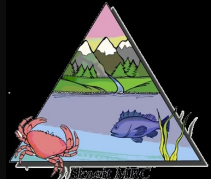


Skagit County **MARINE RESOURCES COMMITTEE**

2016 Annual Report



Bowman Bay
Photo Credit : Dean Alker



PUGET SOUND
PARTNERSHIP



The projects in this report have been funded wholly or in part by the United States Environmental Protection Agency. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency.

A Message From the Skagit County Marine Resources Committee Chair



Jay Lind, Skagit MRC Chair

“The Skagit County Marine Resource Committee continues to work hard restoring native Olympia oyster and pinto abalone populations in Skagit County. Education and outreach also continues to be a top priority. We strive to engage the public and foster stewardship through our signature Salish Sea Stewards training program and our annual Fidalgo Bay Day event. The Salish Sea Steward volunteers play a critical role in the monitoring required for our Olympia oyster and beach restoration projects. It’s been a pleasure serving as the MRC Chair over the last two years. Next year I will be passing the symbolic paddle on to our new MRC Chair, Jamey Selleck. I look forward to continuing to serve as an MRC member and expanding our efforts for many years to come”

Inside This Report

Overview

Skagit County Marine Resources Committee.....	1
Northwest Straits Initiative.....	1
Northwest Straits Commission.....	1
Northwest Straits Foundation.....	1

2016 Skagit MRC Project Budget Table	2
---	----------

Northwest Straits Marine Conservation Initiative Benchmarks.....	2
---	----------

Education and Outreach Projects

Fidalgo Bay Day.....	3, 4
Skagit MRC Representation at Special Events.....	4
Salish Sea Stewards.....	5, 6

Marine Habitats Projects

Kelp Recovery.....	6
Bowman Bay Nearshore Restoration.....	7
Nearshore Restoration Monitoring.....	8, 9

Marine Life Projects

Forage Fish Index Site Surveys.....	9
Pinto Abalone Restoration.....	10
Olympia Oyster Restoration.....	11,12

2017 Annual Workplan.....	13
----------------------------------	-----------

Acknowledgements.....	14
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SKAGIT COUNTY MARINE RESOURCES COMMITTEE



Background:

Established in 1999, the Skagit County Marine Resources Committee (MRC) is one of seven citizen-advisory committees formed under the congressionally authorized Northwest Straits Marine Conservation Initiative (NWSI) as part of a grassroots effort to protect our marine resources.

Goals:

- 1) Restore the health of the local marine waters, habitats, and shorelines to sustainable levels;
- 2) Collect high quality data and promote its use and dissemination; and
- 3) Promote stewardship and understanding of Skagit County marine resources through education and outreach.

To learn more:

www.skagitmrc.org

Skagit MRC Members: MRC members are appointed by the Skagit County Board of Commissioners and represent diverse interest groups including: local government, tribes, Ports, environmental groups, marine scientists, industry, and sport and commercial fishing.

Administrative Support: Support is provided by the Water Resources Section of the Skagit County Public Works Department and is partly funded through the Clean Water Program.

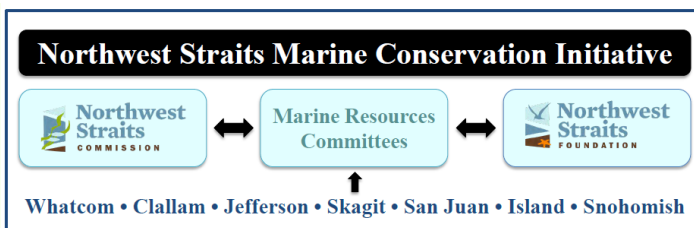
Meetings: MRC meetings occur the second Thursday of each month from 9:00 a.m. to 11:00 a.m. Meetings are open to the public and rotate between Anacortes and Mount Vernon. Guest speakers are invited to present different topics related to the marine environment.

Over 1,485 Hours of Volunteer Services contributed by Skagit MRC members in 2016!!

MRC Member	Interest Group
Tracy Alker (Staff Support)	Skagit County Public Works
Julie Barber	Swinomish Tribe
Nate Biletnikoff Alt: Rachel Price	Shell Puget Sound Refinery
Phyllis Bravinder	Concerned Citizen
Morty Cohen Alt: Pete Haase	Concerned Citizen
Paul Dinnel	Marine Scientist
Jay Lind (Chair)	Sports & Commercial Fishing
Matt Reynolds Alt: Erica Pickett	City of Anacortes
Kit Rawson Alt: Tim Manns	Skagit Land Trust
Jamey Selleck (Vice Chair & NWSC Rep)	Marine Ecologist
Betsy Stevenson	Skagit County Planning Dept
Sarah Tchang	Port of Anacortes
Todd Woodard Alt: Jodi Bluhm	Samish Indian Nation

Northwest Straits Marine Conservation Initiative

The United States Congress authorized the Northwest Straits Marine Conservation Initiative (NWSI) in 1998 to restore and protect marine resources of the Northwest Straits. The Initiative is a coordinated effort that combines sound science with grassroots consensus building to protect and restore marine waters, species, and habitats of the Northwest Straits.



Northwest Straits Commission (NWSC):










Serves as a "board of directors" for the NWSI. The NWSC is comprised of five gubernatorial representatives, one tribal representative appointed by the Secretary of the Interior, and one representative from each of the seven Marine Resources Committees (MRCs). The NWSC provides base funding for the operations and action projects of the MRCs. The NWSC also provides technical assistance, tools, resources, training and coordination among MRCs, and integrates work with a regional focus. The NWSC has four full time staff. The NWSC holds an annual training conference each year for all MRC members. To learn more: www.nwstraits.org.

