CLALLAM MRC MEETING AGENDA

November 18, 2024
5:30 p.m. – 7:00 p.m.
Hybrid Meeting

Zoom Meeting Link: https://us06web.zoom.us/j/85314804485
Meeting ID: 853 1480 4485
Passcode: 12345
For more information about the MRC, please contact Rebecca Mahan at (360) 417-2322

Welcome by Chair LaTrisha Suggs / Call to Order / Roll Call

- Determination of quorum

Approval of Minutes

- Review and approval of October minutes

Presentations

- Dr. Kellie Carim, Research Ecologist, US Forest Service – presenting on environmental DNA (eDNA) monitoring techniques applied to lamprey
- Lucas Hart, Director at Northwest Straits Commission – future of Commission and MRC funding in the political landscape

Announcements

- Northwest Straits Commission conference recap
- Studium Generale presentation – December 5th
- Training for Open Public Meetings Act / Public Records Act – by January if needed
- Welcome new member and alternate – Alicia Amerson representing Marine Related Recreation & Tourism, Dann May as alternate representing District III

Committee and Project Reports *if an update is needed*

- NWSC monthly update – Alan Clark
- Strategic plan 2025 subcommittee – LaTrisha Suggs
- Comprehensive plans subcommittee
  - Subcommittee: Alan Clark, Bob Vreeland, Ed Bowlby
  - Clallam County Comp Plan update & Clallam County Climate/Hazard Mitigation Plan update
  - Port Angeles City Comp Plan update
  - Sequim Comp Plan update: Future of Sequim survey
- Priority concerns list for BOCC – LaTrisha Suggs
- Interns – Tim Cochnauer
- Olympia Oyster – Chris Burns
- Forage Fish – Tim Cochnauer
- Elwha Beach Stewardship – Helle Andersen

2024 Meetings

January 22	April 15	July 15	October 21
February 26	May 20	August 19	November 18
March 18	June 17	September 16	December 16

- Ediz Hook Revegetation – Helle Andersen & Allyce Miller
- Sound Toxins – Nancy Stephanz
- Shellfish Biotoxins – Bob Vreeland
- Pinto Abalone – Jeff Ward & Alan Clark
- Pigeon Guillemot – Ed Bowlby
- Kelp surveys – Alan Clark & Jeff Ward
- Education & outreach
    - Coasters – Ann Soule
    - Next new displays: crab, pigeon guillemots – Ann, Amelia
    - European Green Crab status update – Ioana Bociu
    - Oil spill response
        - State policy on rescue tug – Mike Doherty
        - HAZWOPER oiled wildlife trainings – Ann, Tim, Chris, Ed, Amelia (still need lead)

Discussion of next meeting date and agenda

- Next meeting Monday, Dec 16th
- Call for new agenda items
    - 2025 draft workplan will be presented for comment in December
    - Plan discussion of projects for new biennium

Public Comment *at the discretion of the Chair*

Good of the Order

Adjourn

Clallam County DCD is inviting you to a scheduled Zoom meeting.
Topic: MRC

Join Zoom Meeting
https://us06web.zoom.us/j/85314804485?pwd=N3dMbHRyL3l5TnpKNGtVSGtWYk5VQT09

Meeting ID: 853 1480 4485
Passcode: 12345
One tap mobile
+12532158782,,85314804485#,,,,*12345# US (Tacoma)

Dial by your location
+1 253 215 8782 US (Tacoma)

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M E M O R A N D U M

To: Board of Commissioners of Clallam County

From: Clallam County Marine Resources Committee (MRC)

Subj: **Top Concerns with regard to the Marine Environment**

Date: November 2024

The MRC developed and discussed this list of top concerns in the fall of 2024 at the request of Commissioner Ozias. We included notes about work we do related to each concern, and recommended actions the County could take. The document was approved at the MRC's monthly meeting on ____; however, it does not necessarily reflect the opinions of all Committee members or the organizations they represent. It is subject to change over time.

1. **Climate change**. Corroborating the scientific literature, the Clallam MRC's field projects and those of our academic and agency partners have shown disturbing changes in Clallam County or the Northwest Straits, including these in particular:

    - Decline of kelp and eelgrass beds
    - Decline in numbers of forage fish eggs
    - Declining populations of Pinto abalone
    - Invasive species, European Green Crab in particular
    - Pigeon guillemot changing nesting habits
    - Loss of native Olympia oysters
    - Changes in water quality, such as
        - Ocean acidification
        - Increased harmful algal blooms, producing toxins that cause human illness
        - Warmer marine temperatures and associated reduced oxygen, which leads to closing local beaches to shellfish harvest.
    - Sea level rise

    Clallam MRC members participate in multiple field projects addressing this concern, including **Monitoring and Surveys** of kelp beds, forage fish eggs, toxins in PA Harbor (through "Sound Toxins"), biotoxins in clams at Pillar Point (for Clallam Environmental Health), Pinto abalone, pigeon guillemots, and EGC (in cooperation with other entities).

    Restoration projects include Olympia oysters and revegetation on Ediz Hook.

    Climate change impacts our community more broadly, including storm flooding of public and private infrastructure, rising sea level causing saltwater intrusion in wells and septic system failure, diminishing water supplies as glaciers melt and rainfall patterns change (this impacts water quality and public health), and in other ways. These problems can lead to liability issues for permitting jurisdictions if not addressed publicly and proactively.

    Recommendation: Education and requirements for disclosing risks, through notice to title, to property buyers could help alleviate the County's exposure to litigation. If needed, the County could adopt a regulation that protects itself from liability for any changes to property values while also protecting citizens.

2. **New and modified nearshore development**. In particular, hard shoreline armoring such as seawalls or rip-rap directly impacts fragile habitats for many species already facing stressors. Loss of nearshore habitat contributes to the decline of forage fish eggs, kelp beds, and eelgrass, directly impacting Tribal Treaty Rights. Also, existing armoring is "repaired" at times without appropriate permits. Less-deleterious designs are available, such as "soft armoring," and training on their use is available for permitting officials and the public through the Northwest Straits Foundation's "Shore Friendly" program and WDFW's "Marine Shoreline Design Guidelines." In more and more cases, relocation of structures or purchase of high-risk properties for conservation may be the best option.

In 2023 the Clallam MRC hosted a workshop for landowners and permitting officials on **Shore Friendly** principles and options for managing shoreline erosion.

Recommendation: Establish a nearshore property acquisition program funded through grants from WA state (ex: Recreation & Conservation Office).
Recommendation (repeated from #1, above)**:** Education and requirements for disclosing risks, through notice to title, to property buyers could help alleviate the County's exposure to litigation. If needed, the County could adopt a regulation that protects itself from liability for any changes to property values while also protecting citizens.

Also, to varying degrees, MRC members are concerned about aquaculture. Aquaculture (ex. but not limited to: shellfish, finfish, marine vegetation such as kelp) can affect water quality or shoreline and nearshore habitat. Non-native species aquaculture may pose risks to native species already facing other stressors. Tribes have actively participated in aquaculture since time immemorial.

Recommendation: The BOCC and MRC should develop strong collaborative partnerships with aquaculture proponents and operators for the benefit of our community.

3. **The potential for an oil spill, especially given increasing tanker traffic**. An oil spill would have devastating impacts on our environment and economy. MRC feels it is important for the public (marine trades in particular) to be aware of who responds in the event of an oil spill and how, including when and how volunteers can help. An example of the difficulty in cleaning up an oil spill is that oil from tar sands does not float, it sinks, making it harder to clean up using traditional oil spill tools such as floats.

Clallam MRC has hosted several "HAZWOPER" and oiled wildlife rescue **workshops** over the past decade that train local residents to assist in the event of an oil spill.

Recommendation: MRC would like to work with the BOCC on a public forum on the potential for oil spills in Clallam County and who will respond, the Trans Mountain Pipeline Expansion, and how the Geographic Response Plan (GRP) would be deployed. The Coast Guard and Ecology's Spills Program could provide a briefing on crude supply and product shipment through the Strait; spill prevention; spill response; Treaty rights protections; insurance and liability; and infrastructure. Clallam County Emergency Management should participate as well.

4. **<u>The need for education and outreach.</u>** County residents, newcomers such as climate migrants, and visitors should be reached out to regularly on concerns/issues as well as fundamentals of the marine environment. Issues that demonstrate the need for continual public education and outreach include:

    - Derelict gear – hundreds of crab pots are lost each year, many without rot cord (causing unnecessary, undocumented take of crabs)
    - Unpermitted shoreline armoring by marine landowners
    - Removal of shells or rocks from the nearshore
    - Dog waste deposits that pollute the nearshore
    - Offroad vehicles driven on beach habitat
    - Denial of or inaction with regard to sea level rise
    - Need for oil spill preparation: special HAZWOPER certification needed for individuals to help with response
    - Need for water conservation, especially when low snowpack or stream flows are a concern

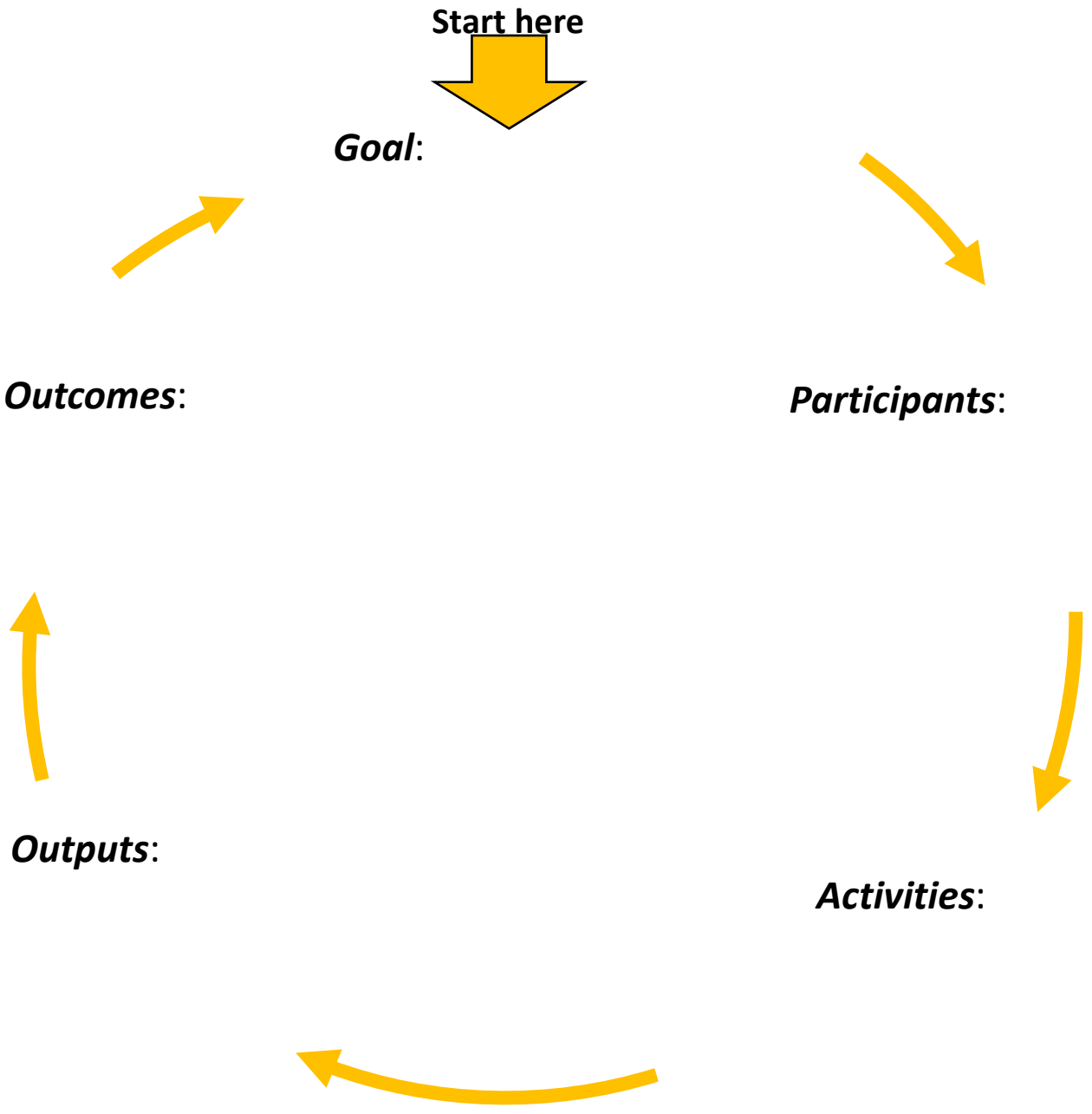
    Clallam MRC **Outreach and Education** in recent years has included trainings on oil spill response and oiled wildlife rescue, Shore Friendly principles, "Catch More Crab" flyers and workshops on best practices, supplying a SaniKan and dog waste bags at West Elwha beach, and more.

    We also developed educational coasters as an outreach tool and share interpretive posters at several local festivals.

    <u>Recommendation:</u> Incorporate educational messages associated with these and other marine environment concerns throughout County departments and projects as appropriate, including at County parks, events, and in public areas.

NW Straits 2024 Conference - Science Advisory Committee (SAC) Session Worksheet

Instructions: The project wheel worksheet is broken down into steps to help you map out your project design for a new idea/or existing project. Definitions are on the back of this worksheet. Complete as much of this worksheet as you can on a specific idea, new or ongoing project you would like to discuss with the SAC. Start with your goal and use this wheel as a tool to identify what you are trying to accomplish and flag where you have questions or need guidance from the SAC.



Northwest Straits INITIATIVE

Start here

Goal: if/when this project succeeds, [...] will happen, be known

drive assessment of whether and how project can meet the goal, or needs to be changed it in the next round

can not be achieved without specific, named

Participants: all groups (e.g., MRC staff, volunteer members, other organization(s)) directly involved in the work

can be assigned to all of the project

Activities: the tasks & actions - science, monitoring, training, presentations, etc. accomplished by the project participants

directly result in discrete or countable

Outputs: any tangible products of the work (e.g., pamphlets, signage, graduates of a training program, number of invasives found, wildlife counted, acres cleaned, sites added, etc.)

which, once accomplished facilitate these measureable movements towards the goal

Outcomes: how the activities and outputs measurably further the goal(s) of the project.

