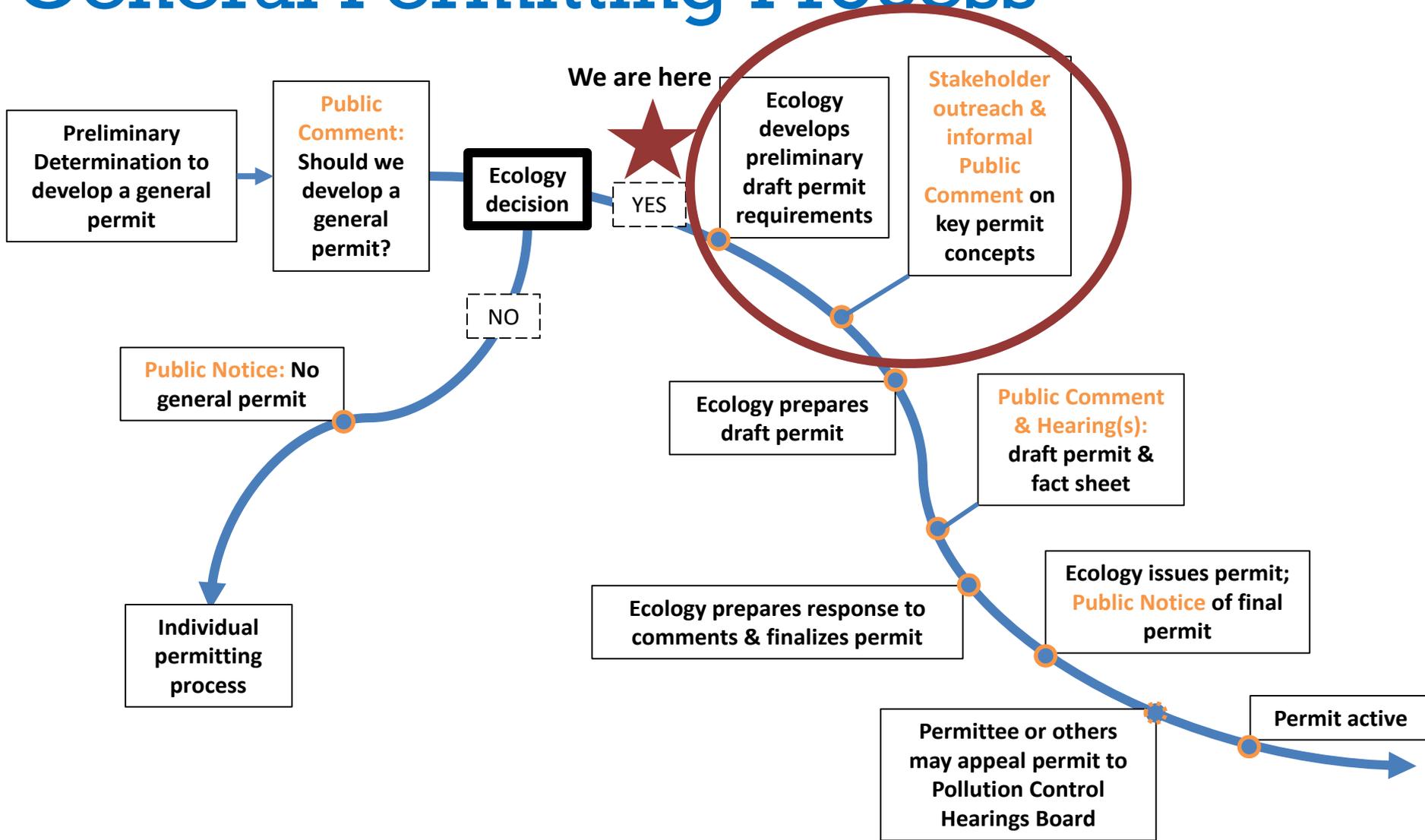
- Watershed sources (point & nonpoint) must also be reduced.

Science

- Nutrient reduction solutions must result in positive change to the health of Puget Sound.



General Permitting Process



General Permit Timeline



Next Steps: Individual Permits

- Facility-specific nutrient-related requirements
 - Monitoring
 - Total Inorganic Nitrogen cap
 - Assess & optimize existing treatment process
- Notify GP listserv of drafts for public comment
- Ecology is prepared to modify individual permits as necessary when the general permit is developed



Governor's 2020 Supplemental Budget

- General Permit Support
 - Permit writer & coordinator capacity
 - \$ for Salish Sea Model usage
 - \$ for technical & legal support
- Watershed Monitoring
 - Continuous monitoring at 7 rivers
 - DO, pH, nitrate, turbidity, temperature & conductivity
 - Storm event sampling



How to stay informed...