Northwest Straits Foundation (NWSF):

Serves as the non-profit extension of the Initiative. The NWSF works with the MRCs to identify and pursue additional funding from public and private sources to help leverage support for MRC priority projects and supplement the core federal support for MRCs, manages the state-wide derelict fishing gear removal program, manages large restoration projects, and restoration-related workshops and training. To learn more: www.nwstraitsfoundation.org.

SKAGIT MRC PROJECTS

The Skagit County Marine Resources Committee (MRC) selects projects based on specific local prioritized needs guided by sound science, the Skagit MRC Five Year Strategic Plan, Performance Benchmarks set by the Northwest Straits Marine Conservation Initiative (NWSI), and the Puget Sound Partnership's Action Agenda. Most of the projects and activities in this report were federally funded wholly or in part by the United States Environmental Protection Agency (EPA) via the Puget Sound Partnership grant agreement SEANWS-2015-SkCoPW-00001 administered through the Northwest Straits Commission. The WA Department of Ecology is the fiscal agency.

Projects	MRC Project Lead	NWSC Grant (EPA/PSP)	Other Funding Sources	NWSI Performance Benchmarks (Primary)
MRC Administration and Operations	Tracy Alker	\$19,229	\$47,382 Clean Water Funds	
Fidalgo Bay Day	Pete Haase	\$3,500	~\$2,626 Donations and In-kind support leveraged from 10 businesses and organizations	
Skagit MRC Representation at Special Events	Tracy Alker	\$0	Funding from Skagit MRC's grant for Administration and Operations was used to update the MRC display and outreach materials	
Salish Sea Stewards	Morty Cohen	\$18,000	Partner organizations of the Coastal Volunteer Partnership provided funding to support a full-time Volunteer Program Coordinator	
Bowman Bay Nearshore Restoration	Jay Lind	\$0	\$51,820 NWSF grant from EPA/Estuary & Salmon Restoration Program (ESRP) for construction and \$15,000 for education and outreach	
Nearshore Restoration Monitoring	Jamey Selleck	\$10,871	\$15,000 Skagit Restoration Initiative (SRI) funds for monitoring in Fidalgo Bay for next 3 years. Samish Indian Nation received a grant for beach seining in Fidalgo Bay	
Forage Fish Index Surveys	Pete Haase	\$0	WA Dept of Fish and Wildlife (WDFW) funding to process samples for egg identification confirmation and staging	
Kelp Recovery	Phyllis Bravinder	\$0	\$17,500 NWSF funding for a kelp coordinator to help with MRC kelp workshops, and kelp film.	
Pinto Abalone Restoration	Paul Dinnel	\$18,900	WDFW & WA Department of Natural Resources (WDNR) funding for additional abalone hatchery management and outplanting	
Native Oyster Restoration	Paul Dinnel	\$2,500	\$2,000— Skagit Restoration Initiative funds	
Total		\$73,000		

NWSI Performance Benchmarks

■ Marine Habitats

Protect and restore marine, coastal and nearshore habitats, prevent loss and achieve a net gain of healthy habitat.

■ Marine Life

Protect and restore marine populations to healthy sustainable levels.

■ Marine Water Quality

Protect marine water quality of the Northwest Straits region, and restore the health of marine waters.

■ Sound Science

Collect high quality data and promote its use and dissemination.

■ Education/Outreach

FIDALGO BAY DAY



Beach Seining Demonstration

Project Goals: increase public awareness of the marine environment and the creatures that live there, teach citizens how to become good stewards of Fidalgo Bay and the Salish Sea, build partnerships with like-minded organizations and businesses, and increase the visibility of the Skagit MRC in the local community

Fidalgo Bay Day has been Skagit MRC's signature annual educational event for the last thirteen years. Since 2013, the event has been held at the Samish Indian Nation's Fidalgo Bay Resort and combined with the Friends of Skagit Beaches National Estuaries Day event with both indoor and outdoor activities at the resort and along the Tommy Thompson trail. This event is made possible each year through the support, teamwork and collaboration of our many volunteers, local businesses, and partners. Almost all of the event planning and coordination is done by the MRC Project Lead and many dedicated volunteers. Fidalgo Bay Day wouldn't happen without them! Some volunteers even plan their summer vacations around the event to make sure they can participate. Now that is dedication!

2016 Fidalgo Bay Day Accomplishments:

- Over 300 visitors
- 50 volunteers
- 20 partner organizations with interactive educational displays and games
- 3 local restaurants provided free samples of seafood chowders: Mary Ann's Kitchen, Adrift, and Johnny Picassos
- Taylor Shellfish, a local business, donated shellfish grilled to perfection by volunteers
- Gere-A-Deli, a local business, donated free brownies
- 120 passport activities completed by kids and families (a great tool for engaging and educating visitors!)
- 25 event exit surveys completed (most visitors indicated they enjoyed the event and learned something new)
- Zero waste event led by volunteers
- Opening ceremony led by the Samish tribal member Rosie Cayou-James
- Children's craft activities led by volunteers: button making, fish prints, face painting, 3-D fish art, notecards
- Beach seining demonstration with marine biologist, Dan Pentilla
- Forage fish egg survey demonstration

**Over 400 Hours
of Volunteer Service**



Opening Ceremony



Eelgrass display



Kids craft activity



Grilled Shellfish Samples

MRC Project Lead: Pete Haase

MRC Budget: \$3,500 NWSC grant from the EPA/PSP

Other Funding: Over \$2,400 donated food, supplies, in-kind services, facilities, etc.

Primary Partners:

- NWSC
- Samish Indian Nation
- Coastal Volunteer Partnership
- Friends of Skagit Beaches
- Northwest Straits Foundation
- Many others.....



Volunteers having fun!



Skagit MRC's photo booth

Fidalgo Bay Day continued from page 6.....

