



2022 ANNUAL REPORT



**Northwest
Straits**
INITIATIVE

Who we are

2022 Northwest Straits Commission members

Elsa Schwartz, Chair	Island Marine Resources Committee
Tom Cowan, Vice Chair	Governor's Appointee
Laura Blackmore	Puget Sound Partnership
Chris Castner	Governor's Appointee
Bob Cecile	Whatcom Marine Resources Committee
Alan Clark	Clallam Marine Resources Committee
Tim Ellis	Snohomish Marine Resources Committee
Cecilia Gobin	Northwest Indian Fisheries Commission
Diane Hennebert	Skagit Marine Resources Committee
Christina Koons	San Juan Marine Resources Committee
Nan McKay	Governor's Appointee
Julia Parrish	Governor's Appointee
Jeff Taylor	Jefferson Marine Resources Committee

2022 Commission staff

Lucas Hart, Ph. D.	Director
Sasha Horst	Operations Manager
Antonio Jones	Marine/Nearshore Project Tech./Veterans Conservation Corps
Dana Oster	Marine Program Manager
Leah Robison	Ecosystem Projects Specialist
Suzanne Shull	GIS Analyst Padilla Bay National Estuarine Research Reserve
Allie Simpson	Ecosystem Project Coordinator
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Northwest Straits Commission

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Cover photo: Volunteers and staff trapping European green crab in Drayton Harbor, Whatcom County. Photo: Antonio Jones

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About the Northwest Straits Initiative

The Northwest Straits Initiative continues progress on our 2019-24 Strategic Plan. The plan is made up of insights from Marine Resources Committees (MRCs), Northwest Straits Initiative boards, staff, and partners. Six themes were identified, and each theme is supported by goals and objectives that guide us toward desired results. The objectives are broad to accommodate the grass-roots nature of the Northwest Straits Initiative.

Mission

To protect and restore the marine waters, habitats, and species of the Northwest Straits region to achieve ecosystem health and sustainable re-source use.

Vision

We envision a thriving, resilient, and healthy Salish sea, where individuals are engaged in the health of their local ecosystems.

Goals

Stewardship: Forge new paths to advance Northwest Straits recovery and complement the work of regional planning efforts.

Long-term stable funding: Provide organizational stability that allows the Initiative to focus more on advancing its mission.

Structural support to MRCs: The Northwest Straits Initiative strengthens MRC capacity and presence within counties and across the Northwest Straits region and ensures the Northwest Straits are protected and restored.

Engagement and partnerships: Represent a broad range of interests in the Northwest Straits.

Measuring progress: Quantify Initiative progress to support communications.

Messaging: Clearly distinguish the Initiative from the work of other organizations.

Tribal

Acknowledgement

We acknowledge the lands we're on today are the ancestral and current homelands of Indigenous Nations who have stewarded them since time immemorial. We respect their sovereignty, support their Treaty rights, their right to self-determination, and we honor their sacred spiritual connection with the land and water. These Indigenous Nations include the Jamestown S'Klallam, Lower Elwha Klallam, Lummi, Makah, Nooksack, Port Gamble S'Klallam, Samish, Stillaguamish, Swinomish, and Tulalip Tribes.

Our work: 2022 highlights

This report features a summary of our work in 2022 on projects at both the local and regional level, as well as transboundary efforts to benefit the Salish Sea ecosystem. Additional project materials and reports are available on our website [Resource Library](#).

Voluntary No-Anchor Zones for Eelgrass Protection

To protect existing eelgrass and promote habitat recovery by preventing damage to eelgrass beds, the Northwest Straits Commission began an expansion of the successful voluntary no-anchor zone program that was established in Port Townsend by the Jefferson MRC in 2004.

In 2022, with funding leveraged from the US Fish and Wildlife Service, the Commission and project partners assessed the feasibility of eight proposed new sites. This included compiling existing eelgrass data and conducting additional baseline monitoring of eelgrass condition and vessel use at identified sites, and began developing a programmatic biological assessment for a streamlined and consistent regional approach to establishing the new sites.

Planning focused on the three early action sites: North Chuckanut Bay in Whatcom County, Seafarers' Park in Skagit County, and Shallow Bay in San Juan County. During feasibility and planning discussions, the project workgroup began incorporating feedback from area tribes and MRC volunteers to think creatively on protection strategies that do not incur ongoing permitting and maintenance challenges with buoys and upholding treaty rights. Stay tuned for updates on the eelgrass protection approaches being considered. The Northwest Straits Commission also continued to lead a transboundary workgroup to coordinate a shared implementation approach of no-anchor zones across the Salish Sea.

The Commission began initial steps toward **building a social marketing campaign to reduce anchoring in eelgrass**, which will serve as a key component for the project at sites where buoys are not installed. Track our progress on this transboundary effort at <https://www.nwstraits.org/our-work/voluntary-no-anchor-zones/>.

European green crab

Since 2020, the Northwest Straits Commission has coordinated local European green crab trapping efforts in Drayton Harbor (Whatcom County). In 2022 we expanded our geographic scope to include trapping and local coordination across both Whatcom and Skagit Counties, in coordination with Washington Department of Fish and Wildlife, Washington Sea Grant and Padilla Bay Reserve.

At the start of 2022, Governor Inslee issued an emergency proclamation addressing the green crab infestation. Since the proclamation, the Northwest Straits Commission set 2,876 traps and **captured 313 European green crabs in Whatcom County** and set 3,414 traps and **captured 83 European green crabs in Skagit County**.

The Northwest Straits Commission also participated in outreach efforts reaching over 23,000 people through in-person events, radio, print media and electronic media.

European green crab trapping in Puget Sound is a collaborative effort, and the Commission has coordinated our efforts with many organizations and partners without whom this work could not happen at this scale. Key local partners include Whatcom and Skagit MRCs, WA Department of Natural Resources, Drayton Harbor Oyster Company, Samish Indian Nation, Swinomish Indian Tribal Community, Taylor Shellfish, Upper Skagit Indian Tribe, the Northwest Straits Foundation, and many private landowners.

In 2022, the Commission's trapping and coordination efforts were led by three staff who were assisted by 12 Washington Conservation Corps members, two Washington Service Corps members, one Veterans Conservation Corps intern, four volunteers, nine WA Department of Fish and Wildlife technicians, and three Washington Sea Grant staff.

Follow our activities on European green crab at <https://www.nwstraits.org/our-work/european-green-crab/>.



