

**Jefferson County Marine Resources Committee  
2023 Fort Townsend State Park Forage Fish Project Summary Report**

**Project Leads:** Sarah Fisken and Janette Mestre

**Subcommittee Members:** Troy McKelvey, Frank Handler, Roy Clark, Joanie Hendricks

**Additional Volunteers:** Gregg Patton, Jonathan Waggoner

Project Overview

In 2015-2016, the Northwest Straits Foundation, Jefferson County MRC, and Washington State Parks partnered to restore nearshore habitat and improve beach access at Fort Townsend State Park along the base of a feeder bluff on the southwest shore of Port Townsend Bay. The project was completed in October 2016 and restored natural feeder bluff processes and beach habitat for shorebirds, forage fish and other marine species. The MRC has conducted seasonal forage fish spawning surveys here since 2015. Volunteers collect samples from five locations along this stretch of shoreline on a monthly basis between October and March when forage fish are expected to spawn here. The MRC then sends these samples to partners with the Point No Point Treaty Council (PNPTC) who process them at the Jamestown S’Klallam Natural Resources lab to identify and count presence/absence of surf smelt (*Hypomesus pretiosus*) and Pacific sand lance (*Ammodytes hexapterus*) eggs. During the Winter 2022-2023 monitoring season, the MRC conducted four surveys with the help of seven volunteers.

Volunteer Engagement

Monitoring at Fort Townsend State Park occurred from October 2022 through February 2023. During this period, Sarah and Janette took on project lead responsibilities, organizing sampling days, filling out data sheets and volunteer reporting forms, and the MRC Coordinator oversaw the delivery of samples to Point No Point Treaty Council who process the beach samples. Throughout the season, a total of seven volunteers (Frank, Joanie, Jon, Troy, Sarah, Gregg, and Janette) participated in monitoring, **contributing a total of 54.5 hours of volunteer time** (see Table 1 below). **In total, MRC members and community volunteers contributed 127.5 hours to forage fish monitoring** (18.5-Adelma, 45.5-Dabob, 54.5-Fort Townsend, and 9-forage fish education workshops).

*Table 1: Volunteer hours donated between October 2022 and February 2023.*

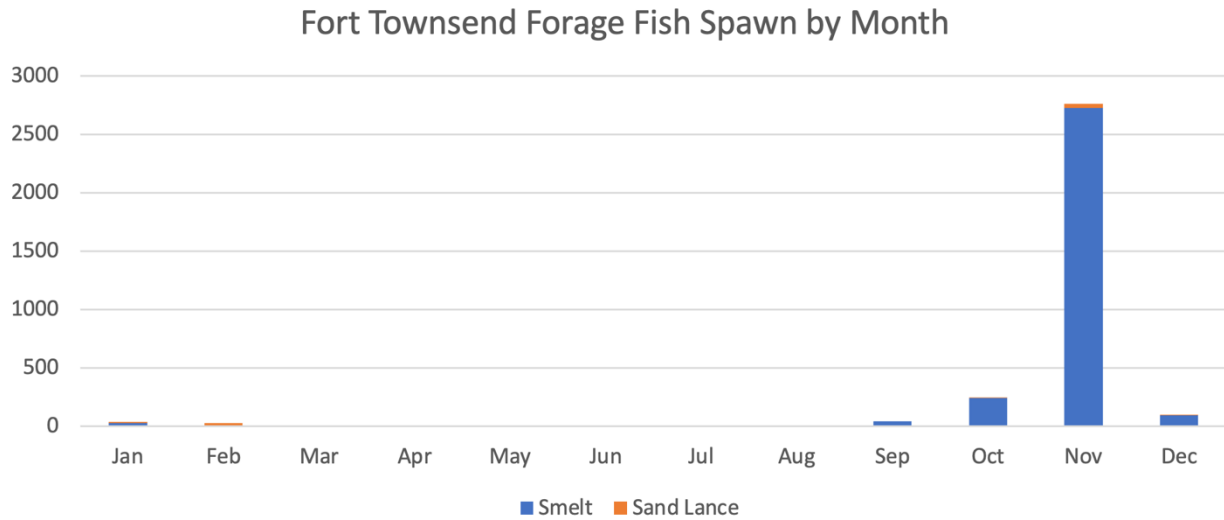
Date	Volunteers	Hours
10/7/2022	Janette Mestre	3
	Gregg Patton	3
	Sarah Fisken	4
	Troy McKelvey	3