Northwest Straits Commission Science Advisory Committee - Project Wheel

Northwest Straits INITIATIVE

Filling in the Gaps
Pacific Lamprey Research and Conservation in the Puget Sound

Kellie J. Carim & Monica R. Blanchard

November 18th , 2024

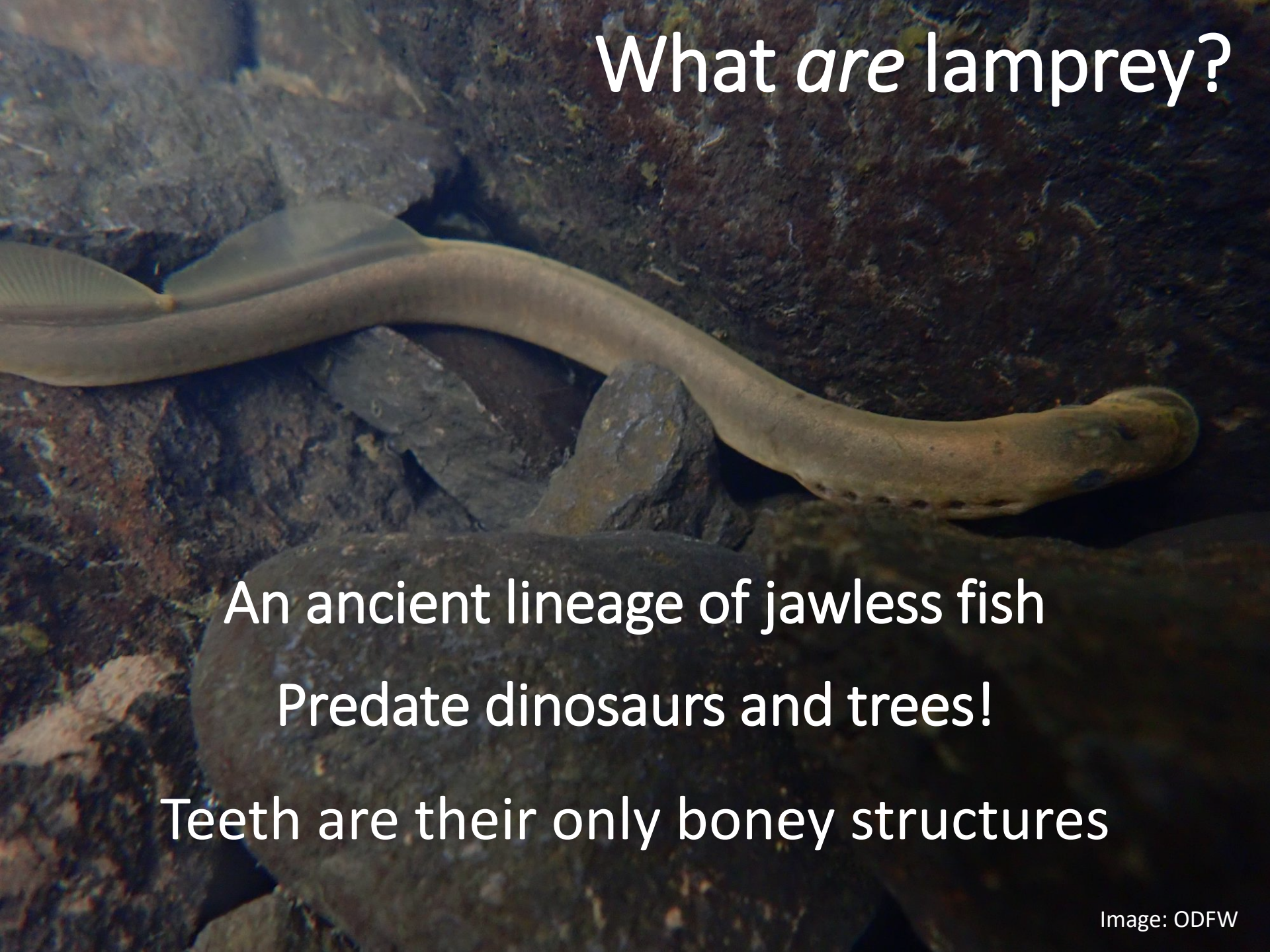
Clallam County DCD

ALDO LEOPOLD
WILDERNESS RESEARCH INSTITUTE

National Genomics Center
FOR WILDLIFE AND FISH CONSERVATION

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

What *are* lamprey?



An ancient lineage of jawless fish

Predate dinosaurs and trees!

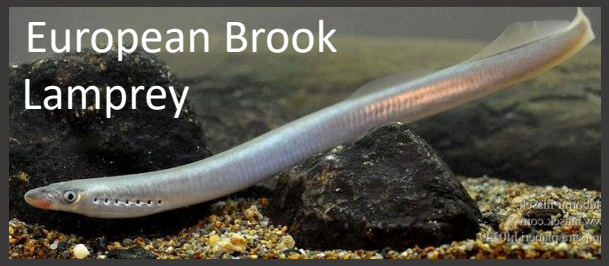
Teeth are their only boney structures

Image: ODFW

Why care about lamprey?

Invasive sea lamprey parasitize fish in the Great Lakes

Lampreys are widespread and diverse!



Images: M. Gaden, Fishes of Australia, Freshwater Illustrated, Hlasek.com, B. Beluga

Why care about lamprey?

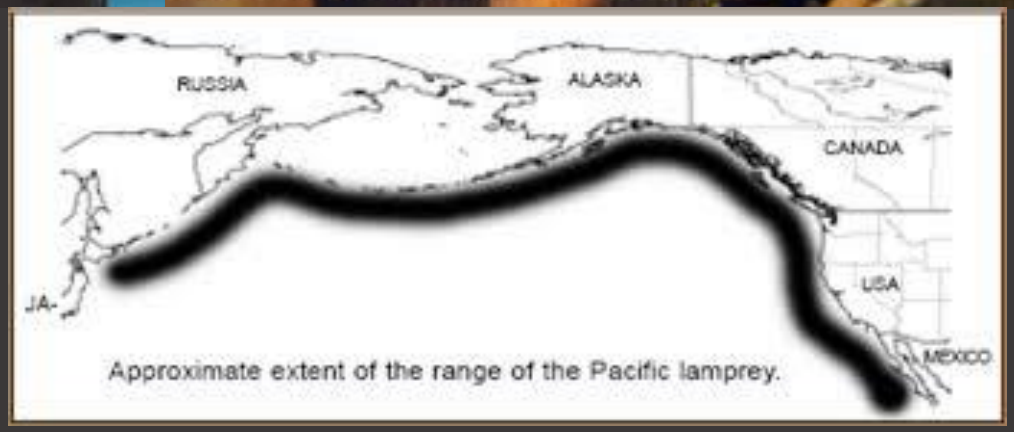
Integrated into Greco- Roman and medieval European cultural and history

Culturally significant to Indigenous people

Provide food, filter water, transport nutrients, and more…

Images: Willamette Falls Trust, C. Seddon

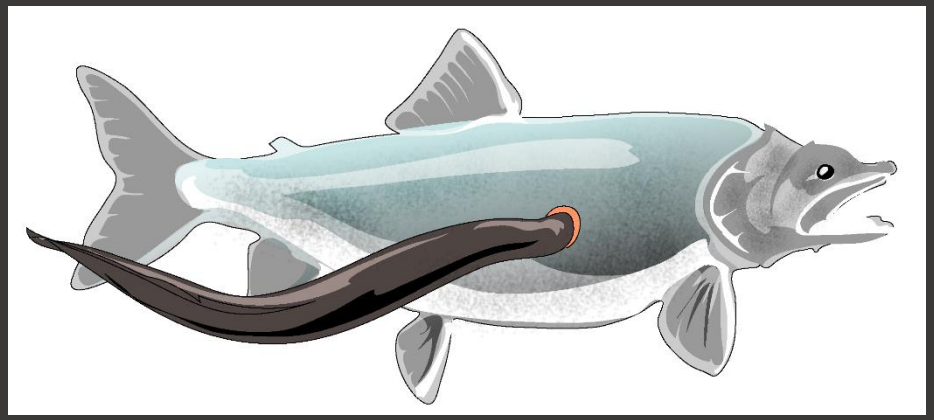
Pacific lamprey – *Entosphenus tridentatus*



Native range- Pacific Coast, inland to OR, WA and ID (i.e., wherever salmon and steelhead occur)

Pacific lamprey – Life Cycle

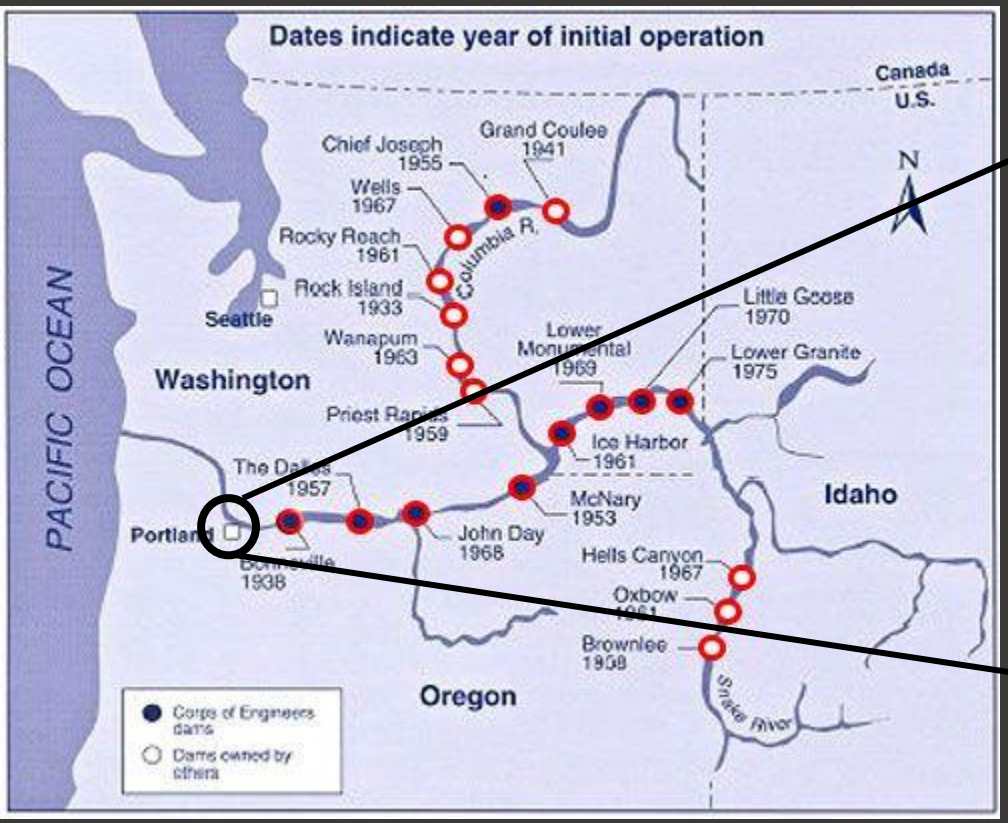
Juveniles live in stream sediment for up to 7 years



Adults are anadromous and parasitic

Return from ocean to spawn in freshwater after 1-2 years

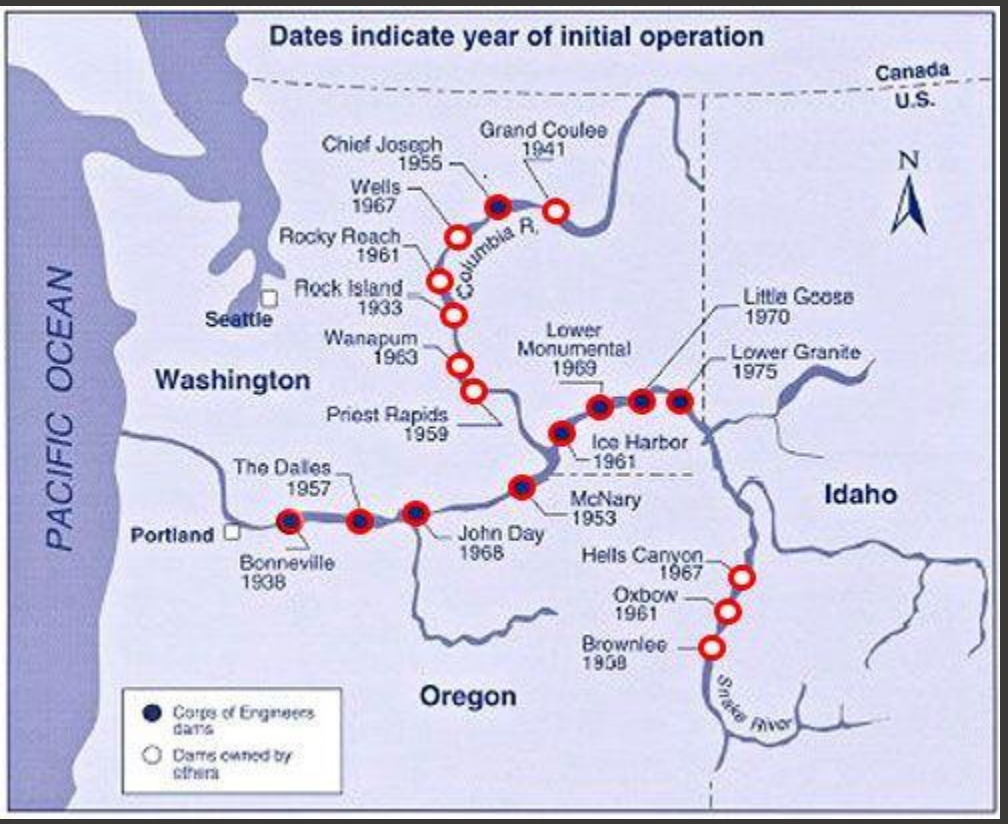
Annual adult returns were historically in the hundred thousands to millions



Lamprey at Willamette Falls ca. 1913

Photos: CRITFC

Hydropower dams are the most notable impact leading to lamprey declines



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List Three Species of Lampreys as Threatened or Endangered

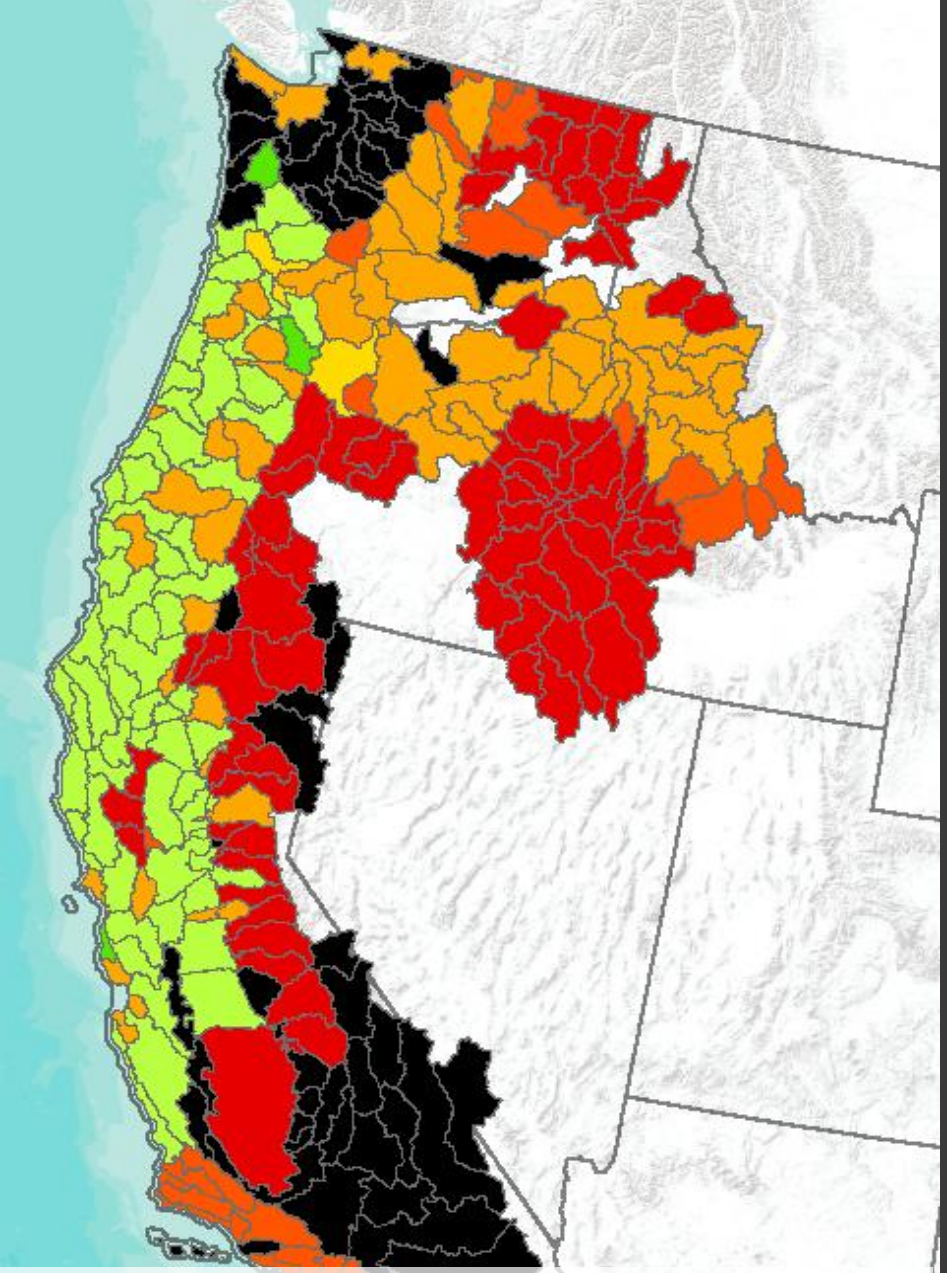
AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of petition finding.

