

Skagit County MARINE RESOURCES COMMITTEE

2021 Annual Report

This Report Represents work Accomplished From October 2020—September 2021



Northwest
Straits
INITIATIVE
partners in marine conservation



PUGET SOUND
PARTNERSHIP



This project has been funded wholly or in part by the United States Environmental Protection Agency under assistant agreement CE01J65401. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

“Skagit Marine Resources Committee acts as a catalyst for the protection and restoration of the marine waters, habitats and species of Skagit County to achieve ecosystem health and sustainable resource use”



Inside This Report

2021 Financial Summary.....	2
------------------------------------	----------

Overview

Skagit County Marine Resources Committee.....	2
Northwest Straits Marine Conservation Initiative.....	3

Community Engagement.....	4
----------------------------------	----------

Education and Outreach

Fidalgo Bay Day.....	4
Salish Sea Stewards.....	5
Kids on the Beach	6

Conservation and Restoration

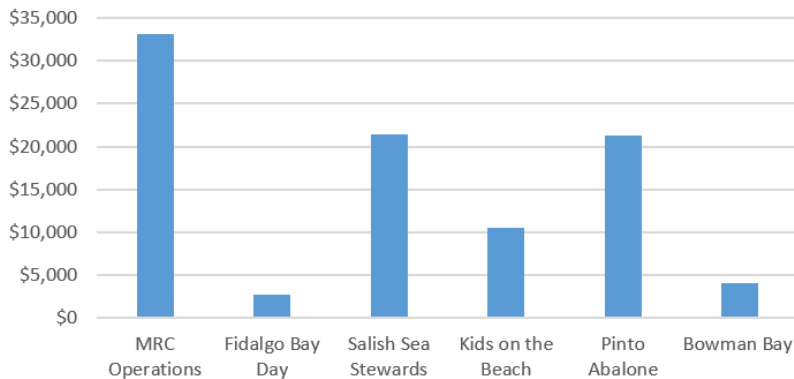
Pinto Abalone Restoration.....	7
Bowman Bay Nearshore Restoration	8
Olympia Oyster Restoration.....	9
Nearshore Restoration Monitoring	10
Forage Fish Index Site Surveys.....	10
Kayak-based Kelp Surveys.....	11

Acknowledgements.....	12
------------------------------	-----------

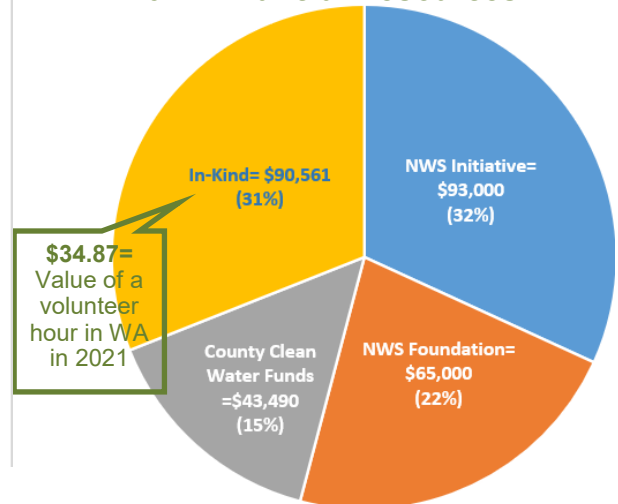
FINANCIAL SUMMARY

MRC base funding is provided by the Northwest Straits Initiative and leveraged through County funding, volunteer hours, in-kind contributions, and the Northwest Straits Foundation. Skagit County Public Works Natural Resources Division provides staff support for MRC operations, with County Clean Water funds. **2021 Northwest Straits Initiative funding sources:** National Estuary Program, Environmental Protection Agency, Puget Sound Partnership, and Washington State funds.

