Jefferson County, WA
Marine Resources Committee

Project Summary Report

Bull Kelp Monitoring

Project Reporting Period: October 2024-September 2025

Grant number: SEANWS-2023-JeCoWS-00006

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Jefferson County Marine Resources Committee | PUGETSOUND PARTNERSHIP | United States Environmental Protection Agency | Northwest Straits Initiative

1. Abstract

Bull kelp (*Nereocystis luetkeana*) is a large brown algae that is native to Washington's Outer Coast, Straits of Juan de Fuca, and Puget Sound. It often grows in dense "forests" in the rocky intertidal and subtidal zones and provides vital habitat and food to a variety of species, including forage fish, salmon, and rockfish. Concerns of decline in parts of southern and central Puget Sound have compelled efforts to assess kelp abundance and distribution statewide to better inform protection, stewardship and restoration plans. The Jefferson MRC continues to collect data for the Northwest Straits Commission's (NWSC) regional bull kelp monitoring project, with 2025 marking its tenth year of monitoring (since July 2016). This year, the MRC kicked off the survey season with a public presentation about the North Beach kelp bed by the NW Straits and Puget Sound Restoration Fund at the Port Townsend library, garnering an audience of ~50 people and generating several new volunteers for the kayak surveys. Looking ahead, the Jefferson MRC will continue its long term monitoring effort while exploring how to increase community engagement on and off the water around bull kelp forests.

2. Project Goals

The goal of this project is to continue the long-term monitoring efforts the MRC has been involved in, alongside other MRCs and the Northwest Straits Commission, to track kelp bed health and foster awareness of the importance of kelp. This project helps fill data gaps in regional bull kelp population monitoring efforts in support of the Department of Natural Resources (DNR) kelp database. The Jefferson MRC is interested in understanding the extent of the county's kelp resources and how they may be changing, paying particular attention to the North Beach area, where an update to the sewer outflow infrastructure is being proposed by the city.

3. Project Engagement

3.1. Partners/Organizations

This project partnered with the Northwest Straits Commission, who provided project guidance, kayak safety training and data collection training, and managed data analysis. In the 2025 season we also worked with 4 volunteers from the local community.

3.2. Participants

Name of Event	Date of Event	MRC members attended	Participants attended
NWSC Kayak Training	May 14	Brenda Johnson, Jon Waggoner	3
Understanding the underwater forest: Kelp research & Monitoring at North Beach	May 15	Emily Buckner, Jon Waggoner, Jeff Taylor	50
June Survey	June 29	Emily Buckner, Jon Waggoner, Brenda Johnson	6
July Survey	July 26	Emily Buckner, Bryan De'Caterina, Brenda Johnson	3
August Survey	August 21	Emily Buckner Jon Waggoner	4

3.3. Named community(ies) involved

4. Project Methods/Actions

Project Activity Summary	**Date or Period**	**Location(s)**
Public presentation planning and advertisement	April-May	Port Townsend
JCMRC Kayaking dates scheduled and volunteer availability confirmed	May-June	NA
NWSC protocol walk through	May	Port Hadlock
NWSC Kayak Safety Training	June	Port Townsend
Kayak survey using NWSC protocol, compiled data sheets, uploaded data to Kobo Toolbox	June-August	North Beach
Wrote final project summary report	September	NA