Dec. 27, 2004

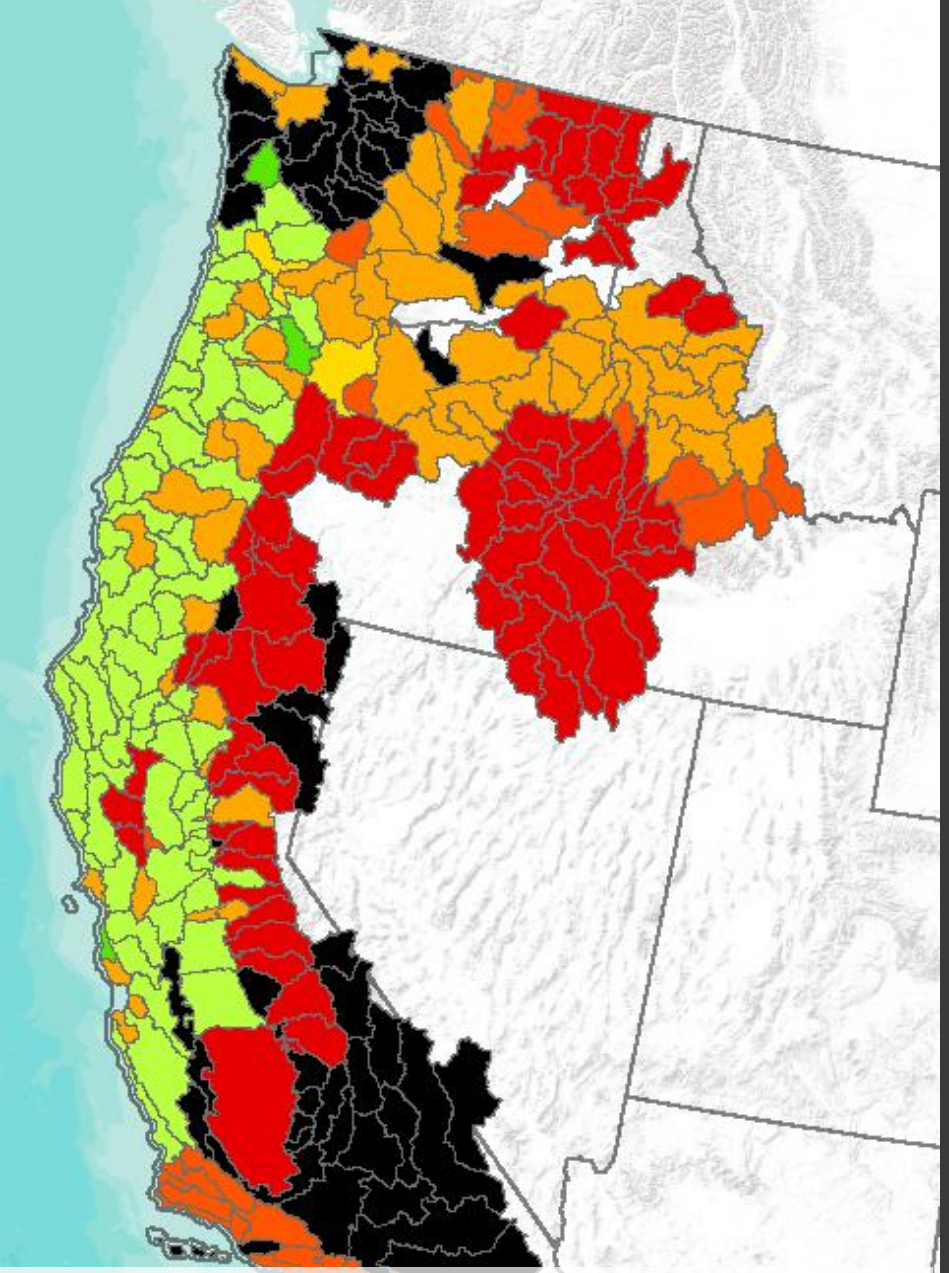
…the petition and additional information <u>does not</u> present substantial scientific information indicating that listing Pacific lamprey may be warranted.

What do we know about Pacific lamprey persistence?



Nature Serve 2017 Rank of 4th Code HUCs

Lack of information is a primary challenge



Nature Serve 2017 Rank of 4th Code HUCs

We need to know:

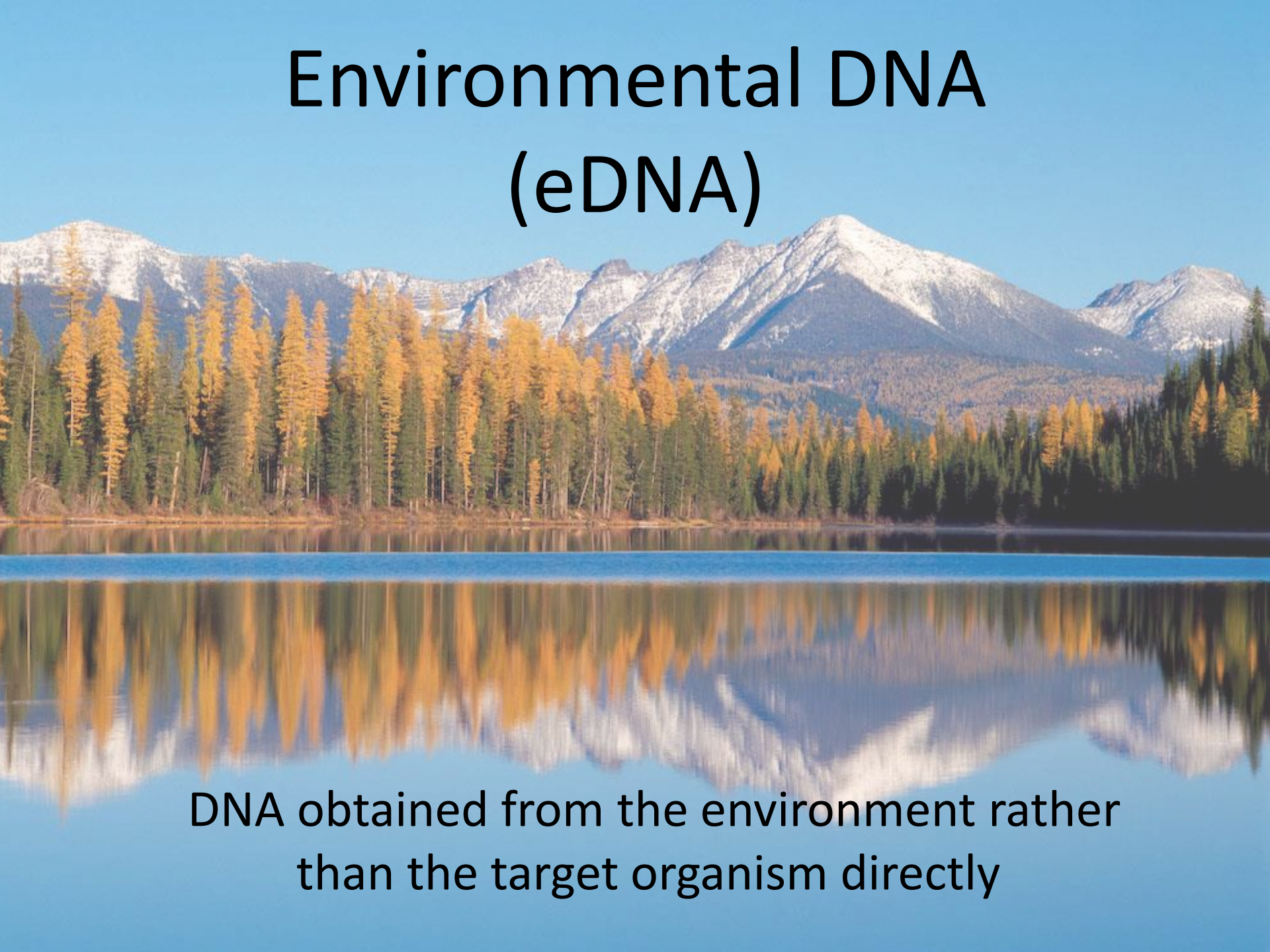
-Presence in a basin
-Distribution across a basin
-Changes in presence/distribution

Challenges:

-A LOT of areas needs to be covered
-Habitat is often remote
-Identification of Pacific vs freshwater lamprey is difficult (esp. for juveniles)

How do we overcome these challenges?

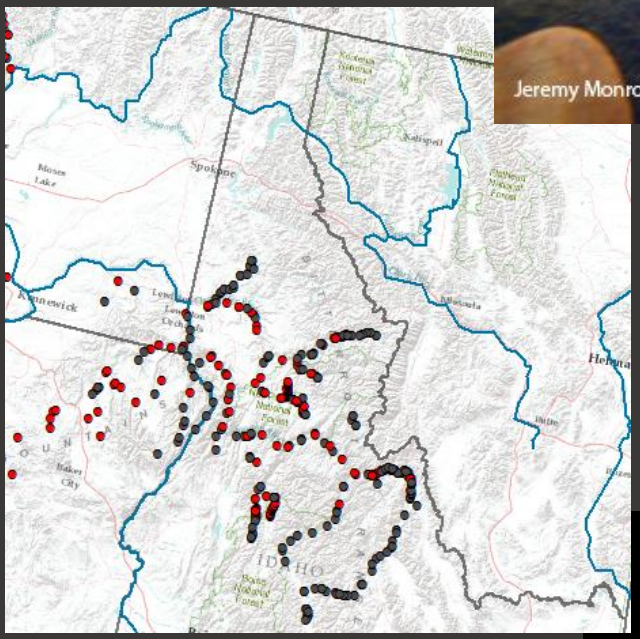
Environmental DNA (eDNA)



DNA obtained from the environment rather than the target organism directly

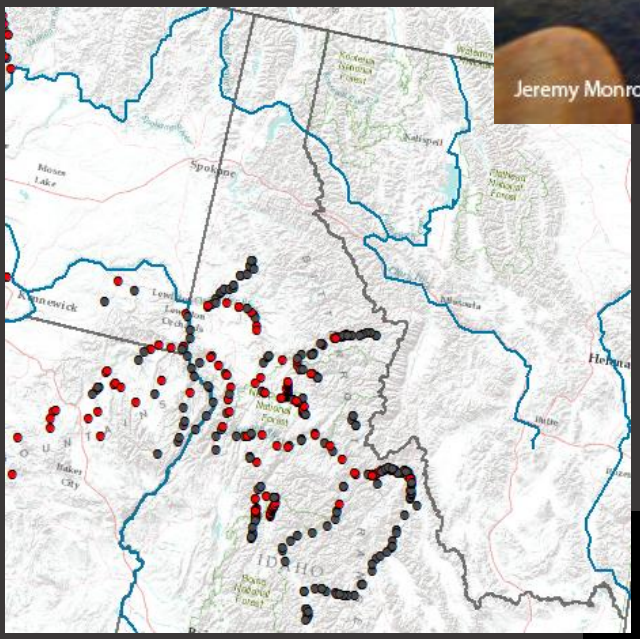
Environmental DNA Process

Currently, the best eDNA methods use quantitative PCR (qPCR)



Environmental DNA Process

eDNA is highly specific, sensitivity and efficient!



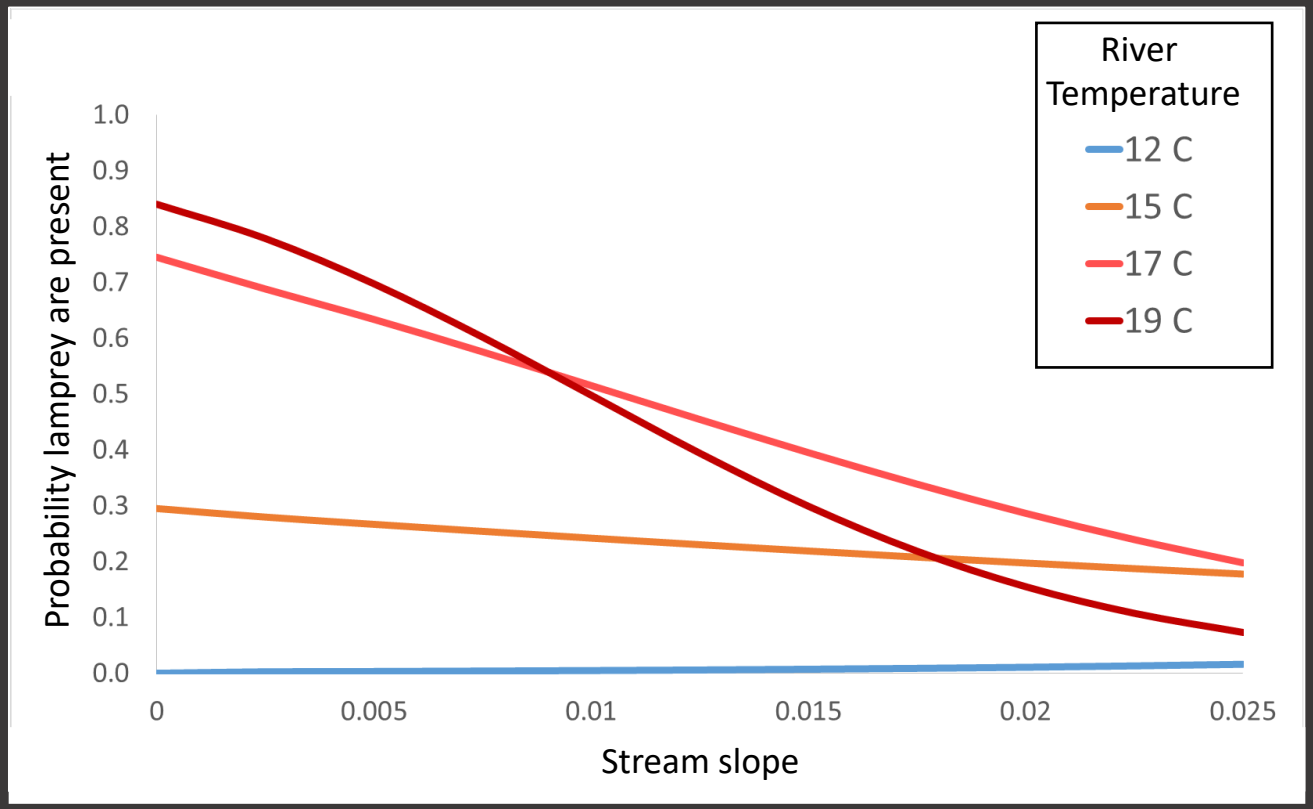
Environmental DNA Process

eDNA **B**asin-wide **L**amprey **I**nventory and **M**onitoring **P**roject (eBLIMP)

eBLIMP Methods

1) Where do lamprey like to live?