Leah Robison trapping for European green crab in Drayton Harbor, Whatcom County. Photo: Antonio Jones

Green crab in the news - 2022

[Invasive species and the Salish Sea](#) – Salish Magazine, Issue 16, Summer 2022

[Can't we just eat those invasive crabs until they're gone? \(Probably not\)](#) - KUOW, March 3, 2022

[Fish and Wildlife Commission recognizes community partners at meeting](#) - Jun 24, 2022

[Effort underway to trap invasive European green crabs in PNW waters](#) - KGMI, May 3, 2022

[European Green Crab Declared a Disaster](#) - NW Treaty Tribes, Winter 2022

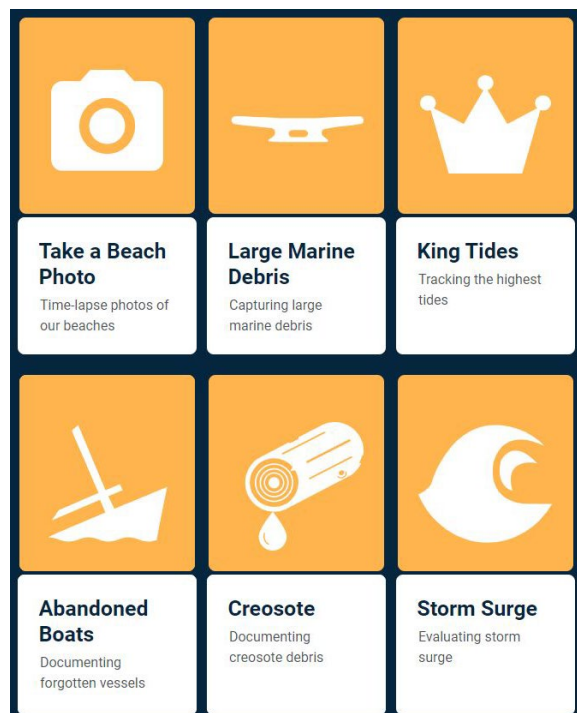
[DNA Detectives - As European green crabs invade Puget Sound, experts are considering a new method for detecting the sneaky crustaceans: eDNA](#) - The Planet, Spring 2022

MyCoast

The MyCoast reporting tool is for beach visitors to share observations with resource managers and coastal decision makers that can guide future restoration and protection efforts. The Northwest Straits Commission and local MRCs continued to serve as a local partner for the WA Dept of Natural Resources.

In 2022, the number of **users increased by more than 20%** to over 2,600 registered users in Washington. Over 1,130 reports were submitted in the seven-county Northwest Straits region including creosote reports, king tides, abandoned boat, storm surge, large marine debris, and take a beach photo.

Download the app from Google Play or the iPhone app store or browse reports online at <https://mycoast.org/wa>.



Derelict Vessel Removal



Derelict vessel on the beach near Langley, Whidbey Island. Photo submitted via MyCoast.

Derelict and abandoned vessels can negatively impact many aspects of our marine environment and community. These vessels can create a navigational hazard and impact recreational and cultural access. Additionally, derelict vessels pose a threat to the marine environment as both a physical impediment to habitats and processes and a potential source of pollutants and marine debris.

The Washington Department of Natural Resources (DNR) runs a Derelict Vessel Removal Program that works with local approved entities on derelict vessel removal and prevention efforts. Snohomish MRC and Snohomish County Surface Water Management partnered with DNR's derelict vessel program to remove 20 vessels from the Snohomish River Estuary between 2018 and 2022. San Juan MRC partners with their county program to identify vessels of concern as part of derelict vessel prevention.

Following the lead of these MRC local efforts, in 2022 the Northwest Straits Commission began working with MRCs and tribal partners to identify derelict vessels for removal and prevention actions in the Northwest Straits region. The workgroup identified vessels throughout the region and compiled information on the ecological, cultural, safety, and recreational benefits of removal for each vessel. Following collection of this data, the Northwest Straits Commission worked with DNR to estimate the cost of removal and engaged the workgroup to prioritize the list.

In 2023 the Northwest Straits Commission will use funding leveraged from NOAA to work with DNR's Derelict Vessel Removal Program to remove the vessels and co-hosting derelict vessel turn-in events. Learn more about this emerging program at <https://www.nwstraits.org/our-work/derelict-vessel-removal/>.

Forage Fish Spawning Surveys



*Volunteers at a training session on how to collect and process samples for forage fish spawning surveys.
Photo: Leah Robison*

Forage fish have long been a focus of the Northwest Straits Commission and MRCs. Sand lance and surf smelt are two species that lay their eggs on the beach, where volunteers conduct regular sampling to collect important baseline data on spatial and temporal distributions and trends of these critical fish. This monitoring is done at restoration sites to evaluate the effectiveness of restoration efforts, as well as index sites identified by the WA Department of Fish and Wildlife to understand long-term spatial and seasonal trends.

In 2022, **volunteers collected over 400 beach sediment samples for forage fish spawn** on local beaches in six counties! Surf smelt eggs were present in 80 samples and sand lance eggs in 11 samples, pending some year-end samples. The MRC volunteer surveys contribute to an extensive database of documented forage fish spawning that is used to provide legal protections for 430 miles of Washington beaches. These survey results are entered into WA Department of Fish and Wildlife's long-term monitoring database and used on the [Forage Fish Spawning Map](#).

In addition to beach surveys, Northwest Straits hosted an MRC volunteer check-in meeting in May 2022. Twenty-four participants, mainly MRC project volunteers, joined to hear results from data collected in 2021, and to hear program updates from WA Department of Fish and Wildlife.

Northwest Straits also organized a survey training for twenty-three volunteers and staff, taught by WA Department of Fish and Wildlife at the Northwest Marine Center in Port Townsend in July 2022. The training ensures volunteers are confident in conducting the survey protocols and is a chance for them to share surveying experiences with volunteers from other counties.

These forage fish surveys conducted by trained community scientists contribute to research and monitoring efforts in partnership with the WA Department of Fish and Wildlife. Learn more about our Forage Fish Program at www.nwstraits.org/our-work/forage-fish.

Education, Communications and Outreach

While restrictions due to COVID-19 began to ease in 2022, the Northwest Straits Commission opted to continue an adapted version of our annual conference, hosting a Collaborative Conservation Workshop on September 16 at Padilla Bay Reserve. The event was designed to provide opportunities for MRC and NW Straits Initiative members to learn about projects in other counties, identify collaboration opportunities, and form collaborative connections.



