

NEAH BAY SECTION 107  
NAVIGATION IMPROVEMENT PROJECT  
NEAH BAY, WASHINGTON

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APPENDIX C  
MARINE VEGETATION SURVEY



**US Army Corps  
of Engineers®**  
Seattle District



May 2018

**Neah Bay Channel Navigation Improvement Project: Marine vegetation in the area of proposed sediment disposal**

The Army Corps of Engineers (USACE) and the Makah Tribe are considering a plan to dredge the Neah Bay channel and use the dredge spoils for beach nourishment between the Makah marina and Baada Point in Neah Bay (Figure 1). The sediment in the bay is primarily sand with some silt and small amounts of clay and gravel. A suitability analysis was previously performed on the sediment for an expansion of the commercial fishing dock; several samples taken were from similar depths as the channel and given the lack of sediment input into the bay the sediment characteristics of the channel are anticipated to be similar to these samples. The sediment composition in those samples was: 72% sand, 16% silt, 8% clay, and 4% gravel. The sediment will be hydraulically moved by pipeline to the beach and then spread over the fill area. The shoreline in the proposed section of disposal is primarily riprap with a small natural beach just west of Baada Point and some natural areas just east of the marina. The area of proposed beach nourishment was historically an emergent beach which has been eroded over time. Shoreline and in-water surveys have been completed to assess the marine vegetation in the area of proposed beach nourishment. The area of proposed nourishment varies in depth from a small area of exposed shoreline to depths of 11 feet at mean low low water in the basin just west of Baada Point (Figure 2).

