

County: Island
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PROJECT TITLE: Island County Marine Resources Committee Operations and Projects

TASK NUMBER: 2

DELIVERABLE: 2.2 – Copy of forage fish survey data and report on forage fish survey activities

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Forage Fish Spawning Survey 2016-2017: Island County Marine Resources Committee

Project Leads

Ruth Richards (MRC co-lead)
Lois Farrington (MRC co-lead)
Dan Matlock

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 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 knowledge of location and beach elevation of forage fish spawning through elevation surveys and 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.

Site Selection

Island County 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, we chose monitoring sites at which survey or restoration projects are being conducted. Restoration projects at our sites are in feasibility, in-progress, or post-project phases.

In addition, in collaboration with WDFW, we conducted surveys at five index sites.

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 spawn monitoring in conjunction with the restoration project has occurred here since 2009.

Location: North Whidbey Island.

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

Samples/month: 6 (3 sites, 2 times/month)

Lead: Ruth Richards/Lois Farrington

2. Ala Spit

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

Location: Northeast Whidbey Island.

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

Samples/month: 6 (3 sites, 2 times/month)

Lead: Ruth Richards/Lois Farrington

3. Camano Island State Park

Project information: Proposed feasibility study to evaluate the potential for tidal inundation to allow for fish access.

Location: Southwest Camano Island.

Sites: 3: N 48.1249 W 122.4952, N 48.1236 W 122.4948, N 48.1224 W 122.4940

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

Lead: Ruth Richards/Lois Farrington

4. Waterman

Project information: 400' creosote bulkhead, removed fall 2016

Location: Southeast Whidbey Island.

Site: 1: N 48.00110 W 122.37189

Samples/month: 6 (3 sites, 2 times/month)



Lead: Dan Matlock

Index sites:

5. Windjammer

Location: Northeast Whidbey Island (Oak Harbor).

Site: 1: N 48.2840 W 122.6554

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

Lead: Ruth Richards/Lois Farrington

6. Maple Grove

Location: Northwest Camano Island.

Site: 1: N 48.2527 W 122.5180

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

Lead: Ruth Richards/Lois Farrington

7. Long Point

Location: Eastern Whidbey Island (Penn Cove).

Site: 1: N 48.2267 W 122.6490

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

Lead: Ruth Richards/Lois Farrington

8. Freeland Park

Location: Southeast Whidbey Island (Holmes Harbor).

Site: 1: N 48.016008 W 122.532738

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

Lead: Ruth Richards/Lois Farrington

9. Glendale

Location: Southeast Whidbey Island.

Site: 1: N 47.93822 W 122.35850

Samples/month: 4 (1 site, 2 samples, 2 times/month)

Lead: Dan Matlock

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

All project leads have attended multiple survey trainings conducted by WDFW. Several survey volunteers have attended WDFW training, and receive on-site training from leads.

Legend

Surf smelt
Sand lance
Surf smelt and sand lance
Not sampled
No presence

Lessons Learned

- Volunteer burnout is an important consideration. The nature of these surveys has project leads and volunteers responsible for surveying every month year-round. When designing survey timing, it is worth considering if there are months where surveying may not be necessary to ease volunteer workload.
- Travel time is an additional limiting factor. Without a project lead on Camano, one of our project leads on Whidbey spends several hours and miles traveling to and from Camano each month to conduct the surveys there. To address this concern, in the upcoming year surveys will not be conducted on Camano unless a volunteer from the area steps up to become a project lead.
- Considering the constraints on the existing project leads, it would be worthwhile to foster additional project leads who can resume Camano Island surveys and be available to assist current project leads at existing sites and/or lead surveys in additional locations. Project leads will need to undergo WDFW training to ensure consistent data collection procedures.
- Accessibility to the project site must also be considered, and re-evaluated if conditions change. Safety of our project leads and volunteers is of primary concern. For the upcoming year, we will not be sampling at Waterman, as access has become increasingly difficult.
- Ongoing monitoring is an important aspect of this work. Surf smelt eggs were found within the restored area of Cornet Bay (Station 4) in August 2017. This is the first instance of recorded spawning at this site, nearly 5 years after restoration was completed.
- Project sites should be selected and evaluated taking into account all the factors listed above. The importance of the data, the availability and interest of project leads and volunteers, and site accessibility must all be weighed when selecting sites, both when considering existing sites as well as the addition of any new sites.