

County: Clallam  
Grant No: SEANWS-2018-CICoCD-00007

PROJECT TITLE: Forage Fish Final Report

DELIVERABLES FOR TASK NO: 2.4

PROGRESS REPORT: ☐

FINAL REPORT ☒

PERIOD COVERED: October 1, 2018 - September 30, 2019

DATE SUBMITTED: September 15, 2019



This project has been funded wholly or in part by the United States Environmental Protection Agency under assistant agreement CE-01J31901-0 to the Puget Sound Partnership. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

## Forage Fish Surveys

### Introduction

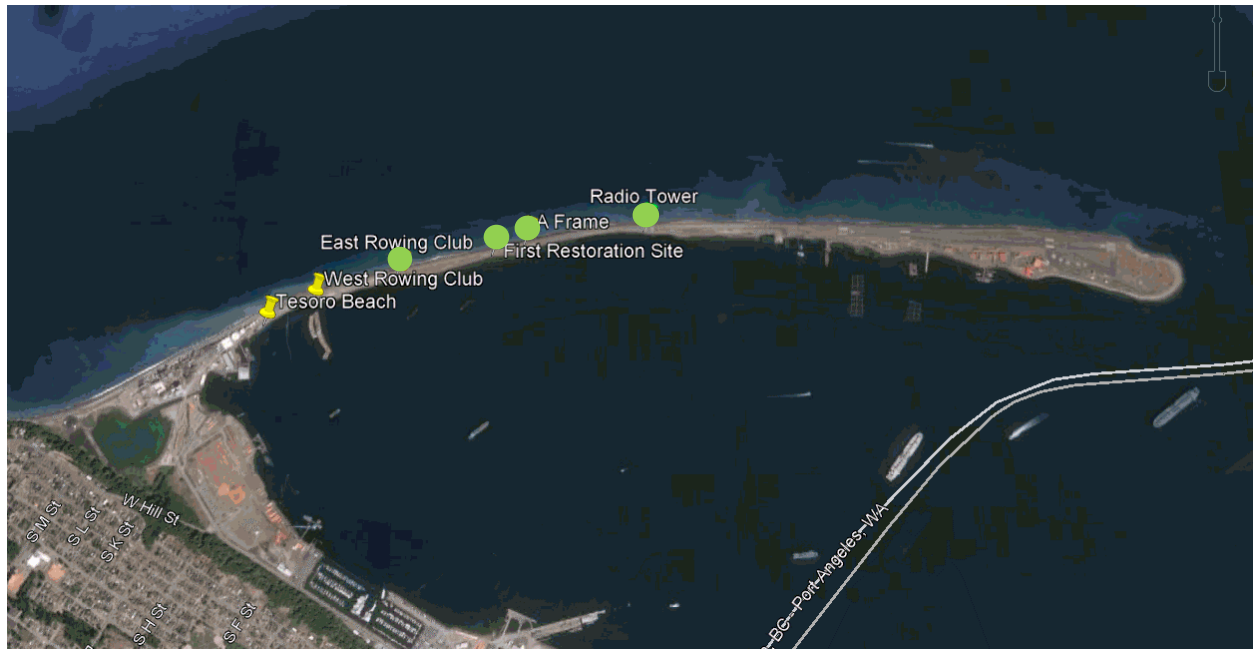
In 2016 Clallam MRC joined the Northwest Straits Commission's forage fish monitoring efforts. Three Clallam MRC members and the project coordinator participated in a day long training provided by Washington Department of Fish and Wildlife (WDFW). Between October 2016 and March 2018 Clallam MRC conducted monthly surveys at two locations - Pitship Point adjacent to John Wayne Marina and at a public beach near Old Town east of Dungeness River. In April 2018 the sampling efforts were discontinued at these two sites and sampling was initiated at Cline Spit. The sampling effort at Cline Spit was continued throughout the fall of 2018 and the winter, spring and summer 2019. These three sites are considered index sites by WDFW (Figure 1).



**Figure 1.** Locations of the current index site, Cline Spit, and the two old index sites, Old Town and Pitship. Yellow site is active and green sites are inactive.

