

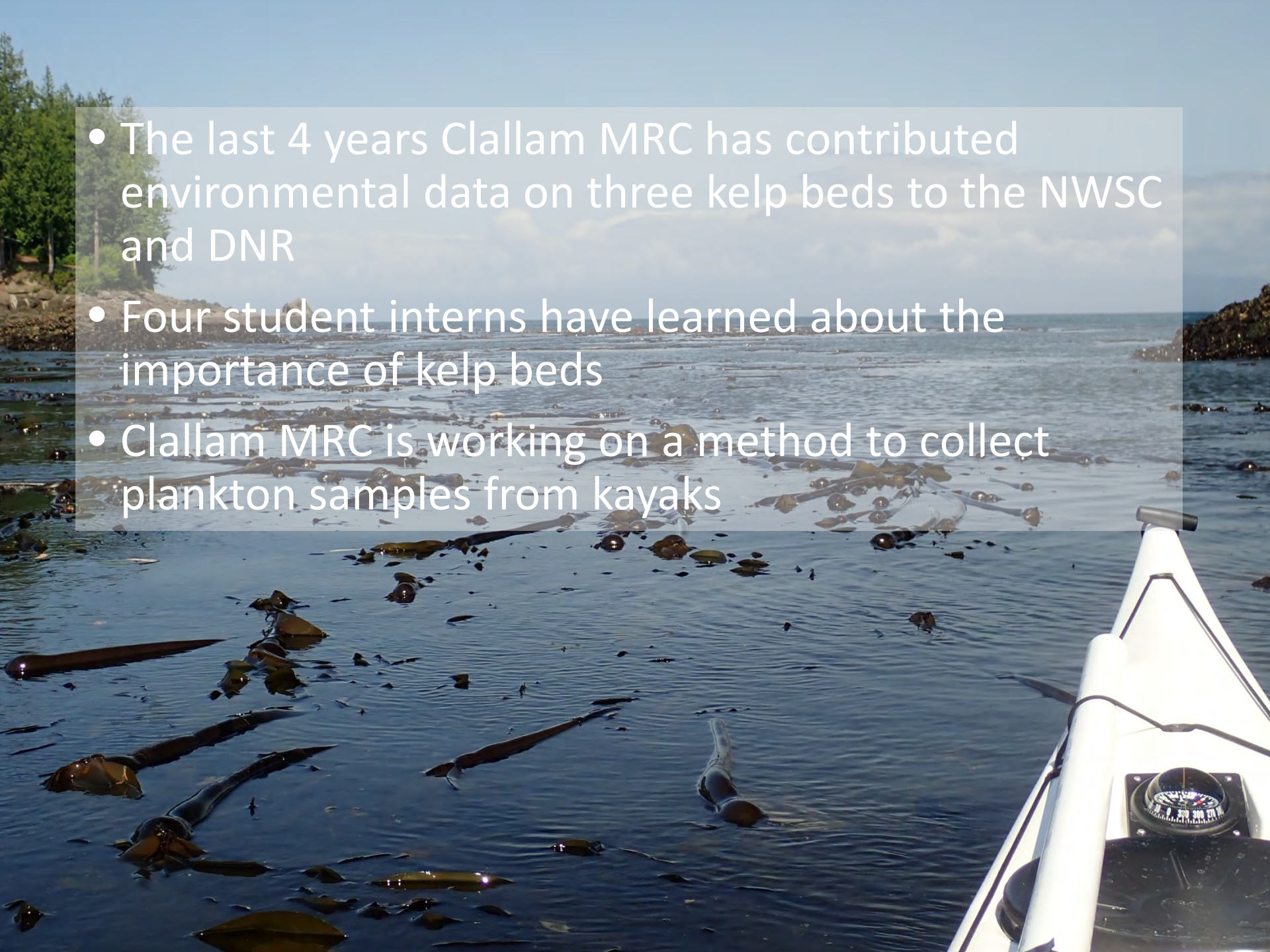
Clallam MRC Kelp Monitoring

Engage citizens and students to collect baseline condition data on three kelp beds along the Strait of Juan de Fuca.