1/13/2023	Janette Mestre	2.5
	Frank Handler	2.5
	Joanie Hendricks	3.5
	Troy McKelvey	2.5
	Jon Waggoner	2.5
	Sarah Fisken	3.5
	Gregg Patton	2.5
1/27/23	Janette Mestre	3
	Sarah Fisken	4
	Joanie Hendricks	4
	Gregg Patton	3
	Jon Waggoner	3
2/24/23	Frank Handler	2.5
	Troy McKelvey	2.5
	Janette Mestre	2.5
<b>Total Hours Volunteered</b>		<b>54.5</b>

### Data Results

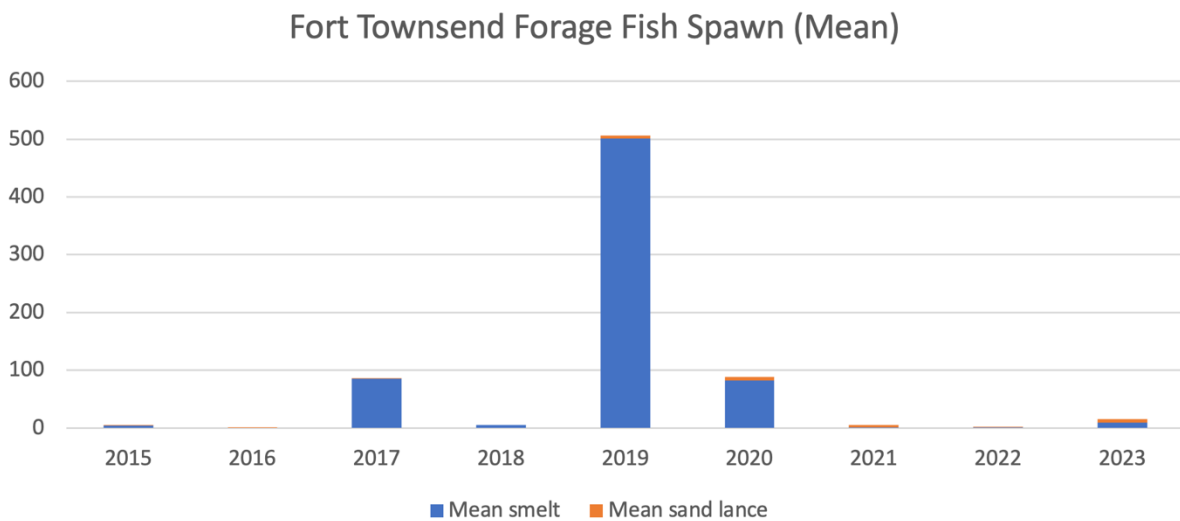
Surveys did not take place in November or December 2022, due to there being no suitable low tides that took place during daylight hours. The January 13<sup>th</sup> survey was limited to one sample due to higher than anticipated tides. A total of sixteen samples were collected across four surveys (with five samples per survey, excepting January 13<sup>th</sup>) during the winter 2022-2023 forage fish monitoring season. Surf smelt eggs were only found in October 2022. A positive spawning event is determined to have occurred when 2 or more eggs are found; in this case, one late-eyed surf smelt egg and one dead surf smelt egg were found. No eggs were detected in the January or February 2023 samples. Data sheets for each survey are available at the end of this report. These results find that forage fish spawning continues to occur at the Fort Townsend State Park restoration site. Our partners at Point No Point Treaty Council shared that their sampling efforts nearby also revealed a lack of large spawning events that are typically observed, possibly due to warmer weather later into the year.

Survey data from the last decade (January 2015 – November 2023) of sampling efforts at the Fort Townsend restoration site were also analyzed. Across the MRC's sampling efforts, November has cumulatively found the greatest number of eggs for both species of forage fish. October and December follow for surf smelt, while January and February find the next highest numbers of Pacific sand lance eggs (Figure 1).



*Figure 1. Forage fish eggs by month at Fort Townsend State Park, from 2015-2023.*

The greatest number of surf smelt eggs occurred in 2019, captured by the November 23<sup>rd</sup> survey (Figure 2). This sand lance sampling dwarfs other forage fish egg counts observed by the MRC across the years at the Fort Townsend restoration site, so a logarithmic scale is used to observe more detailed variation in the mean number of eggs observed per survey (Figure 3). Surf smelt eggs were observed across all years except for in 2016, while sand lance eggs were observed at much lower levels in most years, with larger egg counts in 2016 and 2021.



