



Western Washington University  
**Western CEDAR**

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Salish Sea Ecosystem Conference

2018 Salish Sea Ecosystem Conference  
(Seattle, Wash.)

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Apr 4th, 2:30 PM - 2:45 PM

## **Shoreline armor removal: challenges and solutions to working with private property owners**

Lisa Kaufman

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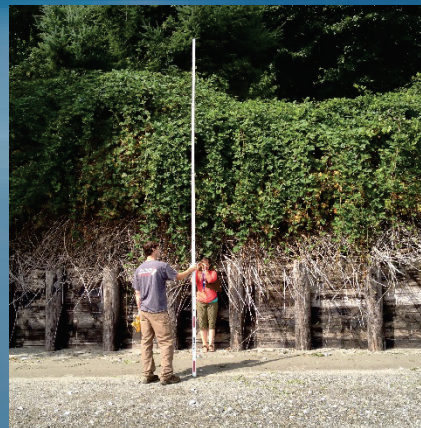
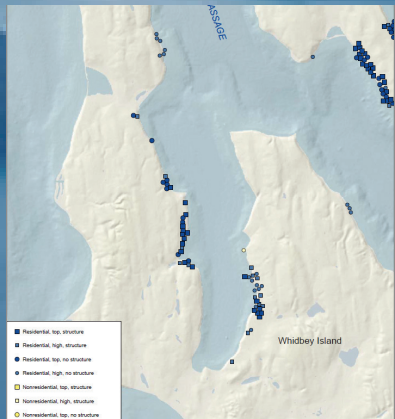
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Kaufman, Lisa, "Shoreline armor removal: challenges and solutions to working with private property owners" (2018). *Salish Sea Ecosystem Conference*. 44.  
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# Shoreline Armor Removal: Challenges and Solutions to Working with Private Property Owners