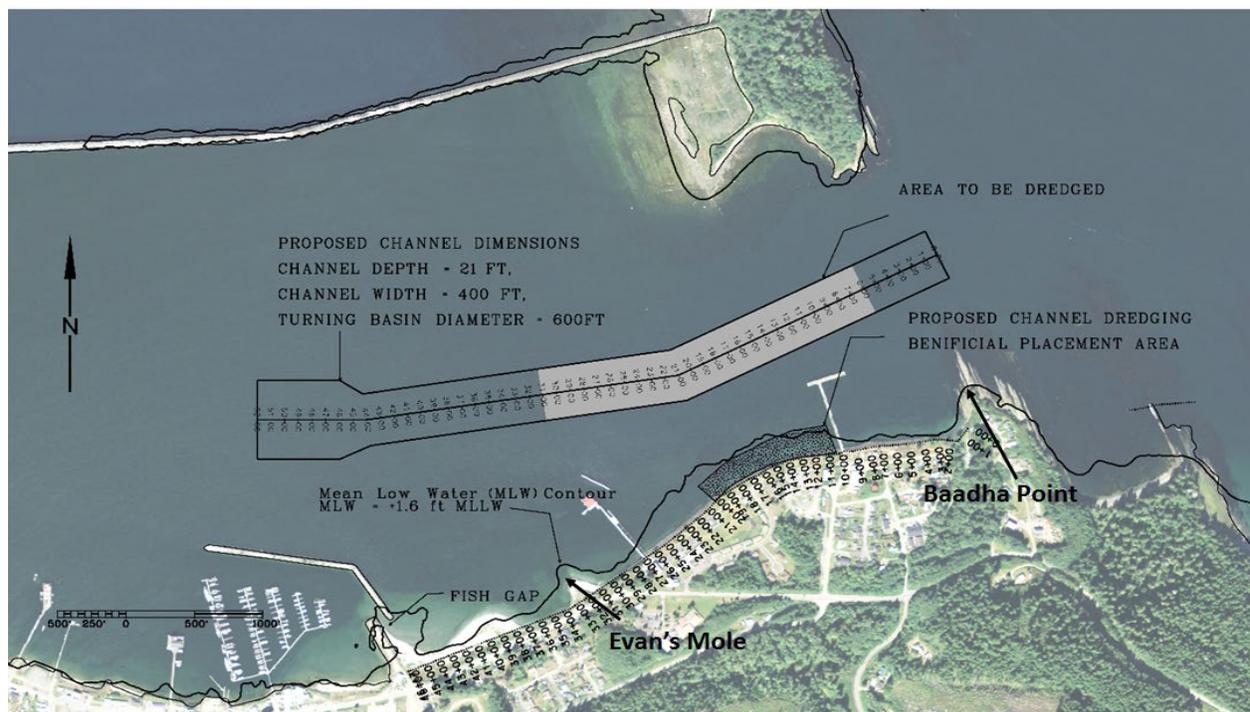


Figure 1. Proposed areas for beach nourishment and channel modifications.

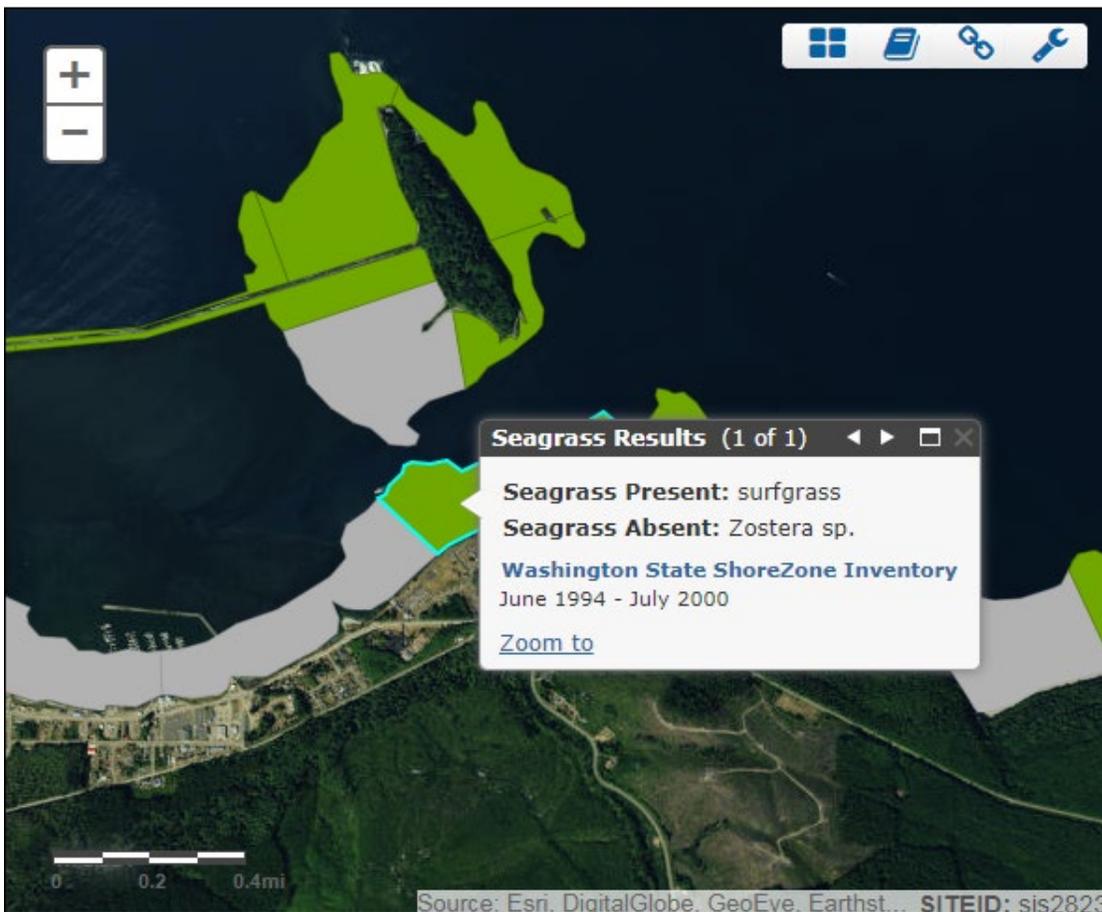


Figure 3. Presence of absence of sea grasses from WDNR Marine Vegetation Atlas (<http://mva.apphb.com/index.html>)