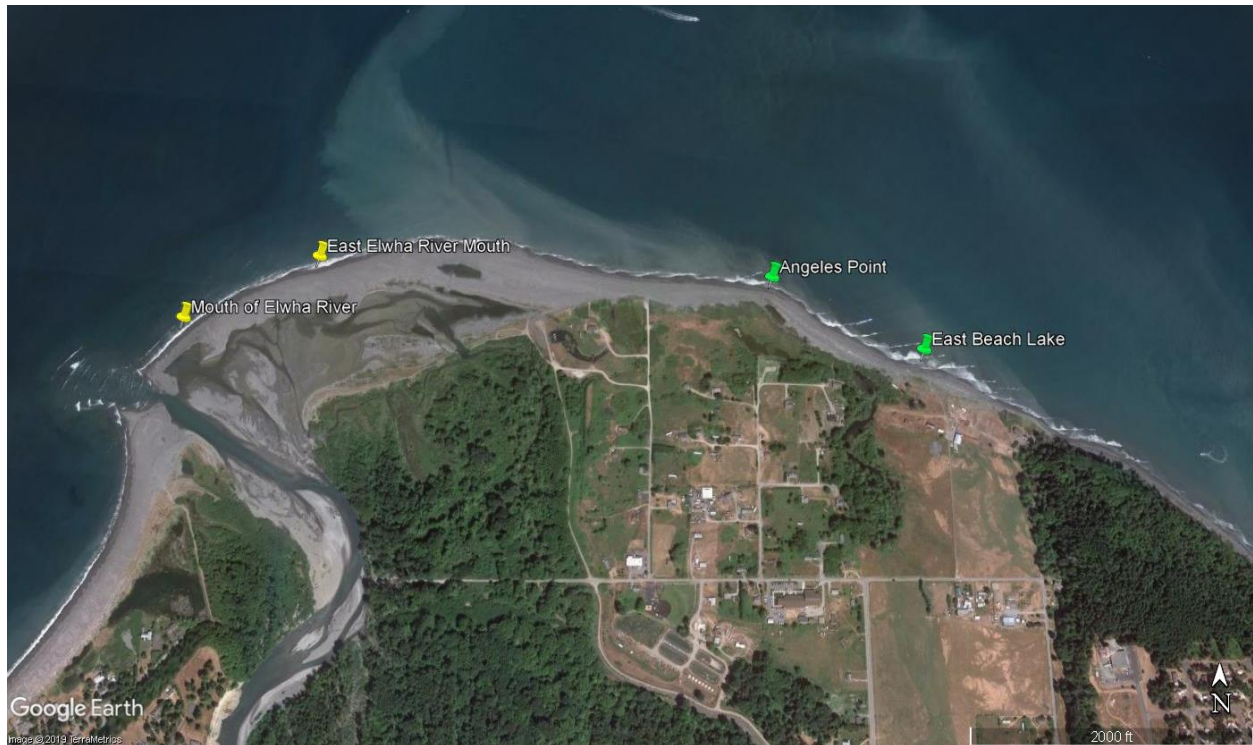
In April 2017 the sampling effort was expanded to include monthly sampling at two sites on Ediz Hook. The sites were selected by the Lower Elwha Tribe in an effort to document forage fish spawning in the

newly restored area along the inside of the spit. Since sampling commenced the sediment along the inside of the spit has coarsened and as a result the sampling locations have been moved progressively further to the west (Figure 2). The sampling effort on Ediz Hook was discontinued in October 2018 because of Lower Elwha tribe staffing limitation and restarted in April 2019. The 2019 sampling effort focused on the West Rowing Club and Tesoro Beach sites.



**Figure 2.** Sampling locations on Ediz Hook, 2017-19. Yellow sites are active and green sites are inactive (Google Earth map).

The sampling effort was expanded again in July 2017 to include monthly sampling at two sites on the beach east of the Elwha River mouth. Lower Elwha tribal members have seen forage fish along this beach and the effort may document if they are spawning in this area (Figure 3). In September 2018 three surf smelt eggs were documented at the mouth of the river. Because the sediment at the eastern end of the beach has coarsened over time the sampling at the two stations, Angeles Point and Each Beach Lake, have been discontinued and instead one station was added near the mouth of the river.



**Figure 3.** Sampling locations at Elwha Beach, 2017-19. Yellow sites are active and green sites are inactive (Google Earth map).

In August 2019 Clallam MRC participated in the intensive biannual sampling event conducted by WDFW. The Clallam MRC members surveyed 14 beaches between Pitship Point near Sequim and Crescent Beach west of Port Angeles. Five of these samples were the monthly samples at Cline Spit, Ediz Hook and Elwha Beach. All samples have been submitted to WDFW for laboratory analysis.

## Results

The WDFW conducts the laboratory analysis of most of the samples collected by all the participating MRCs. Table 1 summarizes the results of the index site and the four restoration sites. Surf smelt eggs were found each month from October to May except in March at Cline Spit. Rock sole eggs were observed at Ediz Hook in May. The samples collected at Cline Spit, Elwha Beach and Ediz Hook June through August and during the annual intensive survey are in the process of being analyzed in the laboratory. Samples collected in September are in transit to the laboratory.