- Samish offered a no-host traditional tribal salmon BBQ lunch
- Samish provided free use of their facility including the kitchen and grill
- Friends of Skagit Beaches provided the insurance and passport activity prizes
- The Anacortes Boys and Girls club provided the popcorn machine
- MRC funding was used to purchase popcorn, compostable cups and cutlery, ingredients for grilled shellfish, coffee and lemonade for volunteers and guests, supplies for children's art activities, advertising, and MRC display updates.



Above: Skagit MRC's Forage Fish Bean Bag Toss Game



Above: "Gracie" Gray Whale Skull Staffed by the Deception Pass State Park Foundation

To see the full Fidalgo Bay Day report go to the Skagit MRC website: www.skagitmrc.org.

SKAGIT MRC REPRESENTATION AT SPECIAL EVENTS

MRC staff and volunteers hosted the Skagit MRC interactive display and games at several events including: the MRC Conference, the Friends of Skagit Beaches Shoreline Academy, the Anacortes Waterfront Festival, the Mount Vernon High School Science Night, Taylor Shellfish-Tival, Dine and Discover at Bayview State Park, Fidalgo Bay Day, and Skagit River Salmon Festival. The interactive display with games and passport activity was a great way to initiate conversations about the issues impacting the Salish Sea, the work of Skagit MRC, and what individuals can do to be good stewards of the marine environment.



SALISH SEA STEWARDS

Project Goals: to help increase awareness of the marine environment, foster stewardship, and build a strong base of citizen scientists to support Skagit MRC and other partner organization projects



MRC Project Lead: Morty Cohen

MRC Budget: \$18,000 NWSC grant from the EPA/PSP

Partners:

- Coastal Volunteer Partnership: Padilla Bay NERR (Skagit MRC; Friends of Skagit Beaches; Skagit County Clean Water Program; Padilla Bay Foundation; Padilla Bay National Estuarine Research Reserve (NERR)
- Deception Pass State Park
- Garden Mentors Inc.
- Northwest Straits Commission
- Northwest Straits Foundation
- Port of Anacortes
- Puget Sound Partnership
- Re-Resources
- Samish Indian Nation
- Skagit Audubon Society
- Skagit Fisheries Enhancement Group
- Swinomish Tribe
- The Whale Museum
- WA Dept of Ecology
- Western Washington University
- WA Dept of Fish & Wildlife
- WA Sea Grant

Salish Sea Stewards Program Development and Administration:

The Salish Sea Stewards program was first established by the Skagit MRC in 2014 with the help of a professional contractor. The 40-hour volunteer training program was developed and implemented as an alternative to the 100-hour WSU Beach Watcher program that was being dissolved in Skagit County. Skagit MRC's Salish Sea Stewards program is now administered under the umbrella of the Coastal Volunteer Partnership (CVP) at Padilla Bay, under the direction of a team of five MRC members. The CVP is a collaborative partnership of organizations who share similar needs for volunteers including: the Skagit MRC, the Padilla Bay Foundation, the Padilla Bay National Estuarine Research Reserve, the Friends of Skagit Beaches, and the Skagit County Clean Water Program. The combined funding of the partners helps support a full-time Volunteer Program Coordinator. Administering the Salish Sea Stewards program under the umbrella of the CVP has proven to be very beneficial. Not only does it serve as an entry point for citizens to become involved as volunteers, but it also serves as a centralized hub for recruiting volunteers, and creates a network of individuals who share information with the larger Skagit County community.

Citizen Science Training:

The Skagit MRC's Salish Sea Stewards program provides over 40 hours of dynamic classroom and 10 hours field-based training. The classes are taught by qualified experts (including MRC members, Puget Sound Partnership staff, NWSC staff, and NWSF staff) and cover marine science related topics, current issues impacting the Salish Sea, and priorities of the Skagit MRC and the NWSC. Volunteers who complete the training program are expected to contribute at least 50 hours of volunteer services.

Beach Naturalist Interpretive Training:

In addition to the regular citizen-science training, volunteers are offered interpretive training to become beach naturalists. It was originally offered as a three day training but has since been reduced to a one day training. Beach Naturalists learn the skills they need to help educate visitors about appropriate stewardship behaviors that prevent harm and destruction of intertidal marine life and habitat. Most people are unaware that some of their recreational activities at the



Classroom training



Field training—intertidal survey demo



Field training—forage fish survey demo

Salish Sea Stewards continued from page 5.....

beach can result in the destruction of habitat and mortality of the intertidal organisms.

Between 1—5 interpretive programs are scheduled during the summer months at Washington Park during low tides, depending on the availability of volunteers. The programs are tailored to engage citizens of all ages and promote personal connections to the marine environment that will hopefully last a lifetime. Beachgoers seem to appreciate having knowledgeable Naturalists present at the beach. Many have expressed interest in future interpretive programs.

Interpretive skills training for beach naturalists - identifying intertidal invertebrates



2016 Accomplishments:

- Trained 19 new Salish Sea Steward volunteers (total of 55 trained Salish Sea Stewards)
- 23 professional experts provided free training
- 40 hours of free classroom training
- 10 hours of free additional field training
- Created a new logo for the Salish Sea Stewards
- 3 hours of beach naturalist interpretive training
- 4 new volunteers completed the interpretive training, for a total of 6 beach naturalists.
- 5, 3-hour beach naturalist interpretive programs at Washington Park
- 33 hours of volunteer services contributed towards beach naturalist interpretive programs at Washington Park
- Over 200 contacts made with beach visitors at Washington Park

19 new volunteers contributed
Over 1,025 Hours
of volunteer service

KELP RECOVERY

Project Goals: monitor changes in local kelp populations, foster awareness about the ecological and cultural importance of kelp, promote citizen science contributions to regional research, and provide a forum for exchanging relevant information and ideas