Rosie Cayou James and Senator Liz Lovelett at the Collaborative Conservation Workshop. Photo: Sasha Horst

The Northwest Straits Commission maintained a web presence in a variety of ways, including our main website at www.nwstraits.org, along with individual MRC sites. Social media and a monthly e-newsletter were primary ways we shared project results and other information from all MRCs and regional programs. Links to the 2022 newsletters are available online.

Media coverage for our work reached all seven counties, with an emphasis on invasive green crab due to its emergency order.

SoundIQ

The Northwest Straits Commission shares data collected on the web-based platform SoundIQ. Find Northwest Straits and MRC data online in map format on SoundIQ.

SoundIQ allows users to search for Puget Sound-area information and create custom maps, including the ability to add complementary data layers from other sources.

www.nwstraits.org/our-work/soundiq/

Puget Sound Kelp Conservation and Recovery Plan

The Puget Sound Kelp Conservation and Recovery Plan (Kelp Plan) was established in May 2020. The Kelp Plan is a collaborative framework built around six goals and their respective actions to advance kelp conservation and recovery in Puget Sound.

In 2022, the Northwest Straits Commission's Kelp Plan Coordinator formed an advisory committee representing a broad coalition of kelp partners including tribes, non-profits, universities, and state and federal agencies to provide guidance on steps to keep partners coordinated and engaged in carrying out the goals of the Kelp Plan.

The Northwest Straits Commission created an inventory of kelp projects to better understand the scope and scale of work moving our collective Kelp Plan goals forward. **The kelp project inventory documents the contribution of over 80 projects across Puget Sound and Washington State!** These projects represent a diverse approach by many partners to monitor canopy and understory kelp, better understand what is impacting kelp populations and creative ways to promote awareness and engagement by our broader community in an effort to conserve and protect kelp.

Planning is underway to convene partners to collaboratively review the status of the 65 discrete actions in the Kelp Plan and determine what steps are needed to continue making progress toward our goals.

Additionally, the Northwest Straits Commission continues to support regional kelp efforts. This support includes participation and presentations at the [Washington Kelp Research and Monitoring Workgroup](#), and participation in the [Statewide Kelp and Eelgrass Health and Conservation Plan Working Group](#).

Learn more about the Kelp Plan and watch for updates on these efforts on our website at <https://www.nwstraits.org/our-work/kelp/>.

Linking Kelp Science & Policy

Throughout the development of the *Puget Sound Kelp Conservation and Recovery Plan*, a common theme was the need to strengthen the link between emerging kelp science and the ability to inform existing policy and implementation as a means of conserving kelp, as well as a need to understand potential future policy actions.

In 2022, with funding and partner support from Pew Charitable Trusts (Pew), the Northwest Straits Commission convened the broader kelp management community to gather input and build consensus on next steps to better implement existing rules and regulations for kelp in Puget Sound. This project allowed us to identify actionable next steps that can be taken to connect resource managers and planners at the local, state, and federal level with best available science and resources to guide policy implementation.

The Northwest Straits Commission gathered input and hosted collaborative discussions through multiple engagement approaches including forming an advisory committee, a survey, two workshops and ten one on one discussions with individuals and entities spanning jurisdictions and interests.

Learn more about the recommendations from this project at <https://bit.ly/PewKelp22>.

Bull Kelp Monitoring



Volunteers in Jefferson County conducting monitoring of bull kelp in summer 2022. Photo: Solenne Walker

Six MRCs - Whatcom, Skagit, Snohomish, Island, Jefferson, and Clallam - monitored their local bull kelp sites in 2022 by kayak to provide invaluable long-term data on kelp abundance and trends in the region. During the 2022 kelp kayak survey efforts, **55 volunteers participated and surveyed 22 different kelp beds**. In total, the **volunteers surveyed 311 acres of kelp forest** at its peak in the Salish Sea. Volunteers continued using the KoboToolbox data collector. The compiled data is available on our SoundIQ web-based data platform.

The Northwest Straits Commission hosted two workshops focused on MRC engagement with the kelp monitoring program. Over 50 community volunteers and partners attended each workshop. The [first workshop](#) highlighted data the MRCs collected for the 2021 monitoring season, and the second focused on data collection and safety for the 2022 season.

The kelp survey work led by MRCs was integrated into many regional kelp projects. Northwest Straits Commission staff collaborated with the WA Department of Natural Resources to include MRC kelp data in the [new kelp vital sign indicator](#) and on the [Floating Kelp Monitoring Data Viewer](#). Researchers from Puget Sound Restoration Fund and Reef Check co-located their understory kelp monitoring sites with select Clallam, Snohomish, and Island MRC kelp monitoring sites to create more robust kelp datasets within Puget Sound.

Learn more about the bull kelp monitoring efforts at www.nwstraits.org/our-work/kelp-recovery.