The

Washington Department of Natural Resources Marine Vegetation Atlas (<http://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-science/washington-marine-vegetation-atlas>) has two polygons that cover the portion of the shoreline where the dredged sediment will be placed; the atlas notes the presence of surfgrass but the absence of *Zostera* species in the section just to the west of Baada point and notes both groups as absent in the next section to the west (Figure 3). The western polygon of interest extends roughly from the midpoint between Baada Point and the marina; the eastern portion of that polygon is in the area of proposed beach nourishment. The atlas says that California kelp (*Macrocystis integrifolia*) is present in both sections while bladder kelp (*Nereosystis leutkeana*) is present in the Baada point area. Other results from the atlas include the presence of red algae and *Ulva* sp. and absence of *Gracilaria* sp., *Sargassum muticum* in both polygons.



pier. This band extended from the USCG pier east roughly half way to the eastern pier. These findings were consistent with other Environmental Assessments from the area including the 2009 EA about Fish Gap Maintenance which found “no vegetation is present within the fish gap or Evans Mole,” Evans Mole being the western extent of our survey area. A 2005 marine survey by Pentec Environmental around the area of the USCG dock also observed no eelgrass.



Figure 4. Rough outline of eelgrass survey area. Approximate location of patch of eelgrass is marked with a red dot.

On March 7, 2017, the ACOE came to Neah Bay for a site visit. During that visit Laura Nelson (Makah) and Chemine Jackels (ACOE) went out in a boat to look at the area of proposed sediment placement. Changes from the initial survey included that no grasses were seen in the patch under the US Coast Guard pier and a fair amount of kelp had grown in the basin between Baada Point and the eastern dock.

### **Tidal Height of Survey 1**

The survey started about 0715 and concluded at 1000 on September 27, 2016. Figures 5 and 6 show the predicted and observed tidal heights for that day from NOAA Tides and Currents (<https://www.tidesandcurrents.noaa.gov/waterlevels.html?id=9443090&units=standard&bdate=20160927&edate=20160927&timezone=LST/LDT&datum=MLLW&interval=6&action=>). As noted in the boxes in each figure, over the course of the survey the tidal height went from roughly 1.184 to 5.252 above MLLW.

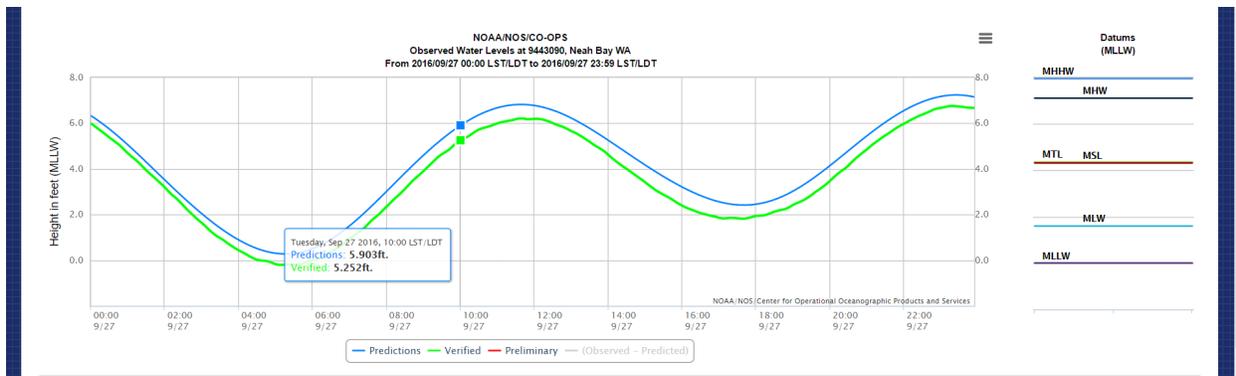


Figure 5. Observed and predicted tidal heights for start of survey.