→ Examine current info to understand what makes good lamprey habitat



eBLIMP Methods

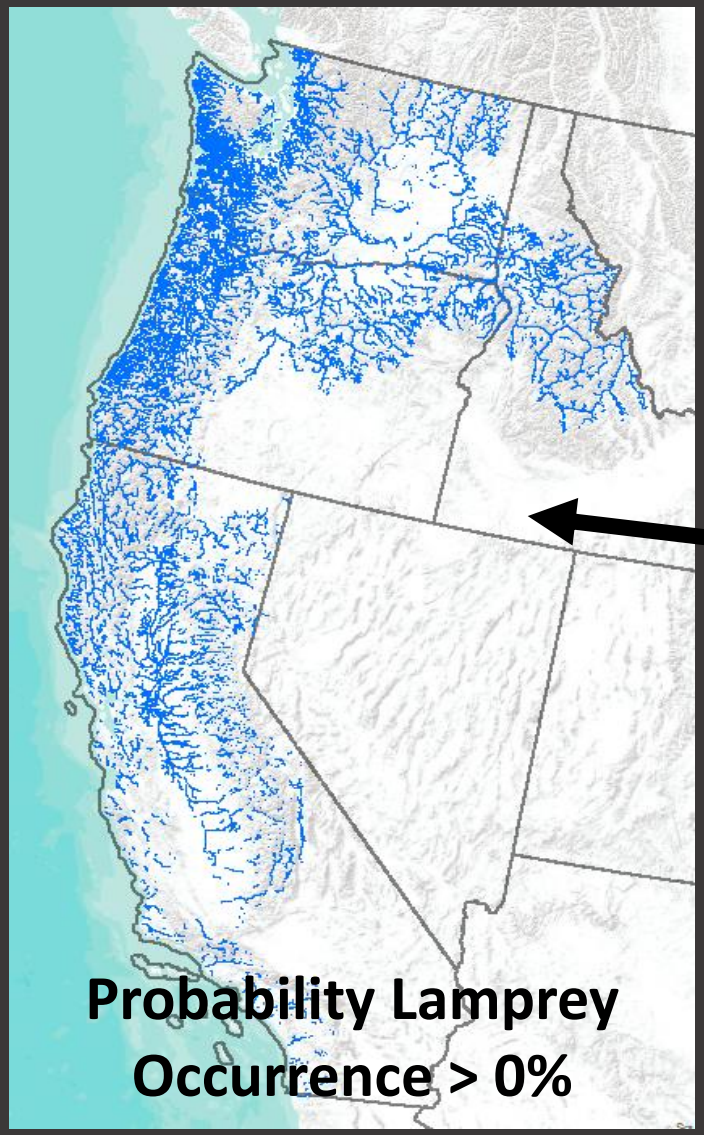
1) Where do lamprey like to live?

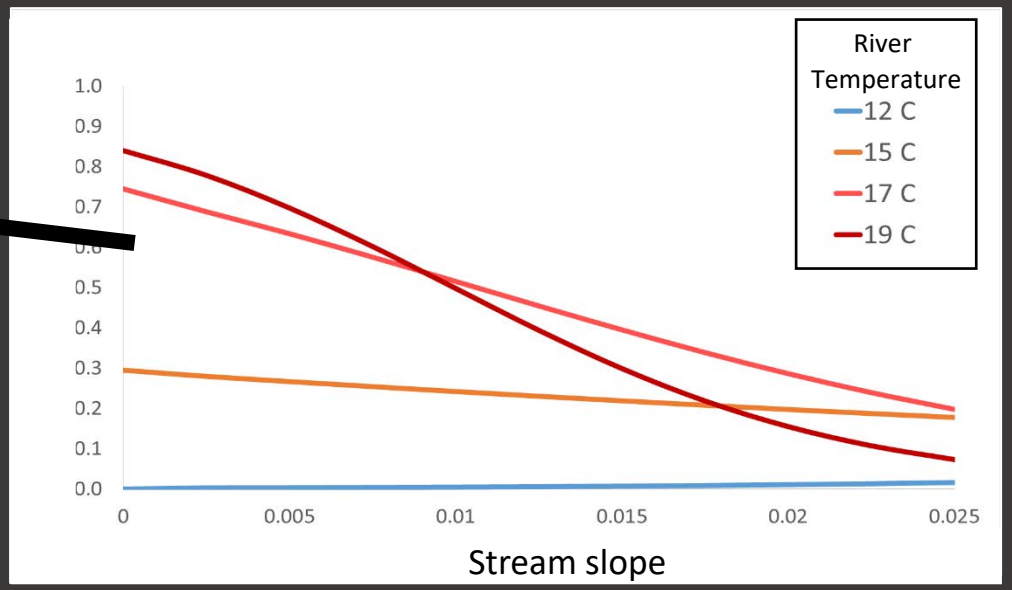
→ Examine current info to understand what makes good lamprey habitat

2) Where do these desirable places occur?

→ Identify stream and river segments with ideal temperature and slope

Stream and river segments with lamprey habitat





eBLIMP Methods

1) Where do lamprey like to live?

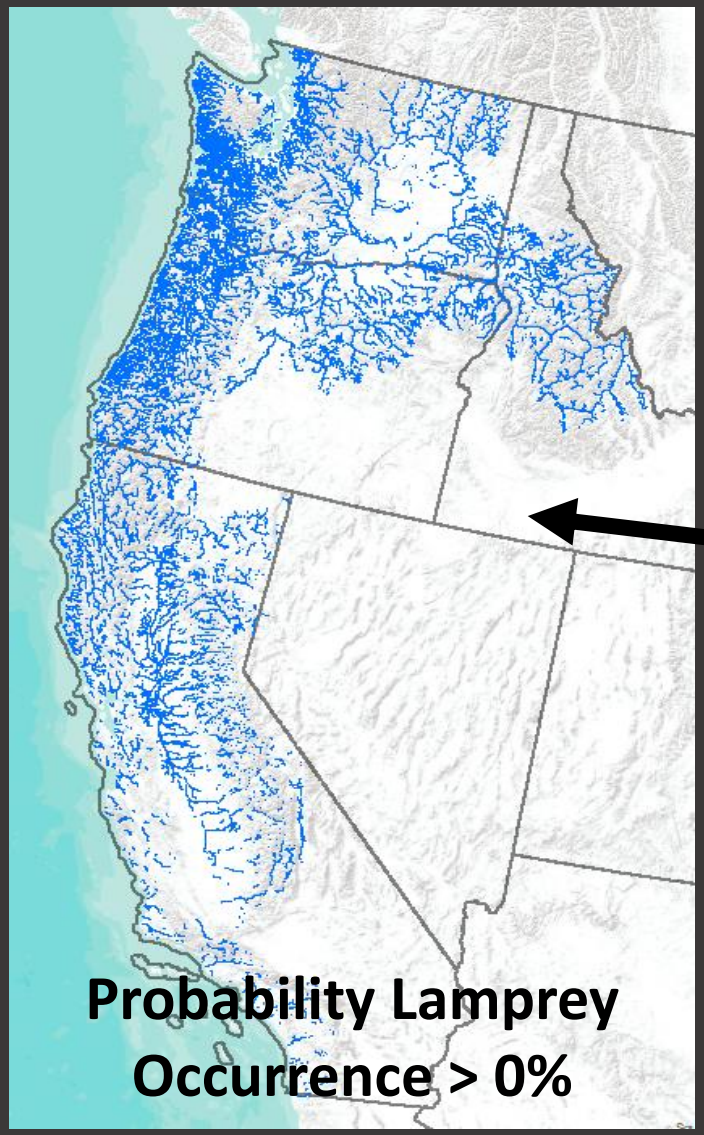
→ Examine current info to understand what makes good lamprey habitat

2) Where do these desirable places occur?

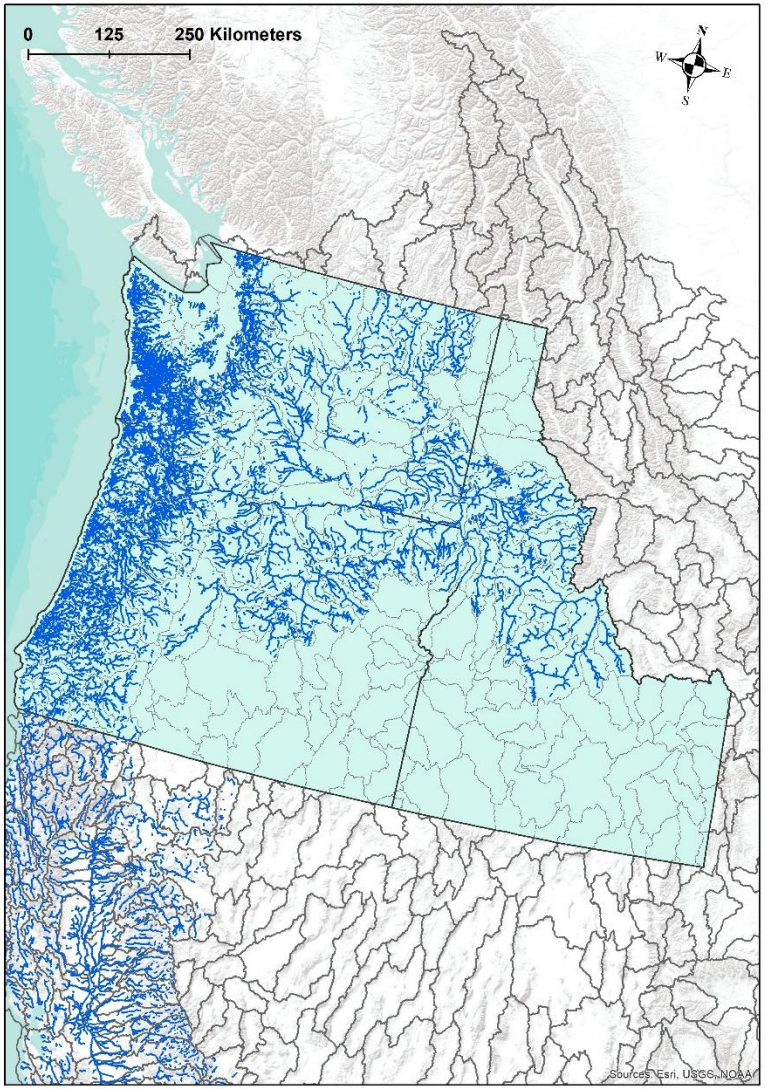
→ Identify stream and river segments with ideal temperature and slope

3) Collect eDNA samples in lamprey habitat

eDNA Sample Collection



eDNA Sample Collection



Focus on subbasins (4 code HUCs) in ID, OR and WA

Sampling mainstems at ~15 km intervals where lamprey probability > 0

Tributaries to mainstems IF

Lamprey probability > 0

OR

Known to support Chinook salmon

Analyzed samples at the USFS National Genomics Center (Missoula, MT)

Collaborators

TRIBAL PARTNERS

Colville Confederated Tribes
Confederated Tribes of the Umatilla Reservation
Confederated Tribes of the Siletz Indians
Cowlitz Indian Tribe
Lummi Nation
Jamestown S'Klallam Tribe
Nez Perce Tribe
Nooksack Indian Tribe
Puyallup Tribe of Indians
Shoshone-Bannock Tribes
Snoqualmie Indian Tribe
Skagit River System Cooperative
Yakama Nation

STATE AND FEDERAL AGENCIES

U.S. Forest Service
Bureau of Land Management
National Park Service
U.S. Fish and Wildlife Service

Idaho Department of Fish and Game
Oregon Department of Fish and Wildlife
Washington Department of Fish and Wildlife

LOCAL GOVERNMENT AGENCIES

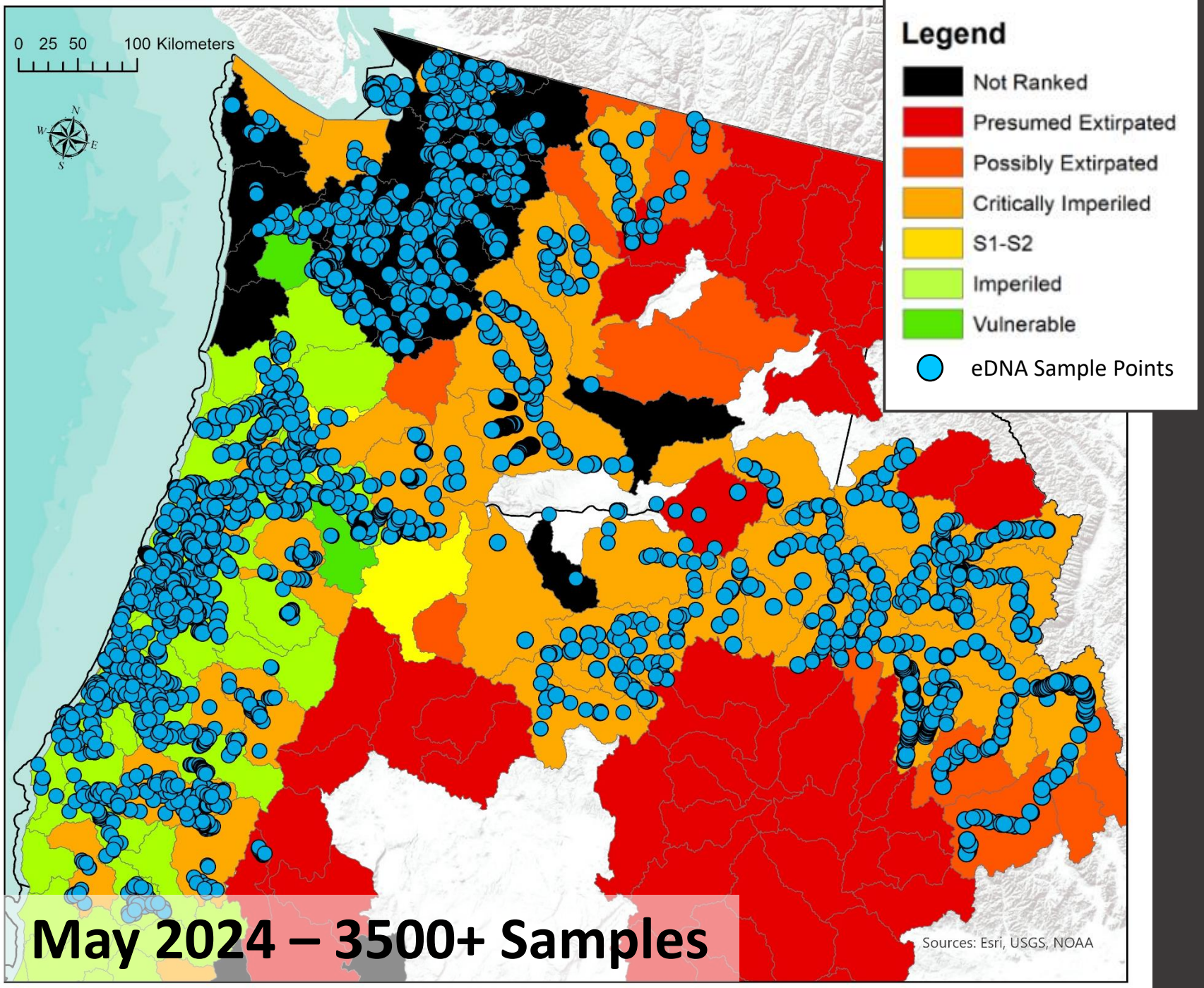
Clark Conservation District
Clallam Country DCD
Columbia Soil and Water Conservation District
Greater Yamhill Watershed Council
King County Department of Natural Resources and Parks
Lower Nehalem Watershed Council
Luckiamute Watershed Council
Marys River Watershed Council
Mid-Coast Watershed Council
North Fork John Day Watershed Council
Rickreall Watershed Council
Tualatin Watershed Council
Upper Nehalem Watershed Council
West Multnomah Soil and Water Conservation District

