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Forage Fish Spawning Survey 2020-2021: 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.

These surveys are 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. All surveys are required to be led by an individual who has undergone the forage fish monitoring certification training provided by WDFW. As the planned monitoring program is implemented over succeeding years, it has and will continue to generate data that can be used to establish baseline conditions, define trends, document changes, track restoration projects, and identify potential new restoration opportunities.

Site Selection

The MRC conducts several intertidal and subtidal surveys, to better understand marine habitats and species, such as forage fish, juvenile salmon, eelgrass, and kelp. In addition, the MRC participates in shoreline restoration projects in Island County. In an effort to create a deeper knowledge base of the health of Island County's shoreline, the MRC chose monitoring sites at which survey and/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 at two index sites.

Sites sampled in 2021 are shown on the map (Image 1) and described below.



Image 1. Map showing location of the 2021 sampling locations (please note that, due to COVID-19 and ongoing work at the site, Seahorse Siesta was not sampled during the 2020-2021 year).

Restoration sites

1. Cornet Bay

Project information: Bulkhead removal, fill removal, beach regraded 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

2. Hoypus Point

Location: North Whidbey Island

Project Information: A dilapidated 350 linear foot bulkhead lines the shoreline as of September 2021. The bulkhead is comprised of large rock and concrete debris and is backfilled with what appears to be native beach sediments. The bulkhead and fill are proposed for removal to restore the shoreline to more natural conditions and gradients.

Stations: 2: N 48.41114 W 122.6075, N 48.4107 W 122.6056

Samples/month: 2 (2 stations, 1 time/month)

Lead: Karen Scharer

3. Hidden Beach

Location: Central Whidbey Island

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

Stations: 3. 2 samples/station: N 48.1276 W 122.5622, N 48.1276 W 122.5621; N 48.1273 W 122.5626, N 48.1273 W 122.5625; N 48.1281 W 122.5636, N 48.1283 W 122.5634

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

Lead: Paul Belanger

4. Seahorse Siesta

Project information: Removal of barge and bulkhead fall 2020-winter 2021.

Location: Southeast Whidbey Island

Stations: 2. 2 samples/station: N 48.0436 W 122.4226, N 48.0436 W 122.4226; N 48.0435 W 122.4239, N 48.0435 W 122.4239

Samples/month: Please note that, in the past, this site has been sampled from November-February. This site was not sampled during the 2020-2021 year due to COVID-19 and ongoing construction at the site.

Lead: Rachel Nostrom, Kristin Galbreath

4. Sunlight Shores

Project information: Removal of shoreline armor to improve 350 linear feet of shoreline and 0.25 acres of nearshore habitat in 2019.

Location: Southwest Whidbey Island

Stations: 2: N 47.9857 W 122.4680, N 47.9854 W 122.4678

Samples/month: 2 (2 stations, 1 time/month)

Lead: Leigh Bloom

Index sites

5. Glendale

Site Information: This site is at the mouth of Glendale Creek, which is a salmon-bearing stream.

Location: South Whidbey Island

Station: 1: N 47.93822 W 122.35850

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

Lead: Kurt Herzog

6. Maple Grove

Site Information: This site is a popular public fishing site for surf smelt. Surf smelt eggs have been observed May through October for multiple years.

Location: Northwest Camano Island

Station: 1: N 48.2527 W 122.5180

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

Lead: Paul Williams, Greg Bloom

Project Leads and Volunteers

The 2020-2021 season (Oct 2020-Sep 2021) started strong with several new volunteers. The MRC and WDFW hosted a volunteer training. Nine volunteers attended this training and became certified to conduct surveys. Due to restrictions that arose because of the COVID-19 epidemic, volunteer activity was put on hold from November of 2020 until March of 2021. Sampling resumed in the spring of 2021. Other volunteers were recruited, mostly from Sound Water Stewards. Not all volunteers have taken the WDFW training, but do assist with surveys under the supervision of a certified surveyor. New volunteers will be able to expand their capacity to lead surveys at new or existing sites once they receive training from WDFW.

This work would not be possible without the hard work and dedication of many volunteers (Table 1). The MRC would like to extend its thanks to the volunteers who help make this program possible. Collectively, volunteers reported 236 hours of invaluable service into this project during the 2020-2021 season.

Volunteer/Staff	Role	Survey Locations
Ken Collins	Project Lead	Hidden Beach, Seahorse Siesta (backup)
Matt Kukuk	Previous Project Lead	Hidden Beach (backup)
Paul Belanger	Survey Lead	Hidden Beach
Michael Stilwell	Volunteer	Hidden Beach
Vanessa Meriwether Irvine	Volunteer	Hidden Beach
Kathy Kundert	Volunteer	Hidden Beach
Kristin Galbreath	Survey Co-Lead	Seahorse Siesta
Rachel Nostrom	Survey Co-Lead	Seahorse Siesta
Kurt Herzog	Survey Lead – Glendale	Glendale, Sunlight Shores
Leigh Bloom	Survey Lead – Sunlight Shores	Sunlight Shores, Hidden Beach

Michele Sakaguchi	Volunteer	Sunlight Shores, Hidden Beach
Lance Porter	Volunteer	Sunlight Shores
Karen Scharer	Survey Lead	Hoypus Point and Cornet Bay
Greg Bloom	Survey Co-Lead	Maple Grove
Paul Williams	Survey Co-Lead	Maple Grove
Anna Toledo	MRC Coordinator (Staff)	
Ann Prusha	Forage Fish Monitoring Coordinator (Staff)	Hidden Beach 11/2020-3/2021 due to COVID
Jason Morgan	Northwest Straits Foundation Staff	Cornet Bay and Hoypus Point 11/2020-3/2021 due to COVID

Table 1. 2020-2021 Forage Fish Monitoring volunteers and staff.