There is growing concern about the decline in bull kelp populations in some areas of Puget Sound and the lack of data in the Northwest Straits region. In response to this concern, the Northwest Straits Commission (NWSC) launched a regional bull kelp survey program in 2014 using kayak-based protocol to map and monitor local kelp populations around the region. Working in collaboration with the NWSC, MRCs from all seven counties recruited volunteer kayakers to track the density, distribution, and changing populations of local bull kelp in the northwest straits region. Surveys are done monthly during the peak of annual growth from June—September. The NWSC is compiling all of the data into a regional kelp database that will be shared with local and regional planners and researchers. In addition, the NWSC established the Salish Sea International Kelp Alliance as a way to combine efforts and build momentum and among those involved in protecting and restoring kelp in the US and Canada. To learn more: www.nwstraits.org/our-work/kelp-recovery.

MRC Project Lead: Phyllis Bravinder

MRC Budget: \$0

Other Funding: NWSC grant funding

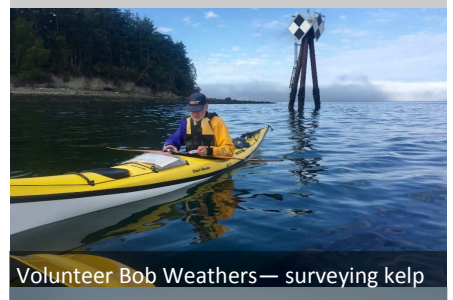
Partners:

- Salish Sea International Kelp Alliance: NWSC, NWSF, Puget Sound Restoration Fund (PSRF), WA Department of Natural Resources (WDNR), Help the Kelp; Mayne Island Conservancy Society
- All 7 MRCs (Skagit, Clallam, Whatcom, San Juans, Island, Jefferson, & Snohomish)
- Coastal Volunteer Partnership

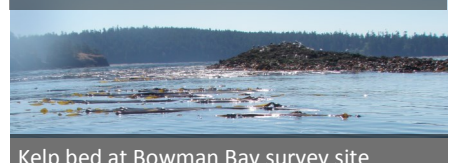
2016 Accomplishments (in Skagit County):

- 2 depth measuring devices created by a volunteer
- 2 Skagit MRC kayaker volunteers tested the monitoring protocols
- 3 kelp surveys were conducted in Skagit County
- 2 kelp beds were surveyed in Skagit County (Shannon Point and Bowman Bay)
- Kelp recovery was a topic covered in the Salish Sea Stewards training
- Kayak donated to the CVP to help with kelp surveys in Skagit County

Over **26 Hours**
of volunteer service



Volunteer Bob Weathers— surveying kelp



Kelp bed at Bowman Bay survey site

BOWMAN BAY NEARSHORE RESTORATION

Before Construction



After Construction



Project Goals: improve nearshore ecosystem and sediment transport processes; improve forage fish spawning habitat; improve nearshore habitat for shellfish and other invertebrates, juvenile salmon, and bull trout; restore resilience to the system, allowing for lateral shifts in sea grass beds in response to sea level rise; improve public access to the beach; and provide a public education and outreach component

Bowman Bay is a pocket beach located in the Whidbey basin at Deception Pass State Park. The site was armored with riprap to protect a fish hatchery that operated from approximately 1947 until it was torn down in 1972. The presence of the riprap caused the nearshore habitat to become degraded over time.

In 2014, Skagit MRC partnered with the Northwest Straits Foundation (NWSF) and Washington State Parks, to complete a feasibility and project design to remove approximately 540 feet (1,600 tons) of shoreline armoring and restore 0.6 acres of shoreline. Lisa Kaufman, NWSF Staff, is the regional nearshore restoration expert under the Northwest Straits marine Conservation Initiative and Project Manager for the Bowman Bay Project. Skagit MRC members have been heavily involved in the Bowman Bay nearshore restoration project planning and implementation, special events, education and outreach, stewardship, and nearshore monitoring. Nearshore monitoring data has been collected at the site since 2014.

Construction was completed in November 2015. All riprap was removed except for what was required to maintain support of the pier footings. The voids from the riprap were filled and graded with beach nourishment materials suitable for forage fish spawning. The existing trail was moved further landward and was curved to allow for a variety of vegetation to be planted. The Skagit Fisheries Enhancement Group (SFEG) was contracted to complete the planting design and coordinate several planting parties with school groups and volunteers. Riparian planting of the upper beach area enhances nearshore habitat for birds, salmon, bull trout, and forage fish. Two interpretive signs, designed by local artist Larry Eifert, were installed to educate park visitors about the restoration project and the nearshore ecosystem in 2016.

2016 Accomplishments:

- 37 volunteers conducted 300 hours of nearshore monitoring
- Earth Day celebration, BBQ, and planting party-April 23
- 2 interpretive signs designed and installed
- Restoration video completed: <https://www.youtube.com/watch?v=BAZK0FV88tA>
- Bowman Bay Celebration -Nov 17: *including presentations, sign unveiling, planting party, forage fish survey demo along with Friends of Skagit Beaches roving display, and intertidal beach walks*

Over 356 Hours
of volunteer services

MRC Project Lead: Jay Lind

MRC Budget: \$0 in 2016. In 2014, \$10,000 MRC grant funded the project design, planting plan, construction bidding, permitting, and plants.

