CLALLAM MRC

PINTO ABALONE MONITORING IN CLALLAM COUNTY

EDUCATION/OUTREACH, RESEARCH/MONITORING, & CONSERVATION/RESTORATION

PURPOSE

We aim to support future abalone restoration efforts in the Strait of Juan de Fuca by gathering population data and habitat suitability information through dive surveys.

PARTNERS

Puget Sound Restoration Fund (PSRF)
(Works with CMRC to plan survey dive locations and implementation, conducts dive surveys, creates results reports and manages data)

Washington Department of Fish and Wildlife (WDFW)
(Technical guidance on survey techniques and plots, In Kind survey vessel and diver support as needed)

Lower Elwha Klallam, Jamestown S'Klallam, and Makah Tribes
(Provided Indigenous knowledge related to historical abalone populations along the Strait, ad hoc reports of and sharing coordinates of abalone seen during recent dives)

TIME FRAME

Annual rounds of dive surveys in 2024 and 2025. Project is ongoing, with more surveys in 2026-2027 and beyond.

BUDGET

$39K funded for 2024-2025 through NOAA one-time grant, $30K budgeted for 2026-2027

In-kind support from WDFW in 2025 (and potentially beyond) – provided support vessel ($1200/day)

MAIN ACTIVITIES

- Conduct dive surveys annually. In 2024-25 11 dive days (32 dives total) were conducted analyzing presence of any abalone and habitat quality
- Evaluate habitat quality to determine potential index sites or outplanting sites for abalone restoration
- Index sites will be identified where abalone are already present
- Outplant sites will be identified if there is viable habitat present

PINTO ABALONE OBSERVED IN 2025 SURVEY OF PORT ANGELES SUBREGION. PHOTO CREDIT PUGET SOUND RESTORATION FUND.

PROJECT LEADS

Jeff Ward
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Alan Clark
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Clallam County MARINE RESOURCES COMMITTEE

GROWTH AND LOOKING TOWARD THE FUTURE

We are showing the value of a team approach to restoration that includes the MRC, a state resource agency, and a regional nonprofit. This maximizes the amount of work that can be done through relying on scientifically-defensible protocols, leveraging local knowledge and resources, and making available funding go farther.

Planning this as a multi-year project ensures that multiple geographic areas can be covered in a sustainable way, and there is time to plan for future habitat restoration work.

UNDERWATER VIDEO PROVIDES A VALUABLE TEACHING TOOL SHOWING THE HABITAT CONDITIONS AND FOSTERING EXCITEMENT ABOUT THE PROJECT.

SEA LION ON A SEPTEMBER 2025 SURVEY DIVE. PHOTO CREDIT: PUGET SOUND RESTORATION FUND.

DELIVERABLES

- 11 dive days (32 total dives) in 2024-25

OUTCOMES

- Conduct population and habitat surveys
- Add to the scientific knowledge of population status and habitat suitability for possible outplant actions in the Strait of Juan de Fuca for this state-listed species
- Improve the PSRF/WDFW abalone survey protocols based on dives in the Strait of Juan de Fuca

AN OCTOPUS FOUND RESTING IN A CREVICE DURING A SEPTEMBER 2025 SURVEY DIVE. PHOTO CREDIT PUGET SOUND RESTORATION FUND

JEFFERSON MRC

MARINE SCIENCE AND STEWARDSHIP STAGE

AT THE PORT TOWNSEND WOODEN BOAT FESTIVAL

EDUCATION & OUTREACH

PURPOSES

The Marine Science Stage at the 3-day Port Townsend Wooden Boat Festival is an education and outreach hub for the MRC and partners.