2021 NWSI Funding for MRC Projects
\$93,000



2021 Financial Resources



SKAGIT MARINE RESOURCES COMMITTEE

Established since 1999, Skagit MRC is a community-led collaboration that takes a grassroots approach to identify local priorities and implement on-the-ground projects that protect and restore our marine resources. Volunteers are essential to our work. www.skagitmrc.org

MRC Membership

MRC members are appointed by the Board of Skagit County Commissioners and represent a broad spectrum of community interests including tribal, government, economic, recreational, conservation, and scientific. Our meetings occur the second Thursday of each month from 9:00 a.m. to 11:00 a.m. and are open to the public.

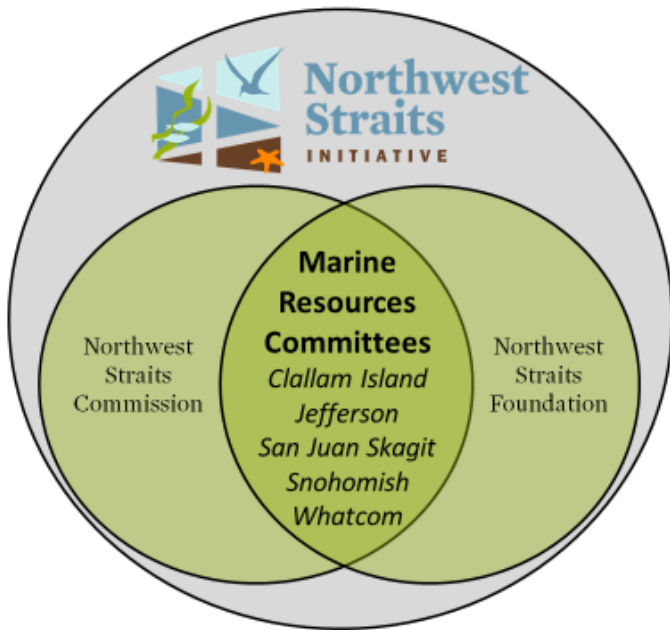
Tracy Alker (County Staff Support)	Skagit County Public Works
Kevin Anderson	Port of Anacortes
Jude Apple / Sara Brostrom	Padilla Bay NERR
Darla G Smith	Citizen
Lynne Wenberg-Davidson	Citizen
Matt Castle /Jodi Bluhm	Samish Indian Nation
Paul Dinnel	Marine Scientist
Pete Haase	Citizen
Diane Hennebert	City of Anacortes
Catey Ritchie	Swinomish Tribe
Jay Lind (MRC Vice-Chair)	Sports & Commercial Fishing
Brian Robson	Shell Puget Sound Refinery
Betsy Stevenson (MRC Chair)	Skagit County Planning Dept.
Kari Odden	Skagit Land Trust



Over **665** Volunteer
Hours contributed by
MRC members in 2021!



NORTHWEST STRAITS INITIATIVE



Northwest Straits Commission (NWSC)

- Comprised of 7 MRC representatives, 5 governor appointees, and 1 tribal representative.
- Provides MRCs with base-funding, training and technical support.
- Facilitates regional projects and collaboration.

Northwest Straits Foundation (NWSF)

- Nonprofit arm of the Initiative to help leverage additional financial resources to accomplish the work of the Initiative.
- Provides staffing and expertise to support MRCs and help manage large regional projects

NWSI Regional Projects

- Kelp Protection and Recovery
- Derelict Gear Removal
- Nearshore Restoration
- European Green Crab
- Crabber Outreach
- Olympia Oyster Restoration
- Sound IQ
- MyCoast
- Actions to Impacts
- Education/Stewardship
- Shore Friendly

Northwest Straits Initiative

- Congressionally authorized since 1998, as part of a collaborative grassroots effort to protect and restore the marine environment in the northwest straits region of our state.
- The Initiative carries out work through the seven MRCs, NWSC, and NWSF.
www.nwstraits.org.