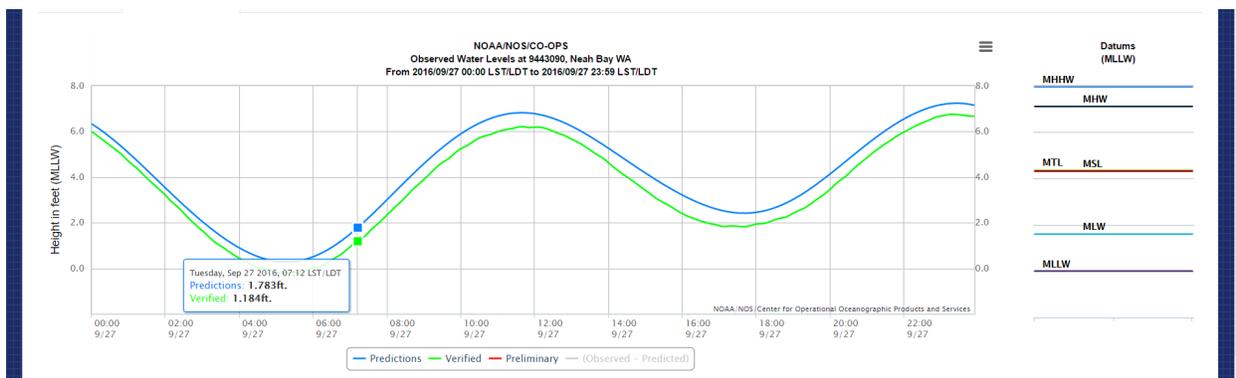


Figure 6. Observed and predicted heights for conclusion of survey.

The entire area of the survey was inundated; depths in the survey area can be seen on the Google Earth image overlaid with the NOAA nautical chart for the bay (Figure 2). Charted depths are MLLW and water depth on the morning of the survey can be estimated by comparing the observed water levels with the charted depths.

### Survey 2 – May 26, 2017

At the request of the Army Corps of Engineers a second shoreline survey was conducted during a -2.46 ft. tide on the morning of May 26, 2017. The verified tidal height ended up being just under -3 ft. (Figure 7). A much larger portion of the shoreline was exposed compared to the first survey and the weather provided greater visibility. Bill Parkin and Josh Buckingham of the Port of Neah Bay walked the proposed disposal area, took pictures, and once again checked out the site where grasses had been seen during survey 1. They did not see any seagrasses; the predominant vegetation was *Ulva spp.* (sea lettuce) especially around the USCG pier (Figure 8). As noted in survey 1, there are whole and partial clam shells scattered across the sand (Figure 9). As you move eastward down the shoreline toward the other dock the amount of vegetation decreases (Figure 10, Figure 11).

One additional visit was made to the spot where the seagrass was originally seen on July 25, 2017. No seagrass was observed.