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

The MRC and WDFW hosted a volunteer training in November 2020. Nine volunteers attended this training and became certified to conduct surveys. New volunteers who did not attend the training received on-site training from existing survey leads, and conducted surveys under the guidance of survey leads trained by WDFW. Staff member Ann Prusha attended a training conducted by WDFW in September 2020. This allowed her to provide increased capacity and assistance to survey teams in the upcoming year.

WDFW began using the iForms app in 2020, which allows volunteers to submit survey data electronically while in the field. Ann Prusha has provided training to all of the Whidbey Island volunteer teams to use this app.

Data and Results

Survey samples, beach survey sheets, and photographs were shared regularly with WDFW – the lead agency on data analysis. Due to limited resources within WDFW and additional constraints due to COVID-19, most survey samples from this year have not yet been analyzed. As such, the data summary table below is incomplete. To check for updated results, please contact Anna Toledo or Ann Prusha.

Survey sheets are included in Appendix B. Please note that this was the first year of the implementation of the iForms app, and not all teams submitted survey sheets when also submitting electronic data. For surveys that only had data submitted electronically, their iForms submittal information will be included instead. For Hoypus Point and Cornet Bay, data from December 2020-February 2021 was submitted by Northwest Straits Foundation staff. The tracking sheet provided by WDFW is included in Appendix C.

Site	Index	Rest.	Location	Sample year (October prior year to September)					
				2016	2017	2018	2019	2020	2021
Hoypus Point		X	N Whidbey						11
Cornet Bay		X	N Whidbey	22	17	12	7	8	11
Ala Spit		X	N Whidbey	21	17	11	5	8	
Windjammer	X		C Whidbey	3	12	12	5		
Long Point	X		C Whidbey	8	12	12	5		
Hidden Beach		X	C Whidbey				5	8	10
Freeland County Park	X		SE Whidbey	1	10	12	3		
Seahorse Siesta		X	SE Whidbey					6	
Sandy Point South	X		SE Whidbey	7					
Glendale	X		SE Whidbey		9	12	3	5	4
Waterman		X	SE Whidbey	15	13				
Sunlight Shores		X	S Whidbey						6
Maple Grove	X		NW Camano	7	12	7	8	2	6
Camano Island SP		X	SW Camano			7	3	1	
				5 Sampled in year and number of times					

Table 3. Summary of sampling for all sites since program inception.

Lessons Learned

- A goal in 2021 was migration from manual data entry to digital (app on phone) platform. This is complete for all except for the Maple Grove team. While this team was establishing, the app was having technical issues and new devices could not be added. The plan is to train them in the 2022 year.
- We continue to look for ways to optimize efficiency of sampling and use of volunteer time. We plan to review the number of stations per site and adjust as needed in Fall 2021.
- The response to the COVID-19 pandemic presented several challenges this year. In Island County, volunteer field work was suspended from November through May. As restrictions were eased, volunteers were eager to return to field work. Sampling is carried out in small teams, so volunteers were able to return to sampling while abiding by regulations limiting gatherings.
- Due to state furloughs, limited capacity, and funding constraints, WDFW has not been able to analyze many MRC samples from this year. Funding issues were resolved and a new set of analysts are being trained on egg analysis at the time of this report. Delayed analysis can make it hard for volunteers to feel actively engaged in meaningful work.

- Some volunteers have found it helpful to have two teams assigned to each site, so that teams can rotate sampling months. This provides volunteers greater flexibility in scheduling, and reduces the potential for volunteer burnout. This is not the case for any sites this year, but is a good option for the future.
- In partnership with Sound Water Stewards, several new volunteers expressed interest in joining the forage fish survey team. Two of these volunteers were able to join the existing team at Hidden Beach, under the supervision of volunteer leads who have received training through WDFW. They have expressed interest in becoming certified to lead surveys. Some volunteers have expressed interest in expanding to more sites, especially on Camano Island. The ability to add more sites is dependent on WDFW's capacity to process samples.
- The Hidden Beach team reduced the number of samples from 6 to 3 in October of 2021. This team has lost an experienced volunteer this year, and will be losing another experienced volunteer in November. Reducing the load in this way should help keep volunteers from burning out. Only one of the 3 regular volunteers at this site has received the WDFW training. The MRC is recruiting for more volunteers at this site, and looks forward to offering the existing volunteers an opportunity to become certified.