Northwest Straits Region



Marine Resources Committees (MRCs)

- 7 County based MRCs
- Serve as advisors to local government
- A grassroots collaboration representing diverse interest groups
- Identify and carry out local priority projects that protect and restore marine resources



COMMUNITY ENGAGEMENT

A key task of the MRC is to engage and educate the community about issues impacting the Salish Sea and encourage stewardship and sustainable resource use.

2021 HIGHLIGHTS

In 2021, Skagit MRC provided community education/outreach as part of our nearshore monitoring and plant maintenance work party events at Bowman Bay. Volunteers and park visitors learned about our restoration and monitoring work and how it all fits together in the bigger picture. In addition, forage fish survey volunteers hosted an educational forage fish station at the Fidalgo Bay Resort for underserved students from the Washington Gear Up Program.



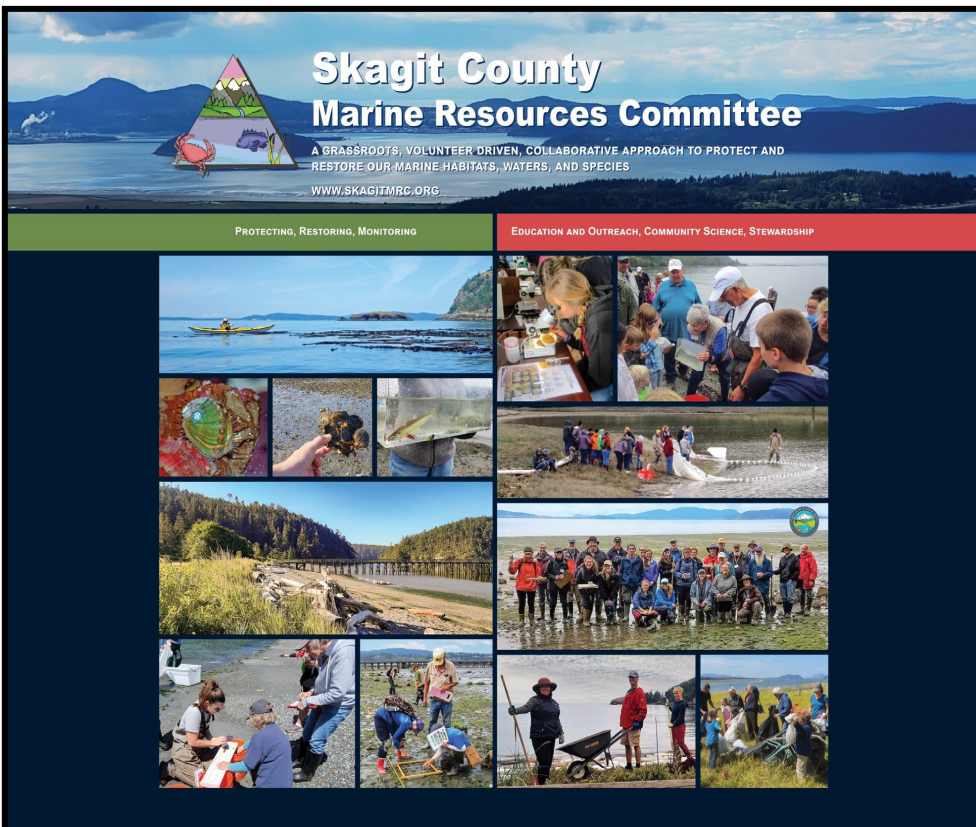
FIDALGO BAY DAY

Fidalgo Bay Day is Skagit MRC's signature annual educational event held at the Samish Indian Nation's Fidalgo Bay Resort in Anacortes since 2004. This FREE one-day event is typically filled with lots of fun interactive educational activities that focus on the marine environment for kids of all ages.

2021 HIGHLIGHTS

In 2021, the in-person Fidalgo Bay Day event was canceled due to the ongoing COVID-19 pandemic. Instead of hosting another virtual event, MRC grant funds were used to purchase a new MRC display for future outreach events.

The image to the right is the new MRC display backdrop. It wraps around the 8' pop-up curved exhibit booth.