Photos taken during the sampling days at the five sites are shown in Figure 4.

**Table 1. Summary of WDFW laboratory analysis and database information on samples collected by Clallam MRC members and volunteers**

Survey Date	Location	Beach Station	Sample	Field Sheet	Lab Sheet Sample	Photos	WDFW QAQC	Surf Smelt	Sand Lance	Rock Sole	Comments
10/22/2018	Cline Spit	1	1	Y	Y	Y	Y	8	1	0	
11/5/2018	Cline Spit	1	1	Y	Y	Y	Y	16	0	0	
12/30/2018	Cline Spit	1	1	Y	Y	Y	Y	15	1	1	
1/14/2019	Cline Spit	1	1	Y	Y	Y	Y	88	0	0	
2/25/2019	Cline Spit	1	1	Y	Y	Y	Y	73	0	0	
3/27/2019	Cline Spit	1	1	Y	Y	Y	Y	0	0	0	
4/27/2019	Cline Spit	1	1	Y	Y	Y	Y	173	0	0	
5/7/2019	Cline Spit	1	1	Y	Y	Y	Y	250	0	0	East of Mouth
5/9/2019	Elwha Beach	1	1	Y	Y	Y	Y	0	0	0	Elwha Mouth
5/9/2019	Elwha Beach	1	1	Y	Y	Y	Y	0	0	3	Tesoro Beach
5/9/2019	Ediz Hook	1	1	Y	Y	Y	Y	0	0	5	West Row Club
6/21/2019	Cline Spit	1	1	Y	Y	Y	Waiting on lab results				
6/24/2019	Elwha Beach	1	1	Y	Y	Y					East of Mouth
6/24/2019	Elwha Beach	1	1	Y	Y	Y					Elwha Mouth
6/24/2019	Ediz Hook	1	1	Y	Y	Y					Tesoro Beach
6/24/2019	Ediz Hook	1	1	Y	Y	Y					West Row Club
7/18/2019	Cline Spit	1	1	Y	Y	Y					
7/23/2019	Elwha Beach	1	1	Y	Y	Y					East of Mouth
7/23/2019	Elwha Beach	1	1	Y	Y	Y					Elwha Mouth
7/23/2019	Ediz Hook	1	1	Y	Y	Y					Tesoro Beach
7/23/2019	Ediz Hook	1	1	Y	Y	Y					West Row Club
8/13/2019	3 Crabs	1	1	Y	Y	Y					
8/13/2019	Cline Spit	1	1	Y	Y	Y					
8/13/2019	Dungeness Landing	1	1	Y	Y	Y					
8/13/2019	Dungeness Spit	1	1	Y	Y	Y					
8/13/2019	Jamestown Beach	1	1	Y	Y	Y					
8/13/2019	Pitship	1	1	Y	Y	Y					
8/14/2019	Elwha Beach	1	1	Y	Y	Y					East of Mouth
8/14/2019	Elwha Beach	1	1	Y	Y	Y					Elwha Mouth



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Survey Date	Location	Beach Station	Sample	Field Sheet	Lab Sheet Sample	Photos	WDFW QAQC	Surf Smelt	Sand Lance	Rock Sole	Comments
8/14/2019	Ediz Hook	1	1	Y	Y	Y					Tesoro Beach
8/14/2019	Ediz Hook	1	1	Y	Y	Y					West Row Club
8/14/2019	Crescent Beach	1	1	Y	Y	Y					
8/14/2019	Salt Creek	1	1	Y	Y	Y					
8/14/2019	Hollywood Beach	1	1	Y	Y	Y					
8/14/2019	Rayonier Beach	1	1	Y	Y	Y					
9/11/2019	Cline Spit	1	1	Y	Y	Y	Samples in transit to laboratory				
9/17/2019	Elwha Beach	1	1	Y	Y	Y					East of Mouth
9/17/2019	Elwha Beach	1	1	Y	Y	Y					Elwha Mouth
9/17/2019	Ediz Hook	1	1	Y	Y	Y					Tesoro Beach
9/17/2019	Ediz Hook	1	1	Y	Y	Y					West Row Club

**Figure 4.** Photos taken on the sampling days at the index site and the four restoration sites.



January 14, 2019 Index Site: Cline Spit (successful spawning sampling event)



May 9, 2019 Restoration Site: Ediz Hook West of Rowing Club



May 9, 2019 Restoration Site: Ediz Hook at Tesoro Beach







May 9, 2019 Restoration Site: East of Elwha River Mouth



May 9, 2019 Restoration Site: Elwha River Mouth