NON-PROFIT ORGANIZATIONS

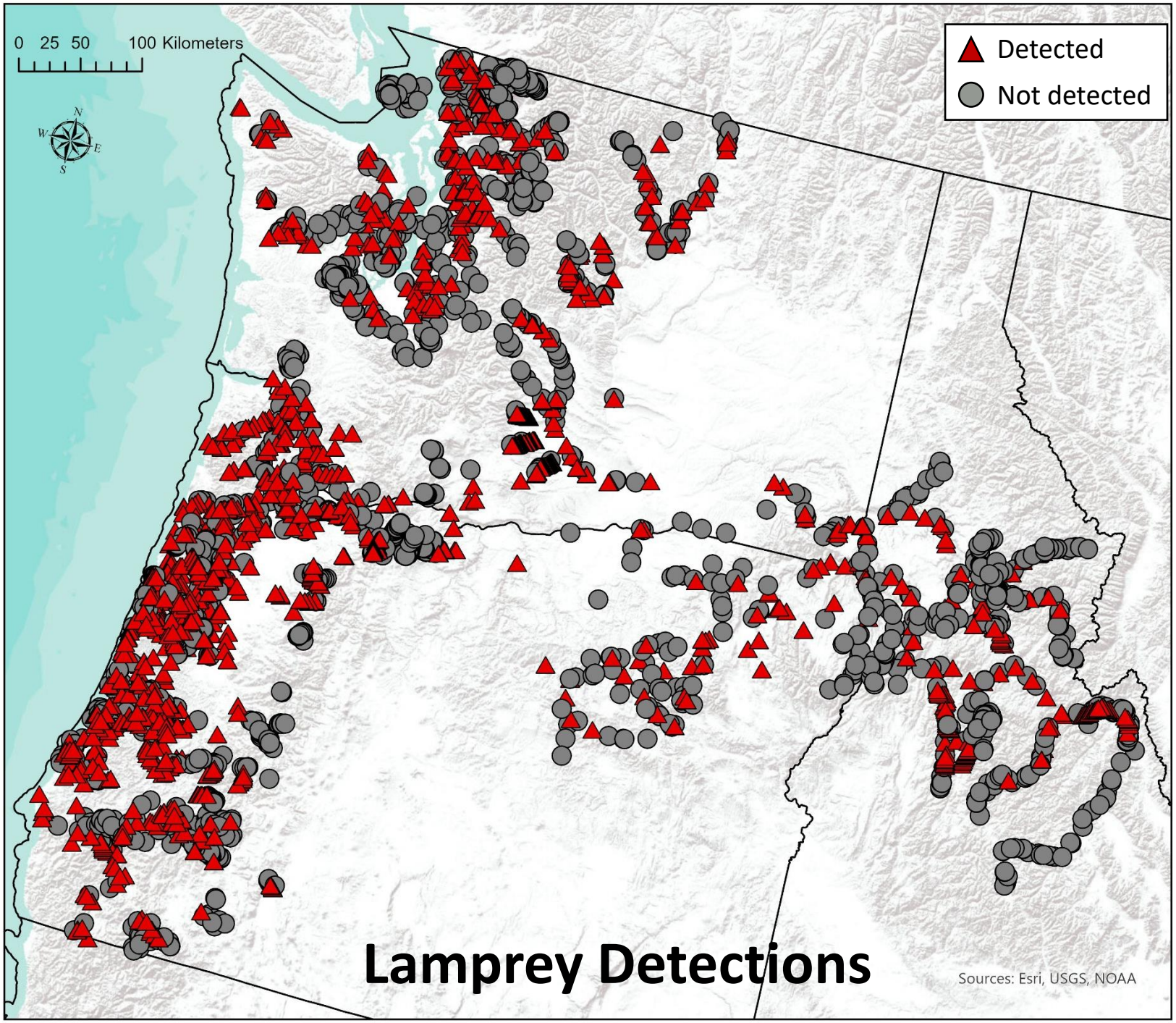
Glacier Peak Institute
North Sound Trout Unlimited
Skagit Fisheries Enhancement Group
Wild Trout Conservancy

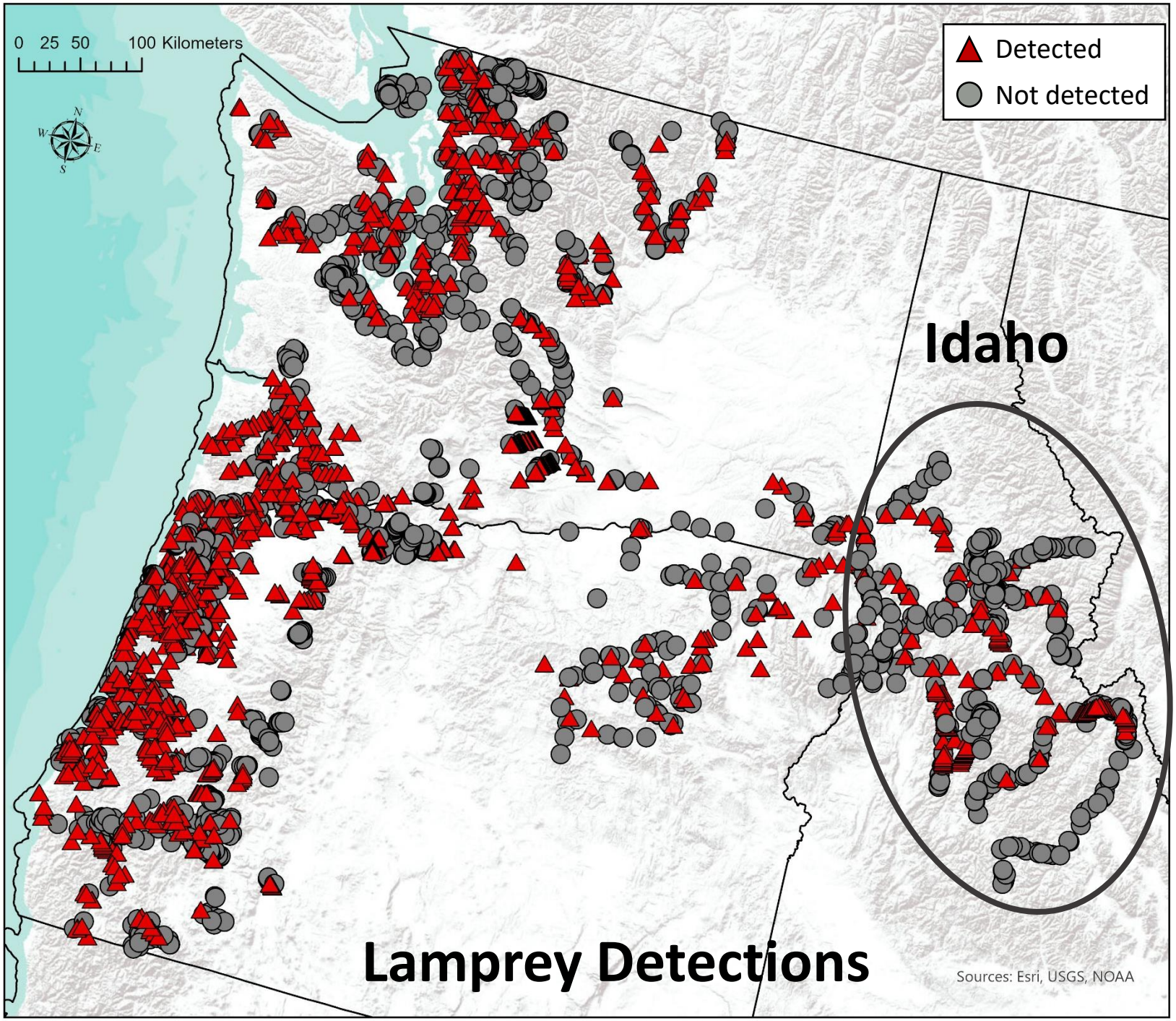
PUBLIC VOLUTNEERS

Steve Kopp, Angie Hanners, and Holly Coe



May 2024 – 3500+ Samples


0 25 50 100 Kilometers
N
W
E
S
Detected
Not detected
Lamprey Detections
Sources: Esri, USGS, NOAA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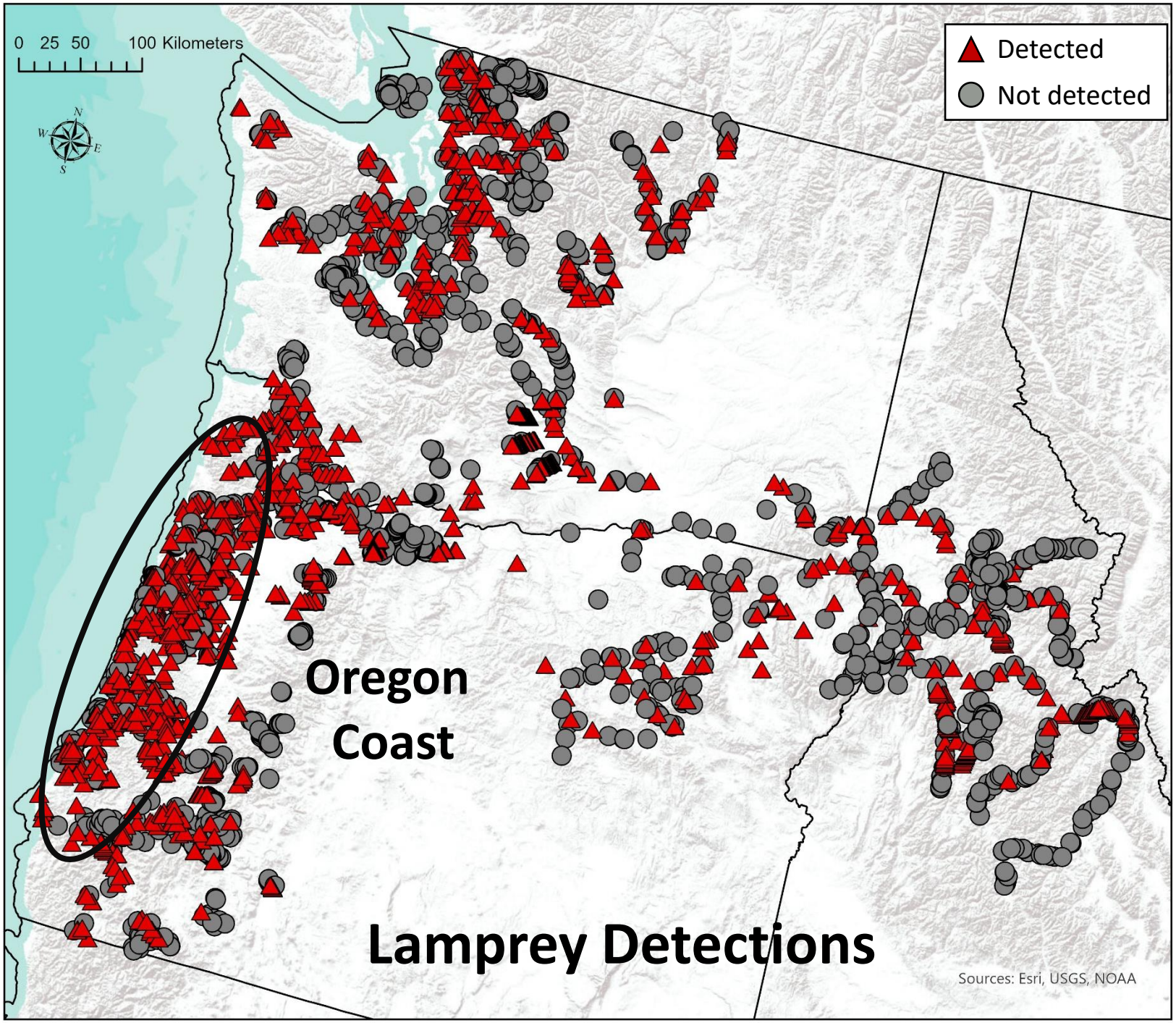
Idaho
Lamprey Detections
Sources: Esri, USGS, NOAA


0 25 50 100 Kilometers
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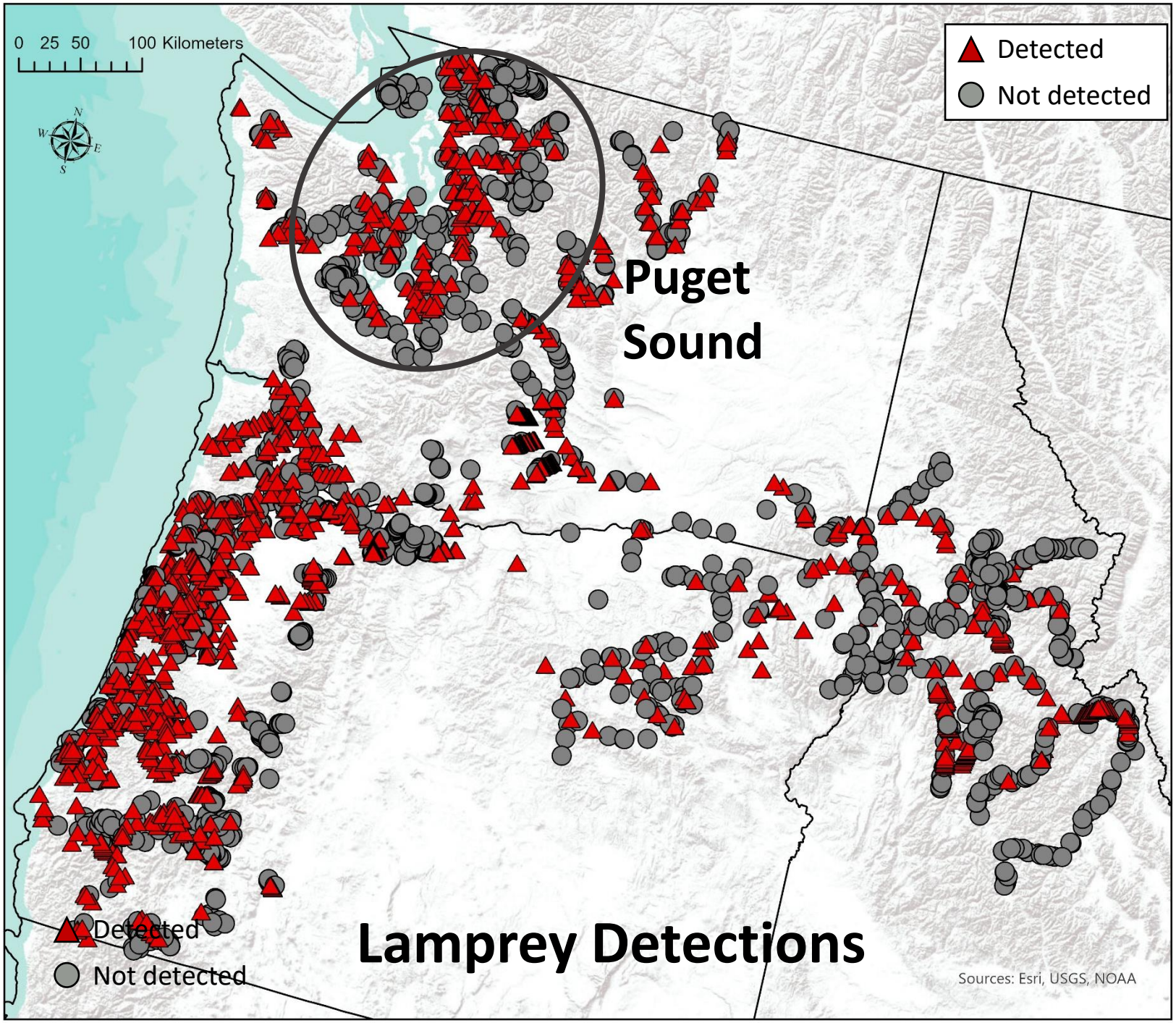
Detected
Not detected
Oregon Coast
Lamprey Detections
Sources: Esri, USGS, NOAA