*Figure 2. Forage fish eggs by year at Fort Townsend State Park, from 2015-2023.*

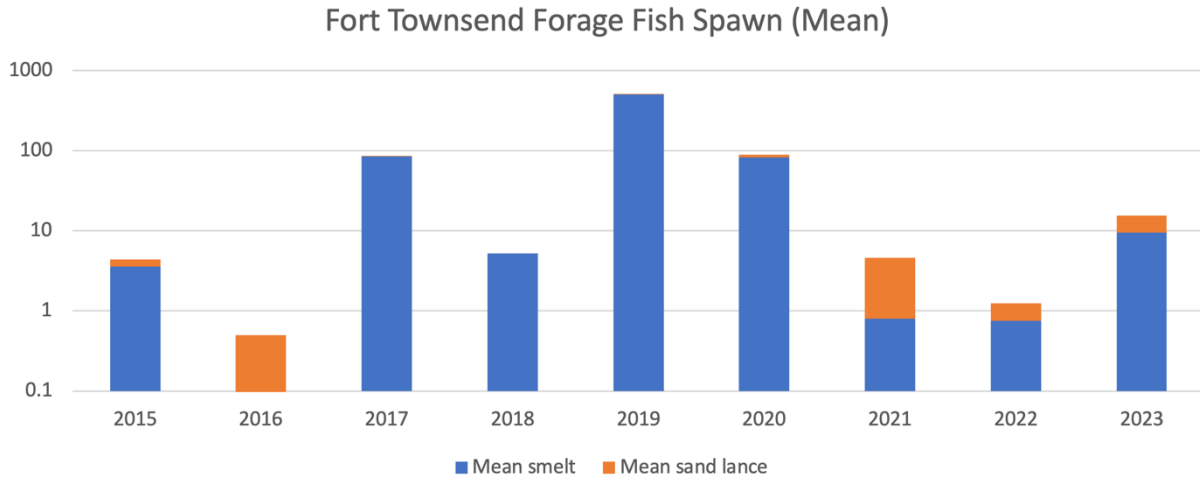


Figure 3. Forage fish eggs by year at Fort Townsend State Park, from 2015-2023, on a logarithmic scale.

Graphing spawn events by both survey date and the beach site on which they occurred appears to demonstrate a northerly drift in spawning preference for both species between 2017 and 2020 (see Figures 4 and 5).

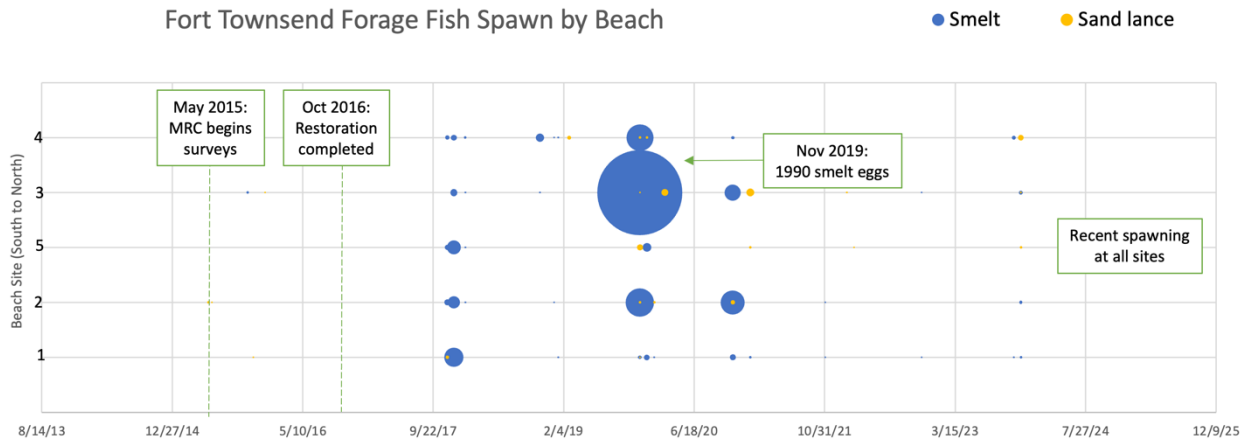


Figure 4. Forage fish eggs by beach site (1-5) at Fort Townsend State Park, from 2015-2023.



*Figure 5. Map of beach sites (1-5) sampled in each survey and the overall direction of littoral drift at Fort Townsend State Park, as informed by the Department of Ecology Coastal Atlas database.*

Photos:



*2/24/2023 Frank and Troy collect beach samples while Janette keeps record on the data sheet. Photo by Monica Montgomery.*



*10/7/2022 Sarah, Janette and Gregg take turns filtering the beach samples. Photo by Monica Montgomery.*



*2/24/2023 Janette, Troy, and Frank wrapping up a survey. Photo by Monica Montgomery.*



*10/7/2022 Silhouette of Gregg, Janette and Sarah with the rising tide after filtering. Photo by Monica Montgomery.*