CAROLAN CROFTON
MARINE RESOURCES
COMMITTEE

EXPLO

- 
- A white kayak is positioned in the lower right foreground, with a compass visible on its deck. The water is dark blue and filled with numerous kelp beds, showing long, dark blades and brown, bulbous floats. In the background, a rocky shoreline with green trees is visible under a clear blue sky. A semi-transparent white text box is overlaid on the upper left and center of the image, containing three bullet points.
- The last 4 years Clallam MRC has contributed environmental data on three kelp beds to the NWSC and DNR
 - Four student interns have learned about the importance of kelp beds
 - Clallam MRC is working on a method to collect plankton samples from kayaks

Island County MRC Eelgrass Monitoring

GOAL: MONITOR THE SIZE OF EELGRASS BEDS
IN ISLAND COUNTY SENSITIVE TO DAMAGE
FROM HUMAN ACTIVITY OR ENVIRONMENTAL
STRESS





Project results

10 years of data on Island County eelgrass beds

Eelgrass bed size remains fairly stable

Bed decrease seen at Cornet Bay from 2011-2016 has stopped

Sonar images have good potential, but some limitations in precision and accuracy

Next steps: underwater video team retiring, Gregg Ridder to continue aerals

Thank you, IC MRC Eelgrass Team!!!

Gregg Ridder, Ken Urstad, Kes Tautvydas, Neal Clark, Albert Foster, Bob Gentz, Mark Kennedy, Tom Vos

Skagit: Fidalgo Bay Day

Project Goal: Increase public awareness, foster stewardship, and build a sense of connection to the marine environment



Project Partners:



The Discovery Passport stations with interactive displays increase engagement and provides a fun learning experience for young kids and families



Project Results

In 2019 (our 17th annual event)....

- An estimated 400 people attended
- Over 150 people completed the passport activity
- 50 volunteers contributed over 200 volunteer hours
- 30 local organizations and businesses participated
- This event provides a great opportunity for like-minded organizations to share information and build strong partnerships



Plastic Free Salish Sea

San Juan MRC is working to expand the reach of PFSS around the Salish Sea to eliminate single-use plastic in the region.



Project Status

-  Community Talking Trash workshop series
-  Website & branding design
-  Beach cleanups
-  Video series

This is a partnership and could not happen without:



Friends *of the*
San Juans



**LOPEZ SOLID WASTE
DISPOSAL DISTRICT**
WORKING TOWARD ZERO WASTE



Whatcom: Teaming up with WWU

Whatcom MRC teamed up with a marine conservation class at Western Washington University.



WWU Class Projects

- ▶ Marine Conservation class – 24 students, mostly seniors in Env. Science or Env. Studies
- ▶ Students work with MRC members to develop a project
- ▶ Some projects are applied (eg. data analysis)
- ▶ Others are creative, idea generating

What are Forage Fish

Food
Forage fish eat microscopic marine organisms such as phytoplankton, zooplankton and marine plants.

Prey for...
Common Forage fish in the Salish Sea such as Sand Lance, Herring and Surf Smelt are prey for larger fish, marine mammals and seabirds.

Threats
Human development has encroached on vital spawning habitat. Over fishing is causing a decline in forage fish.

Why are they important?
Forage fish are a key species in the marine food web. They contribute to salmon abundance which sustains the BSKW population in the Salish Sea.

Solutions

- Sustainable fishing practices
- Conscious development.

Volunteer
The Whatcom Marine Resource Committee (MRC) offers opportunities to volunteer on local Forage Fish conservation projects.