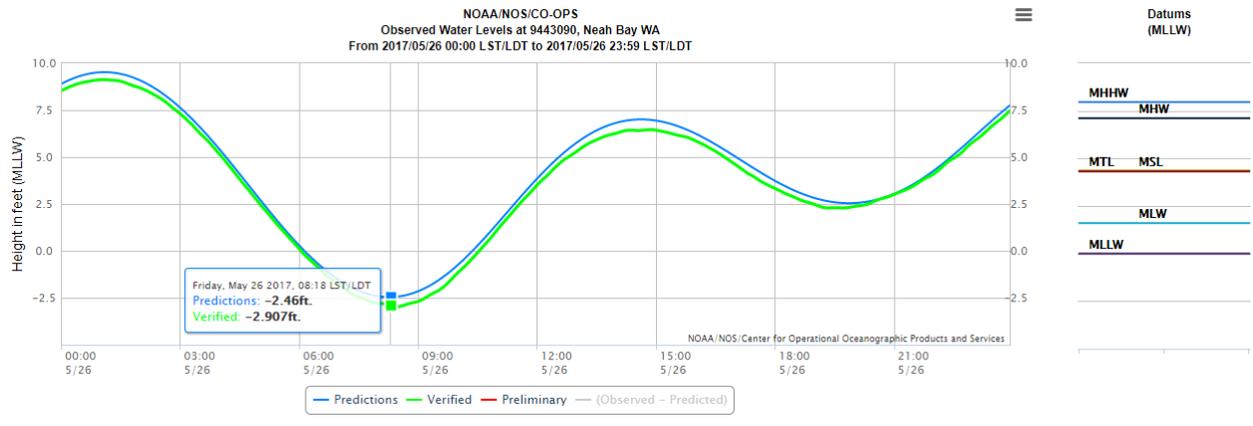


Figure 7. Predicted and verified tidal heights on May 26, 2017.



Figure 8. Standing next to the USCG pier looking shoreward.

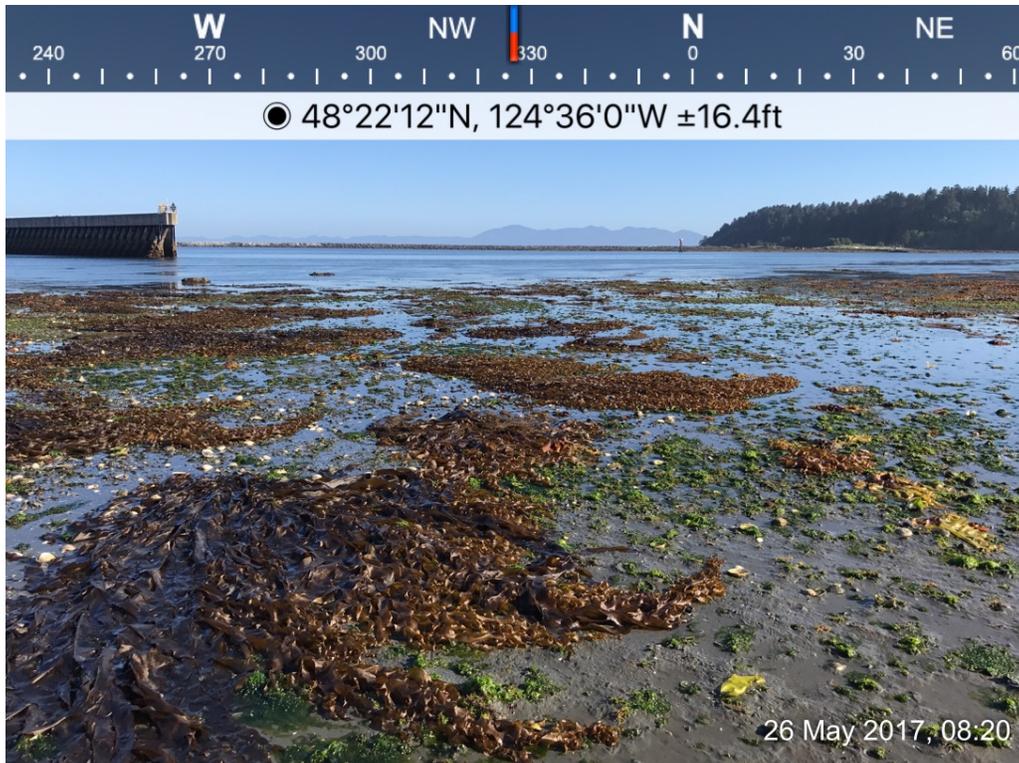


Figure 9. Looking seaward just east of the USCG pier.



Figure 10. Shoreline view approximately halfway in between the two docks.



Figure 11. Shoreline view facing the USCG dock taken just west of the second dock.