

Forage Fish Spawning Survey 2018-2019: Island County Marine Resources Committee

Goal

Forage fish are a vital part of the Puget Sound ecosystem, and the monitoring of their status is an important component to the recovery of Puget Sound and the Salish Sea. This project of the Island County Marine Resources Committee (MRC) focuses on forage fish spawning at nearshore restoration sites and index sites. Index sites are locations identified by Washington Department of Fish and Wildlife (WDFW) which have public access and have previous documentation of forage fish spawning.

The goals of the intertidal forage fish spawning surveys in Island County are to:

- Monitor forage fish spawning at selected sites in conjunction with completed, planned, and proposed shoreline restoration work.
- Expand regional knowledge of location of forage fish spawning through index site surveys.

This survey is designed to establish continuity with existing WDFW and Washington State Department of Natural Resources (WDNR) data in an effort to define trends and develop an understanding of the conditions and processes affecting the study areas over time. To achieve this, all surveys use established standards and sampling methodologies developed and made available by WDFW. As the planned monitoring program is implemented over succeeding years, it will generate data that can be used to establish baseline conditions, define trends, document changes, track restoration projects, and identify potential new restoration opportunities.

Project Leads and Volunteers

The 2018-2019 season brought about some changes, as new volunteers came on board and previous volunteers stepped down. The MRC would like to extend a special thanks to Ruth Richards and Dan Matlock, former MRC members and project leads who helped transition the team to new volunteers.

Collectively, volunteers put 272 hours of invaluable service into this project during the 2018-2019 season.

Volunteer	Role	Survey Locations
Matt Kukuk	Project Co-Lead	South Whidbey
Barbara Bennett	Project Co-Lead	Outreach Lead
Dean Nelson	Survey Lead	Camano

Greg Bloom	Volunteer	Camano
Paul Williams	Volunteer	Camano
Karen Scharer	Survey Co-Lead	Cornet Bay, Ala Spit
Matt Colston	Survey Co-Lead	Cornet Bay, Ala Spit
Michael Stilwell	Survey Lead	Hidden Beach
Deborah Stilwell	Volunteer	Hidden Beach
Kristin Galbreath	Survey Co-Lead	Seahorse Siesta (starting Nov 2019)
Rachel Nostrom	Survey Co-Lead	Seahorse Siesta (starting Nov 2019)
Robert Warren	Survey Lead	Glendale (re-starting Oct 2019)
Ruth Richards	2018 Project Lead	North Whidbey
Dan Matlock	2018 Survey Lead	South Whidbey
Jay Adams	2018 Volunteer	North Whidbey
Jamie Hartley	2018 Volunteer	North Whidbey
Elizabeth McCullough	2018 Volunteer	South Whidbey

Site Selection

The MRC conducts several intertidal and subtidal surveys, including forage fish, eelgrass and kelp. In addition, the MRC participates in shoreline restoration projects in the County. In an effort to create a deeper knowledge base of the health of our shoreline, the MRC chose monitoring sites at which survey or restoration projects are being conducted. Restoration projects at the selected forage fish monitoring sites are in feasibility, in-progress, or post-project phases. In addition, in collaboration with WDFW, volunteers conducted surveys index sites.

As part of the project assessment and volunteer transition at the end of 2018, the MRC assessed volunteer capacity and prioritized project sites. This resulted in a shift to a greater focus on restoration sites while still maintaining at least one index site. During this period of transition, there were several months where samples were not collected. This is reflected by greyed out portions in the data summary table.

Sites are shown on the following map. Green stars indicate restoration sites. Blue stars indicate index sites.

Restoration sites:

1. Cornet Bay

Project information: Bulkhead removal, fill removal, beach regrading occurred in 2012. Removal of fill and beach regrading in section southwest of original restoration completed in Fall 2015. Forage fish surveys in conjunction with this restoration project have occurred here since 2009.

Location: North Whidbey Island.

Stations: 3: N 48.4019 W 122.6216, N 48.3997 W 122.6243, N 48.3986 W 122.6259

Samples/month: 3 (3 stations, 1 time/month)

Lead: Karen Scharer, Matt Colston

2. Ala Spit

Project information: Concrete bulkhead removed, beach nourishment to neck of the spit in 2015.

Location: Northeast Whidbey Island.

Stations: 3: N 48.3924 W 122.5862, N 48.3933 W 122.5863, N 48.3980 W 122.5864

Samples/month: 1 (1 station, 1 time/month)

Lead: Karen Scharer, Matt Colston

3. Hidden Beach

Project information: Proposed restoration project to remove shoreline armor and debris over 750 linear feet of shoreline to improve intertidal and backshore beach habitat.