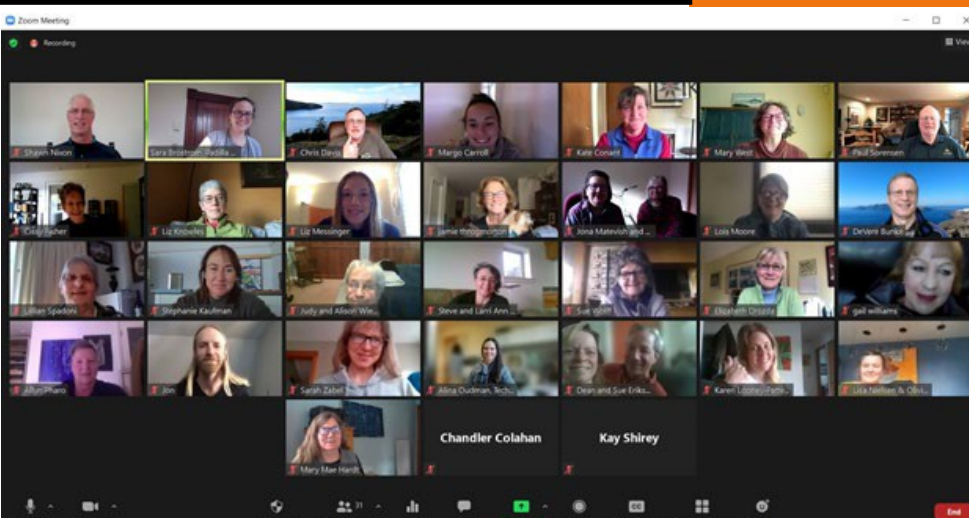
SALISH SEA STEWARDS

Skagit MRC's Salish Sea Stewards (SSS) volunteer training program offers approximately **40 hours of training** over a 10—15 week period to residents interested in learning about the marine environment, how to become good stewards and advocates, and getting connected to the different volunteer opportunities that help make a difference in the community. The classes are taught by many local experts on a variety of topics impacting the Salish Sea. In return, volunteers are asked to commit to **40 hours of volunteer service** to help support Skagit Marine Resources Committee or other partner organization projects. This MRC project is in collaboration with Padilla Bay National Estuarine Research Reserve.



2021 HIGHLIGHTS

- ⇒ Classes were held Tuesdays, **Feb 23 – June 1, 2021**, and were **mostly virtual** via ZOOM due to the pandemic. The forage fish field session was held in-person in September.
- ⇒ Each online session was **2.5 hours** with breakout room discussions. **Session themes:** estuaries, kelp, fishing, marine mammals, restoration, water quality, marine debris, species monitoring, and informal learning. The 2021 syllabus is available on the [MRC website](#).
- ⇒ **37 volunteers**, a record number, completed the 15-week training program in 2021.
- ⇒ The new class of 2021 SSS graduates contributed over **193 Volunteer Hours** in less than **6 months**.
- ⇒ Since 2014, **272 trained volunteers** and over **38,000 volunteer hours**. That's a value of over ***\$1,325,060!** **The value is based on the Independent Sector's Value of Volunteer Time for Washington State in 2021= \$34.87 /hour*
- ⇒ Over **1,110 SSS Facebook followers!**
- ⇒ "The WAVE", Salish Sea Steward's electronic news bulletin posts volunteer opportunities and educational events with **over 600 subscribers!**



