County: Island
Grant No: SEANWS-2016-IsCoPH-00005

PROJECT TITLE: Island County Marine Resources Committee Operations and Projects

TASK NUMBER: 1 – Project Administration/Management

DELIVERABLE: 1.12 – Annual Report

PERIOD COVERED: October 2016 – September 2017

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Island County
Marine Resources Committee

ISLAND COUNTY
MARINE RESOURCES
COMMITTEE

2016-2017 Annual Report

About the MRC

The Island County Marine Resources Committee (MRC), established in 1999, is an advisory body of volunteers appointed by County Commissioners. The members are from the local community, and represent a wide variety of backgrounds, interests, and expertise, all coming together with the unified goal of protecting and restoring the local marine environment.

The MRC's purpose is to **investigate, research, and identify local marine resources**, and marine resource and habitat issues; **recommend remedial actions** to Island County agencies and authorities; **carry out such recommendations** where so approved; **and build local awareness** of the issues and broad-based community support for the remedies. The MRC conducts monitoring, restoration, and outreach projects, and serves as an advisory body to the County Commissioners.

The MRC receives annual funding from US Environmental Protection Agency through the Puget Sound Partnership and Northwest Straits Commission (NWSC). The table below shows how the 2016-2017 MRC tasks supported the goals of the Northwest Straits Initiative.

	Northwest Straits Initiative Goals				
MRC Grant Tasks	Goal 1: Shoreline restoration	Goal 2: Water quality	Goal 3: Habitat and species protection and restoration	Goal 4: Education and engagement	Operational Goal 1: MRC support
Operations					❖
Forage Fish	❖		❖		
Bull Kelp	❖		❖		
Eelgrass	❖		❖		
Seining	❖		❖		
Pigeon Guillemot			❖	❖	
Education and Outreach				❖	

Report prepared September 2017 by Anna Toledo, Island County MRC Coordinator.

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Cover page photo credits, clockwise from top right: Anna Toledo, Emily Bishop, Linda Rhodes, Ruth Richards, Gregg Ridder.

Membership

The MRC is comprised of volunteers, and relies on the hard work and dedication of its members and other volunteers to conduct monitoring, restoration, and outreach projects.

In the 2016-2017 year, the MRC recorded 2,047 volunteer hours! These hours demonstrate the level of community engagement and support for the work of the MRC.

Credit: Elsa Schwartz

Member	MRC Project Lead or Liaison/Group Representation
Current Members: September 2017	
Elsa Schwartz, Chair	Port Susan MSA, Northwest Straits Commission Alternate
Barbara Bennett, Vice-Chair	Outreach, Island Local Integrating Organization
Ed Adams	Northwest Straits Commission Representative
Lois Farrington	Forage fish
Ed Halloran	Port of South Whidbey
Linda Rhodes	Bull kelp, Smith & Minor Islands Aquatic Reserve
Ruth Richards	Forage fish, shoreline restoration
Kestutis Tautvydas	Eelgrass, seining
David Thomson	Salmon Recovery Technical and Citizen Committee
Frances Wood	Pigeon guillemot
Ex-Officio Members	
Lori Clark (ex-officio)	Island County Department of Natural Resources
Jill Johnson (ex-officio)	Board of Island County Commissioners
Tim Lawrence (ex-officio)	WSU Extension
Non-voting Technical Advisors	
Florian Graner	Outreach
Tom Leschine	Science
Anthony Turpin	Creosote and marine debris removal
Todd Zackey	Tribal: Tulalip Tribes

Operations

The MRC meets on the first Tuesday of every month. Meetings are open to the public, and often feature an educational speaker as well as discussion on business topics and project updates.