Subscribe to the Puget Sound Nutrients General Permit Listserv

<http://listserv.ecology.wa.gov/scripts/wa-ECOLOGY.exe?A0=NUTRIENTS-PERMIT>

Contact us at

Rachel McCrea
(425) 649-7033

Eleanor Ott
(360) 407-6433

psnutrientsgp@ecy.wa.gov





Questions?

Please type your questions
into the Webex chat box.

Stakeholder Engagement

Nutrient
Forum

Model &
Science

General
Permitting
Advisory



Stakeholder Engagement: PSNSRP

Puget Sound Nutrient Forum

- Develop Puget Sound Nutrient Management Plan
 - Watershed reductions (point and nonpoint)
 - Marine point source reductions
- Communication avenue for all stakeholders



Stakeholder Engagement: Modeling

We heard desire to talk more in detail about Salish Sea Model

- Ideas:
 - Meet with individual parties as requested (current)
 - Subcommittee to address questions and report back to Forum
 - Peer-reviewed event
 - Any other ideas?
- Puget Sound Partnership workshop



Stakeholder Engagement: Puget Sound Partnership



PUGET**SOUND**
PARTNERSHIP

Scott Redman
Science and Evaluation
Program Director



Stakeholder Engagement: General Permit

- Initial proposal today: Form a Stakeholder Advisory Committee
 - Composition & roles
 - Schedule
 - Scope
- Feedback today (small groups)
- Follow up online survey



General Permit Stakeholder Proposal: Composition & Roles

Stakeholder Advisory Committee (SAC)

- A membership-based group representing diverse interests and expertise
 - No more than 15 people
- Members responsible for representing similar interests/expertise
 - Share info from SAC
 - Gather info from nonmembers to SAC
- Meetings open to public/nonmembers
 - Public Q&A time limited



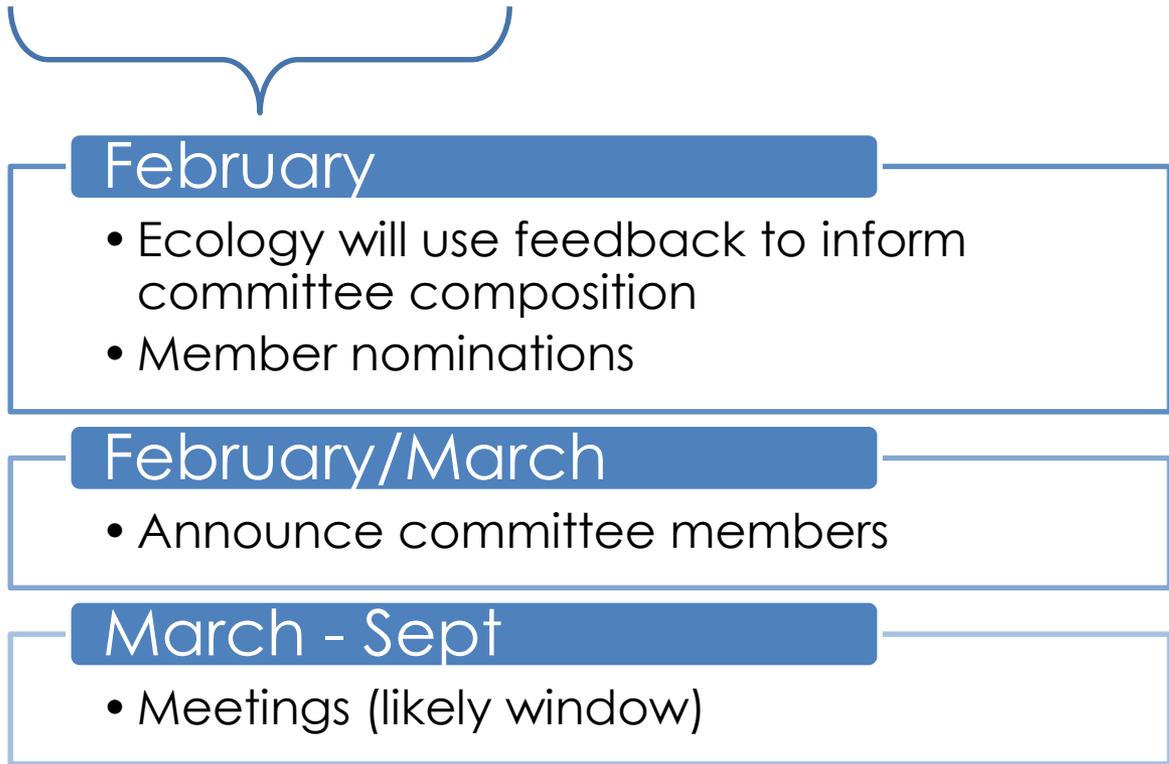
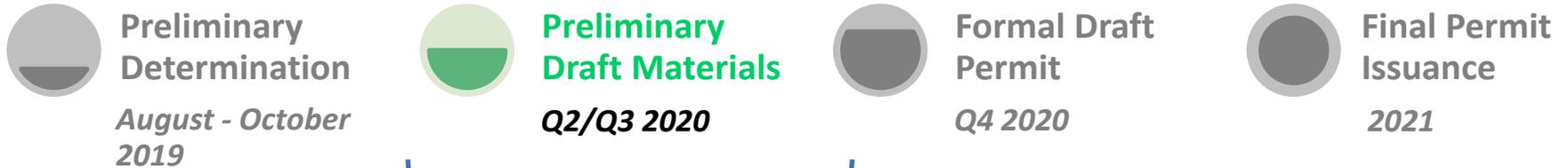
Stakeholder Advisory Committee Composition