"Insert MRC logo here"

Find out more at
www.whatcomcountymrc.org

Facts found @
<https://seafoodjournal.org/files/species/forage-fish>

Outcomes



- Students forged connections with MRC members
- Students gained experience with authentic marine conservation work
- MRC projects moved forward
- MRC gains new ideas and perspectives on their work



Snohomish MRC Derelict Boat Removal

Snohomish River Estuary



Snohomish County
Marine Resources
Committee



In partnership
with DNR:

7 derelict boats
removed during
2018-2019

Over **16 tons** of
marine debris
removed

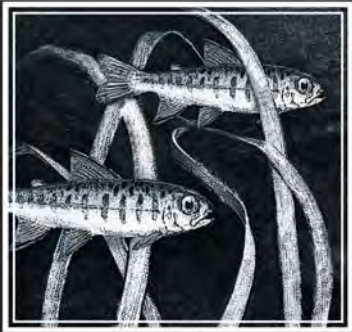


Snohomish County
Marine Resources
Committee

The **ultimate goal** of this project is to remove derelict vessels to improve human safety, aesthetic value, and environmental quality of the Snohomish River Estuary



Snohomish County
Marine Resources
Committee



**Jefferson County
Marine
Resources
Committee**

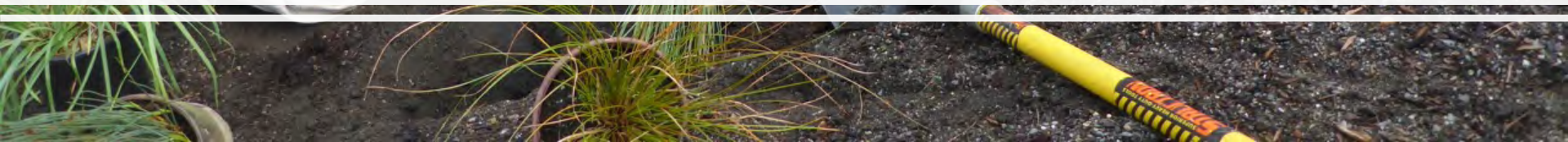


Jefferson Rain Gardens

Removing contaminants
from stormwater before
they reach Puget Sound



In partnership with City, WSU Extension & schools



Project Results

- 10 rain gardens in last 5 years
- Leverage: 1:1 match (in-kind services)
- Cost: \$6-8,000/rain garden, depending on size, site conditions, etc.





Effective Community Engagement

Skagit: Kids on the Beach

Project Goal: Increase ocean literacy in middle school students with real, relevant, local experience in marine science and restoration



Project Partners:



Fifty 8th grade students from Conway measured nearshore fish diversity & forage fish spawning activity to assess the effectiveness of beach enhancement and restoration



Fifty 8th grade students from La Conner measured the presence of juvenile salmon and tested water quality in the Lone Tree pocket estuary compared to other areas outside the pocket estuary



Project Results

- Students presented their research at a science symposium
- Evaluation results indicated the students had an improved understanding of scientific processes and Salish Sea habitats
- Next Steps: In 2020 the program will be expanded to include science activities at Padilla Bay with Sedro-Woolley 5th graders and Concrete 8th graders



Communities Raising Flags to Protect Whales from Boater Traffic





To reduce the impacts of vessels on the endangered Southern Resident killer whales we must change boater behavior. San Juan MRC sought to do this with the formation of new social norms using a flag.

Project Status



-  1025 flags distributed
-  > 3000 leaflets distributed
-  > 4000 people contacted in outreach efforts.

Partnerships make a difference

-  Vessel compliance increased with flag presence.
-  Boater awareness remains surprisingly low.





Leveraged MRC budget to garner a further **\$47,000** in grants & County funds.



Island County MRC Bull Kelp Monitoring

GOAL: MONITOR SIZE AND TEMPERATURE PROFILES OF BULL KELP BEDS, AND EXTENT OF BULL KELP PRESENCE AROUND ISLAND COUNTY SHORELINES.



Credit: Kelly Zupich





Credit: Rich Yukubousky

Project results - 2019

Beds were larger earlier in the season than in previous years.

Surface temperatures exceeded 17°C at all beds at least once during survey period.

Abundance of juvenile herring observed in Ebey's Landing bed. Kelp crab observed only in Possession Sound bed.

Developed method of quantifying bulb density using infrared camera.

Project Lead: Linda Rhodes

Additional volunteers: Ron Beier, Barbara Bennett, Vernon Brisley, David Davis, Barbara Hardman, Gregg Ridder

Clallam MRC Derelict Gear Removal



Educate local crab fishers about the proper way to catch crabs avoiding losing their crab pots.