**Lisa Kaufman, Nearshore Program Manager  
Northwest Straits Foundation**



**Salish Sea Ecosystem  
Conference: April 2018**





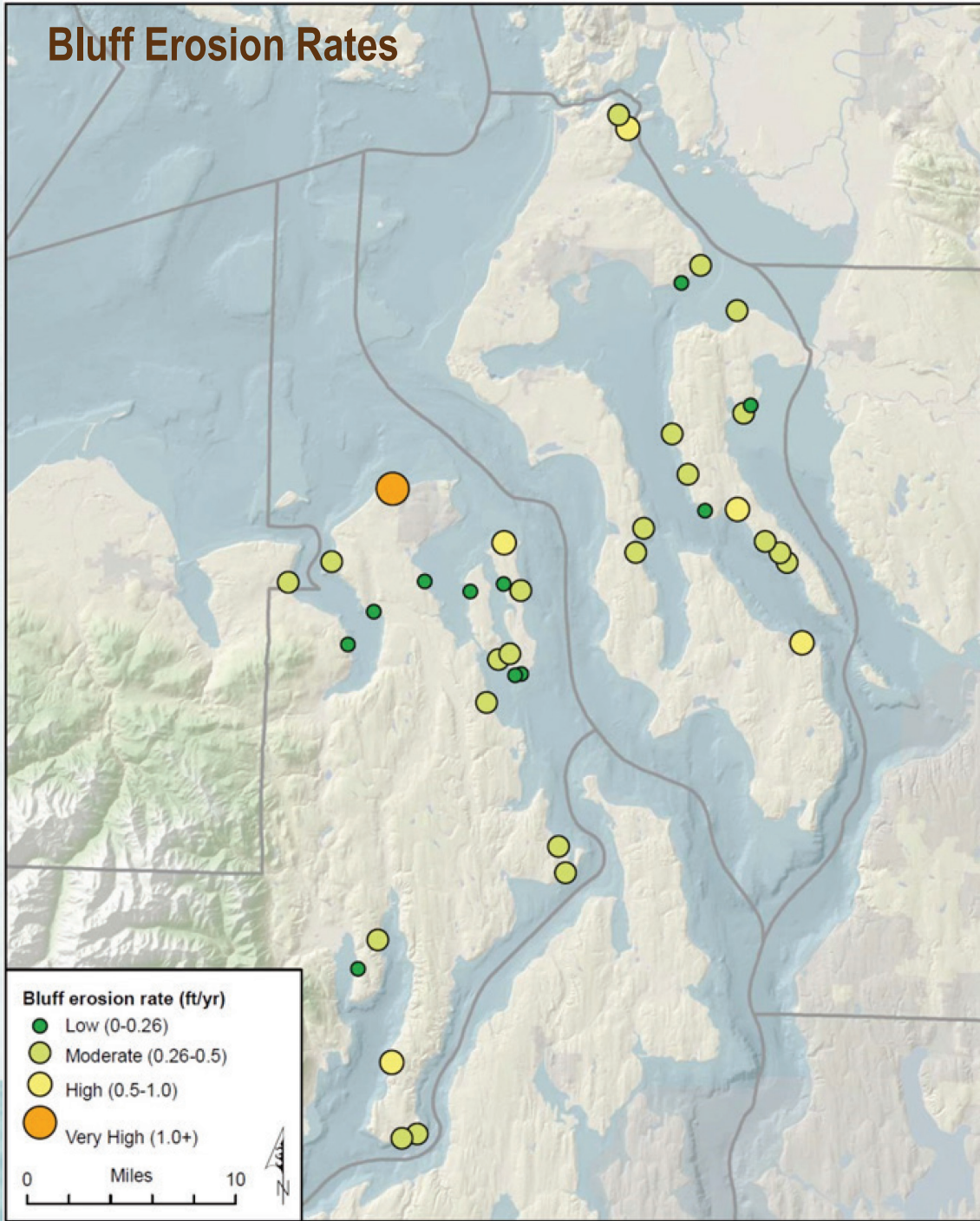




# Coastal Resiliency and Sediment Supply



## Bluff Erosion Rates



# Armor Removal Assessment- Feasibility

Setback distances  
Bluff recession  
rates  
Drift cell location  
Forage fish  
spawning beaches  
Down-drift  
habitats





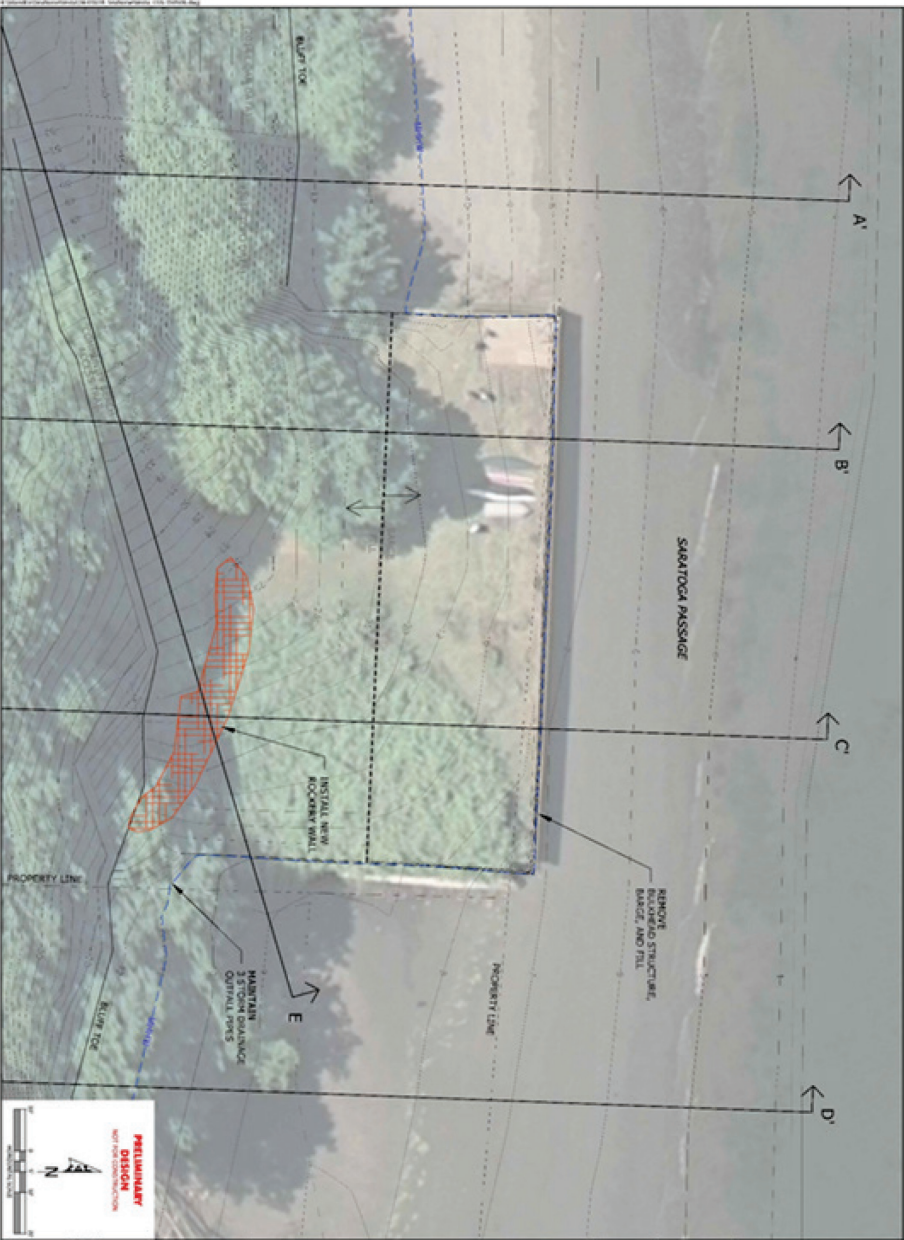
# Outreach and Incentives – Workshops & Site Visits