Olympia Oyster Restoration



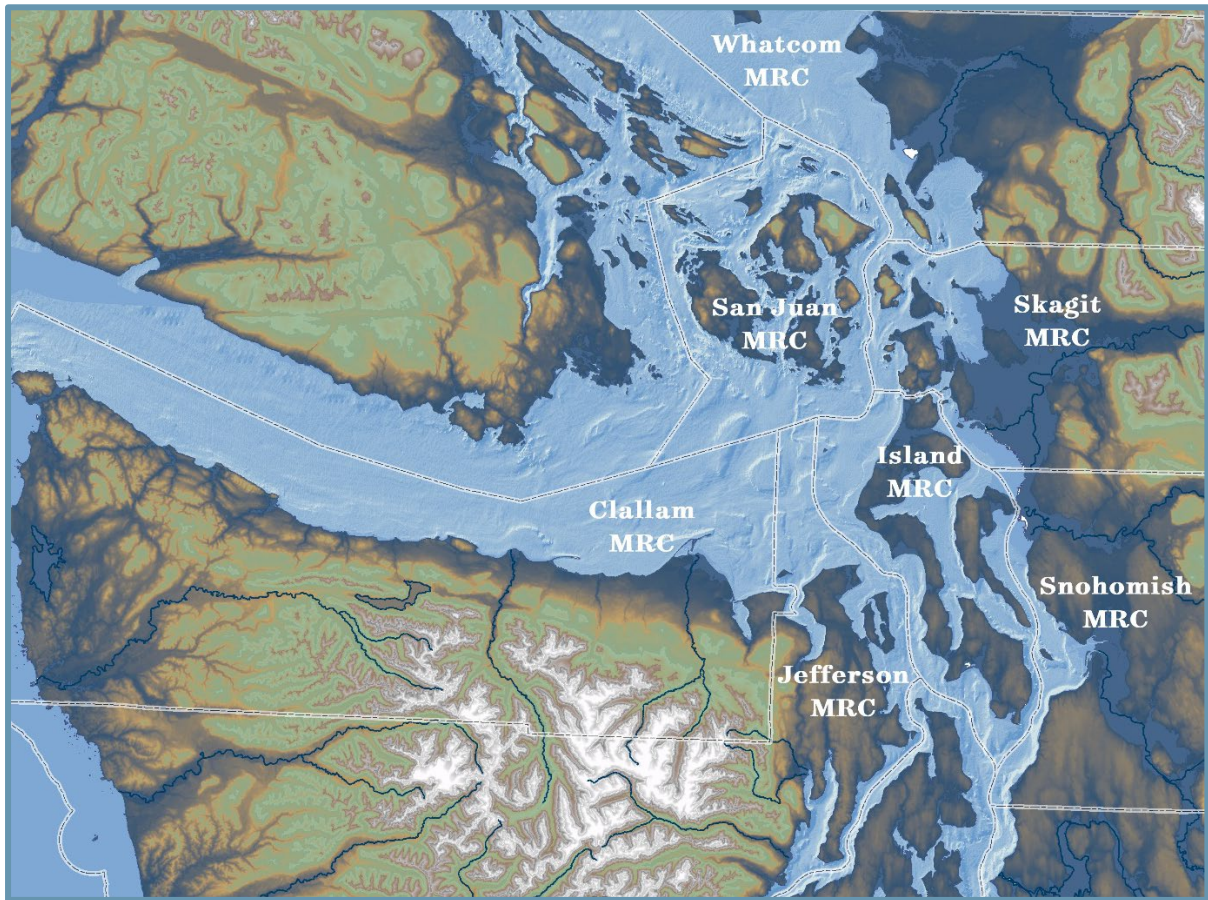
Volunteers surveying an Olympia oyster restoration site. Photo: Monica Montgomery

MRCs in four counties play a key role in regional efforts to restore Olympia oysters, the only oyster species native to Puget Sound. Oysters are important contributors to three-dimensional habitat and water quality. Marine Resources Committees in Skagit, Jefferson, Clallam, and Whatcom counties are focused on restoring native oyster beds that are self-sustaining that continue to increase in size and density of oysters.

This long-term effort includes outplanting and monitoring oysters over time, as well as exploring and testing new sites for future restoration efforts. MRCs monitored nearly seven acres of oyster restoration sites in Clallam, Jefferson, Skagit, and Whatcom counties, planting nearly 3 million oyster seed to date.

Learn more about Olympia oyster restoration efforts at <http://www.nwstraits.org/our-work/olympia-oyster-restoration/>.

Marine Resources Committees



MRCs are made up of local volunteers who prioritize and lead restoration, monitoring and education projects, and serve as advisory bodies to local elected officials. MRCs serve a unique role by convening a diversity of community perspectives from tribal, economic, recreational, and environmental interests to prioritize and initiate consensus-driven work.

The work that MRCs do protects and restores valuable marine resources and nearshore environment throughout the region. The volunteers that make up the MRCs contribute thousands of hours each year to benefit the Salish Sea. The Northwest Straits Commission supports MRCs with resources and funding.

Clallam Marine Resources Committee

www.clallamcountymrc.org



*Clallam MRC members and Jamestown S’Klallam Tribe Natural Resources staff at their Olympia oyster restoration site.
Photo: Annie Raymond*

Olympia oyster restoration – Clallam MRC, Jamestown S’Klallam Tribe, and Puget Sound Restoration Fund are working together to restore Olympia oysters in Clallam County with a focus on Sequim Bay, as part of a larger goal to restore Olympia oysters in Puget Sound. In 2022, the project team completed its annual survey to produce a population estimate of approximately 17,000 Olympia oysters, including estimated population abundance, density, area, and size distribution associated with the 1.5-acre restoration site on Jamestown S’Klallam tidelands. Very few oysters under 20mm were found, which may be due to adverse effects of the 2021 heat dome and low availability of substrate.

The population survey results continue to inform restoration efforts. Annual monitoring since 2012 shows evidence of years with increased oyster survival, growth and recruitment, and declines in other years. Due to recent decline in the populations assessment and reduced recruitment over the recent years, the MRC will likely add more blank oyster shell in the coming year to provide substrate and improve recruitment.

Bull kelp monitoring – In 2022 Clallam MRC continued the collaboration on the regional bull kelp monitoring project to monitor the size of kelp canopies at three locations during low-tide in summer. The MRC has focused on three beds – two in Freshwater Bay and one in Clallam Bay. Since their first surveys in 2016, Freshwater Bay has experienced a decrease in bull kelp area.

Pigeon guillemot surveys – Pigeon guillemots are an indicator species of nearshore ecosystem health in the Salish Sea, and 2022 marked the eighth year of Clallam MRC's partnership with the Olympic Peninsula Audubon Society to monitor colonies along the Strait of Juan de Fuca. This monitoring adds to the regional dataset of the Salish Sea Guillemot Network, part of the Puget Sound Ecosystem Monitoring Program's Marine Birds Workgroup.

In 2022, the Clallam volunteer recruitment campaign was once again impacted by COVID-19, preventing in-person promotion and training. Over 40 volunteers, including 20 new volunteers, stepped up to lead or assist with the surveys after completing an online training about the program, monitoring protocols, and field data forms.

Volunteer teams monitored colonies from June through September, with six geographical focus areas: Bachelor Rock, Port Angeles (Crown Park), Dungeness Spit, Port Williams (9 sites), and Mussel Beach. Two new sites in 2022 include an additional site in Port Angeles and one further west of Port Angeles.

West Elwha Beach stewardship – Since the restoration of the Elwha River through the removal of the Glines Canyon and Elwha dams, the expanded estuary beach has become a popular beach for visitors and residents. The area was adopted by the Clallam MRC for stewardship in order to reduce waste on the beach, which includes a bag dispenser and disposal bin for pet waste, as well as a portable toilet for human waste. Over the course of 2022, an estimated 6,800 bags were distributed for use at the site, the bins are emptied weekly, and the portable toilet maintained regularly.