Membership should represent the following organizations or characteristics:

- Small WWTP
 - Medium WWTP
 - Large WWTP
 - Geographic spread across Puget Sound
 - North, Central, South
 - Each basin in SSM
 - Other?
- City-owned WWTPs
 - County-owned WWTPs
 - Sewer districts
 - Private WWTPs
 - Operators
 - Conveyors only
 - Tribes
 - Environmental Organizations
 - Other State Agencies
 - EPA



General Permit Stakeholder Proposal: Schedule



General Permit Stakeholder Proposal: Scope

- SAC will be used to solicit feedback on:
 - Permit coverage requirements
 - Application requirements
 - Limits, such as
 - Loading caps
 - Optimization of existing processes
 - Planning requirements



Stakeholder Engagement for the General Permit

- Questions for the small groups
 - Member roles
 - Member composition
 - Meeting logistics
 - Scope
 - Other?





Any Questions about the
group activity?

Please type your questions
into the Webex chat box.

Breakout Group Discussions

Webex listeners: We want your feedback, too!

We will send you the following link to the list of questions we will be discussing today.

https://www.ezview.wa.gov/Portals/_1962/Documents/PSNSRP/PSNF_Jan30_FeedbackForm.pdf

We encourage you to fill out this worksheet and send it to Kelly.Ferron@ecy.wa.gov so that we can include your comments as we gather feedback. We will also send out this link in a follow-up email.

We will return from lunch at 1pm. Please tune in then to hear “report outs” from the discussions and the rest of today’s presentations.

Stakeholder Advisory Committee Composition

Membership should represent the following organizations or characteristics:

- Small WWTP
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Lunch Break

We will return from lunch
at 1pm.

Report Back

Each group will share 2-3 highlights of their group discussion.

We will compile and respond to today's feedback. We will distribute the response to the Forum via the Forum listserv.

What we'll do with your feedback

Your feedback will be used to inform the stakeholder advisory committee process.

- Collect worksheets from webinar attendees and those unable to make Forum
- Compile feedback and responses to questions into one document:
 - Email to listserv
 - Post on Puget Sound Nutrient Forum webpage

Potential Watershed Approaches

- What actions will achieve watershed load reductions?
 - Point sources and Nonpoint sources
 - Cost-effective and achievable
 - Equitable and strategic
- Watershed Model capabilities include
 - Separate Anthropogenic from Natural Loads
 - Spatial and temporal scales
 - Separate influence of different types of anthropogenic sources
 - Evaluate watershed source reduction scenarios
- 4 to 5 years or more to develop

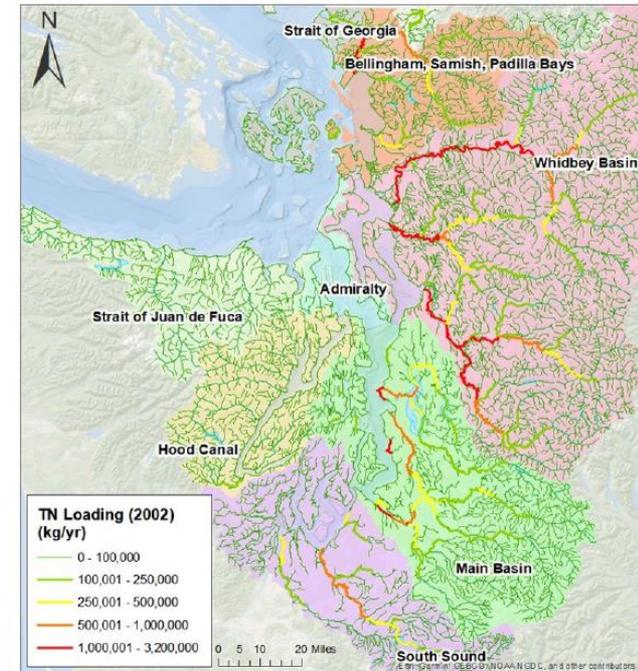


Figure 11. SPARROW total nitrogen (TN) load estimates and regions draining into Puget Sound basins (2002).