KIDS ON THE BEACH

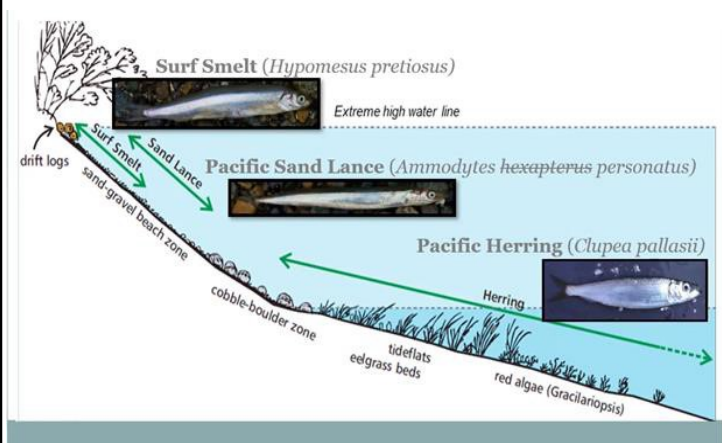


The Kids on the Beach (KOTB) program is designed to increase literacy in marine science in Skagit County middle-schools with real, relevant, local experience in marine science and restoration. The goal is to provide school kids with a variety of hands-on authentic marine conservation research generating useful scientific data in the classroom and on the beach, and build a program that is useful to teachers, which are patterned after and compatible with existing programs. It imparts the importance of science communication through a student science symposium. This MRC project is in collaboration with the **Padilla Bay National Estuarine Research Reserve** education team. Implementing the KOTB program during the pandemic in 2020 and 2021 created a unique set of challenges, requiring rapid and ongoing adaptation and flexibility of the MRC and Padilla Bay staff to meet the ever changing needs of teachers, students volunteers, and also adjust to state level protocols.

Students' Virtual Presentation



Forage Fish Student Notebook



2021 HIGHLIGHTS

Spring 2021 Program:

- ⇒ **4 schools, 204 students, participated** (Concrete, 8th grade; Sedro Woolley, 6th grade; Conway, 8th grade; and La Conner, 7th & 8th grade).
- ⇒ Due to **COVID-19 restrictions**, we were unable to host the in-person field sessions. As an alternative, we provided a **simulated field experience** in the classroom.
- ⇒ **Forage fish eggs** were also brought into the classroom to engage kids in identifying the different stages of egg development.
- ⇒ Students made comparisons and **predictions about ecosystem health** based on forage fish egg samples collected from different sites in different stages of restoration.
- ⇒ Instead of presenting at a symposium, **Conway Middle School** students developed and posted a group presentation online using the Prezi platform. <https://prezi.com/view/RYhIWJzxxtgtYBplmDyl/>
- ⇒ We now have a variety of materials for at-home and in-classroom learning in all their various forms.
- ⇒ Over approximately **30.5 Volunteer Hours** contributed in support of Kids on the Beach.

PINTO ABALONE RECOVERY



Photo: K. Sowul, WDFW

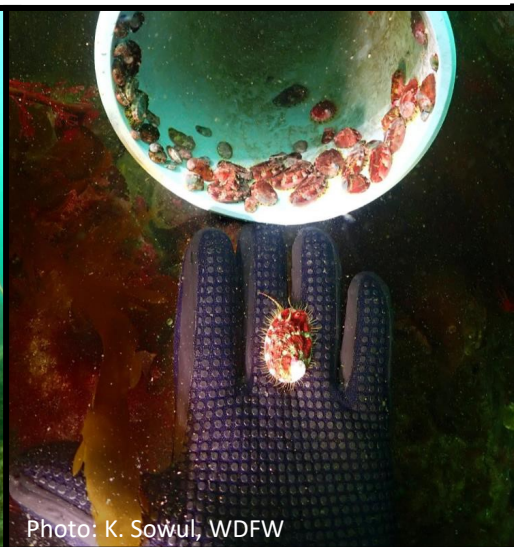


Photo: K. Sowul, WDFW



Photo: PSRF

Pinto abalone (*Haliotis kamtschatkana*) is the only known species of abalone indigenous to the Salish Sea and is an important part of a healthy diverse marine ecosystem and a highly valued resource. They are currently listed as Endangered in Washington State waters and cannot recover without our help. Pinto abalone restoration and protection is a collaborative effort between multiple partners. Since 2009, more than **18,000** hatchery-reared, genetically diverse, **juvenile abalone** have been introduced to **8 rocky reef sites in Skagit County waters**. An additional 22,000 abalone have also been outplanted at 10 sites in San Juan County, creating a recovery network across a significant portion of their geographical range in Washington. The goal is to build a sustainable spawning population.

