Ex 47

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MEMORANDUM

DATE: March 29, 2017

TO: Joe Brogan and Stephanie Weir, Foster Pepper, PLLC

FROM: Jim Starkes and Jon Houghton, Hart Crowser

RE: **Summary of Forage Fish Spawn Surveys at the Runstad Beach Property, Blakely Island**
1792100

Background

This memorandum summarizes forage fish spawn investigations conducted to date along shorelines at the Runstad property on Blakely Island, Washington (Figure 1). At the request of the Washington Department of Fish and Wildlife (WDFW), a sampling plan using existing protocols was developed to conduct Pacific sand lance and surf smelt surveys at the Runstad beach. Surveys were conducted by Hart Crowser in 2013, 2014, and 2016 (Table 1). No forage fish eggs were observed during any of these surveys.

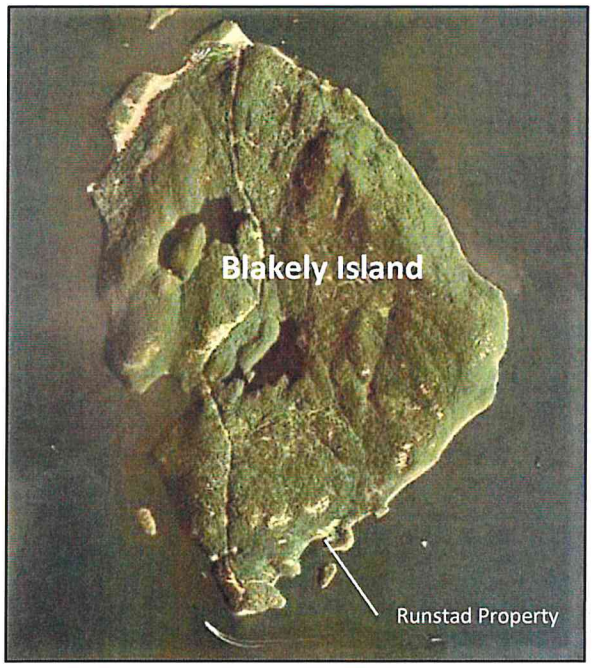

Figure 1 – Site Vicinity

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Table 1 – Forage Fish Survey Effort on the Runstad Beach property

Survey Periods		
2013	**2014**	**2016**
January 15	January 30	July 29
February 11		August 15
March 15		August 29
April 15		September 13
October 23		September 27
November 27		
December 26		

Methodology

In 2013 and 2014, forage fish spawn sampling followed the then current WDFW sampling protocol:

> *Moulton, L.L., and Penttila, D.E. 2006. Field manual for sampling forage fish spawn in intertidal shore regions. Field Manual, MJM Research and Washington Department of Fish and Wildlife, Lopez Island, WA.*

This protocol required the collection of four substrate samples each within 100-foot transects that are spaced evenly on the project beach within the upper intertidal zone. Intertidal areas sampled were to be between +6 feet mean lower low water (MLLW) and mean higher high water (MHHW). After collection, samples were to be condensed through a series of screens to remove the larger cobble/gravel fractions and then physically winnowed to concentrate eggs. This final winnowed fraction was examined under a microscope to determine egg presence or absence and species identification.

Using this protocol in 2013 and 2014, the optimum elevations and habitat for spawning for each transect was identified and selected for sampling.

In 2016, WDFW further refined the sampling protocol by requiring that each transect have substrate samples collected at three different elevations within the middle to upper intertidal zones, rather than at just one elevation. Once collected, the condensing of samples by the use of screens remains the same. The winnowing process was refined by requiring the use of an electric water pump to winnow and concentrate eggs. These revised protocols are presented in the following documents:

Dionne, P. 2016. Regulatory surveys for intertidal spawning forage fish. Washington Department of Fish and Wildlife, Habitat Program, Science Division.

Dionne, P. 2015. Vortex method for separation of forage fish eggs from beach sediment. Addendum to the 2006 revision of Field manual for sampling forage fish spawn in intertidal shore regions.

Using both protocols, Hart Crowser typically collected substrate samples from four 100-foot transects spread throughout the project beach, including one reference transect west of the project beach (Transect 4; Figure 2).