Forage fish spawning surveys – Clallam MRC is a partner in the Northwest Straits regional forage fish spawning survey program. They conduct sampling surveys at Cline Spit, an index site identified by WA Department of Fish and Wildlife; Ediz Hook, a site selected by the Lower Elwha Tribe in an effort to document forage fish spawning in a recently restored area along the inside of the spit; and at the Elwha beach where they continue to sample following the beach rebuilding after dam removals on the Elwha River. In 2022 they collected 46 samples at their sites, capturing 13 surf smelt spawn events.



West Elwha Beach stewardship station to reduce pet waste. Photo: Rebecca Mahan

Island Marine Resources Committee

www.islandcountymrc.org

Port Susan Marine Stewardship Area – The Port Susan Marine Stewardship Area (MSA) comprises diverse marine and estuarine ecosystems and is a high priority conservation area. In 2022, Island MRC collaborated with Snohomish MRC and community partners to conduct a [Comprehensive Review of the Conservation Action Plan](#) created in 2012 to re-engage partners, identify how conservation and restoration efforts in Port Susan can remain effective to support the needs of key habitats and species and promote inclusive stewardship of the area.

The MRC partnered with a research team from the University of Washington's Evans School of Public Policy and Governance Student Consulting Lab. Their review process included engaging stakeholders, completing an extensive literature review, and conducting an analysis of strengths, weaknesses, opportunities, and threats. Findings from the review revealed insights on future opportunities for the continued conservation and restoration of the Port Susan MSA.

Cornet Bay Restoration Stewardship – For more than ten years, Island MRC has focused on shoreline habitat restoration at Cornet Bay, in partnership with the Northwest Straits Foundation, Washington State Parks, and other partners. Following phased bulkhead and armoring removal projects, the MRC has carried out planting parties to install native vegetation. In 2022, volunteers planted more than 200 plants, layered more than 80 yards of mulch and compost, and weeded and watered throughout the summer months in order to continue building healthy shoreline habitat.



Beach seining at the Cornet Bay restoration site. Photo: Jennifer Johnson

Bull kelp monitoring – Island MRC volunteers monitored the size of bull kelp beds using GPS units while paddling a kayak around the perimeter of the bed. Kelp bed perimeters were tracked during the summer months at five sites around Island County: Hoypus Point, Polnell Point, Ebey's Landing, Possession Point, and Lowell Point. Volunteers also collected temperature data using temperature loggers at varying depths and collected images of plants and animals observed in the kelp beds.

Forage fish spawning surveys - Island MRC conducted forage fish spawn surveys at selected beaches in conjunction with shoreline restoration work and partnered with WA Department of Fish and Wildlife to assist in conducting surveys at index sites – locations with public access and a known history of spawning presence. Volunteers collect and condense the beach sediment samples, which are then transported to WA Department of Fish and Wildlife for analysis. The MRC forage fish team included eight new volunteers who took the WA Department of Fish and Wildlife Forage Fish Survey Training sessions, and three who retook the training as a refresher.

Hoypus Point Restoration – Island MRC is partnering with the Northwest Straits Foundation and Washington State Parks on a restoration project at Hoypus Point in Deception Pass State Park to improve salmon and forage fish habitat. The restoration includes removal of approximately 350 feet of shoreline armoring and fill, re-grading the shoreline to a natural slope, and placement of appropriate beach substrate. Following the construction phase, the MRC and community volunteers will install native vegetation in order to restore a bluff-backed beach and the marine riparian connection.

Education and outreach – Education and outreach are an essential part of Island MRC's work and a component of each project. The MRC strives to increase public interest in learning about and caring for the local marine environment by helping the community understand what the MRC does and why.

In 2022 Island MRC outreach included a variety of meetings, events, and presentations, including Orca Recovery Day, Earth Day, Sound Waters University, Salish Sea Ecosystem Recovery Conference, the Whidbey Island Fair, Family Outdoor Day, and Camano 101. The MRC presented their work to the Board of Island County Commissioners, Earth Day Town Hall, Swinomish Students, and at the Camano library. Contributions to news and media outlets included two Whidbey Weekly's "Make a Difference"

columns a monthly column in the Island County Natural Resources newsletter. The MRC taught over 100 local students about the marine environment and shared their Discover our Island Shore video and curriculum with local schools. Targeted outreach to recreational crabbers and local businesses aimed to reduce the number of derelict crab pots lost.

The MRC is one of a consortium of local partners that award the Jan Holmes Island County Coastal Volunteer of the Year Award, which was awarded to Frances Wood in early 2022.



Community volunteer from Whidbey NAS at a planting event to install native vegetation. Photo: Island MRC

Jefferson Marine Resources Committee

www.jeffersonmrc.org

Mapping lost crab pots – Responding to community concerns of derelict crab pots, Jefferson MRC partnered with the Sea Dragons, a local STEM robotics group, to pilot the use of a custom-built submersible remotely operated vehicle (ROV) for locating and removing derelict crab pots. The MRC also contracted side scan sonar surveys covering the same areas to optimize the utility of the ROV in locating pots for removal by using known GPS coordinates. The side scan sonar surveys located 157 pots at two sites. With limited time on the water to work, the team successfully relocated six derelict crab pots and removed three, proving the concept of using



Sea Dragons robotics team with their pilot ROV setup. Photo: Monica Montgomery

an ROV as a relatively low-cost method for crab pot removal. The MRC plans to continue growing its partnership with the Sea Dragons in order to enhance the ROV's capabilities, remove pots in other locations across East Jefferson County, refine ROV survey methods for pots with unknown locations, and eventually, advise other communities with access to a robotics team and interest in adopting similar efforts. The MRC and partners created a [Story Map](#) of the pilot project to share their results.

Rain gardens and stormwater – In 2022, Jefferson MRC primarily focused on tackling a backlog of maintenance needs at established rain gardens and installed one new rain garden in Port Hadlock. The MRC completed an assessment of rain garden maintenance needs, inventoried all the rain gardens installed to date, and then hosted work parties from April through September to weed and mulch the gardens. With the addition of the new rain garden in 2022, the MRC has co-sponsored a total of 17 rain garden installations to date across East Jefferson County. This includes 12 in Port Townsend, two in Port Hadlock, and three in Quilcene.