0 25 50 100 Kilometers
N
W
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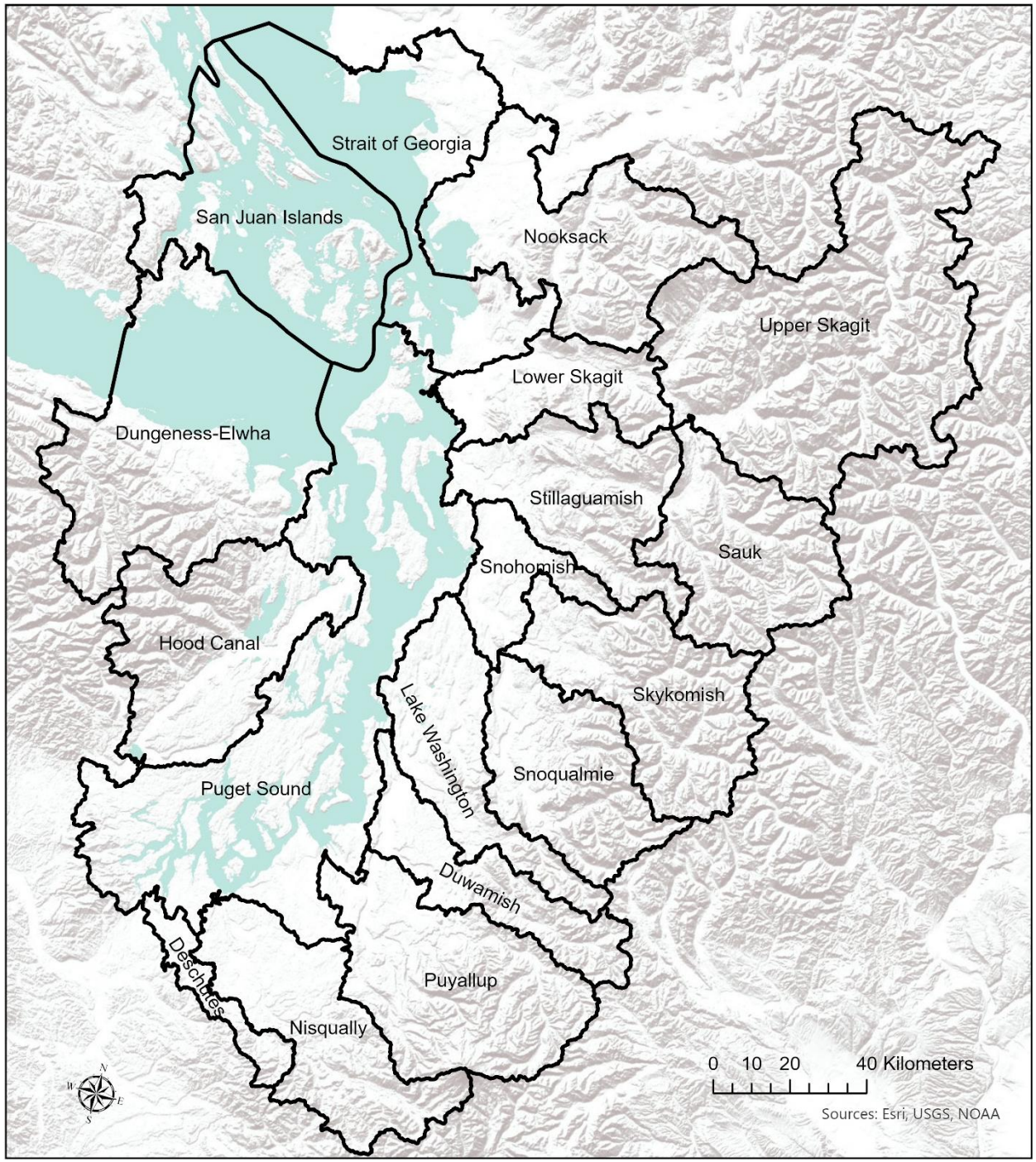
Detected
Not detected
Puget Sound
Detected
Not detected
Lamprey Detections
Sources: Esri, USGS, NOAA


Strait of Georgia
San Juan Islands
Nooksack
Upper Skagit
Lower Skagit
Dungeness-Elwha
Stillaguamish
Sauk
Snohomish
Hood Canal
Skykomish
Lake Washington
Snoqualmie
Puget Sound
Duwamish
Deschutes
Puyallup
Nisqually
N
W
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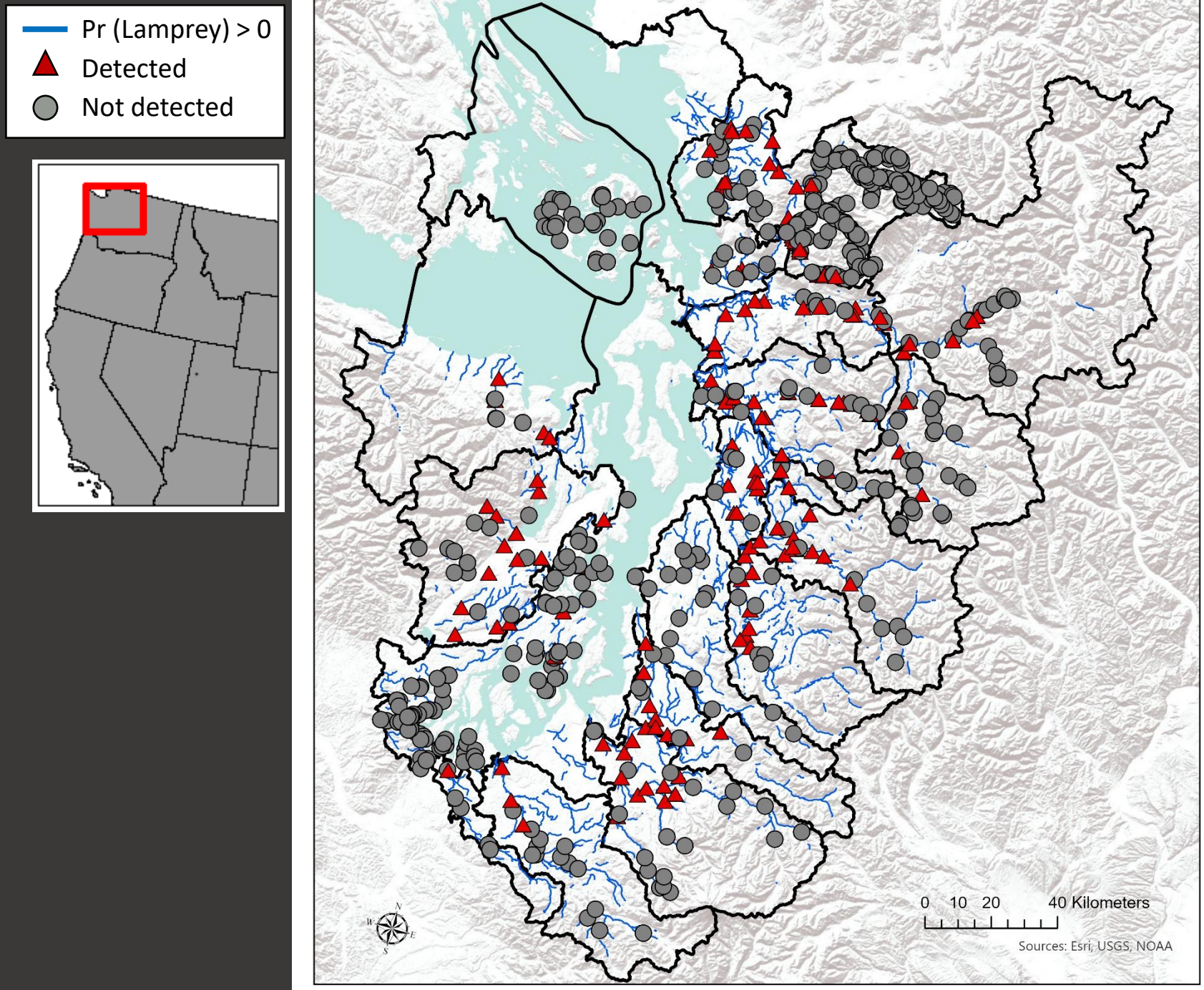
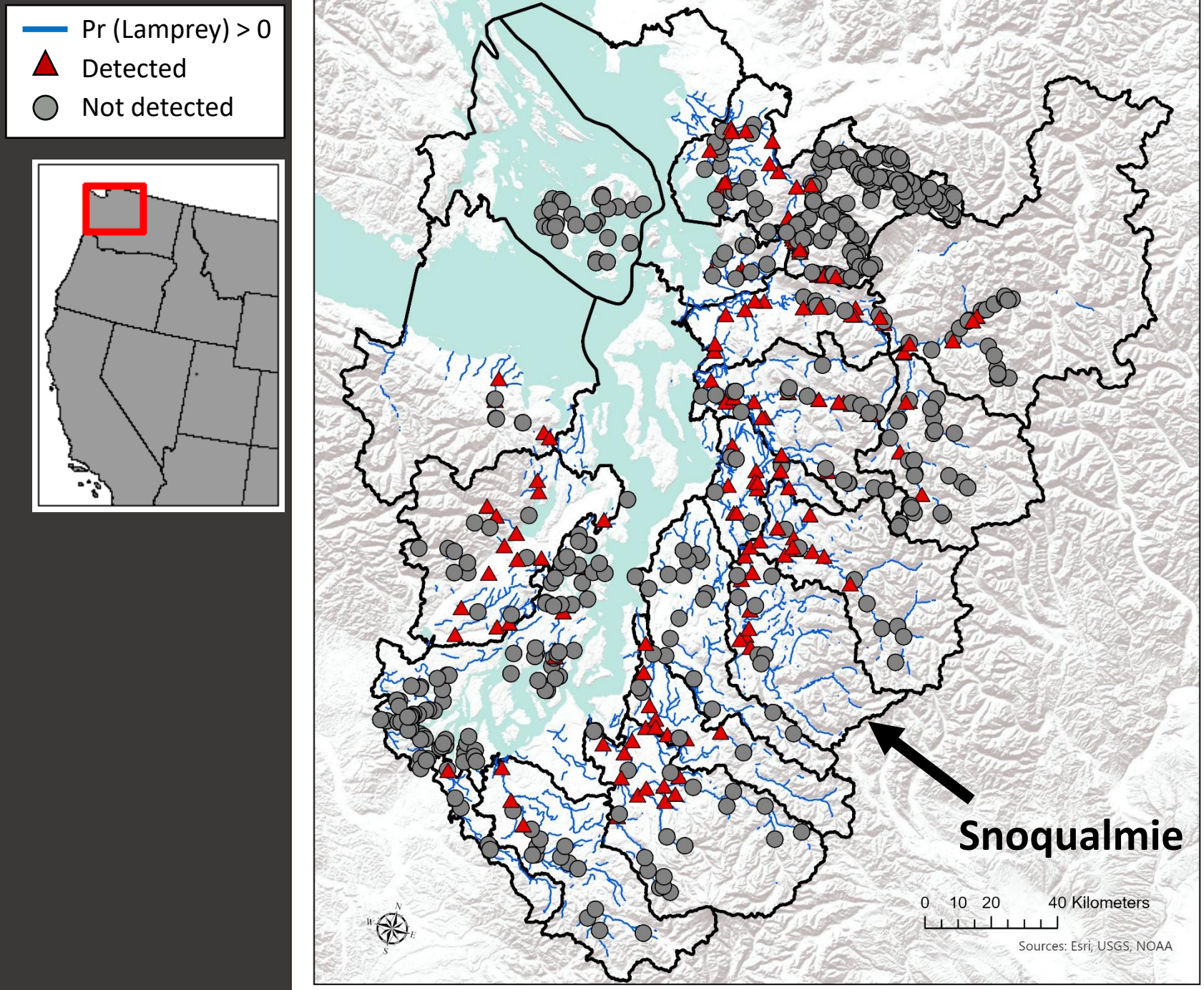
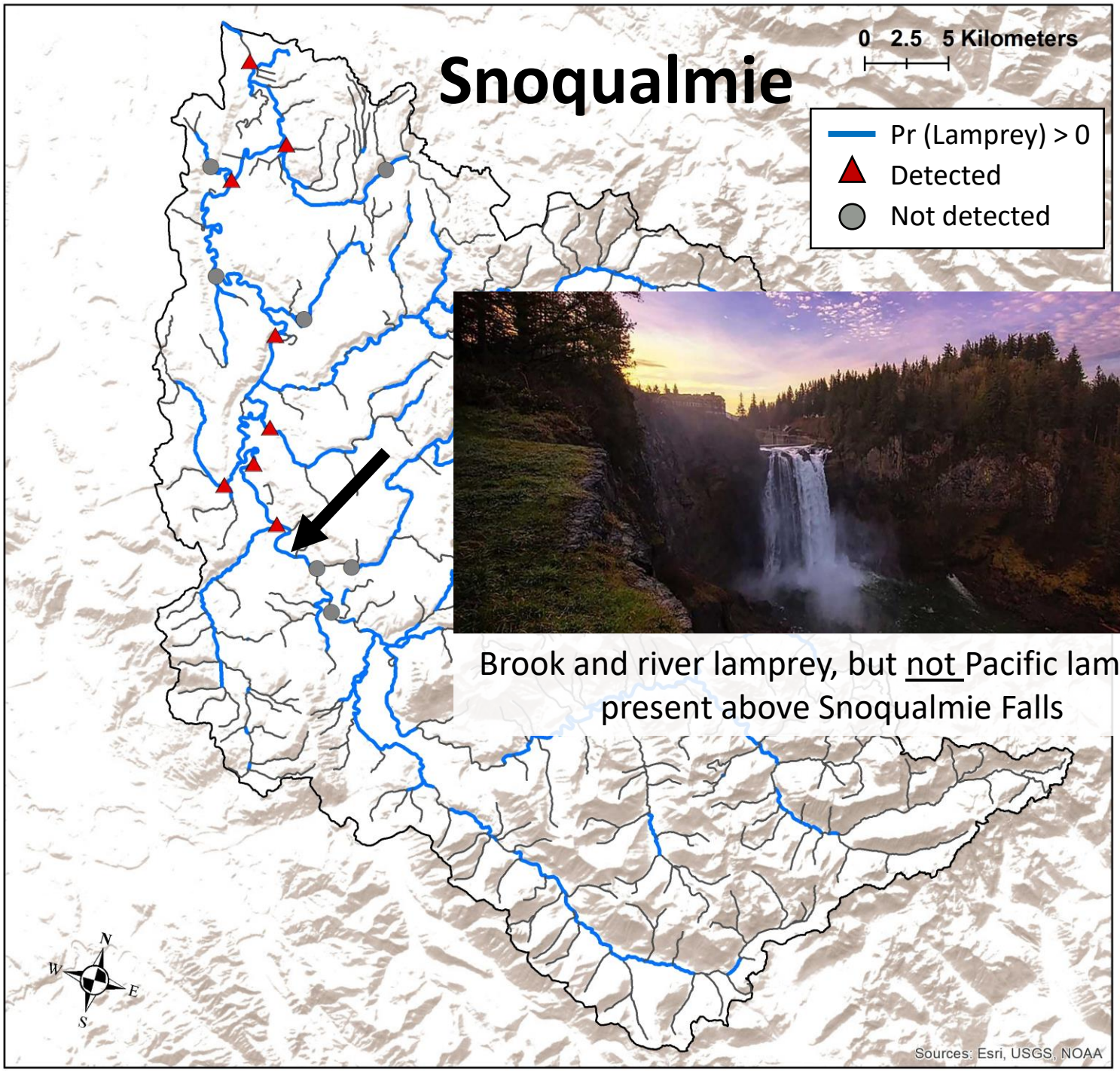
S
0 10 20 40 Kilometers
Sources: Esri, USGS, NOAA