Skagit MRC has worked in partnership with Puget Sound Restoration Fund since 2014 to help rebuild a sustainable spawning population of pinto abalone in Skagit County waters. Surveys are conducted each year to monitor growth, survivorship and movement of the pinto abalone released into the wild and add additional juvenile abalone to increase their densities.



Photo: PSRF



Photo: PSRF

2021 HIGHLIGHTS

- ⇒ Hatchery produced **27 unique abalone families**. 70 grow-out tanks were settled with nearly 1.12 million larvae.
- ⇒ **26 wild adults** were collected and brought to the Chew Center for broodstock. There are now **55 broodstock animals** at the Center.
- ⇒ **Diver surveys** investigated survival, growth and emergence of hatchery reared abalone at 7 of the 8 sites in Skagit County.
- ⇒ Surveys found **523 abalone**. **31%** were outside of plot boundaries.
- ⇒ **Abalone are increasing** in size and density. Mean shell length was 88.2 mm. Mean density was 0.55/m².
- ⇒ A **7% survival rate**. Slightly below the 10% target rate.
- ⇒ **Outplanted** 4 sites with an average of 1,075 abalone per site from 2 age cohorts (**4,300 abalone**).
- ⇒ **Water quality loggers** tracked temperature, PH, dissolved oxygen and salinity.
- ⇒ **2 time laps cameras** installed at **6 sites** to capture abalone movement and predation. No clear evidence of active predation.
- ⇒ The **Pinto Abalone Recovery Plan** was drafted and open to Public Comment until January 6, 2022.

BOWMAN BAY RESTORATION



Skagit MRC partnered with the Northwest Straits Foundation, Deception Pass State Park, and Skagit Fisheries Enhancement Group (SFEG) to **remove approximately 540 ft of rock riprap**, add **1,080 tons of beach nourishment** material, regrade the beach to match the natural contour, plant shoreline vegetation, and install interpretive signage. Construction was completed in 2015.

This restoration project helped **improve public access** and **restored natural sediment transport processes** and **improve approximately 0.6 acres of nearshore habitat** for forage fish, juvenile salmon and bull trout. Large woody debris accumulations along the beach and native vegetation planted along the upper shoreline provide important habitat and erosion protection. This restoration project also offers excellent opportunities for education and outreach. Salish Sea Stewards classes are often held here.

Additional planting and plant maintenance will continue each year with the help of volunteers until it becomes well established and self sustaining. The shoreline vegetation provides good habitat for insects, which are important prey for juvenile salmon. Trained citizen scientists helped collect monitoring data to measure the effectiveness of our nearshore restoration efforts. Volunteers detected the presence of surf smelt eggs at the site for the first time in 2019, four years after restoration.

Restoration / Monitoring



2021 HIGHLIGHTS

- ⇒ Partnered with SFEG to maintain the vegetation and host small volunteer work parties during the summer of 2021.
- ⇒ **40 volunteers** contributed **over 82 hours** of maintenance and planting from July —Sept 2021.
- ⇒ **4 work parties** included volunteer plant ID training, planting instruction, and implementation of weeding, watering, mulching, and planting.
- ⇒ Planted **500 dune grass** and **40 Pacific silverweed**.
- ⇒ Created **large laminated plant ID cards** to help train volunteers at work party events.
- ⇒ **Soil tests** indicated **low levels of nitrogen**. Compost mulch was applied to help increase nitrogen levels.
- ⇒ Overall, **plant mortality has been reduced** and the coverage of native plants has increased. However, many of the **conifers and shrubs continue to have low survival rates**. Supplemental planting, watering and compost mulch recommended in 2022.