Eelgrass and shellfish voluntary no-anchor zones – Jefferson MRC has three buoy fields that protect eelgrass and shellfish habitats by encouraging boaters to anchor outside the areas to prevent anchor and chain damage. At the two Port Townsend Bay sites, the MRC conducted regular maintenance, and swapped the spar buoys for winter floats that don't exert as much pull on the anchors during the off-season. In Mystery Bay, MRC volunteers serviced the buoys to remove marine growth and replace underwater hardware. The MRC's No-Anchor Zones Subcommittee monitors the buoy fields throughout the year to ensure that the buoys are in place and functioning properly, and to assess boater compliance and effectiveness of the no-anchor zones, documented at 95% voluntary compliance.



Volunteers monitoring bull kelp in Jefferson County, June 2022. Photo: Solenne Walker

Bull kelp monitoring – Jefferson MRC continues to collect data for the Northwest Straits Commission’s regional bull kelp monitoring project, with 2022 marking its seventh year of monitoring at the North Beach kelp bed in Port Townsend. This data helps inform regional kelp planning and conservation efforts.

Forage fish spawning surveys – Forage fish are a vital link in the marine food web, and monitoring their status helps inform recovery efforts in the Salish Sea. Jefferson MRC and trained community volunteers conducted sampling to identify forage fish spawning throughout the year in 2022. Volunteers collected data through an iForm app and send beach samples to WA Department of Fish and Wildlife to identify and count presence of eggs. As of fall 2022, the Jefferson MRC has monitored forage fish spawning at the Siri’s Cove site in Dabob Bay for two years, and it is the MRC’s sixth year of surveys at the Adelma Beach site in Discovery Bay.

Education and outreach – Jefferson MRC supports active stewardship of East Jefferson County’s marine resources by providing science-based information and promoting community involvement in MRC projects. In 2022, the MRC co-hosted two coupled speaker and in-person events with the Port Townsend Marine Science Center, tabled at three community festivals, supported crabber and shoreline property owner outreach in partnership with the NW Straits Foundation, gave presentations for the County’s Beach Naturalists training and East Jefferson County teachers enrolled in the Port Townsend Maritime Discovery Schools 2-Day Teacher Training, and published targeted ads focused on water quality and eelgrass protection.

Olympia oyster restoration – The MRC conducted population monitoring at their three Olympia oyster restoration sites in 2022, with an estimated population of nearly 125,000 oysters. At their original Discovery Bay site, the range of size and age classes and the number of smaller oysters demonstrates that the site continues to support natural recruitment and a persisting population of aging Olympia oysters. The average number of Olympia oysters per square meter increased from 28.8 to 45.4 since the last survey in 2021. At their most recent restoration site, new recruitment was easily observed as settlement of new Olympia oysters on added substrate.

San Juan Marine Resources Committee

www.sjcmrc.org

False Bay Monitoring – False Bay, a biological reserve managed by the University of Washington's Friday Harbor Labs, has great ecological and recreational significance in the region. In 2022, San Juan MRC led an effort to sample *Ulva sp.* (Ulva) at False Bay as part of a baseline study to understand seasonal changes in abundance and potential impact of this green algae on the intertidal ecosystem at False Bay, particularly regarding eelgrass. Under the joint guidance of the MRC and Friday Harbor Labs, an intern collected data on Ulva coverage, and MRC members conducted outreach and collected visitor data on demographics, details of visit, and knowledge of False Bay. The data collected in the summer of 2022 helps create a reference point from which research and management decisions can be made.

Plastic Free Salish Sea – Plastic Free Salish Sea is a partnership created and led by the San



Volunteers of all ages participating in the Great Islands Clean Up event.

Juan MRC to raise awareness and change behavior and the culture of plastic use in San Juan County and the surrounding Salish Sea region. The Adopt-a-Beach Program continued this year, growing to include a total of 36 active beach stewards, including 4 new stewards this year, who cover 28 locations. The MRC and the Plastic Free subcommittee and partners led the effort on two significant community clean-up events, the Great Islands Clean-up, held in April and September. The spring event was the biggest yet - 350 volunteers removing a whopping 3,500 pounds of debris from 173 miles of roads and shorelines. The fall cleanup engaged 181 volunteers from San Juan, Orcas, Lopez, Shaw, and Stuart Islands collecting 1,733 pounds of trash from more than 100 miles of shoreline and roads. Community engagement was also a key focus area, through hosting a booth at the County Fair, the program website, and promoting Plastic Free July and making plastic reduction toolkits available to local businesses.

Marine Stewardship Area Plan – In early 2019, San Juan MRC began a review of the Marine Stewardship Area (MSA) Plan. The MRC continued to build off these efforts through 2022, as they focused on determining new and emerging threats and identifying Strategic Actions needed to address these threats, undertaking a SMART exercise to categorize the identified actions, and compiling the remaining chapters and finalizing the full revised Plan.

The long-term goal is to ensure that the MSA Plan includes the most relevant information

regarding the County's marine resources and lays out the key strategic actions that will need to be addressed over the short- and long-term, which will help inform the management efforts of San Juan County's Marine Program and MRC projects and re-engage residents and visitors alike in these sensitive marine habitats and resources within San Juan County.

Voluntary Eelgrass No-Anchor Zone – San Juan MRC is a partner on a project to protect eelgrass beds through implementation of voluntary no-anchor zones for recreational boaters. To determine the effectiveness of the zones, this year the MRC conducted vessel monitoring at four sites, one of which has existing buoys delineating the eelgrass zone. At Odlin County Park, the site with existing buoys, the monitoring found that the buoys were successful, as no boats were found anchored inside the eelgrass bed. The MRC also provided support for maintenance of the buoys at Odlin Park. In addition to the monitoring effort, the MRC conducted community and boater outreach through local media and social media to raise awareness of the sensitive eelgrass habitat in San Jan County and share the unified boater best practice guidelines.

Derelict vessels – San Juan MRC has recently revived the county's derelict vessel prevention program, a partnership with the County to identify vessels at risk of becoming derelict or abandoned. Over the last year, San Juan County Marine Program and MRC staff participated in two marine patrols, covering two popular areas where long-term vessel anchoring and mooring is known to occur. The Friday Harbor patrol resulted in 7 vessels being tagged with the County's Derelict Vessel Prevention Notice and entered into the newly established Vessel of Concern database, and a patrol at Blind Bay, Shaw Island, and West Sound, Orcas Island resulted in 11 boats being tagged and entered into the database. Over the course of the year San Juan County oversaw the removal of four derelict vessels from County waters.