PARTNERS

Northwest Maritime Center
(Tables and chairs, promotion of the Stage through social media and website)
Port Townsend Marine Science Center (PTMSC)
(Staff and volunteer time, microscopes, kelp banners, podium, materials and equipment)

PRESENTERS:
Jamestown S'Klallam Tribe
Orca Network
Pacific Mammal Research
Pacific Whale Watch Association
Port Townsend Marine Science Center
Puget Sound Restoration Fund
(& light trap)
University of Hawaii
WA Dept of Health (& Science Alley)
WA Dept of Fish and Wildlife
(& Science Alley)
WA Sea Grant
WA Dept of Natural Resources
World Puffin Congress

TIME FRAME

Event: Sept 5-7, 2025;
extensive committed planning

BUDGET

Annual costs: $4200
One-time costs: $4200

MAIN ACTIVITIES

- Planning, coordination, and facilitation of 19 marine science presentations
- Planning, coordination, and facilitation of 6 hands-on microscope stations
- Coordination of project partners to create a 'Marine Science Alley'
- Development of "MRC Promo" video, screened between presentations
- MRC information tent staffed by volunteer members

THE MARINE SCIENCE & STEWARDSHIP STAGE WAS FIRST HELD IN 2024. THE STAGE WAS SO WELL RECEIVED THE MRC DOUBLED THE TENT SIZE IN 2025, COUNTING 1,404 VISITORS.

THE MARINE SCIENCE AND STEWARDSHIP STAGE. PHOTO: BETSY CARLSON

PROJECT LEAD
Betsy Carlson,
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Jefferson County Marine Resources Committee

GROWTH AND LOOKING TOWARD THE FUTURE

Over 10,000 people attend the Wooden Boat Festival each year. This project provides a marine science element novel to the festival. It requires planning and communication starting 9 months in advance, and is reliant on 7+ MRC and partner volunteers per day to set-up, tear-down, and staff the 3-day event. This year to further develop the idea of a "marine science hub," the project lead initiated the idea of a Marine Science Alley in collaboration with DOH, WDFW, PTMSC and MRC whose booths created an "alley" leading to the presentation stage, linked by decorative elements to provide visual unity.

DELIVERABLES

- **19 speakers**
- **19 presentations**
- **1404 visitors throughout the weekend, average of 74 people per presentation**
  - **Friday – 515 visitors for 7 presentations**
  - **Saturday – 595 visitors for 7 presentations**
  - **Sunday – 294 visitors for 5 presentations**
- **11 local and state partners**
- **34 comments and feedback responses**

PTMSC VOLUNTEER BECCA MAHAN HELPS A VISITOR ID PLANKTON UNDER THE MICROSCOPE. PHOTO CREDIT: BETSY CARLSON

OUTCOMES

- Cultivate enthusiasm and curiosity for the marine environment, as well as increased consideration of human and boating impacts on the marine environment at an individual level
- Foster a more informed and dedicated community of marine stewards across East Jefferson County, the Strait of Juan de Fuca, and Puget Sound
- Increase public familiarity with WA state organizations, tribes, and agencies and their role in marine stewardship and conservation in Washington State
- Increase public familiarity with marine resources and regulations related to public health, fish and wildlife, and Washington State law
- Raise awareness of the Jefferson Marine Resources Committee and the Northwest Straits Commission, and the work that we do in the area
- Offer an opportunity for networking amongst visitors and presenters
- Support collaboration between partner organizations by giving them a common focus (the Science Alley and Stage) and the opportunity to get to know each other

POST PRESENTATION DISCUSSION CIRCLE. PHOTO CREDIT: BETSY CARLSON

ISLAND MRC

ISLAND COUNTY SHORELINE ARMORING & ANALYSIS

RESEARCH & MONITORING

PURPOSE

Identify changes in shoreline armoring over time and determine level of appropriate permitting being sought for these structures.