Other Funding: NWSF- \$51,820 for construction & \$15,000 for Education & Outreach

Partners:

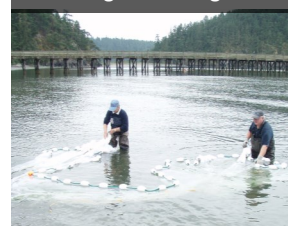
- NWSC
- NWSF
- State Parks
- SFEG
- Samish Tribe
- Coastal Volunteer Partnership
- Friends of Skagit Beaches



Earth Day planting party



Interpretive sign unveiling



Bowman Bay beach seining



Beach walk lead by Lisa Kaufman, NWSF

NEARSHORE RESTORATION MONITORING



Beach Seining at Bowman Bay



Large woody debris, beach wrack, and beach profile surveys at Bowman Bay



Intertidal monitoring at Shannon Point

Project Goals: monitor nearshore habitat restoration sites to establish baseline conditions before restoration and collect post-construction monitoring data to determine if restoration actions improved the physical processes and function of the site as well as the habitat diversity as compared to pre-project conditions and fill data gaps in status and trends

Project Planning and Development: Nearshore monitoring in Skagit County is a collaborative effort since 2014. Skagit MRC and the Northwest Straits Foundation (NWSF) worked in partnership with several other agencies and organizations to develop monitoring protocols, monitoring plans and Quality Assurance Project Plan (QAPP) for each nearshore restoration site in Skagit County. The WA Department of Fish and Wildlife (WDFW) and the University of Washington are assisting with the data analyses. Data will be posted on the NWSC's Sound IQ online data sharing program: <http://www.nwstraits.org/our-work/soundiq/>. Jason Morgan (NWSF staff,) the regional Nearshore Monitoring Program Manager under the Northwest Straits Marine Conservation Initiative, provides technical expertise, training, guidance and quality control for volunteers while out in the field, and compiles all of the data for analyses. MRC members are actively involved in all aspects of the nearshore monitoring program including: assisting with developing the monitoring plans and project proposals, giving presentations about the monitoring program, assisting with monitoring and data collection, assisting with volunteer coordination and training, and providing guidance and expertise.

Monitoring Parameters: photo points; beach profile surveys, sediment sampling, forage fish spawning surveys, nearshore fish use (beach seining), beach wrack analysis (organic marine debris), large woody debris/insect fallout surveys, vegetation and percent shade calculations, and surface epifauna/algae surveys. The nearshore monitoring sites include: Bowman Bay, Shannon Point, and NW March's Point.

Citizen Science / Education and Outreach: Citizen volunteers have played a critical role in successful implementation of monitoring plans, establishing baseline data, collecting post-construction data, and conducting education and outreach. Not only do volunteers help with monitoring activities, they also help with project coordination, construction and maintenance of field equipment, and data entry. Skagit MRC worked in collaboration with the NWSF, the Coastal Volunteer Partnership, and other partners to recruit, train and coordinate volunteers to conduct the physical and biological monitoring of nearshore restoration sites in Skagit County. Not only do volunteers help collect monitoring data, they also help educate the public about the restoration and monitoring work. Pete Haase, MRC's Project Lead for forage fish spawning surveys, created informational posters about the nearshore monitoring activities that are displayed at the site while the volunteers are monitoring. In addition, the Friends of Skagit Beaches volunteers created a roving display for forage fish surveys and intertidal monitoring that are hosted by trained docents to help demonstrate what the volunteers are doing and why.

MRC Project Lead: Jamey Selleck

Forage Fish Surveys— MRC Project Lead: Pete Haase

MRC Budget: \$10,871
NWSC grant from the EPA/PSP

Other Funding: NWSF & Samish Tribe funding for staff time

Partners:

- Northwest Straits Commission
- Northwest Straits Foundation
- Coastal Volunteer Partnership
- Samish Indian Nation
- WDFW
- RE-Sources
- WDNR
- University of Washington
- Friends of Skagit Beaches



MRC member Sarah Tchang, practicing the "blue bowl" technique for sorting forage fish eggs

Nearshore Monitoring continued from page 9.....

Monitoring Results: To date, baseline conditions have been established at the Shannon Point, Bowman Bay, and NW March's Point restoration sites. The Bowman Bay restoration project was completed in the fall of 2015, with year one of post-construction monitoring commencing in December 2016. As of June 2016, pre-restoration monitoring ceased indefinitely at Shannon Point after the restoration project was cancelled due to decisions regarding the City's trail design.

2016 Accomplishments:

- 41 volunteers participated in monitoring activities
- 36 volunteers trained for beach seining in partnership with Island County MRC
- 15 volunteers attended the intertidal monitoring training in partnership with NWSF and RE-Sources
- Baseline monitoring data was collected at Shannon Point through June 2016
- Year one post-construction monitoring at Bowman Bay commenced December 2016
- MRC Project Lead, Jamey Selleck presented the nearshore monitoring project proposal at the April NWC meeting
- MRC Project Lead, Jamey Selleck presented nearshore monitoring project updates at the monthly MRC and NWSC meetings

Over 500 Hours
of volunteer services



Jude Apple, Paul Dinnel (MRC member), and volunteer Kurt Buchanan, ID the fish caught in the beach seine.



MRC Member Pete Haase (left) and forage fish survey crew

FORAGE FISH INDEX SITE SURVEYS



Ship Harbor—Forage Fish Index Site

Project Goals: collect forage fish spawning data from documented spawning areas to evaluate annual variations in spawning activity of the forage fish population

The Forage Fish Index Sites are documented spawning areas in each tidal reference area identified by the Washington Department of Fish and Wildlife (WDFW) for potential monthly sampling. Monitoring Forage Fish Index Sites is a way to look at annual variations in spawning activity of the forage fish population.

Skagit MRC selected three Forage Fish Index Sites in Skagit County for monthly sampling including: Ship Harbor (Guemes Channel), NE shoreline of Similk Bay, and the SW part of Samish Island along the shoreline owned by the Padilla Bay Reserve. Forage fish egg samples collected by the volunteers are sent to WDFW for confirmation and staging.