- Clallam MRC hosted two workshops for 82 recreational crabbers
- More than 200 crabber outreach kits were handed out to crabbers
- Two student interns participated in the educational outreach and one participated in derelict crab pot removal in Sequim Bay.



The Northern Light

Blaine and Birch Bay's Community Newspaper

MAIN MENU

STAY & FLY HOTEL PACKAGE **\$149** **\$189** **SILVER REEF**
Call (866) 383-0777 Reserve Now! All Ages Sunday - Thursday Friday - Saturday CASINO RESORT **I-5 EXIT 260**

Beach clean-up helps turn the tide on pollution in east Drayton Harbor



Remote and Other Site Cleanups

Cleanup marine debris at beaches that wouldn't otherwise get cleaned

Beach Cleanups



Cleanup Results

- **SW Lummi Island:** with a charter boat, 18 volunteers got 440 lbs of trash from 5 miles of remote shoreline
- **Cherry Point:** with BP and others 110 volunteers cleaned up 10 miles of the Cherry Point Aquatic Reserve reach
- **Sucia Island:** with the help of a charter boat, volunteers from Whatcom and San Juan County MRCs and Surfrider covered the entire walkable shoreline of the island to pickup 60 lbs of microtrash



Cleanup Results (continued)

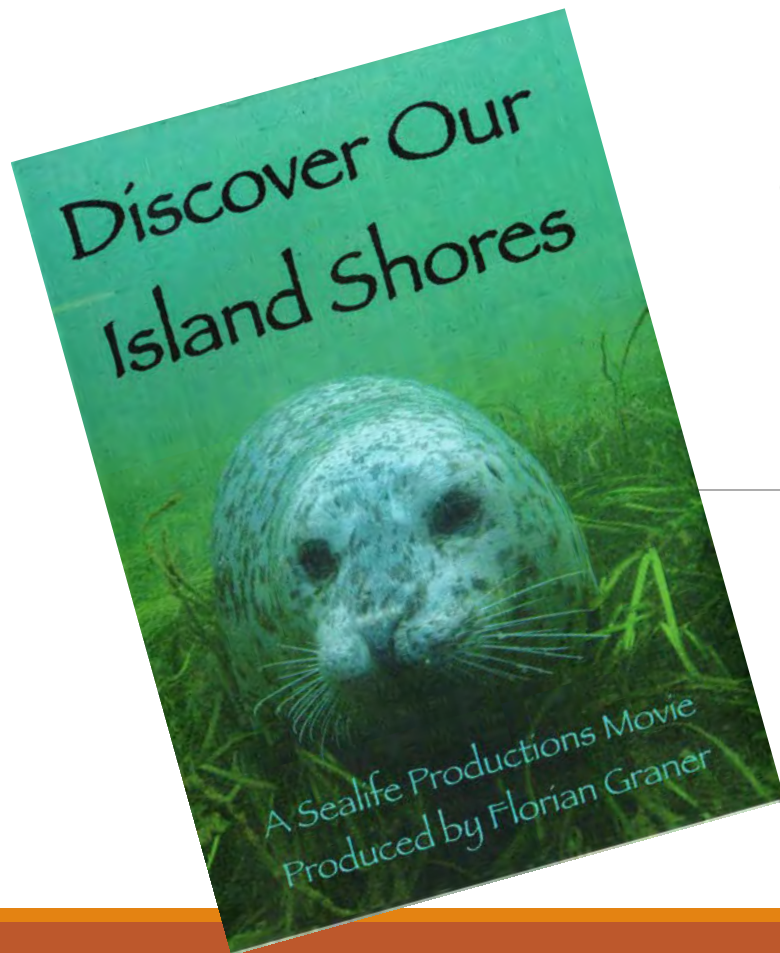
Drayton Harbor: with the help of a North Sound Steward volunteer, community and Whatcom MRC members helped DNR get over 3,000 lbs of trash off the beach

International Coastal Cleanup: with partners cleaned up two beaches, removing 130 lbs of trash and tallied up items to submit to the global database



Island MRC

“Discover Our Island Shores”



GOALS:

- ❖ INFORM AND INSPIRE STUDENTS AND COMMUNITY MEMBERS ABOUT THE MARINE RESOURCES OF ISLAND COUNTY.