PARTNERS

Island County MRC
(Project Lead)

Herrera Environmental Consulting
(Contractor/Technical Lead)

Island County Planning Department
(Permitting Information, Support)

Island LIO
(Broadcast and elevate results to regional and state entities)

TIME FRAME

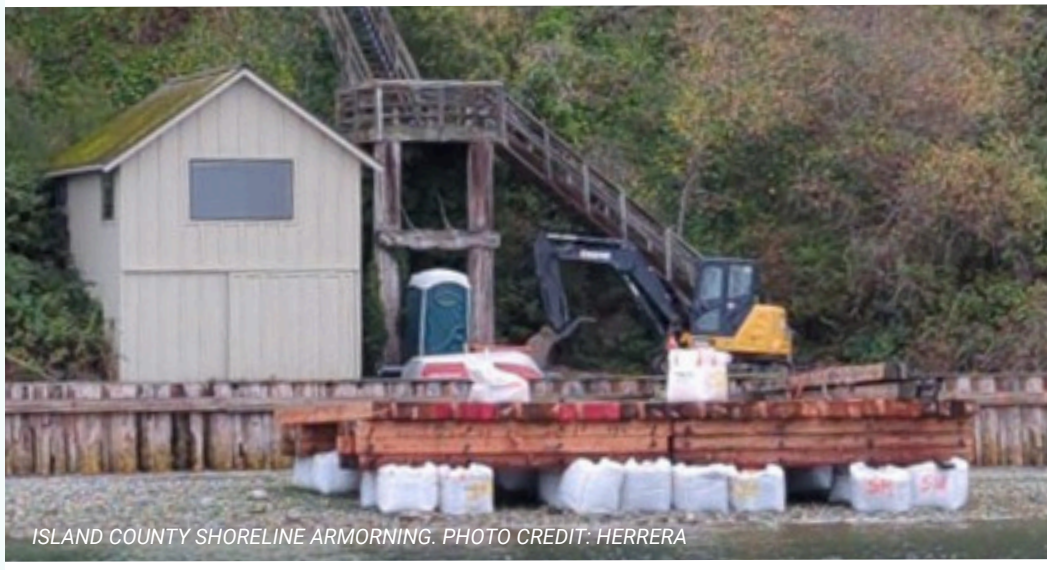
Project was completed over late 2023 and into 2024. Discussions are ongoing.

FUNDING

This project was funded through the Northwest Straits grant funding in 2023 and 2024.

MAIN ACTIVITIES

- Survey shoreline for armoring in 2023
- Compare results with armoring in 2016
- Consulted publicly available information to determine permit status for new or enhanced armoring
- Collaborate with permitting entity in Island County to fact check findings
- Distribute Island MRC Shoreline Armoring Survey Report
- Inform County Commissioners of the findings
- Publicize the findings widely
- Inform state and regional partners of the findings
- Provide education and outreach about the importance of permits and compliance with state and local regulations
- Educate people about the importance of natural shoreline processes in sustaining marine resources
- Support efforts for compliance and enforcement
- Work with partners to use the results of the report in reacting to stressors such as climate change and sea level rise



ISLAND COUNTY SHORELINE ARMORNING. PHOTO CREDIT: HERRERA

PROJECT LEAD

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ISLAND COUNTY MARINE RESOURCES COMMITTEE

SCAN TO VIEW ISLAND MRC SHORELINE ARMORING SURVEY REPORT

GROWTH AND LOOKING TOWARD THE FUTURE

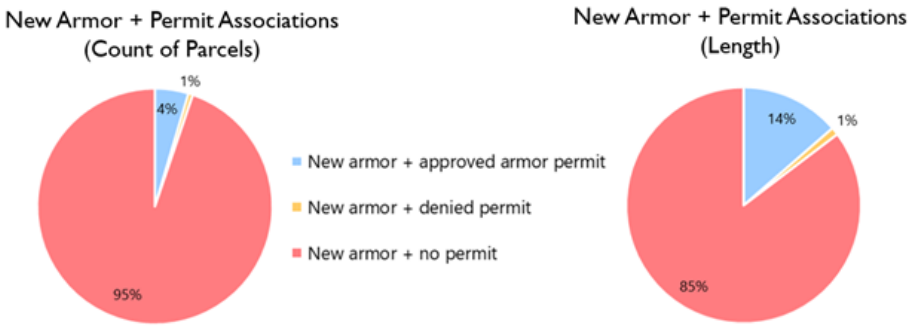
Island County and their contractor completed a comprehensive, boat-based shoreline survey of existing armoring and armor structures, comparing results in 2023 to those in 2016 to identify changes over a 7- year period. The structures identified in the 2023 survey were then compared to Island County permit records to ascertain which structures were permitted, unpermitted, or under-permitted. The results of this study showed into an opportunity for advice to the County Commissioners, education for shoreline owners and permit managers, and input for conservation/restoration of shoreline properties. It has informed regulators and decisionmakers at the state level, ecosystem recovery work and enforcement conversations at the regional and local level, and even garnered federal attention.