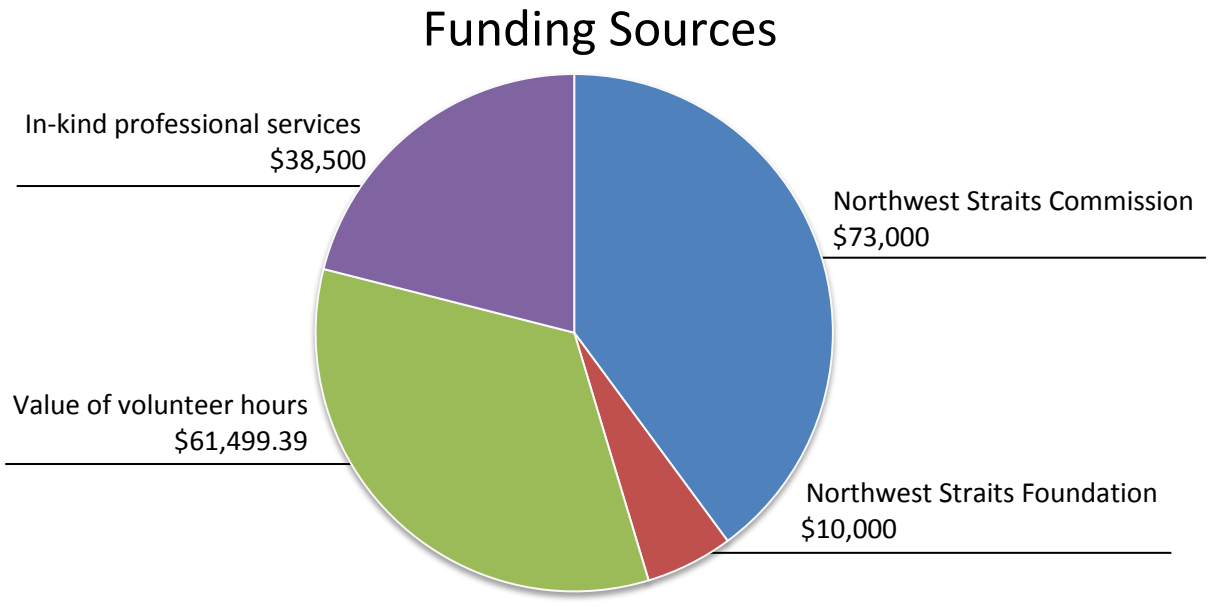
The MRC website is updated regularly with meeting agendas and minutes, as well as with project updates and local news of interest.

The MRC brings important environmental and economic value to Island County, and engages the local community to preserve and protect our beautiful Island home.