2016 Accomplishments:

- 3 Forage Fish Index Sites
- 10 surveys completed
- 10 volunteers helped with the surveys
- Purchased additional forage fish survey supplies
- Volunteers assembled the blue bowl apparatus for sorting the forage fish eggs

Over 62 Hours
of volunteer services

MRC Project Lead: Pete Haase

MRC Project Co-Leads:

- Charlette Thurman, *Skagit County Public Works Intern*
- Rachel Price, *Shell Puget Sound Refinery*

MRC Budget: \$0

Other Funding: NWSF funding for purchasing survey equipment. WDFW funding for processing eggs in the lab

Partners:

- WDFW
- Northwest Straits Commission
- Northwest Straits Foundation
- Coastal Volunteer Partnership
- Padilla Bay NERR
- Samish Indian Nation
- Swinomish Tribe
- WDNR
- Shell Puget Sound Refinery

PINTO ABALONE RESTORATION



Project Goals: collect monitoring data to measure the success of the most recent pinto abalone restoration efforts and conduct an additional juvenile outplant to increase the genetic diversity and build a sustainable pinto abalone population at six outplant sites in Skagit County

Since 1969, worldwide abalone populations have declined by more than 50% with many species now recognized as threatened, endangered, or a species of concern. The pinto (northern) abalone, *Haliotis kamtschatkana*, is a species indigenous to Washington waters. They are considered functionally extinct by the state of Washington because the current number and distribution of reproductive wild abalone is too low to maintain a sustainable population. Abalone are broadcast spawners, meaning they release sperm and eggs into the water column, so there must be other abalone in close proximity for successful fertilization. It is believed that the remaining Puget Sound pinto abalone population are too few and too widely spaced to facilitate the reproduction necessary for the population to recover on its own. Pinto abalone restoration is one of the main goals identified in the 2011 [Washington Shellfish Initiative](#).

The pinto abalone recovery project is a long-term collaboration between state and federal agencies, Non Government Organizations (NGOs), universities, and tribes lead by the Puget Sound Restoration Fund (PSRF). Since 2009, as part of this ongoing collaborative effort, over 10,900 juvenile abalone have now been introduced to eight different outplant sites throughout the San Juan Archipelago. However, there is still much work to be done to build a sustainable pinto abalone population in Skagit County waters.

2016 Accomplishments:

- MRC Project Lead, Paul Dinnel, contributed over 30 hours of volunteer services assisting with field work, project administration, proposal preparation and assisting with the final report
- 1,200 juvenile pinto abalone outplanted at two Cypress Island restoration sites.
- 17% of the 296 pinto abalone surveyed at Borrows and Allan Islands were found outside of the plot.
- The overall mean density of the observed abalone was 0.67/m², greater than the minimum density required for successful reproduction to occur.
- 84 of the 400 tagged abalone were observed over four days of repetitive surveys at Cypress Island.
- 441 out of over 7,300 pinto abalone outplants, from 79 unique genetic families, were observed at the 6 restoration sites in Skagit County.
- There is a 7.1% - 22.9% survival rate for the pinto abalone at the 6 restoration sites in Skagit County.
- 72.5 mm is the average size of abalone observed at the Burrows and Allan sites (pinto abalone become reproductive at a size of 50mm). It is likely there is successful spawning occurring there.
- Preliminary data indicates that abalone are growing larger in size and density.

**Over 30 Hours
of volunteer services**

MRC Project Lead: Paul Dinnel

MRC Budget: \$18,900 NWSC grant from the EPA/PSP

Other Funding: WDFW funding was used to support hatchery work. WDNR helped fund the outplanting of juvenile pinto abalone at two restoration sites at Cypress Island

Partners:

- PSRF
- WDFW
- WWU Shannon Point Marine Center



Outplant tubes filled with juvenile abalone are ready for diver transport



Abalone prepared for release



Josh Bouma, PSRF abalone lead

OLYMPIA OYSTER RESTORATION

Project Goals: continue to build on efforts to establish a sustainable Olympia oyster population in Skagit County waters, establish new seed plots at Cap Sante Marina/Sea Farers Memorial Park so that oysters will naturally set on the west side of Fidalgo Bay, and conduct a feasibility experiment at Secret Harbor, Cypress Island

MRC Project Lead: Paul Dinnel

MRC Budget: \$2,500

Other Funding:

- \$2,000 SRI funding for oyster seeding at Cap Sante Marina

Partners:

- NWSF
- Samish & Swinomish Tribes
- CVP
- PSRF
- WDNR
- WDFW
- Port of Anacortes
- City of Anacortes



Pacific Oyster Shell with Olympia Oyster Seed



Olympia oysters

Background:

The Olympia oyster, *Ostrea lurida*, is native to the Pacific Coast of North America and was once abundant in Puget Sound prior to the arrival of European settlers. Over harvesting in the late 1800s, combined with severe pollution in the first half of the 20th century from pulp and paper mills, drove many Puget Sound stocks to near extinction. Native oysters and oyster beds are considered valuable to the marine ecosystem because they provide habitat for many marine species and as filter feeders they help purify the water and maintain water quality in the estuaries in which they are found. One of the goals of the Washington Shellfish Initiative is to enhance 100 acres of native oyster habitat at 19 locations in Puget Sound by 2020.

Olympia Oyster Restoration in Skagit County:

Since 2002, Skagit MRC has been working in collaboration with the Puget Sound Restoration Fund (PSRF) and other partners, to establish several native oyster beds in Fidalgo Bay near Anacortes, Washington. A few years ago, oyster restoration expanded to four new sites in Skagit County: north of the Fidalgo Bay trestle, two areas in Skagit Bay (Swinomish Tribe is the lead) and one area of Padilla Bay with permission and assistance from the Padilla Bay National Estuarine Research Reserve. To date, over 1.5 million Olympia oyster seed has been planted throughout Fidalgo Bay and Pacific oyster shell deployed to enhance habitat for native oyster settlement.