PHOTO CREDIT: HERRERA; HERRERA TEAM CONDUCTING BOAT SURVEY

WHILE THE PROJECT WAS SIMPLE, THE IMPLICATIONS HAVE BEEN AND CONTINUE TO BE VERY BROAD.

DELIVERABLES

Final report, presentations to County Commissioners, presentations to Puget Sound Partnership Management Conference (Leadership Council, Ecosystem Coordination Board), Habitat Strategic Initiative Leads, State Agencies, etc.



SOURCE: HERRERA PERMIT ANALYSIS FOR ISLAND COUNTY SHORELINE ARMORING SURVEY

OUTCOMES

- Island County Commissioners discuss the report and are aware of implications
- Puget Sound Partnership discuss the report at the June 2024 Leadership Council meeting, May 2025 Ecosystem Coordination Board meeting, and September 2025 Ecosystem Coordination Board meeting. ECB decides to start new Subcommittee to examine and address shoreline armoring issues.
- WA DNR hire enforcement personnel and expand enforcement program.
- Education and outreach about the value of natural shorelines, coupled with the enforcement of existing regulations, can be valuable in preserving and enhancing marine resources.

SAN JUAN MRC

UNDERSTANDING VESSEL IMPACTS FOR MARINE ECOSYSTEM PROTECTION AND RECOVERY IN THE SAN JUAN ISLANDS

RESEARCH & MONITORING

PURPOSE

Recreational boating in the San Juan Islands has increased, requiring field-verified data to identify vessel impacts and guide management actions protecting sensitive marine habitats.

PARTNERS

San Juan County Department of Environmental Stewardship (Project Management)
San Juan County Department of Community Development (Mooring buoy permit lead, local planning code review)
Friends of the San Juans (Coordinating and implementing boater social marketing campaign)
Smultea Sciences
(Data collection and reporting WA State Parks)
(Coordinating State Parks role in boater education and vessel monitoring)
WA Department of Natural Resources
(Assisting with providing eelgrass and kelp data)

BUDGET

The project received $262,649 from the Nearshore Conservation Credit Program and NOAA.

TIME FRAME

The surveys and assessment were carried out in 2024 and 2025. Additional phases of this project would follow in subsequent years.

MAIN ACTIVITIES

- This project sought to determine areas of high boater impact on marine habitats in the San Juan Islands using systematic line-transect aerial surveys.
- Surveys were flown May through September 2024 to capture peak boating activities and densities in the islands.
- Smultea Sciences, environmental scientists with expertise in survey design, implementation, and data analysis, led the survey effort.
- The survey built on Smultea Sciences' extensive marine mammal aerial survey efforts throughout Puget Sound.
- The SJC Marine Resources Committee also conducted opportunistic boat counts at popular anchorages during good weather weekends.
- These counts were conducted from October through April to determine boater activity outside of peak months.
- These data will allow a spatial comparison with mooring buoy data and existing marine habitat data to identify impact hotspots.
- The expected outcomes include a spatial assessment of impact that can be used to inform future management goals.
- Another expected outcome is the prioritization of sites for protection and restoration.
- This project will provide a model strategy for implementation to advance efforts to enhance marine ecological and coastal resilience Puget Sound-wide.