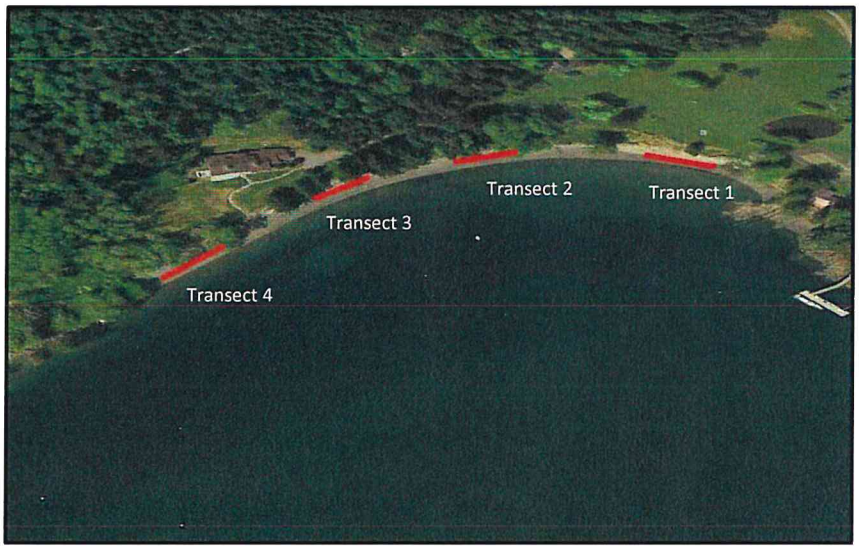


Figure 2 – 100-foot Forage fish transect locations.

During 2013 and 2014, each transect was located within the most suitable spawning substrate, as per the protocol. During 2016, with the new protocol, three times the substrate samples were collected because samples were collected at three different elevations within each transect.

During all surveys, biologists certified by WDFW to conduct forage fish spawn surveys were used to collect and process samples, and identify eggs.

Results

As reported, no forage fish eggs were found in any surveys conducted in 2013, 2014, and 2016. Surveys were conducted in all seasons of the calendar year. Although the protocols changed in 2016, it is our opinion that the results of the earlier surveys remain valid because the band of suitable habitat spanned a relatively narrow elevation range at this site. Hence, the lower elevations sampled in this later

sampling consisted of a coarser-grained habitat less suited for forage fish spawning. Thus, we believe it is unlikely that any spawning was missed in the earlier sampling at the single elevation.

Based on the sampling over this 3-year period, our professional opinion is that it is unlikely that forage fish spawn within the intertidal zone along the Runstad property.

Our findings are consistent with prior surveys conducted by others at this beach. For example, survey events conducted by WDFW (Moulton and Penttila 2000) during which the Runstad beach area was sampled, no forage fish eggs were observed. Similarly, efforts by the Friends of the San Juans (FSJ 2004) surveyed much of Blakely Island, including the Runstad beach, and also found no forage fish spawning on the property (Attachment 1). Surf smelt were found to spawn only in a small area within an embayment on the west side of the Island. Because of these findings, Blakely Island was not identified as Critical Nearshore Habitat for Priority Forage Fish Spawning in San Juan County (FSJ 2004; Attachment 2).

References

Moulton, L.L., and Penttila, D.E. 2000. Forage fish spawning distribution in San Juan County and protocols for sampling forage fish spawn in intertidal shore regions. MJM Research and Washington Department of Fish and Wildlife, Lopez Island, Washington.

FSJ 2004. Documented surf smelt and Pacific sand lance spawning beaches in San Juan County with a summary of protection and restoration priorities for forage fish habitat. Final Report. Prepared by the Friends of the San Juans, Friday Harbor, Washington.