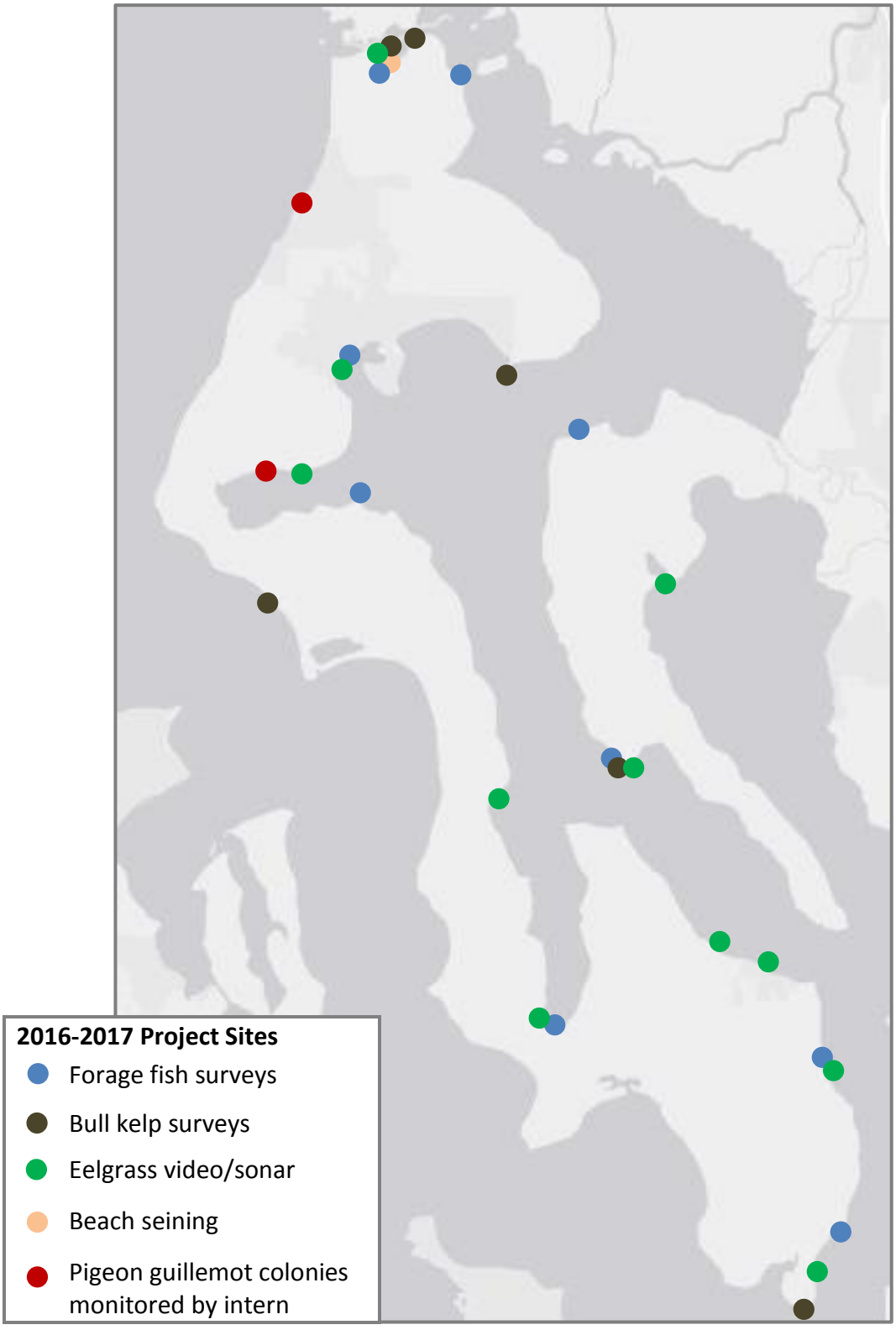
Through grants, volunteer hours, and donated professional services, the MRC has brought a total value of **$182,999.39** to Island County in 2016-2017.

Accomplishments

- Held 14 MRC meetings, including one joint meeting with Clallam and Jefferson County MRCs.
- Developed 2017-2018 work plan and grant proposal.
- Presented proposed MRC projects to the Board of Island County Commissioners.
- Developed application for Northwest Straits Foundation MRC Opportunity Fund.
- Attended monthly Northwest Straits Commission meetings.
- Participated in Island Local Integrating Organization technical committee meetings.



Where We Work



Monitoring: Forage Fish

Forage fish are small schooling fish that are a key component in the marine food web, as a vital food source for salmon, seabirds, and marine mammals. Surf smelt and Pacific sand lance, two species of forage fish, lay their eggs on sandy-gravelly beaches around Puget Sound.

The MRC conducts forage fish spawn surveys at selected beaches in conjunction with completed, planned, and proposed shoreline restoration work. The MRC also partners with Washington Department of Fish and Wildlife to assist in conducting surveys at index sites – locations with public access and a known history of spawning presence.

This year, our team made an exciting discovery as surf smelt eggs were discovered for the first time within the restored area of Cornet Bay, a site where restoration work was completed in 2012. The restoration involved removing a creosote bulkhead and contaminated fill, re-grading the beach to a natural slope, and planting native vegetation. This evidence of forage fish spawning nearly five years after the initial restoration work highlights the importance long-term monitoring.

Accomplishments

- Conducted bimonthly surveys at 3 restoration sites: Ala Spit, Cornet Bay, Waterman.
- Conducted monthly surveys at 1 restoration site: Camano Island State Park and 5 index sites: Freeland Park, Glendale, Long Point, Maple Grove, and Windjammer.
- Assisted Clallam and Jefferson MRCs in reviewing survey protocol and demonstrating survey techniques.
- Forage fish eggs were found at Ala Spit, Camano Island State Park, Cornet Bay, Long Point, and Maple Grove.
- Surf smelt eggs were found for the first time within the restored area of Cornet Bay!

Cornet Bay, where surf smelt eggs were found in August 2017. Shown before (left) and after (right) restoration. Credit: Sarah Schmidt (left), Anna Toledo (right).