PREVOST HARBOR, STUART ISLAND, AUGUST 3 2024, FRANCES ROBERTSON

PROJECT LEAD

Frances Robertson, Ph.D.
Marine Project Coordinator
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SAN JUAN COUNTY
Marine Resources Committee

GROWTH AND LOOKING TOWARD THE FUTURE

The San Juan Islands have long been a premier destination for boaters.

> THE SAN JUAN ISLANDS ARE THE #1 BOATING DESTINATION IN THE U.S., UNDERSCORING THE NEED TO MANAGE IMPACTS MORE EFFECTIVELY TO PROTECT OUR SENSITIVE MARINE HABITATS.

This project collected field-verified data to enable us to understand where recreational vessels are causing the most impacts. The results will directly feed into the development of management actions to address these impacts on our nearshore marine habitats.

COLLABORATION

Despite high levels of boating in San Juan County waters, boater related impacts on eelgrass and other habitats remain unmeasured here and elsewhere in Puget Sound. With eelgrass and kelp habitats showing evidence of decline there is an increasing urgency to better understand the factors impacting these habitats, and in turn increasing the urgency surrounding their protection. Eelgrass beds provide nursey, shelter, and food to ecologically, economically, and culturally important species as well as a variety of ecosystem services including improving water quality, sediment stabilization and carbon sequestration that help build coastal resilience to impacts of climate change. The need to protect eelgrass habitats has been broadly recognized throughout the region, and globally for both marine ecosystems and wellbeing of coastal communities.

OBSERVER FRANCES ROBERTSON COUNTING BOATS IN FRIDAY HARBOR, AUGUST 3, 2024. PHOTO CREDIT: JAMIE HOY

OUTCOMES

This study mapped vessel density in San Juan County and identify high use anchoring areas during the peak boating season. The study aimed to use systematic aerial survey Distance Sampling methodology to:

1. Determine where the highest densities of boats are in San Juan County.
2. Determine if there is temporal and/or spatial variability in vessel density over the boating season in San Juan County.

Marine vegetation is one of the 25 Vital Signs used to track progress of Puget Sound restoration and recovery. Vital Sign targets for eelgrass include:

1. By 2030, see no significant difference between the number of sites with increases and declines in eelgrass area in each of three sub-regions of Puget Sound (no net loss).
2. By 2050, sites with long-term increases in eelgrass area significantly outnumber sites with declines in each of three sub-regions of Puget Sound (net gain).

DELIVERABLES

- **Technical report and white paper outlining:**
  - methodological approach (including survey design, data collection and analysis),
  - results of boating season aerial surveys and off-season opportunistic vessel counts
- **Density surface maps:**
  - identifying vessel hotspots in San Juan County
  - comparison with mooring buoy data to identify locations of cumulative boater impacts due to mooring and anchoring activity
  - comparison with eelgrass data identifying nexus points of impact
- **Prioritization of sites for protection and restoration efforts.**
- **Evaluation of management actions that will preserve sensitive and critical eelgrass habitats, support a positive boating experience, and provide for unhindered access to usual and accustomed fishing and harvesting areas**.
- **San Juan County and the MRC will share the results with state agencies (**WA DNR, WDFW, RCO, PSP, and Coast Salish Tribes)

SKAGIT MRC

SKAGIT SHORELINE NEEDS ASSESSMENTINTERACTIVE NEARSHORE ASSESSMENT AND PRIORITIES (NEAP) TOOL (SOUNDIQ)

CONSERVATION & RESTORATION

PURPOSE

Provides a foundation for future consideration of MRC shoreline restoration projects using GIS capabilities and the most recent marine-based data from authoritative sources.