NATIVE OYSTER RESTORATION



The Olympia oyster, *Ostrea lurida*, is the only oyster native to the Pacific Coast of North America. Olympia oysters were driven to near extinction in Puget Sound in the late 1800s from over harvesting and severe water pollution. There is now a coast-wide initiative from California to British Columbia to expand and coordinate native oyster restoration efforts called the Native Olympia Oyster Collaborative. Restoring and protecting native oysters is a high priority for several reasons. Oysters provide many benefits to the ecosystem they live in. They grow in reefs which provide valuable habitat and are an important food source for many other marine species. They help improve and maintain water quality because they are filter feeders and can filter up to 50 gallons a day. They are more resilient to ocean acidification than the larger commercial Pacific oysters and will help make Puget Sound more resilient. They are also culturally significant to indigenous people.

Since 2002, Skagit MRC has been working collaboratively with many partners and citizen scientists to establish a sustainable Olympia oyster population in Fidalgo Bay. Oyster habitat has been enhanced through the distribution of Pacific oyster shell and several plantings of native oyster seed have occurred. There are now an estimated **3 million Olympia oysters (4.5 acres)** in Fidalgo Bay. The native oyster population appears to be self sustaining and spreading to other areas of Fidalgo Bay beyond the restoration site. Some of the oyster seed produced in Fidalgo Bay is now being used to help establish oysters in other areas where they were once historically located including Padilla Bay, Skagit Bay, Kukatali, and Chuckanut Bay. MRC volunteers continue to monitor the oyster population in Fidalgo Bay each year.

2021 HIGHLIGHTS

- ⇒ Due to COVID-19 restrictions, only **2 volunteers** assisted with Oyster restoration in 2021. Over **49 Volunteer Hours** were contributed.
- ⇒ **Monitoring** was **reduced**. The more intensive surveys will only occur every 3-5 years. The **next intensive survey** will take place in **2023**.
- ⇒ **50 annual recruitment bags** were collected and **monitored** for oyster settlement. Results indicated moderate oyster settlement in 2020. **50** new annual recruitment bags were **distributed** in Fidalgo Bay to monitor 2021 settlement.
- ⇒ **13% -14.6% mortality** of native oysters in Fidalgo Bay was likely due to the **heat wave in 2021**.
- ⇒ Collected **stacks of ceramic tiles** to evaluate post larval recruitment at two week intervals throughout the summer. Preliminary results indicate **good oyster settlement in Fidalgo Bay in 2021**. **35% mortality of oysters on the ceramic tiles** due to **heat wave**.
- ⇒ Purchased **12 cubic yards of Pacific oyster shell** with MRC's Skagit Restoration Initiative funding to **collect native oyster seed in Fidalgo Bay for future distribution in Padilla Bay** in partnership with Padilla Bay NERR. **2 yards** of the oyster shells were bagged for future monitoring use in Fidalgo Bay. The County dump truck was used to haul the shell.



NEARSHORE MONITORING



Skagit MRC in partnership with the Northwest Straits Foundation collects post-construction monitoring data at **3** nearshore restoration sites including **Bowman Bay, NW March's Point, and the Kukatali Preserve**. The goal is to collect at least 6 years worth of data at each site to measure the effectiveness of nearshore restoration actions and fill data gaps in status and trends. The data will be analyzed and shared through public access databases and future reporting. Trained citizen scientists play a critical role in collecting data, providing public education and outreach to educate school groups and build community support. The **Northwest Straits Foundation** provides technical expertise, project management coordination, data management, and volunteer coordination for all of Skagit MRCs nearshore restoration projects. Bimonthly monitoring parameters include beach seining and forage fish spawning surveys. The other monitoring parameters occur only once a year including: intertidal monitoring, beach profile, beach wrack/insect fallout, and large woody debris surveys. The monitoring protocols were developed in collaboration with Washington Department of Fish and Wildlife (WDFW).