# Getting to Yes: Design and Permitting Assistance



PERMIT/PROCESS	AGENCY
SEPA	Shoreline jurisdiction (County, City)
NEPA	Federal agency depending on funding
Shoreline Substantial Development Permit Exemption	Shoreline jurisdiction (County, City)
Clearing & Grading	County/City
Discharge Permit (Section 404)	USACE
Section 10	USACE
Nationwide Permit	USACE
ESA Compliance/Concurrence	NMFS/NOAA/USFWS
Hydraulic Permit Approval	WDFW
Section 401 Water Quality	Dept of Ecology
CZM Certification	Dept of Ecology
NPDES Construction Stormwater General Permit	Dept of Ecology
Aquatic Use Authorization or Right of Entry	Dept of Natural Resources
EO 05-05 Cultural & Historical Review	DAHP
Section 106 Cultural & Historical Review	Federal lead
Biological assessment for FEMA/ESA	County/City/USACE

**SEAHORSE SIESTA BULKHEAD REMOVAL**  
**ALTERNATIVE 2 - ROCKERY AT RAMP BASE**  
 SITE PLAN  
 THE NORTHWEST STRAITS FOUNDATION - SEAHORSE SIESTA

**CGS**  
 COASTAL GEOLOGIC SERVICES  
 1711 6th St, Suite 103  
 Bellingham, WA 98225  
 360-847-1840 www.cgsgeo.com

**PRELIMINARY DESIGN**  
**DRAFT**  
**ALT 2**









## Challenges and Compromises



# Putting it all together

- **Landowners respond to the science.**
- **Sea level rise is very real to most shoreline property owners.**
- **Demonstration projects are desired and needed.**
- **It's challenging to take the emotions and connection to their property out of the equation – you can't, so science can bridge the gap.**
- **Expect it to take a long time to get to “Yes”**
- **Important to also take the next step with the landowner...Help fund the project**







**Thank  
you  
partners  
and  
funders**

- **Partners:**
  - **Marine Resources Committees**
  - **Coastal Geologic Services**
- **Funders:**
  - **Habitat Strategic Initiative**
  - **Puget Sound Marine Nearshore Grant Program**
    - **EPA**
    - **Estuary Salmon Restoration Program**
    - **Puget Sound Acquisition and Restoration Fund**
  - **US Fish and Wildlife Puget Sound Coastal Program**
    - **National Fish and Wildlife Foundation**
    - **Honda Marine Science Foundation**
    - **Northwest Straits Commission**
    - **Marine Resources Committees**