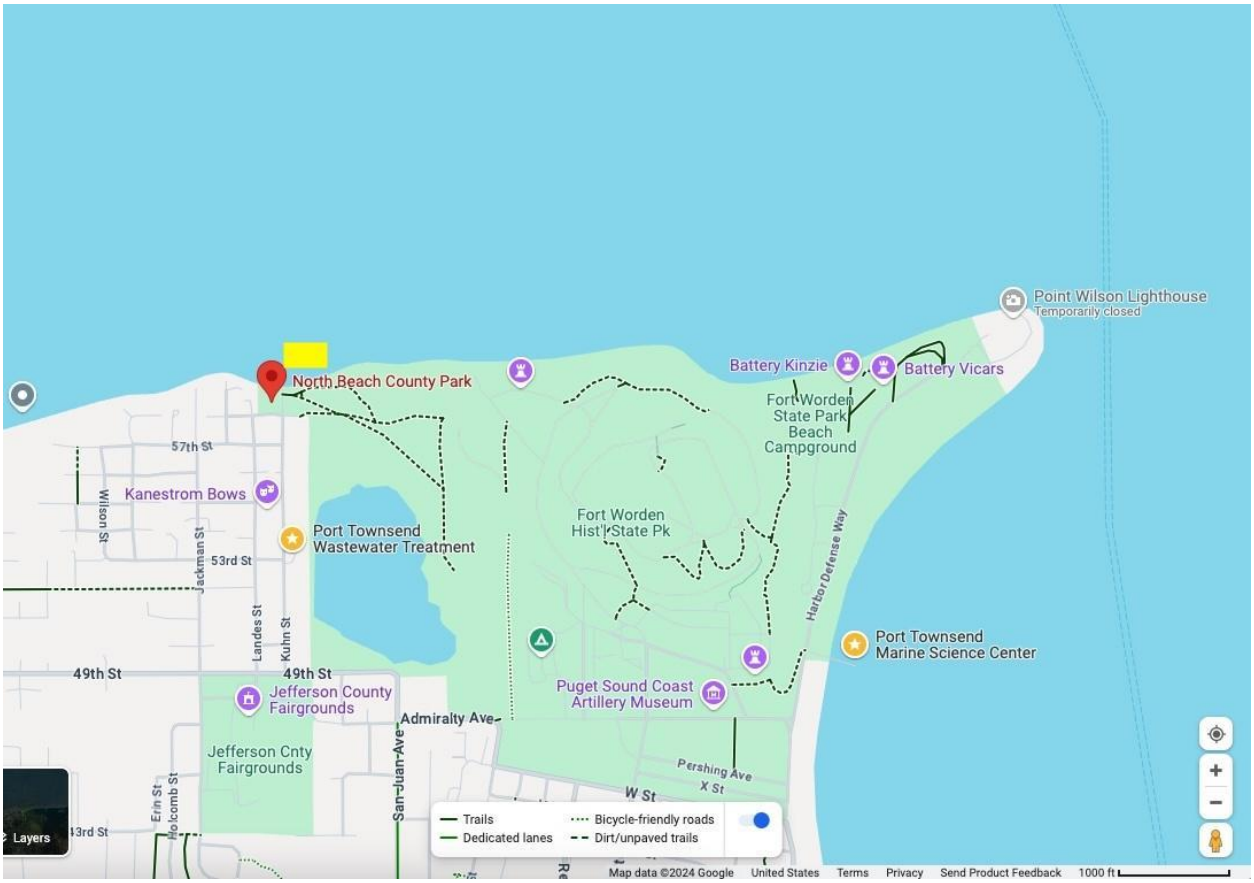


Figure 1. JCMRC Kelp monitoring site (yellow box) at North Beach, Port Townsend, WA.

The North Beach County Park east bull kelp bed (Figure 1) was paddle-based surveyed twice this year (July and August). The September survey was cancelled due to adverse weather conditions.
Paddle-based surveyors followed the NWSC protocol (Appendix A), and used a Garmin gpx64 and Garmin Striker Cast to collect data. Data was then uploaded to Kobo Toolbox.

Training and recruitment – To recruit volunteers, an email was sent to previous years participants and volunteers who had expressed past interest in participating. On site training was provided for volunteers at the North Beach site.

5. Results

Field data sheets are submitted electronically to NWSC via KoboToolbox, copies of which are included at the end of this report in Appendix B. Data review and analysis for 2025 is still in process at NWSC.

5.1. Data Summary

Data is still being analyzed by NWSC and will be available in early 2026.

5.2. Outcomes

We successfully achieved our goal of continuing to add to our long-term observations of the North Beach kelp bed using the programs kayak-based protocol. We also significantly increased the number of people who we engaged with on this topic.

5.3. Outputs

- # of Volunteers/Participants (in survey) – 7
- Volunteer hours – 26
- # of sites surveyed – 1

5.4. Results in context

We will review our kayak survey results in the context of previous year later this fall when we have our annual meeting with staff at the NWSC!

6. Project Highlights, Innovations & Stories

A highlight from this year was the public presentation we organized for the Port Townsend community at the library. We had a very engaged 50 person audience and had very positive feedback. We hope to continue this type of community outreach to accompany the surveys.

7. Lessons Learned

A smooth survey season!

8. Next Steps

We have found that the survey only really requires 2-3 dedicated people for data collection but we hope to continue having members of the community ‘kayak with kelp’ with us and have one MRC member be designated as a ‘tour guide/educator’ as a part of these survey and outreach experiences.

Images

Photos below taken by Emily Buckner during the June 2025 North Beach survey. MRC members Jon Waggoner, Brenda Johnson, and community volunteer depicted.

Appendix A: QAPP

Northwest Straits INITIATIVE
partners in marine conservation

A kayak-based survey protocol for Bull Kelp in Puget Sound

Prepared for the Northwest Straits Commission

Emily Bishop
NOAA Hollings Scholar

This report was funded in part through a cooperative agreement with the National Oceanic and Atmospheric Administration.