Derelict vessel identified through the San Juan MRC inventory. Photo: Tyler Davis

Mooring buoy assessment – In 2022, San Juan MRC completed a county-wide assessment of mooring buoys to determine the numbers and locations of mooring buoys in San Juan County. Using methods established by WA Department of Natural Resources and County GIS Department, aerial photos were examined to identify mooring buoy locations. A total of 1,863 mooring buoys were identified in the aerial photos. Compared to the number of mooring buoys identified by Friends of the San Juans in 2009, 28 more buoys were identified from the 2022 aerial photos. Understanding how many mooring buoys and where they are located is the first step towards a county-wide assessment of vessel usage, particularly with regards to sensitive marine habitats and areas of cultural importance to local tribes.

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Salish Sea Stewards – Skagit MRC and Padilla Bay Reserve implemented the community science training 2022 program, which provided a series of twelve 4-hour trainings from 39 lecturers. Twenty-five people completed the program through a hybrid approach to allow speakers or participants the option to join either in-person or virtual. Most of the participants selected to join the trainings in-person. A program evaluation provided valuable feedback that will be used to develop the 2023 training season. To date, Salish Sea Steward volunteers have contributed nearly 45,000 hours since the program began.

Fidalgo Bay Day – Fidalgo Bay Day is Skagit MRC's signature public outreach event to spread awareness of the marine environment and to foster environmental stewardship. In 2022, the MRC was excited to return to an in-person, zero waste event after a two-year hiatus. The event harnessed the energy and expertise of more than 36 organizations and 125+ people, mainly volunteers. With over 300 attendees, including many families with children, the return of event was a success. This event is supported by many partner organizations, with special thanks to the Samish Indian Nation for providing the event venue.

Bowman Bay restoration – Bowman Bay is a pocket beach located in the Whidbey Basin at Deception Pass State Park where Skagit MRC worked with partners to support a restoration project in 2015. Since then, the MRC has continued to improve the site through riparian planting. In 2022, two volunteer work parties engaged youth and adult volunteers in weeding, watering, and mulching.



*Community participants at the 2022 Fidalgo Bay Day.
Photo: Cindy Elston*

Kids on the Beach – In spring 2022, three schools engaged in the program with classroom visits and field trips to Padilla Bay, with 175 students from Concrete, Conway, and Sedro Woolley participating. All schools had a week-long program that included pre-trip classroom introduction, a virtual aquarium tour, a field day for data collection, a post-trip classroom visit to learn about data and data analysis, and development of a final presentation. The 8th-grade program focused on the forage fish egg and spawning program at Fidalgo Bay, exploring the relationship between forage fish eggs and ecosystem health. Students in the 6th grade program studied invasive mud snails and mudflat habitat, with field activities at Bayview State Park. Program staff shared some activities with students in Anacortes schools, but remaining COVID restrictions prevented their full participation in the program this year.

Pinto abalone restoration – The pinto (northern) abalone is the primary abalone species indigenous to Washington waters. The current number and distribution of reproductive wild abalone is too low and too widely distributed to maintain a sustainable population, resulting in pinto abalone being added to the Washington State Endangered Species list in 2019. Skagit MRC continued its partnership with Puget Sound Restoration Fund to hatch and rear genetically diverse pinto abalone, outplant them at selected sites, and monitor their growth and survival. The eight existing Skagit County sites were not due to receive outplanted juvenile abalone in 2022 according to this rotation, but reconnaissance dives conducted in Skagit County early in the monitoring season identified several potential sites for future outplants. The spring monitoring season covered four of the eight sites in Skagit County this year.

Olympia Oyster Restoration – Skagit MRC's Olympia oyster restoration project had a year of minimal monitoring, as they prepare for an intensive bay-wide survey next year. In the spring, the MRC coordinated access to Shell Refinery's property so that Padilla Bay Reserve staff could collect a sub-sample of oyster seed from the bags of cultch that were placed in Fidalgo Bay last summer to check for settlement of oyster seed, and results showed it was the highest year for larval recruitment that they've seen since the restoration effort began. The natural set seed on the bags of oyster shells were transplanted to southern Padilla Bay, Kukatali, and Similk Bay, and new cultch bags were deployed in Fidalgo Bay to collect more seed in the coming years. Skagit MRC's Olympia oyster project is an entirely volunteer led effort, with no direct funding in 2022.

Bull kelp monitoring – Skagit MRC continues to collect data as part of the regional bull kelp monitoring project that is coordinated regionally by the Northwest Straits Commission. In 2022, volunteers monitored sites at Biz Point, Coffin Rocks, and Shannon Point (east and west) for the sixth consecutive year.

Forage fish spawning surveys – MRC volunteers in Skagit collect samples for forage fish spawning at a variety of index sites and restoration sites, including Bowman Bay, Kiket tombolo at Kulutali Preserve, March's Point, Guemes Channel, Similk Bay and Samish Bay. In addition to index and restoration sites, the Skagit MRC volunteers supported sampling at the Fidalgo Bay Aquatic Reserve, with 2022 marking 10 years of consistent surveys.



Skagit MRC volunteer processing beach samples collected to survey for forage fish spawning. Photo: Leah Robison

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Port Susan Marine Stewardship Area – The Port Susan Marine Stewardship Area (MSA) Conservation Action Plan (CAP) was first developed in 2012 by a collaborative group of partners representing federal, state, tribal, and local governments, and non-profit organizations with the goal of achieving a healthy marine and estuarine ecosystem in Port Susan with thriving biodiversity and strong recreational and resource-based industries.

In 2022, ten years after the CAP was initially developed, Snohomish MRC partnered with the Island County MRC to reconvene partners, assess the current status of the CAP, and identify opportunities to support conservation activities in Port Susan for the next decade and beyond. In the first phase of the project, Snohomish MRC gathered information through an early assessment and three stakeholder meetings focused on the Objectives and Strategic Actions of the 2012 CAP and opportunities to enhance plan implementation. The resulting [Recommendations Report](#) will provide guidance for them to build on this information and focus on partner engagement.

Meadowdale Beach and Estuary Restoration Project – Snohomish MRC is a partner on the restoration project to replace a culvert with a bridge span to open creek flow and restoration of a 1.3 acre pocket estuary. The construction phase, funded by other sources, was completed in 2022, and the MRC focus has been to work with a project consultant to develop a Meadowdale Monitoring Plan, as well as development of a webpage and [Story Map](#). The park has since reopened to the public.