Skagit MRC relies heavily on citizen scientists to help deploy and monitor around 20 cultch bags of Pacific oyster shell throughout Fidalgo Bay each year. The Pacific oyster shell cultch bags provide habitat for natural settlement of native oyster larvae. The bags are collected and monitored to research the spread of native oysters from natural spawning and the survival and growth of oyster seedlings. Monitoring results show an increasing success of natural oyster settlement over the years.



Shell enhancement plot along the eastside of Fidalgo Bay

Cultch shell monitoring bag



Dedicated group of volunteers



Volunteers collecting data

Olympia Oyster Restoration Continued from Page 9.....

Cypress Island Experimental Seed Bags:

Secret Harbor, located on the southeast side of Cypress Island, has been the site of a recent shoreline restoration project to remove an old dike and restructure a marsh/channel habitat. Skagit MRC initiated a small experimental study in 2016 to see if native oysters would survive and grow in these newly created channels. Four bags of native oyster seed on Pacific oyster cultch were planted in the three channel locations and in an offshore intertidal area at Cypress Island. Two of the bags were equipped with HOBOTM U24 salinity and temperature data loggers set to collect data every hour for the next year or more. These bags and data recorders will be monitored annually for the next 1-3 years to study survival, growth and successful reproduction. The long-term goal of this project is to establish an additional source population that provides larvae to surrounding areas for natural oyster settlement.

Cap Sante Marina Seed Plots:

Research has shown that almost all natural oyster recruitment is limited to the eastern side of Fidalgo Bay, which is likely due to current patterns that inhibit larval transport to the western side of the Bay. Skagit MRC initiated a project to plant oyster seed in the Cap Sante Marina area to try to establish a sustainable oyster population on the west side of the Bay in 2016. This effort was funded by the Skagit Restoration Initiative (SRI) and administered by the Northwest Straits Foundation (NWSF). SRI funds are part of a Natural Resources Damages Settlement payment from Kimberly-Clark for the former Scott Paper Mill Site in Anacortes. Bags of native oyster seed were spread at one location just inside the northern rock breakwater and one location at Seafarers' Park.

2016 Accomplishments:

- 20 cultch bags deployed in Fidalgo Bay. Monitoring results indicate increasing success of natural oyster settlement.
- Completed a seeding and monitoring plan, protocols, and QAPP for native Olympia oyster restoration at Secret Harbor.
- 4 bags of native Olympia oyster seed on Pacific oyster cultch (approximately 4.5 oyster seed per cultch shell, 300 seed per bag) were transported and planted in 3 channel locations in Secret Harbor at Cypress Island and in 1 location in the offshore intertidal area. 2 bags of oyster seed were equipped with HOBOTM U24 salinity and temperature data loggers that were set to collect data every hour for the next 1-3 years.
- 44 cultch bags delivered and spread at two Cap Sante Marina oyster seed plot locations.
- MRC member Paul Dinnel co-authored a new publication in *Ecology* including Skagit MRC's long-time oyster restoration/monitoring work in Fidalgo Bay.
- Skagit MRC's Olympia oyster restoration work was featured in an article in the Skagit Valley Herald.

**Over 385 Hours
of volunteer services**



Cypress Island — oyster seed bag locations



Cap Sante Marina oyster seed plot locations

Northwest
Fidalgo Bay



Volunteers assessing the number of seed oysters in the bags of seed planted at Cap Sante Marina