2021 HIGHLIGHTS

- ⇒ 2021 marked the 7th and **final year** for collecting monthly nearshore **monitoring** data at our Bowman Bay and NW March's Point for all parameters except for forage fish spawning surveys which will continue. Beach seining will likely resume every 2 to 3 years as funding allows.
- ⇒ **502 Volunteer Hours** were contributed to nearshore monitoring at our restoration sites in 2021.
- ⇒ Over **5,413 volunteer hours** have been contributed to nearshore monitoring at our restoration sites since 2014.

FORAGE FISH INDEX SITE SURVEYS



MRCs collect forage fish spawning data at WDFW Index Sites to look at annual variations in the forage fish spawning population and to identify potential trends. Forage fish are an important food source for marine birds, salmon, mammals, and people. Their spawning habitats are impacted by hard shore bulkheads.

- ⇒ **3 Skagit Index sites** : Ship Harbor/ Guemes Channel, NE Similk Bay, and SW Samish Island.
- ⇒ Volunteers identify and stage the eggs under a **microscope** and send samples to WDFW for confirmation.
- ⇒ **Surf smelt eggs** have been found at **all of our sampling sites**.

KAYAK-BASED KELP SURVEYS



An estimated 80% of the historic kelp beds in south Puget Sound have disappeared. Kelp beds are now starting to disappear as far north as Snohomish County.

In 2014, the NWSC established the **Salish Sea International Kelp Alliance** and launched a regional kayak-based bull kelp survey program. Six MRCs are involved in kayak-based kelp surveys to monitor changes in kelp populations, including Skagit MRC. The NWSC compiles all of the data into a kelp database that is shared with local and regional planners and researchers. As part of a collaborative effort, the NWSC also helped develop the Kelp Recovery Plan. To learn more: www.nwstraits.org/our-work/kelp-recovery.



Why is it important to protect kelp?

- ◆ Kelp forests are highly productive ecosystems that provide critical habitat and a source of nutrients for a wide variety of species, including humans.
- ◆ Kelp controls ocean temperature, reduces wave action, protects shorelines, produces large amounts of oxygen, sequesters carbon dioxide, reduces ocean acidification, absorbs nutrients, and is culturally significant.

What are the biggest threats to kelp?

- ◆ water pollution, shoreline development, climate change, over-grazing, and invasive seaweeds.

2021 HIGHLIGHTS

- ⇒ Our kelp surveys are **100% volunteer driven**.
- ⇒ **3 kelp bed locations** (Coffin Rocks, Shannon Point (2 kelp beds), and Biz Point) are surveyed once a month during the peak annual growing season (June—September).
- ⇒ 3 teams of experienced kayak volunteers survey the 3 kelp bed locations.
- ⇒ **11** kayaker volunteers contributed **65 Volunteer Hours** in 2021.
- ⇒ GoSkagit Article by Kimberly Cauvel show-cased MRC kelp surveys at Coffin Rocks: https://www.goskagit.com/news/local_news/volunteers-fill-important-role-in-bull-kelp-research/article_4e884490-8d49-541a-a12a-788ed3122c08.html
- ⇒ The **kelp bed area** appeared to be **increasing** in size at 3 of the 4 survey sites. However, there appears to be a **decline in the kelp bed area at the Shannon Point West location**.

THANK YOU!!

The Skagit MRC relies heavily on the technical, financial, and administrative support of the Northwest Straits Commission, Northwest Straits Foundation, Puget Sound Partnership, U.S. Environmental Protection Agency, Skagit County Public Works Clean Water program and the Skagit County Board of Commissioners. The Skagit MRC's work is driven by our dedicated MRC members, the collaboration and shared resources of many partner organizations, and the hard work of our amazing volunteers. The MRC acknowledges that the land and waters where our work resides are the ancestral homelands of the Coast Salish people and have been since time immemorial. We would like to express our deepest gratitude to the Samish Indian Nation and the Swinomish Indian Tribal Community for their partnership and in-kind staff support for our MRC projects. Thanks to all of you for making a difference!!