PARTNERS

Confluence Environmental Consultants (delivering project content: NEAP Tool (to include Data Dictionary, Prioritization Framework), two Story Maps, How-to Video and 5 high priority restoration project recommendations)

NW Straits Commission GIS (Provided GIS consultation and coordination to ensure NEAP Tool and associated products were feasible and compatible with DOE requirements and new SoundIQ platform)

Technical Advisory Committee (Provided technical and functional advice and recommendations on deliverables' quality and technical soundness. Included representatives from MRC, NWSF, Skagit Watershed Council and interested citizens)

TIME FRAME

The project is complete, but datasets in the NEAP Tool can be easily refreshed with updated data as needed.

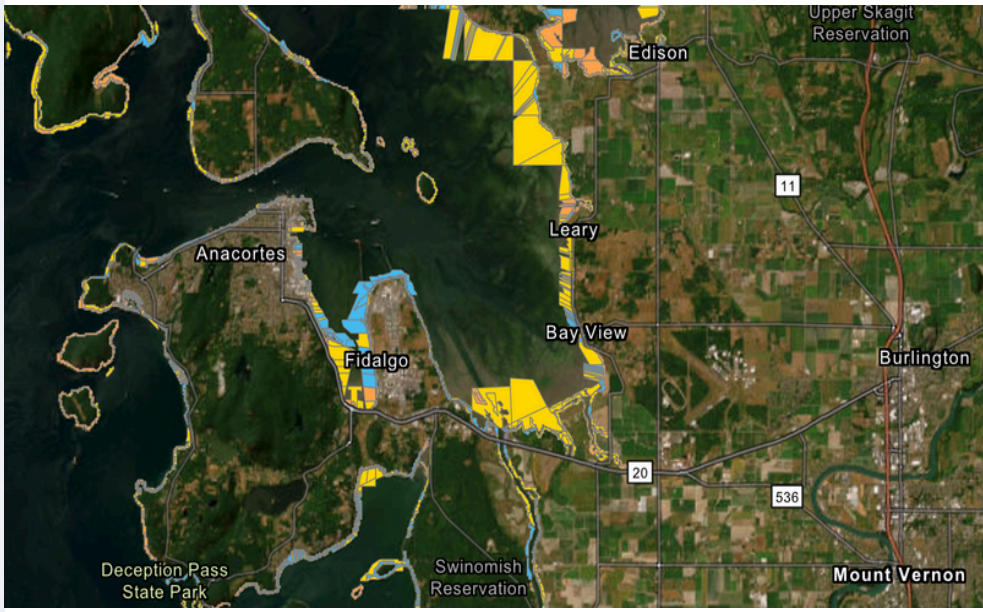
BUDGET

2024: $40,000
2025: $10,000 = $50,000 total (MRC funds)

MAIN ACTIVITIES

- Develop a Skagit nearshore inventory resources list from authorized sources
- Develop an interactive geospatial tool compatible with the new SoundIQ
- Develop and apply a shoreline restoration prioritization framework
- Establish an existing Skagit Shoreline Restoration Projects data set
- Identify (5) high priority potential shoreline restoration projects
- Develop and publish two story maps
- Develop and publish a How-To NEAP tool video for public users

INTERACTIVE NEARSHORE ASSESSMENT AND PRIORITIES (NEAP) TOOL (SOUNDIQ)



PROJECT LEAD

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GROWTH AND LOOKING TOWARD THE FUTURE

It was important to ensure this shoreline needs assessment was "actionable". Skagit MRC had sponsored several previous shoreline scientific assessments over the years, but many of them were unclear what actions the MRC could/should take as a result.

SELECT PARTNERS WHO "GET" WHAT YOU ARE TRYING TO DO.

We competitively bid this project and assumed we would likely select a consultant we had used previously. Maintaining an open mind and asking lots of questions, we selected a lesser known team who better understood our vision and were able to describe a more effective process to achieve it.