Skagit County Marine Resources Committee 2017 Annual Workplan

TASK	Project Lead	Budget	OBJECTIVES	BENCH-MARKS
Administration and Operations	Tracy Alker	\$21,100	<ul style="list-style-type: none"> Schedule and hold monthly meetings, prepare and distribute agendas and minutes, invite speakers on topics of interest, and participate in NWSC meetings and report back to the Skagit MRC. Grant administration and proposal preparation, prepare reports, track and administer budget, update the workplan and MRC website, and draft the annual report. Participate in the annual NWSC/MRC conference and in the development and discussions of the Puget Sound Partnership Local Integrating Organization. 	NA
Fidalgo Bay Day	Pete Haase	\$3,500	<ul style="list-style-type: none"> Work with multiple partners to plan and coordinate the FBD event to increase public awareness of the marine environment. 	• Education Outreach
MRC Display at Special Events	Tracy Alker	\$0	<ul style="list-style-type: none"> Update the MRC display , hands on activities, and outreach materials Host the MRC display at special events 	• Education Outreach
Salish Sea Stewards	Morty Cohen	\$18,000	<ul style="list-style-type: none"> Recruit, train and coordinate at least 20 new volunteers. Program graduates will contribute at least 50 hours of volunteer service on MRC or partner projects following the training within one year. Conduct an evaluation of the program 	• Education Outreach
Kelp Recovery	Phyllis Bravinder	\$0	<ul style="list-style-type: none"> Partner with the Northwest Straits Commission, Northwest Straits Foundation, other county MRCs, and the Coastal Volunteer Partnership to participate in kelp workshops, refine kelp monitoring protocols, collect and share data, incorporate kelp monitoring into the Salish Sea Stewards training agenda and develop outreach materials. 	<ul style="list-style-type: none"> • Sound Science • Marine Habitats
Bowman Bay Nearshore Restoration Stewardship	Jay Lind	NWSF grant funding	<ul style="list-style-type: none"> Partner with the Northwest Straits Foundation, State Parks, Skagit Fisheries Enhancement Group, and Coastal Volunteer Partnership to plant and maintain native plants along the Bowman Bay Deception Pass State Park shoreline to enhance nearshore habitat. Apply for funding to continue plantings and maintenance in 2018. 	• Marine Habitats
Pinto Abalone Restoration	Paul Dinnel	\$16,400	<ul style="list-style-type: none"> Partner with the Puget Sound Restoration Fund to collect monitoring data to measure the success of the most recent pinto abalone restoration efforts and conduct an additional juvenile outplant to increase the genetic diversity and build a sustainable pinto abalone population around Burrows and Allan Islands in Skagit County. 	• Marine Life
Nearshore Restoration Monitoring	Jamey Selleck	\$0	<ul style="list-style-type: none"> Partner with the Northwest Straits Foundation, Samish Indian Nation, WA Department of Fish and Wildlife, and Coastal Volunteer Partnership, to recruit and coordinate volunteers in habitat monitoring data collection to establish baseline conditions at restoration sites prior to construction. Assess the changes in conditions from pre-project to post restoration and fill in status and trends data gaps. Share data on NWSC's Sound IQ, an online data sharing/mapping system, and make recommendations for future projects or management actions based on monitoring results. 	<ul style="list-style-type: none"> • Sound Science • Marine Habitats
Native Oyster Restoration	Paul Dinnel	\$0	<ul style="list-style-type: none"> Monitor growth, survival, natural reproduction, and distribution of Olympia oysters in Fidalgo Bay and the experimental plots in secret Harbor, Cypress Island 	• Marine Life
Green Crab Monitoring	Paul Dinnel	\$5,200 NWSF, \$10,000 Shell Refinery	<ul style="list-style-type: none"> Partner with the Northwest Straits Foundation, Washington Sea Grant, the WA Department of Fish and Wild Life, Padilla Bay NERR, Shell Puget Sound Refinery, and the Coastal Volunteer Partnership to train and coordinate volunteers to monitor invasive green crabs and purchase additional supplies and traps. 	<ul style="list-style-type: none"> • Sound Science • Marine Life
Tide Pool Signs	Jay Lind	\$5,000	<ul style="list-style-type: none"> Partner with the City of Anacortes and the Coastal Volunteer Partnership to design and install at least one tide pool interpretive sign at Washington Park in Anacortes to increase public awareness of intertidal habitats and the steps that citizens can take to help protect it. Beach naturalists will conduct a short survey to evaluate the effectiveness of the sign. 	• Education Outreach

ACKNOWLEDGEMENTS

Board of County Commissioners

Lisa Janicki, Chair
Ron Wesen, Commissioner
Kenneth Dahlstead, Commissioner

Skagit County Public Works Staff

Tracy Alker, *Skagit MRC Coordinator*
Dan Berentson, *Public Works Director*
Heather Bickford, *FBD Event Support*
Samantha Clark, *Grant Administration*
Karen Dubose, *Salish Sea Stewards presenter*
Rick Haley, *FBD Event Support, Presenter for Salish Sea Stewards*
Jason Quigley, *FBD Event Support*
Cheri Renfro, *Office Assistance*
Michael See, *Water Resources Manager*
Charlette Thurman, *Forage Fish Surveys, FBD, and general MRC support*

Skagit MRC Members & Alternates

Julie Barber
Nate Biletznikoff
Jodi Bluhm
Phyllis Bravinder
Morty Cohen
Paul Dinnel
Pete Haase
Jay Lind
Tim Manns
Rachel Price
Kit Rawson
Matt Reynolds
Jamey Selleck
Betsy Stevenson
Sarah Tchang
Todd Woodard

Partner Organizations

City of Anacortes
Coastal Volunteer Partnership
Deception Pass State Park
Deception Pass State Park Foundation
Fidalgo Bay Aquatic Reserve Citizen Advisory Committee
Friday Harbor Whale Museum
Friends of Skagit Beaches
Northwest Straits Commission
Northwest Straits Foundation
Orca Network
Pacific Biodiversity Institute
Padilla Bay Estuarine Research Reserve
Padilla Bay Foundation

Port of Anacortes
Puget Sound Partnership
Puget Sound Restoration Fund
RE sources
Salish Sea Biological
Samish Indian Nation
Skagit Conservation Education Alliance
Shell Puget Sound Refinery
Skagit Conservation District
Skagit County Public Works
Skagit Fisheries Enhancement Group
Skagit Land Trust
Skagit Valley College
Swinomish Tribe
Washington Environmental Council
WA Department of Ecology
WA Department of Natural Resources
Washington Sea Grant
WWU Shannon Point Marine Center
Wolf Hollow Wildlife Rehab Center
University of Washington

Volunteers

Glenda Alm
Kay Anagnostou
Russ Barger
Rachel Best
Phyllis Bravinder
Chris Brown
Kurt Buchanan
Laura Busby
Catherine Carter
Betty Carteret
Cathy Carteret
Don Coleman
Bill Clark
Peggy Gregor
Frank Gregor
Brenda Cunningham
Donna Davidson
Ivar Dolph
Bev Dresen
Colleen Ebright
Sue Ehler
Diane Eiesland
Karl Fiel
Leon Fisher
Lin Folsom

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Val Gleeson
Susan George
Bonnie Gretz
Anna Hallingstad
Laura Hannah
Peter Heffelfinger
Jan Hersey
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Shirley Hoh
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Julianne Ruffner
Samantha Russell
John Rybczyk
Deb Sargeant
Hugh Shipman
Alison Studley

Other Contributors

Adrift Restaurant
Anacortes Boys & Girls Club
Gere-A-Deli
Johnny Picassos
Mary Ann's Kitchen
Penguin Coffee
Cayou /Bailey Family
Taylor Shellfish