Monitoring: Bull Kelp

Bull kelp forests provide habitat and food to a wide variety of species in the marine environment, including the endangered rockfish, bocaccio.

The MRC initiated boat-based bull kelp surveys in 2015 in coordination with the Northwest Straits Initiative and other MRCs. Volunteers monitor the size of bull kelp beds using GPS units while paddling a kayak around the perimeter of the bed.

Kelp bed perimeters from GPS data were tracked monthly during the summer months. In addition to the kayak surveys, aerial images were also collected. Visible light and near infra-red photographs were captured and georeferenced. These images will be evaluated for their effectiveness in recording and tracking kelp bed areas.

Ebey's Landing bull kelp bed captured with visible light (upper) and near infra-red (lower). Credit: Gregg Ridder and Vernon Brisley.

Accomplishments

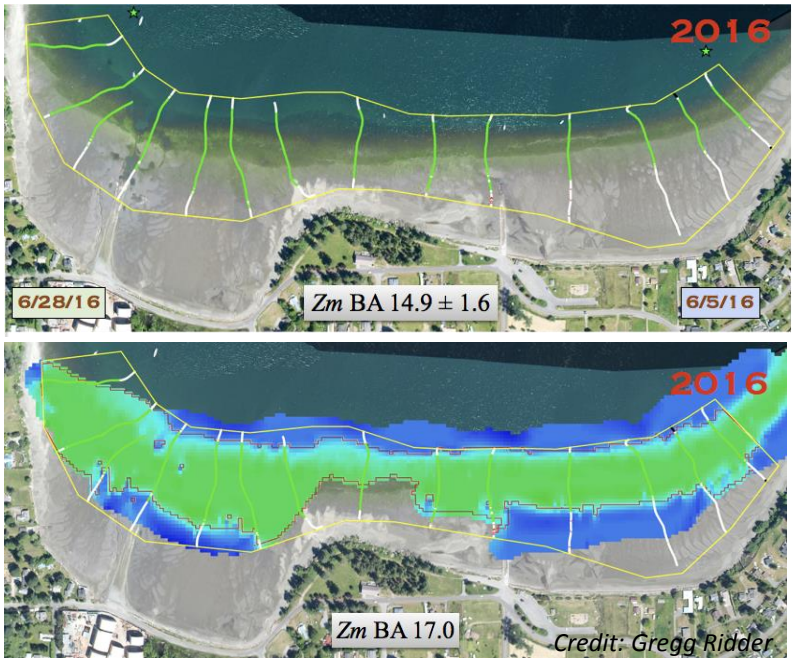
- Conducted kayak surveys at 6 beds around Island County.
- Collected over 5000 aerial images of Island County shoreline with visible light and near infra-red technology.
- Collected underwater imagery of submerged aquatic vegetation.
- Developed online form to collect a snapshot of bull kelp locations throughout Island County.
- Recorded observations of animals in and around kelp beds. Animals observed included: harbor seals, great blue herons, pigeon guillemots, Heermans gulls and other seagulls, common loons, bald eagles, and Western grebe.
- Underwater animals observed included: schooling forage fish, tubesnouts, shiner perch, jellyfish, bryozoan colonies, and kelp crab.

Monitoring: Eelgrass

Eelgrass plays many important roles in the marine ecosystem, including serving as an essential food source as well as habitat for several marine species.

The MRC has been monitoring eelgrass through aerial photography and underwater videography since 2008. In 2016, the MRC added the use of multi-beam sonar to track the size of eelgrass beds. These results were compared with the aerial and underwater video results. While the method requires further evaluation, initial analyses suggest sonar could be an effective means of tracking eelgrass, especially in conjunction with visual confirmation, such as underwater video.

The images below show 2016 results at Holmes Harbor. The green lines indicate eelgrass identified through underwater video analysis. The upper image is overlayed with the aerial capture. The lower image is overlayed with the sonar capture.



Accomplishments

- Conducted underwater videography at 6 sites around Island County.
- Conducted multi-beam sonar data capture at 10 sites.
- Completed aerial photography for shoreline of Whidbey and Camano Islands.
- Analyzed 2016 monitoring data, including comparison of multi-beam sonar data to results of aerial photography and underwater videography.
- Initiated discussion among Northwest Straits Initiative and MRCs around eelgrass monitoring and the use of sonar to aid in monitoring.