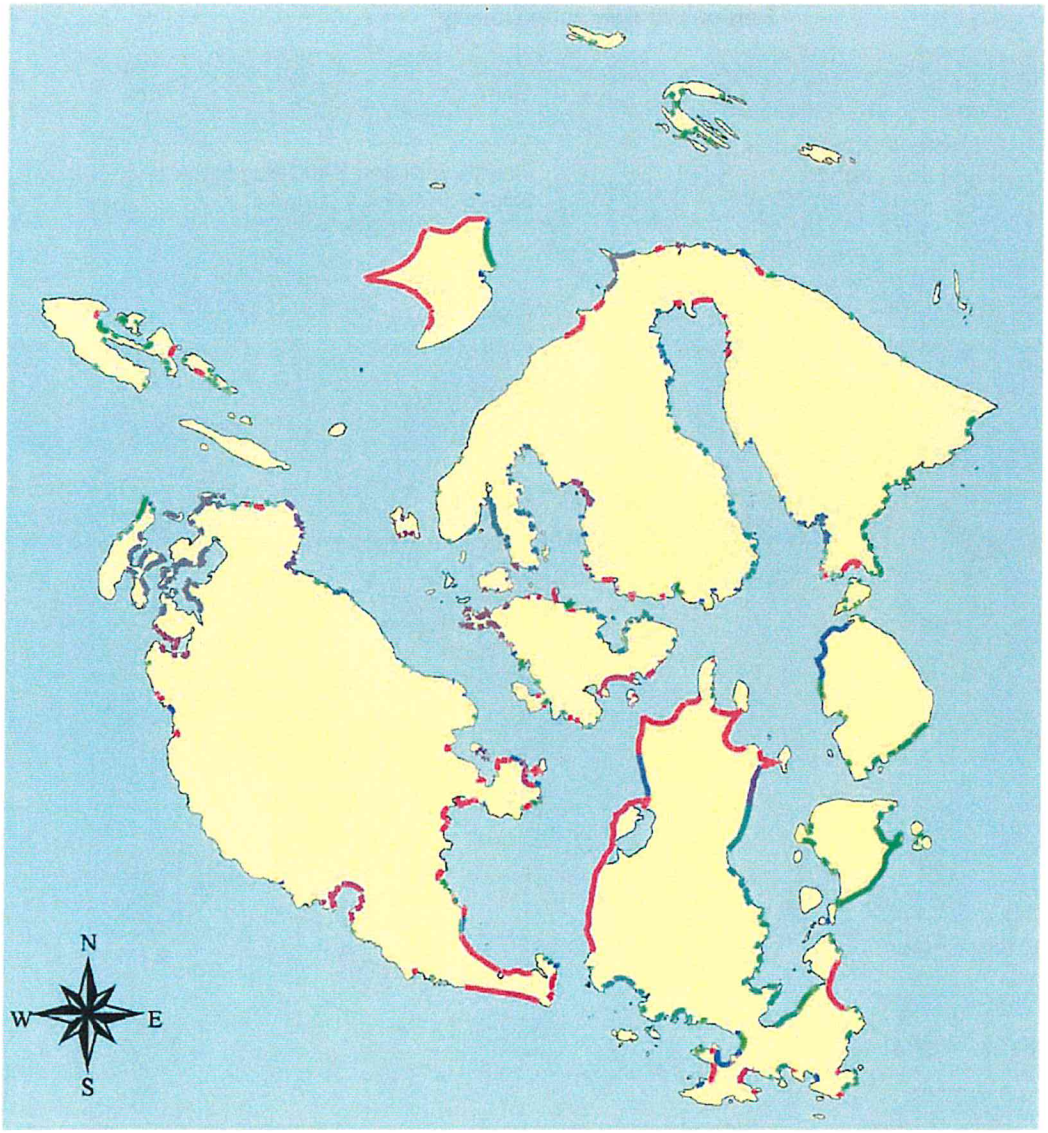
Attachments:

San Juan County Forage Fish Project – Number of Surveys Performed

San Juan County Forage Fish Project – Critical Nearshore Habitat – Priority Forage Fish Spawning Regions in San Juan County