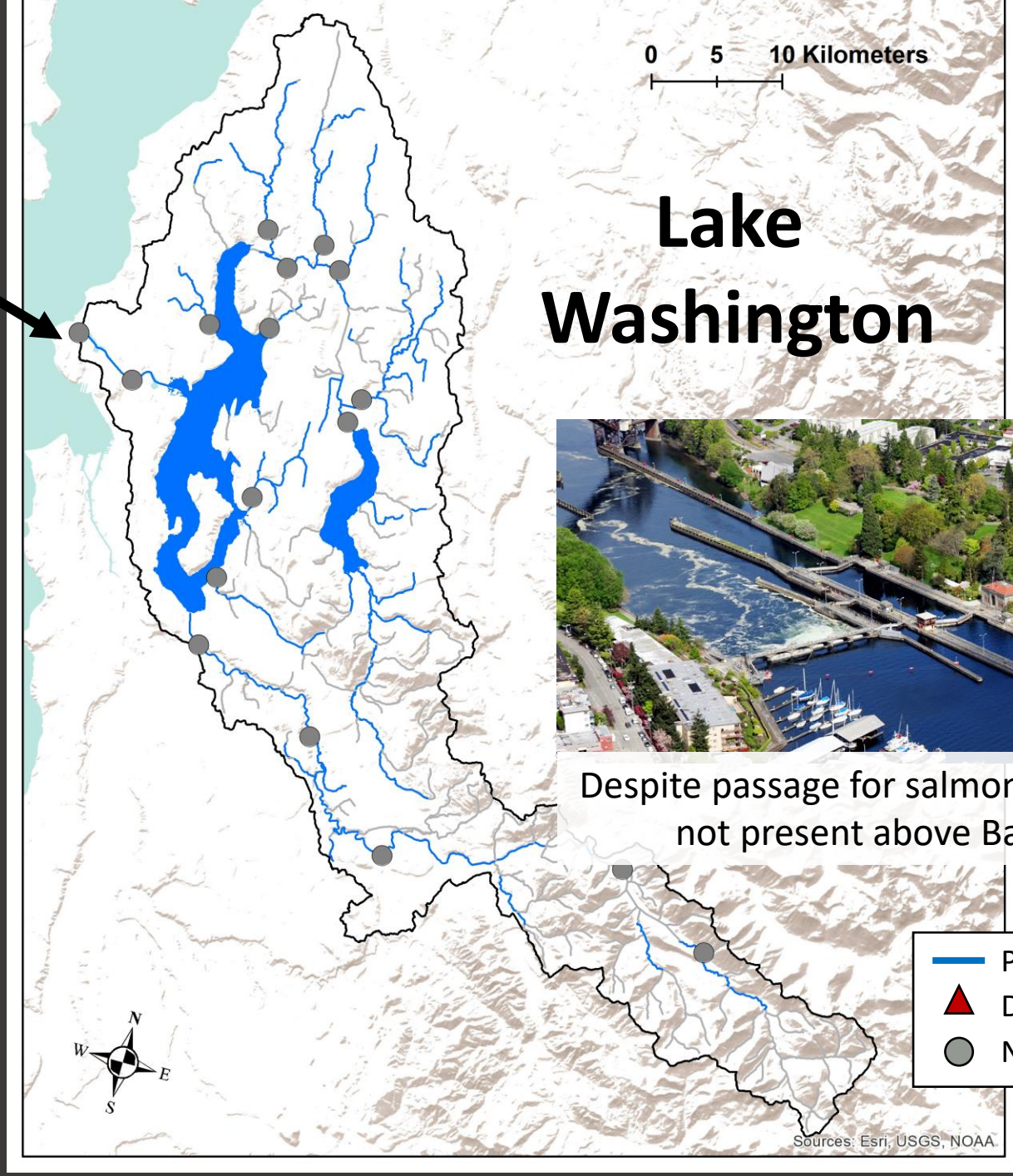

Pr (Lamprey) > 0
Detected
Not detected
0 10 20 40 Kilometers
Sources: Esri, USGS, NOAA

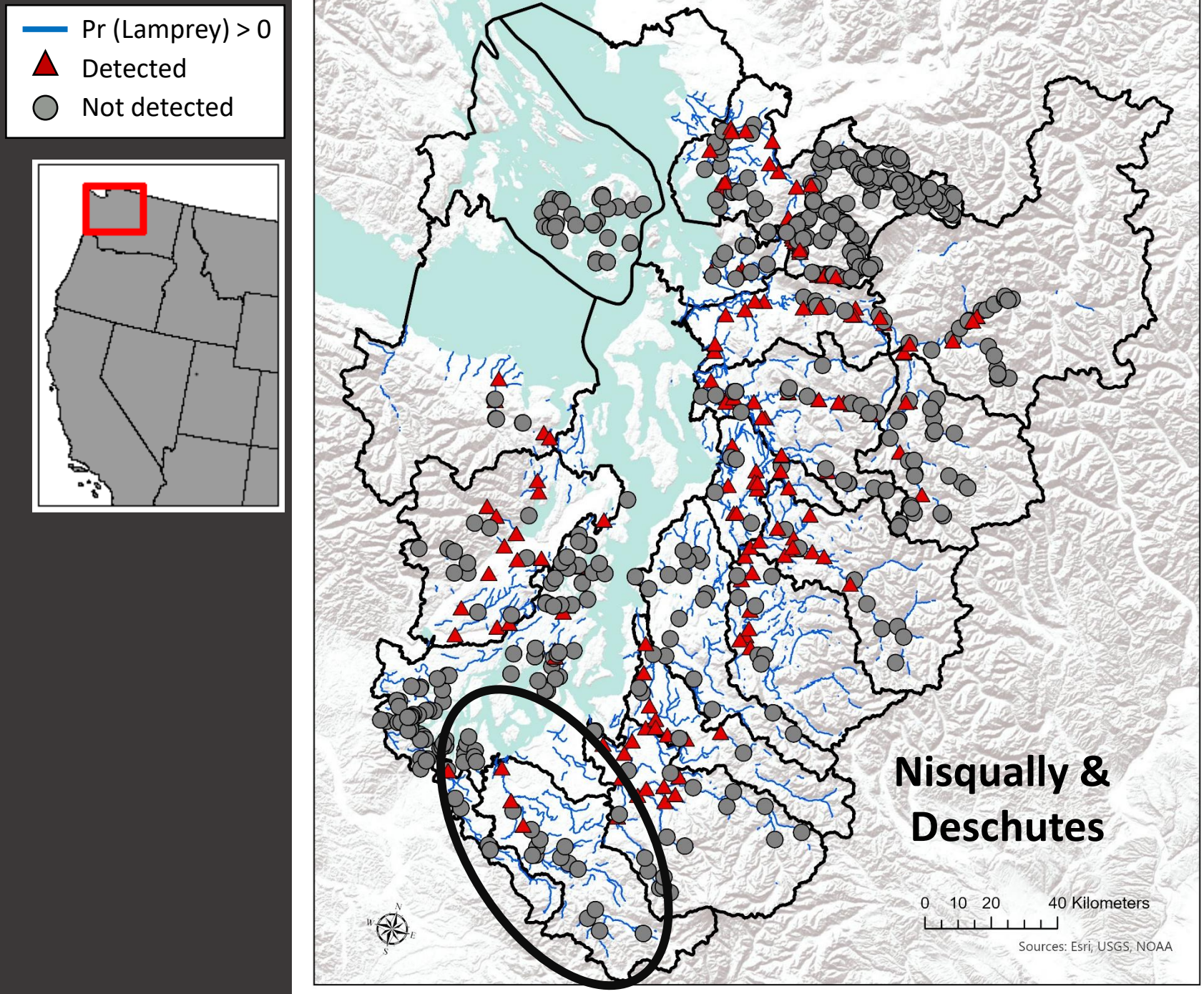

Pr (Lamprey) > 0
Detected
Not detected
Snoqualmie
0 10 20 40 Kilometers
Sources: Esri, USGS, NOAA

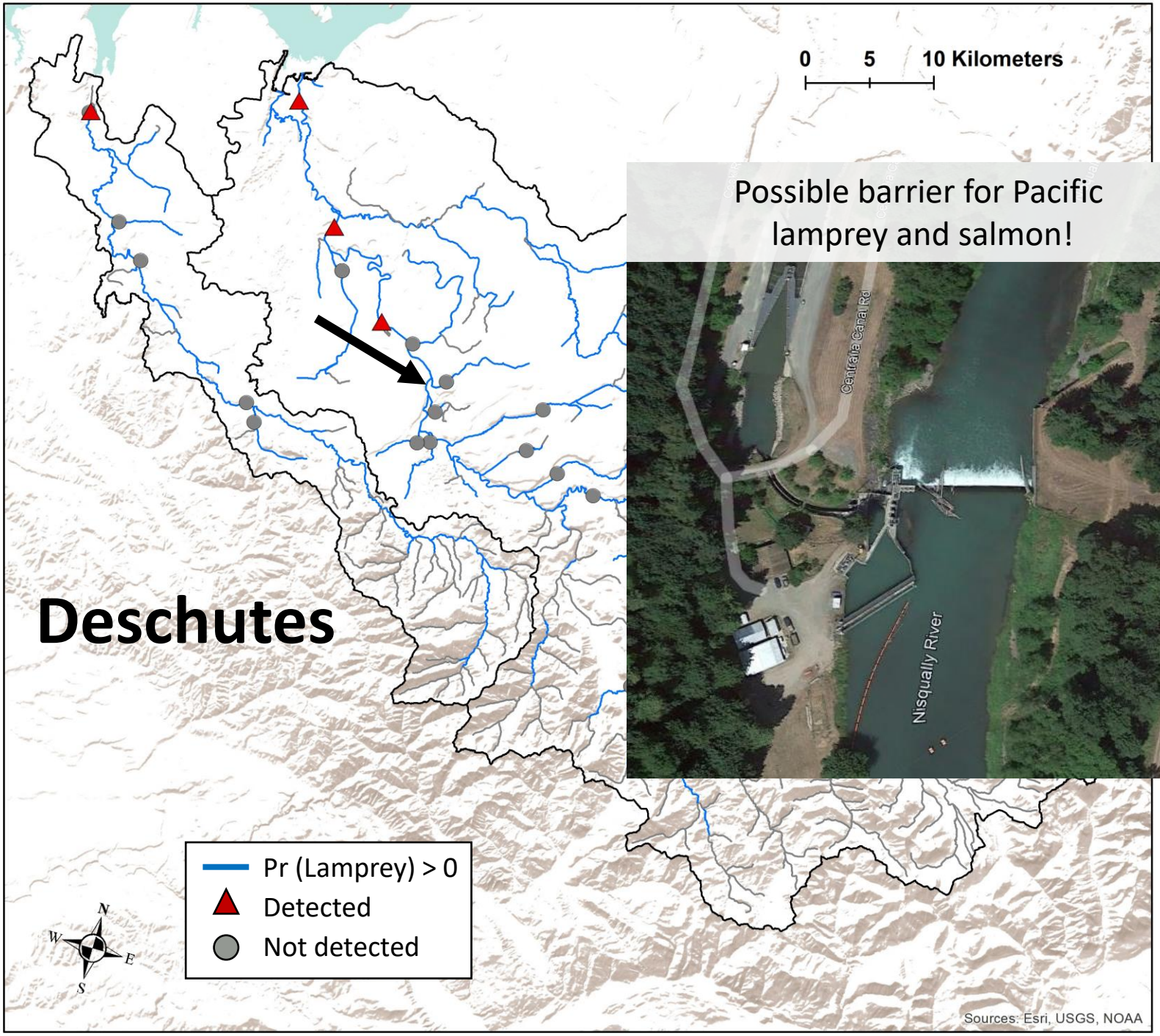
Snoqualmie



Brook and river lamprey, but <u>not</u> Pacific lamprey present above Snoqualmie Falls


0 5 10 Kilometers
Lake Washington
Despite passage for salmon, Pacific lamprey not present above Ballard Locks
Pr (Lamprey) > 0
Detected
Not detected
N
W
E
S
Sources: Esri, USGS, NOAA


Pr (Lamprey) > 0
Detected
Not detected
Nisqually &
Deschutes
0 10 20 40 Kilometers
Sources: Esri, USGS, NOAA


0 5 10 Kilometers
Possible barrier for Pacific lamprey and salmon!
Centralia Canal Rd
Nisqually River
Deschutes
Pr (Lamprey) > 0
Detected
Not detected
N
W
E
S
Sources: Esri, USGS, NOAA

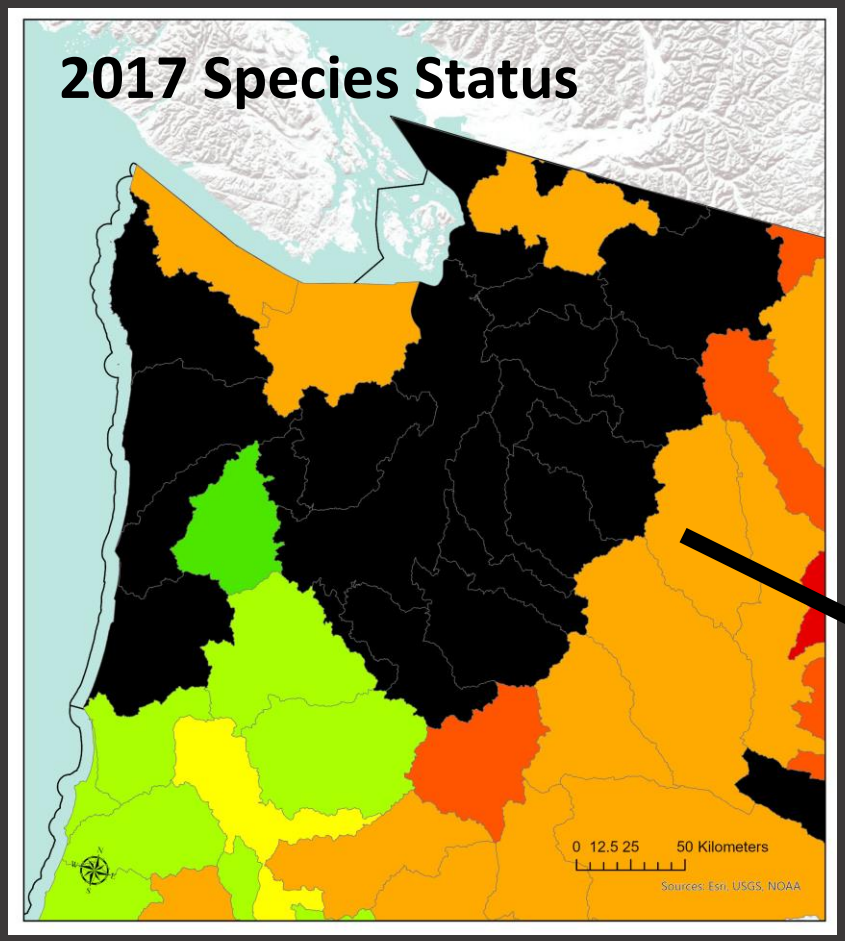
Did fish passage to introduce salmon exclude Pacific lamprey?