DELIVERABLES

- Nearshore Assessment and Prioritization (NEAP) tool posted in the new SoundIQ
- Data Dictionary (de-coder ring) (posted)
- Prioritization Criteria with authorized sources (posted)
- How-to NEAP Tool Video for public use (posted)
- Two Story Maps showcasing Skagit shoreline efforts:
  - 1) NEAP Tool
  - 2) Native Olympia Oyster Restoration (posted)
- Five high priority restoration project proposals for MRC consideration

NATIVE OLYMPIA OYSTER RESTORATION STORY MAP (SKAGIT MRC WEBSITE)

OUTCOMES

- Increased public awareness and knowledge about Skagit shorelines in general, as well as current information about our marine health and potential restoration needs
- Increased visibility of accomplishments for current and past Skagit MRC shoreline-based restoration projects
- Consideration of pursuing high priority restoration projects as MRC and partners' resources allow

SKAGIT NEAP TOOL

OLYMPIA OYSTER STORY MAP

WHATCOM MRC

HARMFUL ALGAL BLOOM (HAB) MONITORING

EDUCATION/OUTREACH & MONITORING

PURPOSE

Provides cost-effective harmful algal bloom monitoring via citizen science to more effectively inform shellfish closures to protect public health and the economy.

PARTNERS

SoundToxins/Washington SeaGrant
(Coordinates the network of HAB monitoring groups in the Puget Sound, including citizen scientists, students, environmental groups, shellfish harvesters, and tribes)

Washington State Department of Health (WA DOH)
(Manages the shellfish safety program in Washington State, including biotoxin monitoring in Puget Sound; use SoundToxin's data for managing shellfish closures)

Whatcom County Health and Community Services
(Coordinates supplies for mussel collection and shipping to WA DOH and announces Whatcom County shellfish closures as necessary)

Garden of the Salish Sea Curriculum
The HAB monitoring team provides content for teaching curricula and GSSC provides opportunities for in-class teaching, field trips and high school interns).

TIME FRAME

Ongoing

BUDGET

$4,352 (estimate from 25-27 budget)

MAIN ACTIVITIES

- Weekly (March-October) or bi-weekly (November-February) field sampling for HABs at two sites in North Whatcom County.
- Analysis of phytoplankton to identify HAB species and provide data on phytoplankton dynamics for predicting the causes of HAB blooms.
- Concurrent collection on shellfish samples for WA DOH for biotoxin analysis.
- Data analysis and reporting to SoundToxins.
- Coordination of volunteers and interns, training in phytoplankton sampling and analysis methods, and presentations on harmful algae.

VOLUNTEERS COLLECT PHYTOPLANKTON SAMPLES AND ENVIRONMENTAL CONDITIONS AT SEMIAHMOO MARINA. PHOTO CREDIT: DANA FLERCHINGER

PROJECT LEADS

Rick Beauregard
MRC Project Lead
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VOLUNTEERS CONDUCT MICROSCOPIC ANALYSIS OF PHYTOPLANKTON SAMPLES.

DELIVERABLES

- Weekly data reporting
- Annual reports to MRC
- Volunteer participation and hours

OUTCOMES

- Timely reporting of HAB data to SoundToxins and WA DOH.
- Training of volunteers and interns.
- Coordination with local shellfish harvesters.
- Demonstration of a replicable model for citizen science monitoring for health and economic benefit.

GROWTH AND LOOKING TOWARD THE FUTURE

This monitoring is particularly important considering the commercial oyster farm in Drayton Harbor, the historically elevated concentrations of HABs in the area, and the influence of the Fraser River which contributes to high nutrient loading. Whatcom MRC's approach to recruiting and training volunteer scientists could be replicable to other MRCs, which could expand the network of sample sites, enhancing the ability of management agencies and scientists to effectively manage shellfish closures for public safety and to better understand phytoplankton dynamics of the entire sound.

THIS PROJECT FILLS A DATA GAP IN HAB MONITORING SITES IN NORTHERN PUGET SOUND TO BETTER PROTECT PUBLIC HEALTH AND ECONOMIC INTEREST IN SHELLFISH HARVESTING.

VOLUNTEER COLLECTS A NET TOW SAMPLE.
PHOTO CREDIT: DANA FLERCHINGER