MRC volunteers collecting beach samples for forage fish spawning surveys. Photo: Alex Pittman

Forage fish spawning surveys – Snohomish MRC is one of several MRC partners in the Northwest Straits regional forage fish spawning survey program. They carry out monthly sampling at two sites - Picnic Point and Howarth Park. A third site at Meadowdale Beach was paused in 2022 as the beach access was closed for the construction phase of a restoration project.

Recreational crabber outreach – Snohomish MRC has conducted outreach to recreational crabbers for many years, emphasizing the use of best practices to avoid losing gear. In 2022, MRC volunteers and their partners conducted in-person outreach on weekends at the start of crabbing season reaching more than 350 crabbers.

Derelict vessel removal – Snohomish MRC and Snohomish County Surface Water Management continued their progress on removing derelict vessels from local marine and estuary areas. In 2022, this included removal of four vessels from the Snohomish River estuary, with funding leveraged through the Northwest Straits Foundation, and carried out in partnership with WA Department of Natural Resources.

Beach cleanup – The Snohomish MRC worked in partnership with other entities to host three beach cleanup events in 2022. The first event, coordinated with Earth Day on April 23, was held at Picnic Point, where volunteers from the MRC, WSU Beach Watchers, and Puget Sound Energy collected over 370 pounds of trash. The second event corresponded with International Coastal Cleanup Day on September 24 at Picnic Point Beach, where over a dozen volunteers picked up nearly 75 pounds of trash. The Cleanup utilized the Escaped Trash Protocol developed by the EPA to assess the impact of trash of the beach. The MRC and WSU Beach Watchers hosted a third event at Howarth Park on November 22.



Volunteers ready to clean up the local beaches for Earth Day 2022. Photo: Snohomish MRC

Snohomish Estuary Piling Removal – In 2021, Snohomish MRC completed a project to develop a prioritized list of derelict pilings in the Snohomish River estuary and engage stakeholders about potential removal. This included the completion of the Snohomish Estuary Creosote Piling Prioritization Plan. The resulting [webmap](#) shows the 15,564 independent pilings identified, of which 2,456 are creosote-treated and 6,982 are high priority for removal. In 2022, WA Department of Natural Resources carried out operations to remove 476 of the highest priority creosote treated pilings, and the MRC shared the project at the Salish Sea Ecosystem Conference in April 2022.

Marine Vegetation Monitoring – Over the last three years, Snohomish MRC partnered with the WA Department of Natural Resources to map marine vegetation along the entire Snohomish County shoreline. The project was completed at the end of 2022, finding that the shoreline of Snohomish County supports 912 hectares of eelgrass and 168 hectares of understory kelp. The MRC is also a partner in the regional kayak-based bull kelp monitoring by community scientists, monitoring four sites: Hat Island, Mukilteo, Meadowdale, and Edmonds.

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Whatcom MRC volunteers and Lummi Natural Resources staff demonstrating beach seining for students from Bellingham schools. Photo: Whatcom MRC

Beach seine with kids - In 2022, an enthusiastic volunteer on the Whatcom MRC led the effort to develop a new pilot project to provide an opportunity for elementary school students to see juvenile salmon using the intertidal habitat along the shoreline. Students from three fourth grade classes in the Bellingham School District received a classroom visit, followed by a field event that included a short talk from a Lummi Nation tribal elder. During field events, students observed a beach seine during the peak juvenile salmon outmigration period and were able to witness how the marine intertidal zones serve as migratory corridors for salmon. The successful pilot year has led to expanded plans for the 2023 season and beyond.

Beach cleanup – Whatcom MRC co-hosted a volunteer-led remote beach cleanup on the southwest side of Lummi Island, a beach that is not accessible other than by boat. Promotional materials included education about the impact of marine debris on shorelines and marine species and the importance of beach cleanups to reduce litter, in effort to raise awareness about litter and plastic pollution. Volunteers cleaned more than 2 miles of shoreline, removing 450 pounds of trash.

Olympia oyster restoration – Whatcom MRC continued a pilot project in North Chuckanut Bay where they are working to establish a self-sustaining population of Olympia oysters while enhancing habitat complexity and diversity. In 2022, they monitored the seven pilot plots to determine the status of the restoration potential and assess needs for adaptive changes. The annual monitoring was done with the help of students from the Bellingham Technical College Fisheries and Aquaculture Program. The MRC monitors for natural recruitment of larvae against shell substrate and monthly larval settlement patterns during the summer using stacks of ceramic tiles.

Bull kelp monitoring – Whatcom MRC monitors select bull kelp beds annually during the summer growing season to provide information on the status of floating kelp, contributing to the regional kelp monitoring program to better understand kelp within the Salish Sea. In 2022, volunteers surveyed kelp beds at Aiston Preserve, Cherry Point, and SW Lummi Island. Aiston Preserve surveys were completed just after the removal of overwater structures including a pier, a loading ramp, and pilings left from previous mining activities, and the MRC is interested in how the kelp bed is impacted by restoration efforts. At Cherry Point, MRC volunteers were joined by staff from WA Department of Natural Resources, and data from this site will help inform the development of the floating kelp canopy area indicator for the Puget Sound Vital Signs.

Forage fish spawning surveys – Whatcom MRC recruits and trains volunteers to conduct forage fish spawning surveys monthly, using existing protocols developed by the WA Department of Fish and Wildlife. In 2022, a part-time intern helped lead the program, coordinating community volunteers and leading surveys at two priority beaches in Bellingham.

Chuckanut Bay Pollution Identification and Correction (PIC) – North Chuckanut Bay is a recreational shellfish harvesting area that supports many species of clams but has been closed to harvest since 1994 due to poor water quality and sewage disposal conditions. Since 2014, the MRC has contributed to the county-wide PIC project by focusing on North Chuckanut Bay. In 2022, sampling occurred once per month at seven freshwater sites and seven marine sites. Results show that while water quality at one station has improved since 2016, bacteria levels increased at other sites within the bay, which is similar to findings in other marine waters in the County. The timing of water quality decline corresponds with the COVID outbreak and the resulting decrease of septic evaluations and reduced community engagement.

“Working with the MRC has been a great and important experience both for my career and for the community. Through the year I got the chance to meet other people who care just as much about the environment as I do and who understand the importance’s of all life in the ecosystems. Being a forage fish surveyor requires personal motivation and desire to both learn and teach.”

Brittani Isenhour, Whatcom MRC Forage Fish Intern