- ❖ INSTILL AN APPRECIATION FOR THE LOCAL MARINE ENVIRONMENT AND ENCOURAGE PARTICIPATION IN ITS CARE AND PROTECTION.

Classroom Activity



Library Display



Art Contest



Film Screenings

Project results

Results

- 70 art contest entries
- Winning art entries on display at Board of Island County Commissioners' office
- Additional schools requesting the film and classroom activity for 2019-2020
- 82% of film screening viewers indicated their appreciation for local marine habitats and species was **greatly increased** after watching the film

Next steps:

- Provide film and classroom activity packet to Sno-Isle Libraries for homeschool students
- Provide film and classroom activity to additional classrooms
- Host marine food web display at Oak Harbor Library

Project Lead: Kelly Zupich

Film developed by: Dr. Florian Graner

Funding leveraged:

- NWSF – film development and distribution to schools: \$5,600
- NWSC – film screenings and expanded outreach: \$2,400

Bowman Bay

Nearshore Restoration

Project Goal: Restore natural sediment transport processes and improve approximately 0.6 acres of nearshore habitat for forage fish, juvenile salmon and bull trout



Before

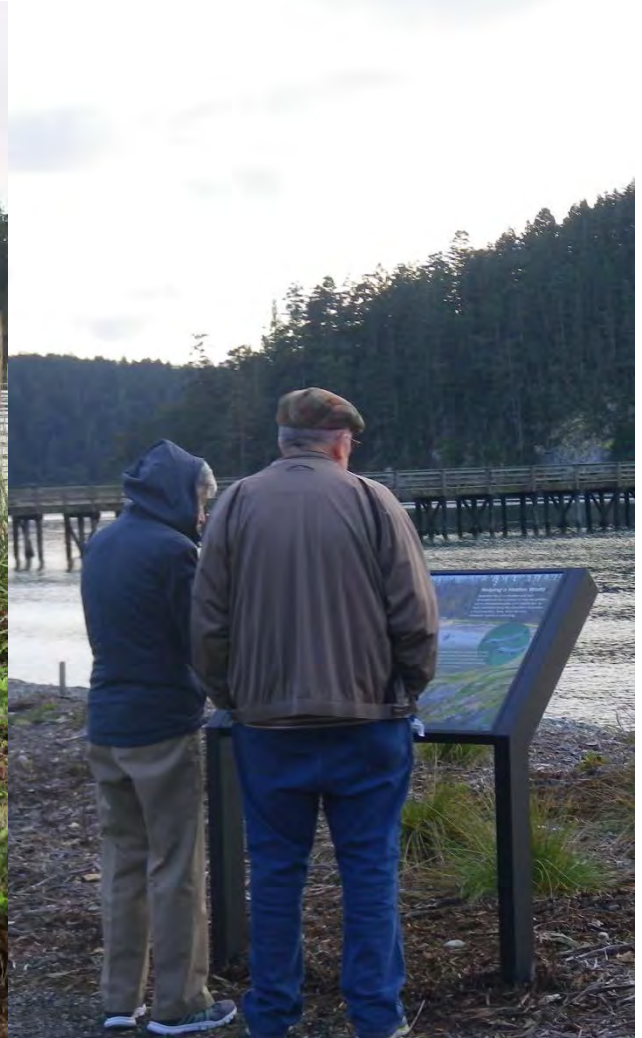


After

Project Partners:

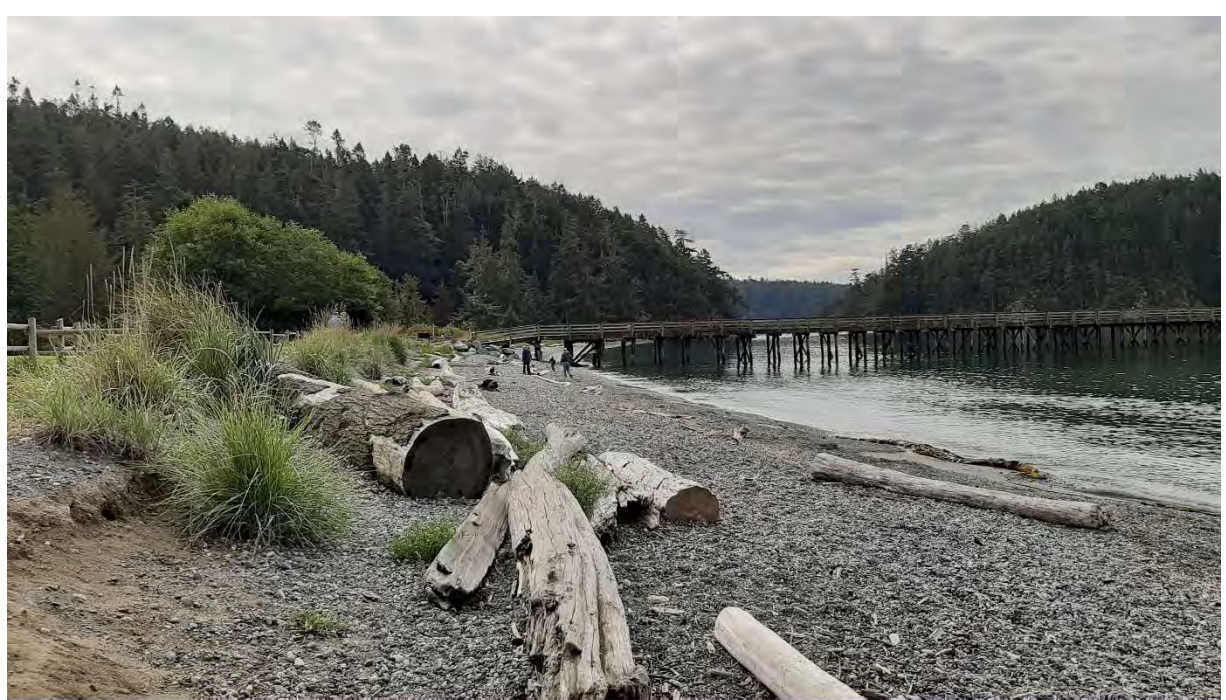


Removed rock riprap and applied beach sediment along 540 ft of shoreline, implemented a riparian planting plan, installed interpretive signage, and improved beach access



Project Results

- The shoreline is now a nice gentle slope and the vegetation is filling in nicely.
- Large woody debris is naturally starting to accumulate.
- There is a good mix of beach sediment for forage fish spawning. To date, no forage fish spawning has been observed.
- The public has expressed great appreciation of this project.
- Next Steps: Volunteers will continue to maintain the riparian vegetation in 2020 and replace the plants that didn't survive. Nearshore monitoring will also continue for one more year.





Jefferson Eelgrass Protection Zones

Maintain Voluntary No-Anchor Zones to prevent anchor damage to eelgrass



Boats anchoring outside eelgrass (photo-PTLeader)

Project Results

- 52+ acres of high-risk eelgrass beds protected
- MRC volunteers maintain buoys
- Port of PT is key partner
- Educational signs help





MRC Grant 2019-2020: Prioritization of Pilings for Removal from the Snohomish River Estuary



Photo: WA Dept. of Ecology



Snohomish County
Marine Resources
Committee

There are at least ten thousand pilings in the Snohomish River Estuary.

Our project has two parts

1. Map the location of the pilings on public land through a desktop GIS analysis and,
2. Develop a removal prioritization framework, gather data, and evaluate pilings



Snohomish County
Marine Resources
Committee



Photo: Elisa Dawson



The ultimate goal of this project is prioritize the pilings for future removal



Photo: WA Dept. of Natural Resources



Snohomish County
Marine Resources
Committee



Skagit: Salish Sea Stewards

Project Goal: Build and maintain a solid base of dedicated volunteers to help support local marine conservation and restoration projects and teach citizens how to become good stewards of the Salish Sea



Project Partners:



40 hours of
free training
each year
taught by over
28 experts in
the classroom
and the field



Project Results

- Over 151 volunteers have completed the training since 2014
- Over **30,749** volunteer hours contributed!
- Salish Sea Stewards support over 35 local programs
- Next Steps: Partner with Padilla Bay in 2020 to administer the training





Jefferson Educational Programs

Focusing on marine
stewardship practices for
individuals



Digging for Dinner – safe & sustainable clam harvesting



Catch More Crab Campaign

- Education programs
- Partnering with NW Straits Foundation & Clallam MRC



Local media attention on project message



Searching for Seaweed Beach Walk

- Ecological connections
- Sustainable harvesting



Oil Spill Risk and Prevention

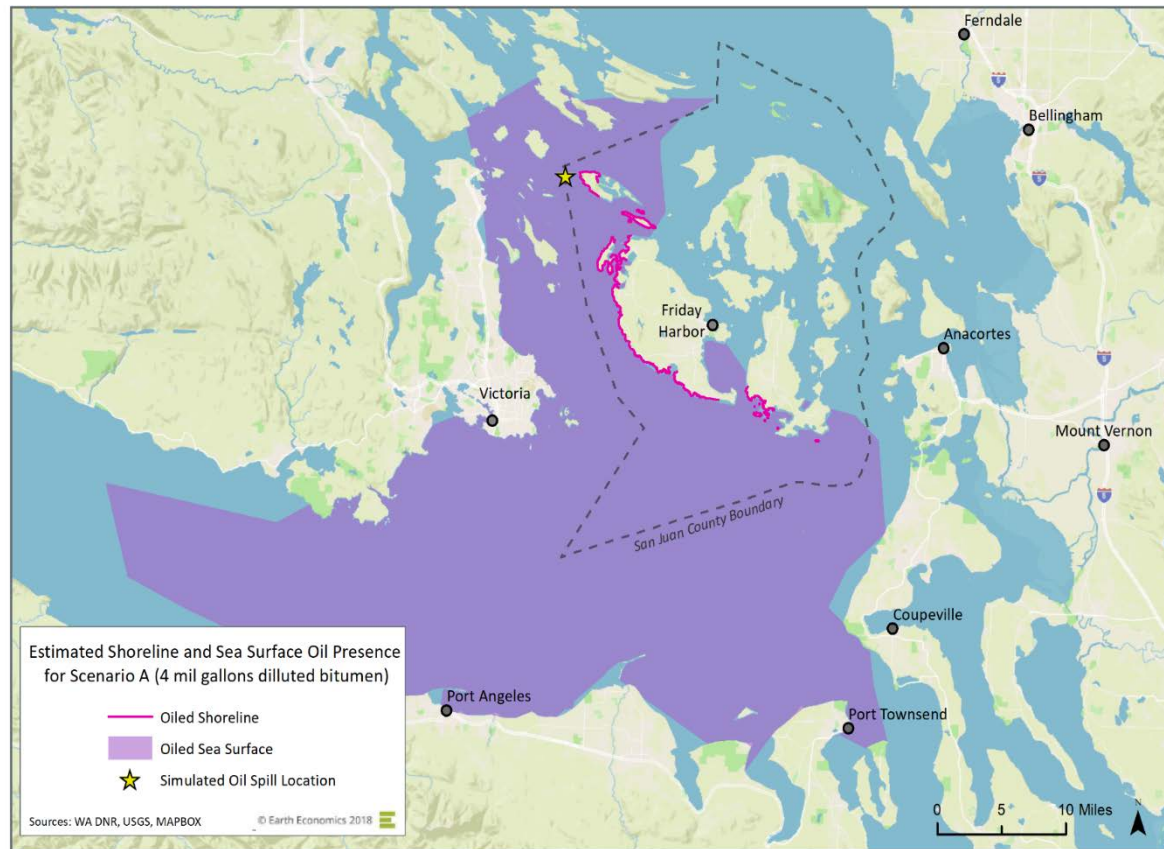


San Juan MRC secured **\$100,000** in locally directed **PSP NTA** funding to commission two reports to support the cost/benefit business case of staging an **Emergency Response Towing Vessel** in San Juan County

- Evaluated the cost of positioning and operating a multi-mission ERTV for Haro Strait/Boundary Pass.
- Assessed the consequences and scale of impacts from two oil spill scenarios at the Haro Strait/Boundary Pass Turn Point to the natural resources health and economic vitality of San Juan County.