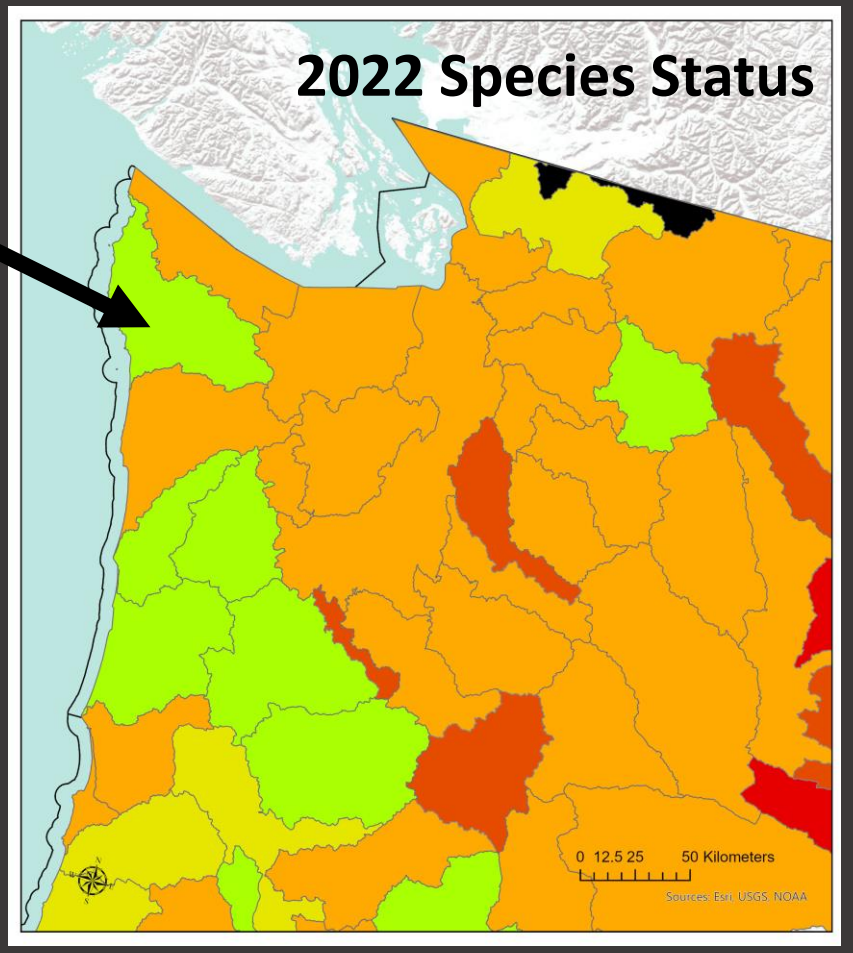
Deschutes

Pr (Lamprey) > 0
Detected
Not detected

N
W
E
S

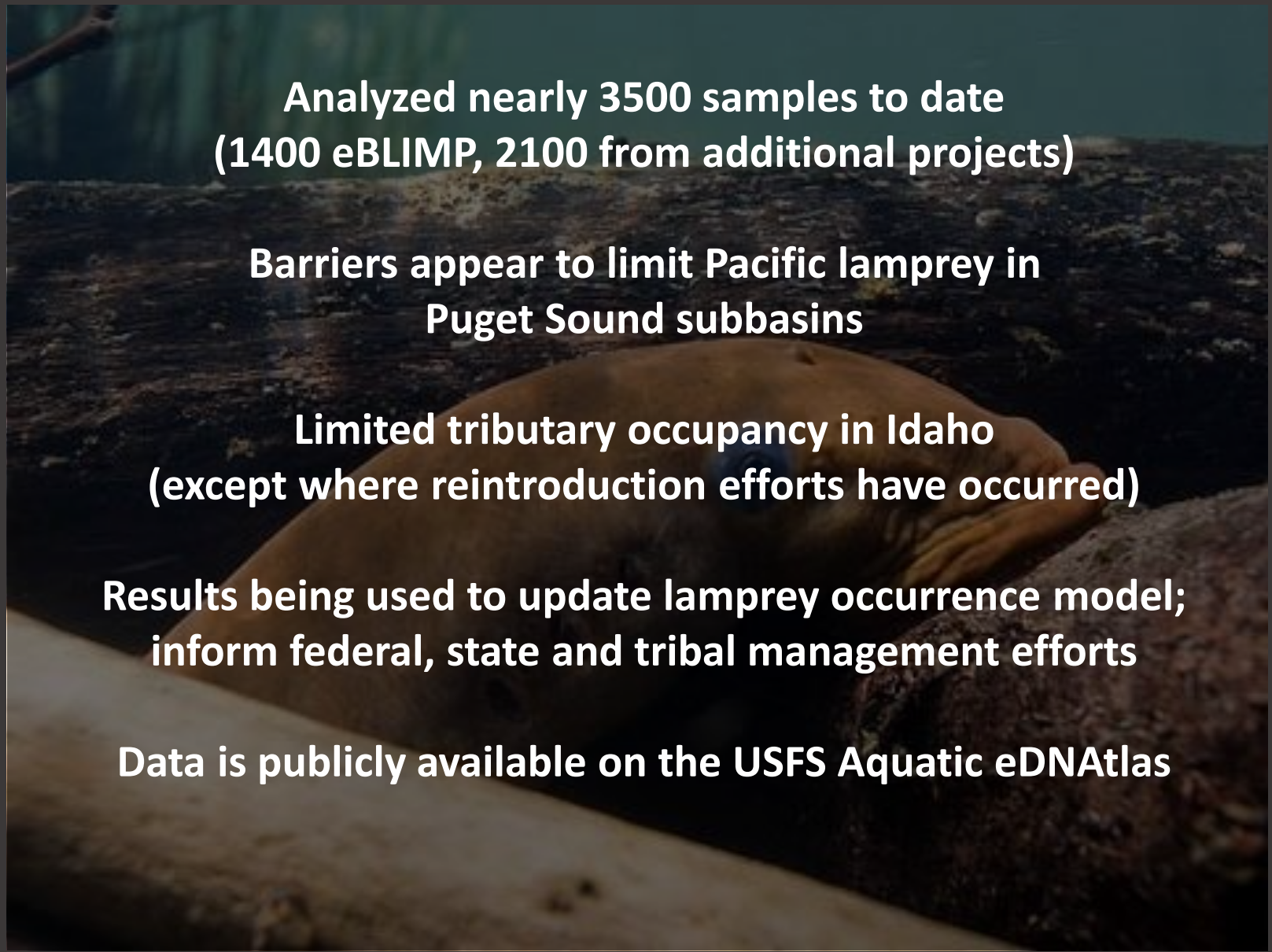
Sources: Esri, USGS, NOAA





Filling in the gaps...

Observations and Notes



Analyzed nearly 3500 samples to date
(1400 eBLIMP, 2100 from additional projects)

Barriers appear to limit Pacific lamprey in
Puget Sound subbasins

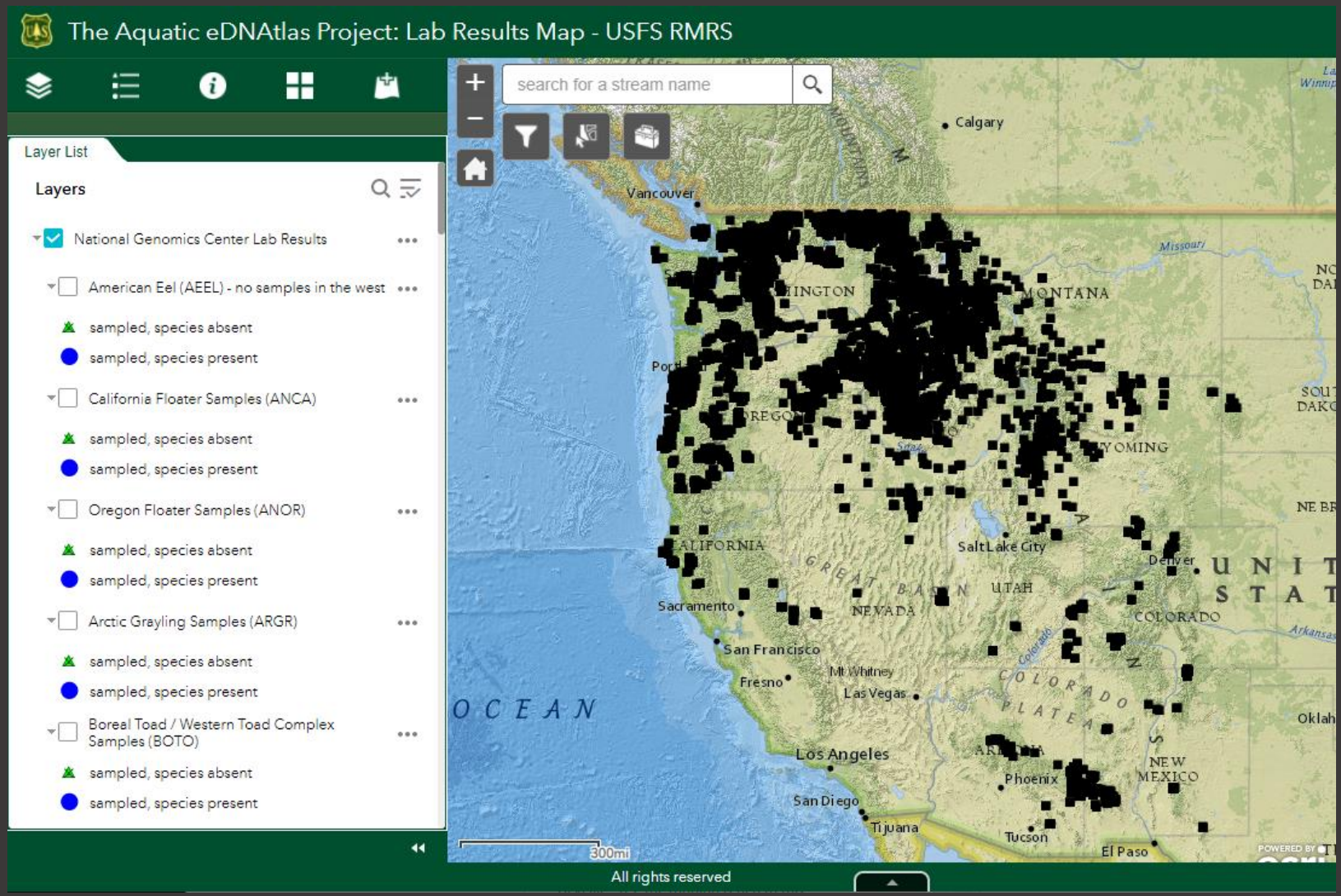
Limited tributary occupancy in Idaho
(except where reintroduction efforts have occurred)

Results being used to update lamprey occurrence model;
inform federal, state and tribal management efforts

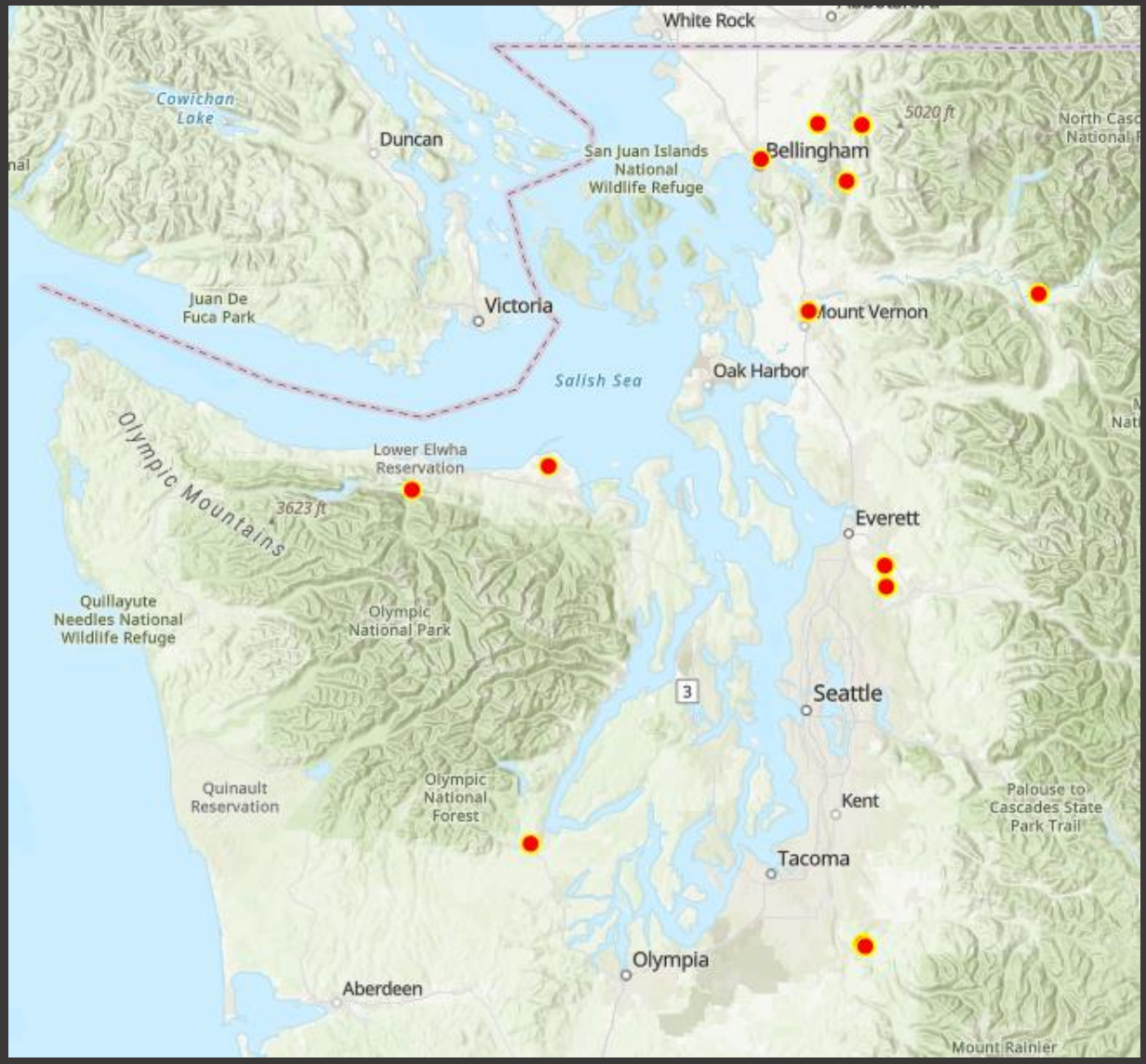
Data is publicly available on the USFS Aquatic eDNAtlas

eDNAtlas

An interactive online map of eDNA locations and results



Next Steps!
eDNA Monitoring of Pacific Lamprey Life Cycles



Questions?

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