Sonar mapping system.

Monitoring: Seining

Restoration work at Cornet Bay in 2012 included removal of creosote bulkhead and contaminated fill, beach nourishment, native plantings, and re-grading of the beach to natural slope conditions.

The MRC has been seining at Cornet Bay since 2009 to track how juvenile salmonids and other species utilize the nearshore habitat at this restoration site. Seining has been conducted 4 years pre-restoration and 4 years post-restoration.

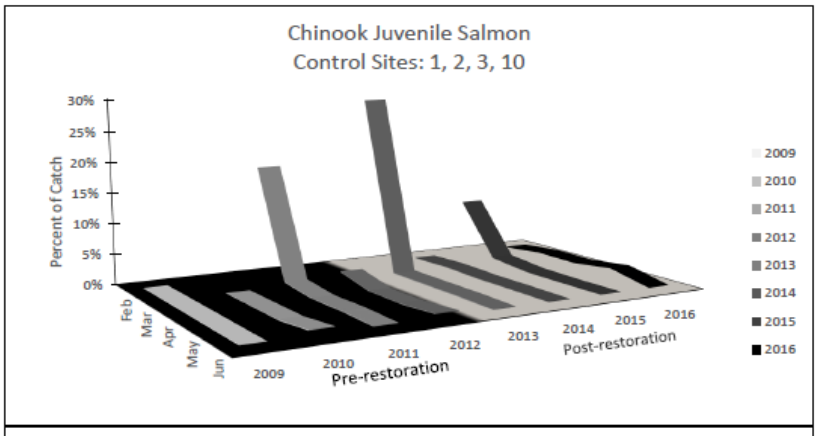
An analysis of the pre and post-restoration data was conducted, and a report written to examine the trends of juvenile salmon use of the habitat. Chinook juvenile salmon use of restoration sites post-restoration (2013-2016) increased compared to usage prior to restoration (2009-2012).

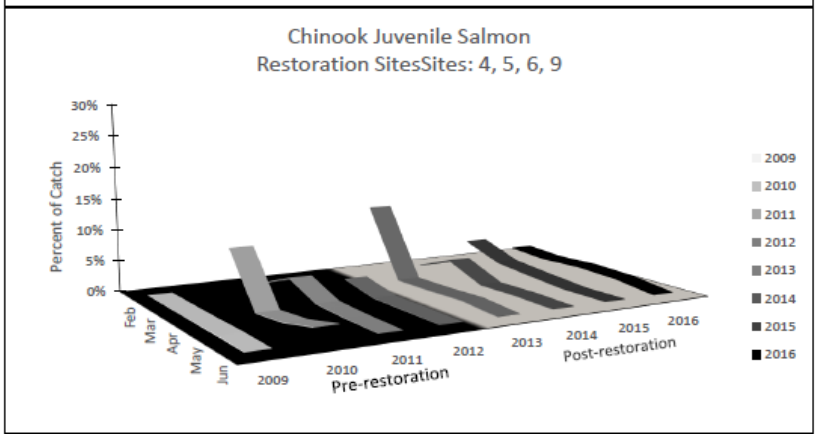
While a greater percentage of pink and chum juvenile salmon used the control sites compared to the restoration sites post-restoration, the population density of both species is increasing at the restoration sites.

Accomplishments

- Completed report on 8 years of pre and post-restoration beach seining data at the Cornet Bay shoreline restoration site.

Chinook juvenile salmon.





