**Estuary and Salmon Restoration Program (ESRP)**

***Restoration Monitoring***

Seahorse Siesta Barge and Armor Removal, Project 18-2062 (merged into 16-1306)

***Statement of Work***

August 30, 2019

**PURPOSE**

**Agreement Scope**

This project is funded with ESRP funds through project 18-2062, Seahorse Siesta Barge and Armor Removal, and PSAR funds through project 16-1306, Seahorse Siesta Barge Removal. The scopes of work of the two grants are identical, with the exception that the ESRP grant includes $3,250 for monitoring plan development and implementation, which is not eligible for PSAR funding or match. Funding from both grants were merged into the contract for 16-1306. The tasks and deliverables below cover only the monitoring component of the project since the restoration component is well-represented through PRISM.

*Restoration Project Description* (eligible for both ESRP and PSAR funds): Northwest Straits Foundation propose to remove a large barge and bulkhead from the base of a feeder bluff near Langley, Whidbey Island. The bulkhead (including the barge, which is part of the shore armor) extends 98 feet onto the beach from the toe of the bluff and 136 feet alongshore. The project will also construct a small rockery above elevation +13 MLLW to allow for continued access to the beach by the community. The project includes final design, bidding, construction, and pre and post construction monitoring. The removal of the barge will expose a sandy beach suitable for forage fish spawning (Pacific sand lance) and will improve nearshore habitats useful for migrating juvenile salmonids. Sand lance spawn on mid-intertidal sandy beaches and spawning has been mapped both updrift and downdrift of the site. Residents also noted that there are populations of sand shrimp on site and gray whales are present in the area.

*Monitoring Project Description* (ESRP funds only)

The project includes a citizen-science monitoring plan to assess the results of the restoration over time. Community members will be recruited to assist with monitoring, thereby deepening the understanding of the science behind restoration and restoration monitoring. The MRC will provide volunteers to develop and assist with pre- and post-construction monitoring. A monitoring plan will be developed and will follow protocols outlined in the Shoreline Monitoring Toolbox, WDFW’s forage fish sampling protocols, and other methods commonly used throughout Puget Sound.

**MONITORING GOALS & OBJECTIVES**

Project goals include: enhancement of nearshore physical habitat conditions by removal of the barge/bulkhead structure; and the restoration of sediment transport processes along shore. Several hypotheses to be tested by monitoring include:

1. Removal of armoring will re-establish sediment transport and substrate composition within the drift cell will change.
2. As sea level rises, the amount of intertidal habitat will be maintained over the long term. The slope of the upper shore will be reduced allowing fine sediments to settle and become a dominant part of the upper beach substrate.
3. The removed armoring will allow for the accumulation of large woody debris.

**MONITORING TASKS & DELIVERABLES**

**Task 1**: Monitoring Data Collection and Processing

NWSF will coordinate pre- and post-construction monitoring using citizen-science volunteers, WDFW, and University of Washington experts. Monitoring at this site began two years ago through WDFW’s program to compare habitat responses to armor removal at various locations throughout Puget Sound. Funding to support this has also been secured through a Near Term Action project (NTA#2018-219) that continues to monitor paired armored and unarmored sites with these partners. LWD, beach wrack composition, and elevation data has been collected once per year for two years. Forage fish surveys were also conducted, but only in conjunction with the annual monitoring. WDFW will conduct post-construction monitoring following structure removal in 2020. Volunteers will complete it in spring 2021 if funding for WDFW does not exist.

Volunteers will begin monthly forage fish spawning surveys in winter 2020 and will continue post-construction monitoring as funding allows to support their efforts and have samples analyzed.

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| **Number** | **Deliverable** | **Start date** | **Completion date** |
| **1.1** | Complete final monitoring plan and attach to PRISM |  | 3/30/2020 |
| **1.2** | Forage Fish Spawning Surveys | Winter 2020 | 5/31/2021 |
| **1.3** | Large Wood Accumulation | Pre-construction data collected in summer 2019 | 5/31/2021 |
| **1.4** | Beach Wrack Composition | Pre-construction data collected in summer 2019 | 5/31/2021 |
| **1.5** | Beach Elevations | Pre-construction data collected in summer 2019 | 5/31/2021 |
| **1.6** | Insect fallout, pending capacity from UW for analysis | Spring 2020 (pre-construction) | 5/31/2021 |

**Total Task 1 Cost (including match):** \_$4,000.00

**Task 2:** Monitoring Project Report

A summary report of monitoring activities and raw data will be compiled and provided as a deliverable. The report will include all data collected including pre-construction surveys completed by WDFW. The data will be analyzed only to provide a point in time assessment of changes to habitat post-construction with an understanding that the dynamic nature of these habitats require longer term data sets to effectively assess change and compare to armored and unarmored sites.

NWSF has a goal of monitoring restoration sites at a minimum of one-year pre-construction and then annually (except for forage fish, which is monthly) for five years post-construction, then at Year 7 and Year 10.

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| **Number** | **Deliverable** | **Completion date** |
| **2.1** | Data collection log (summary table of data collection activities) | 6/30/2021 |
| **2.2** | Summary of completed monitoring, monitoring results to date, and plans for continued monitoring. | 6/30/2021 |
| **2.3** | Draft Monitoring Report, once all planned monitoring is complete. NOTE: ESRP recognizes that monitoring will continue outside of the grant contract period with outside funding. As we have a vested interest in the project and its outcome, we would like to have the opportunity to review the draft monitoring report, once it is available | TBD |
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**Total Task 2 Cost (including match):** \_$1,500.00\_\_\_\_\_\_\_\_\_\_\_\_\_

**TOTAL AMOUNT OF ESRP MONITORING AWARD:** **$3,250**

**Work on this project must be completed by \_\_June 30, 2021\_\_\_\_\_\_\_\_\_\_**