[McCarthy, Sheelagh. 2019. Puget Sound Nutrient Synthesis Report, Part 2: Comparison of Watershed Nutrient Load Estimates. Washington Department of Ecology, Publication #19-03-019.](#)

What can we do in watersheds now

Ongoing Implementation

- Work with local partners to reduce nutrient source loads
 - Control runoff
 - Reduce/eliminate discharges
 - Fix known problems
- Restore and protect natural functions
 - Riparian restoration
 - Floodplain reconnection
 - In-stream Restoration

Guided by current information

- Freshwater Ambient Monitoring
- TMDLs and other Pollutant Load Studies
- Known problems and implementation gaps
- GIS and Field Investigations

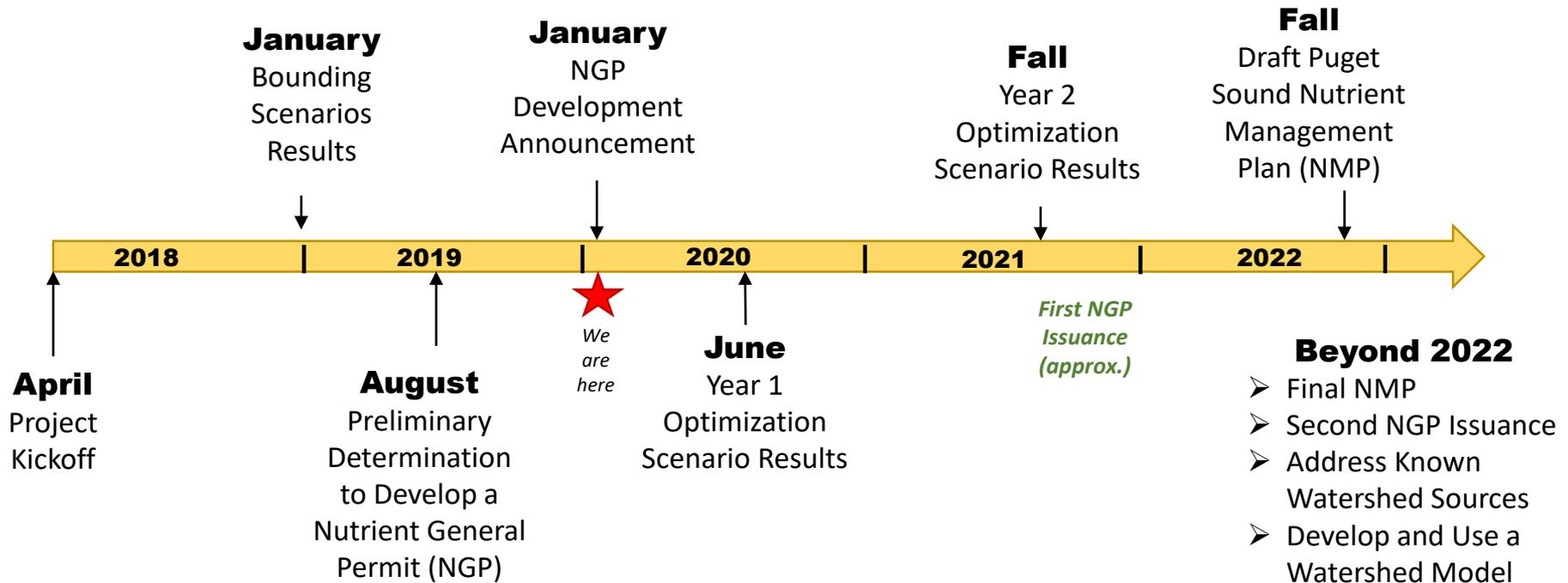


The role of the Nutrient Forum in 2020

Further discuss and receive your input on:

- Year 1 model results and what scenarios to evaluate in Year 2
- Strategies for human source nutrient reductions in watersheds
- Potential Nutrient Management Plan content
- Emerging science

Key Milestones



Contact



Dustin Bilhimer

Puget Sound Nutrient Source Reduction Project Manager

WA Department of Ecology, Water Quality Program

(360) 407-7143

Dustin.Bilhimer@ecy.wa.gov

Find more at: ecology.wa.gov/PSNRP

Phase 1 Salish Sea Model Results webmap: bit.ly/ssmresultsmap



Questions & Answers

Webex Listeners: Please type your questions into the box labeled “Chat”



Meeting Wrap-Up

Thank you for joining!