Monitoring: Pigeon Guillemot

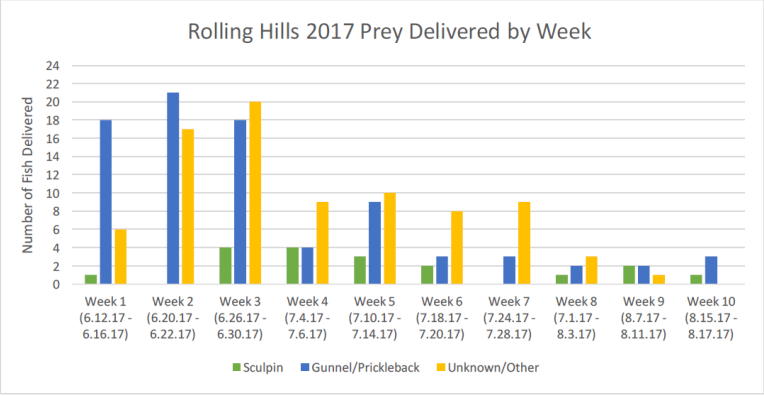
Pigeon guillemots are one of the few seabirds regularly breeding in Puget Sound. They nest in bluffs and feed on fish and invertebrates. Monitoring their population numbers, prey type, and breeding success can help indicate changing conditions in the birds' environment.

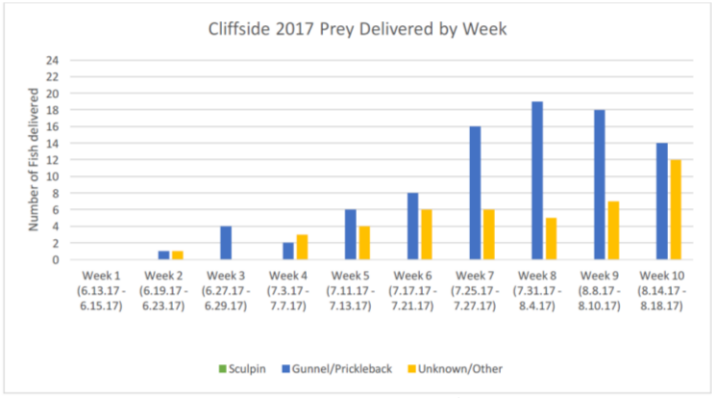
The MRC, in partnership with the Whidbey Audubon Society, has been studying the populations of pigeon guillemots on Whidbey Island since 2008. A summer intern monitors select colonies to provide in-depth monitoring. In 2017, the intern monitored Rolling Hills on eastern Whidbey Island, and Cliffside on western Whidbey Island.

As shown in the charts below, prey delivery peaked in June at Rolling Hills, while the peak occurred in August at Cliffside. Overall prey choice consisted in 54% gunnel/prickleback, 40% other/ unknown, and 6% sculpin. No sculpins were delivered at Cliffside.

Accomplishments

- Published article summarizing the pigeon guillemot study from 2009-2014 in Northwestern Naturalist.
- Presented poster at Pacific Seabird Conference.
- Volunteers completed surveys at 25 colonies.
- Intern conducted in-depth monitoring at 2 colonies.
- Conducted initial site selection on Camano Island.





Education and Outreach

Outreach was identified as a top priority for the MRC in 2016-2017, with a focus on better understanding and addressing outreach to Island County agencies and authorities. Local community outreach was also identified as a priority.

An outreach needs assessment was conducted to refine outreach goals, and identify strategies and topics to prioritize.

The MRC participated in four conferences, two events, and presented at three meetings. In addition to participating with other organizations, the MRC regularly hosted speakers at its monthly meetings.

Thanks to funding from the Northwest Straits Foundation, the MRC is working on developing a video that highlights the MRC and its work to protect and restore our local marine environment.

Accomplishments

- Conducted outreach needs assessment through interviews with County staff, department heads, and elected officials.
- Participated in Sound Waters University with poster display.
- Presented poster at Citizen Science Association Conference.
- Developed signage to be placed on sandwich boards at monitoring projects.
- Presented on outreach strategies at Northwest Straits Commission meeting.
- Distributed educational brochures for "Catch More Crab" and "Be Whale Wise" campaigns.
- Participated in Island County Children's Day.

MRC meeting speaker topics included:

- Pigeon guillemot survey
- Juvenile salmon use of small coastal streams in the Whidbey basin
- Sea level rise and storm surge
- Bull kelp monitoring
- Eelgrass monitoring
- Cornet Bay seining
- Island County surface water quality monitoring program
- Citizen science at Smith & Minor Islands Aquatic Reserve
- Shoreline armor removal program

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