Location: Central Whidbey Island

Stations: 3. 2 samples/station. (Started with 4 stations, 3 samples/station)

Samples/month: 6 (3 stations, 2 samples/station, 1 time/month)

Lead: Michael Stilwell

Index sites:

4. Windjammer *Discontinued February 2019*

Location: Northeast Whidbey Island (Oak Harbor).

Station: 1: N 48.2840 W 122.6554

Samples/month: 1 (1 station, 1 time/month)

Lead: Ruth Richards



5. Maple Grove

Location: Northwest Camano Island.

Station: 1: N 48.2527 W122.5180

Samples/month: 1 (1 station, 1 time/month)

Lead: Dean Nelson

6. Long Point *Discontinued February 2019*

Location: Eastern Whidbey Island (Penn Cove).

Station: 1: N 48.2267 W 122.6490

Samples/month: 1 (1 station, 1 time/month)

Lead: Ruth Richards

7. Freeland Park *Discontinued December 2018*

Location: Southeast Whidbey Island (Holmes Harbor).

Station: 1: N 48.016008 W 122.532738

Samples/month: 1 (1 station, 1 time/month)

Lead: Dan Matlock

8. Glendale *Discontinued December 2018, plans to restart October 2019*

Location: Southeast Whidbey Island.

Station: 1: N 47.93822 W 122.35850

Samples/month: 1 (1 station, 1 time/month)

Lead: Dan Matlock (previous), Robert Warren to lead in October

Protocol

The sampling design follows the WDFW Intertidal Forage Fish Spawning Habitat Survey Protocols, Procedures for Obtaining Bulk Beach Substrate Samples (Philip Dionne WDFW) based on earlier protocols developed by Dan Penttila (Penttila, 2011). See Appendix A.

Training

Eleven volunteers attended a training conducted by WDFW in June 2019. The current and former project leads have provided additional on-site training and oversight for newer volunteers.

Data and Results

Survey samples, beach survey sheets and photographs were shared regularly with WDFW, who conducted the data analysis and reporting of results. Due to limited resources within WDFW, results were often not available until some months later. As such, the data summary table below is incomplete for the full project period. This table will be updated as results are provided. Survey sheets are included in Appendix B. The tracking sheet provided by WDFW is included in Appendix C. The summary maps of results provided by WDFW are included in Appendix D.

Data Summary

The table below summarizes when and where spawn presence was recorded at our restoration and index sites.

Site Type	Site	Station	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019
Restoration	Ala Spit	1												
	Cornet Bay	1												
	Cornet Bay	4												
	Cornet Bay	6												
	Hidden Beach	1								*				
	Hidden Beach	2												
	Hidden Beach	3												
	Hidden Beach	4												
Index	Freeland Park	1												
	Freeland Park	2												
	Glendale	1												
	Long Point	1												
	Maple Grove	1												
	Windjammer	1												

Legend
Surf smelt
Sand lance
Not sampled
No presence
Pending analysis

* Note from WDFW: 3 eggs found. All eggs are severely decomposed with no embryos. They are surf smelt, but could be contamination from improperly cleaned equipment.

Lessons Learned

- An annual assessment of sites, along with volunteer interest and capacity, is essential to keeping volunteers engaged and in avoiding burnout. Site selection should align with MRC goals, and should take into consideration volunteer availability. Often there are more sites of interest than is reasonable to undertake with existing volunteer capacity.
- The current project setup consists of two project co-leads – one focused on the survey and another focused on the outreach component. Teams of two volunteers choose a beach to survey of the sites the MRC has selected, and decide how to schedule their monthly surveys. Some volunteers prefer to sample every month as a team; others prefer to alternate months. This setup gives volunteers some flexibility in their scheduling. The project co-leads and MRC Coordinator are available to help with surveys or fill in for volunteers as needed.

- For outreach, the MRC has a sandwich board with a poster about the importance of forage fish in the marine food web and an explanation of what the volunteers are doing. The sandwich board is available for any volunteer team that would like to use it, though volunteers have found it most helpful to have one person dedicated to outreach to stand by the sandwich board and answer questions, so the survey volunteers can focus on the survey. The board is not used during every survey, but has proved to be an opportunity to talk to beach-goers about forage fish when it has been used.
- While there continue to be some time delays in sample processing, this has improved somewhat over the past year. The MRC looks forward to continued improvement and communication in sample processing timelines.
- Regular conference calls with WDFW and the Northwest Straits Commission have proved helpful. Project leads and volunteers find this a useful time to seek clarity on sampling procedures and methods.

Photos

Photos from June 24, 2019 training with WDFW.