Attachment 1

San Juan County Forage Fish Project
Number of Surveys Performed



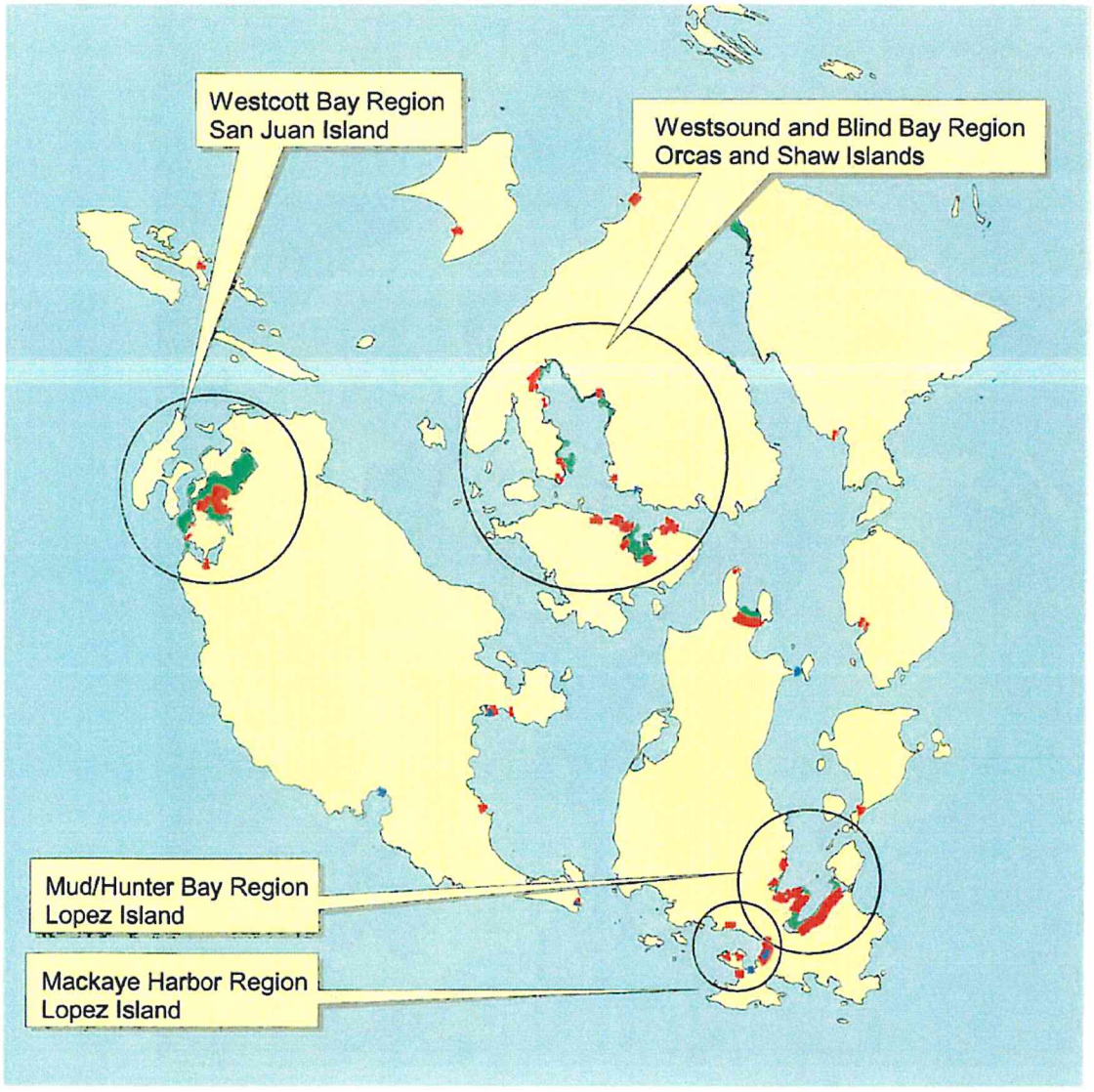
Number of Surveys
1 Survey
2 Surveys
3 - 11 Surveys

Note: Data from San Juan County Forage Fish Spawning Habitat Project Final Report

Attachment 2

San Juan County Forage Fish Project

Critical Nearshore Habitat- Priority Forage Fish Spawning Regions in San Juan County



Sand Lance Spawn Beaches
Smelt Spawn Beaches
Herring Spawn Areas

Note: Data from San Juan County Forage Fish Spawning Habitat Project Final Report