Results

Estimated annual cost of positioning an ERTV in San Juan County ranges from **\$4.3 to \$6.2 million**



Damages to San Juan County associated with an unmitigated oil spill at Haro Strait/ Boundary Pass are *very conservatively* estimated at:

💧 **\$84 to \$243 million** for a 1-million-gallon spill of heavy fuel oil

💧 **\$142 to \$510 million** for a 4-million-gallon spill of diluted bitumen



Photo: Chris Teren

FOR MORE INFORMATION

Marta Green, Puget Sound Recovery Coordinator
San Juan County Environmental Resources Division
martag@sanjuanco.com, (360) 370-7587

Skagit: Pinto Abalone Recovery

Project Goal: Continue to build a sustainable pinto abalone population at 8 restoration sites in Skagit County



Project Partners:



Since 2009, 11,400 genetically diverse pinto abalone have been outplanted to 8 sites in Skagit County



Project results

- Pinto abalone are growing larger in size and density and are dispersing beyond the outplant sites!
- Pinto abalone densities at five restoration sites exceed the minimum density needed to sustain successful spawning.
- Next Steps: In 2020, approximately 1,000 juvenile abalone will be outplanted. Underwater cameras will also be deployed during seeding activities to gather information on predation.





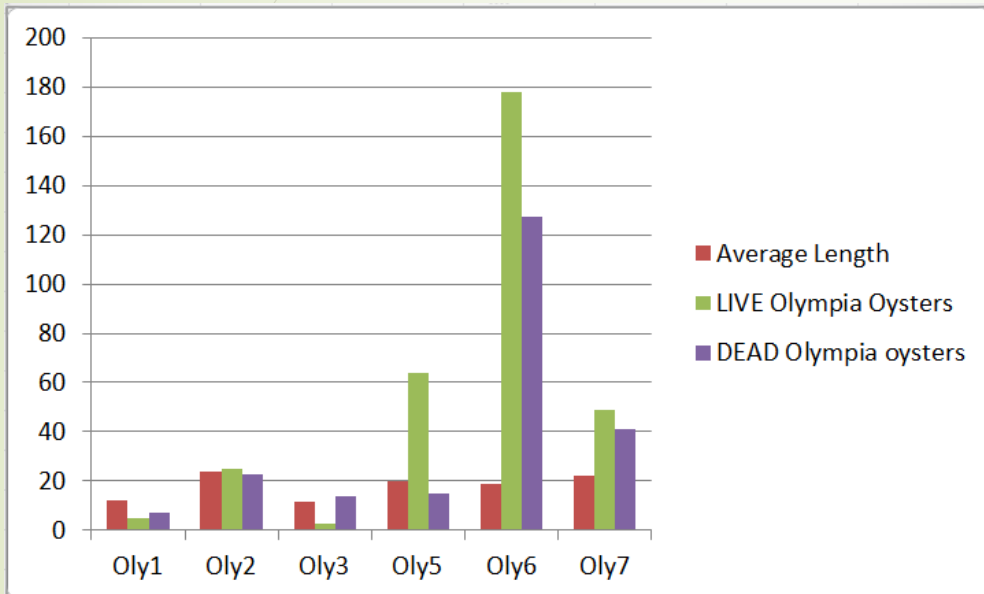
North Chuckanut Bay Olympia Oyster Restoration

Reintroducing native oysters to improve habitat and water quality



North Chuckanut Bay Olympia Oyster Restoration and Monitoring

North Chuckanut Bay Olympia Oyster Restoration Results



Project lead: Chris Brown

- Recruitment and retention varied site to site, but sites 5, 6, and 7 were higher intertidally and had similar characteristics to inform potential future sites
- Next steps are to continue monitoring and look into introducing more oysters?