October 2014

Updated March 2020

Appendix B: 2025 Datasheets

Northwest Straits INITIATIVE

Bull Kelp Data Sheets (on shore)

Pre-Survey Section (on the beach)

Trip Leader: Emily Buckner Date: 6/28/25

Name of surveyors: Jon, Brad, Brenda, Johanna, Jewah

Location (Shoreline Segment): North Beach

Name of GPS unit or phone app 645X Accuracy of GPS: +/- ft

Weather conditions (circle one)

Clear Sun Haze (Clouds) Fog/mist Light rain Heavy rain

Tide height (ft): At Start +2X Tide station:

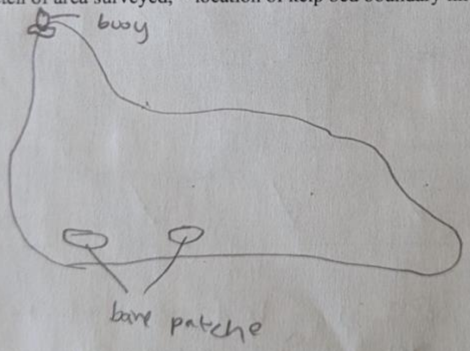
Current (knots): Station/source:

Survey condition notes (wind/wave condition, current behavior, sparse kelp outside of perimeter?):
calm

Proceed to page 2 to conduct survey. Following your survey, fill out Post-Survey section below.

Post-Survey Section (back on the beach after the survey)

Provide sketch of area surveyed, ~ location of kelp bed boundary lines and photo points



Post-survey checklist:

- ☐ Kelp bed perimeter track is saved in one or more GPS units
- ☐ GPS units are collected for storage until next survey
- ☐ Data sheets are completely filled out and legible.
- ☐ Photo points have been taken (and are later uploaded with properly labeled names)

Page 1 of 2

Northwest Straits Initiative

Bull Kelp Survey Data Sheet (on the water)

Kelp Bed Number or Name North Beach **Survey Start Time** 1:15 pm

Survey Endpoints: 1 = first recorded survey endpoint, 2 = second recorded survey endpoint
Survey Endpoint 1 GPS point name: 002 (to start of bed) Survey Endpoint 2 GPS point name: 006

GPS point at Start of Paddle: 001 (to this the survey endpoint) **GPS point at End of Paddle @ bed:** 013

Points (If there is no bed, take a waypoint for kelp clusters with ≤10 bulbs within shoreline segment):

GPS Point: 004 Time: 1:24 Depth: 21 Temp at Surface: 51.9 Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 005 Time: 1:38 Depth: 23.7 Temp at Surface: 49.9 Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 007 Time: 1:48 Depth: 7.2 Temp at Surface: 52 Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 012 Time: 2:15 Depth: 2 Temp at Surface: 58.2 Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 003 Time: Depth: Temp at Surface: Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

Photo points: (take first photo, then take a photo of this data sheet with the corresponding box checked)

☑ BeR ☑ ToBE ☑ BeL ☑ ToWa ☑ Volunteers/Other photos

Observations (consider bed density, animals, health of blades, understory kelp, human impacts, activity, etc.):

003 is the buoy, 008 steps (pause outside line) bed 009 starts bare patch ~~again~~
010 ends bare patch 011 starts bed again
dense bed! some bare patches nearshore, thicker on west side
current @ the buoy, ~~blades~~ more frayed on east side, sorus material

Survey End time: (time of last measurement or observation before returning to shore): 2:46

otters, seals, heron, eelgrass bed east of bed,
Dungeness crab, jellies, some schooling fish

Northwest Straits INITIATIVE

Bull Kelp Data Sheets (on shore)

Pre-Survey Section (on the beach)

Trip Leader: Emily Buckner Date: 7/26/25

Name of surveyors: Brenda, Bryan

Location (Shoreline Segment): North Beach East

Name of GPS unit or phone app 64sx Accuracy of GPS: +/- ft

Weather conditions (circle one)

Clear Sun Haze (Clouds) Fog/mist Light rain Heavy rain

Tide height (ft): At Start -1.8 Tide station: Port Townsend

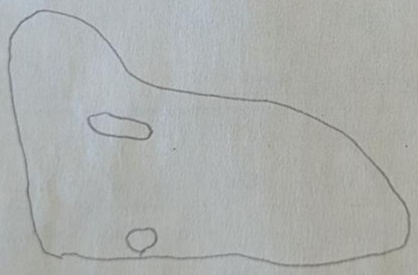
Current (knots): slack Station/source: Pt Wilson

Survey condition notes (wind/wave condition, current behavior, sparse kelp outside of perimeter?):
calm, very clear visibility to bottom

Proceed to page 2 to conduct survey. Following your survey, fill out Post-Survey section below.

Post-Survey Section (back on the beach after the survey)

Provide sketch of area surveyed, ~ location of kelp bed boundary lines and photo points



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Northwest Straits INITIATIVE

Bull Kelp Survey Data Sheet (on the water)

Kelp Bed Number or Name North Beach **Survey Start Time** 10:13

Survey Endpoints: 1 = first recorded survey endpoint, 2 = second recorded survey endpoint
Survey Endpoint 1 GPS point name: 20 Survey Endpoint 2 GPS point name: 25

GPS point at Start of Paddle: 21 **GPS point at End of Paddle @ bed:** 28

Points (If there is no bed, take a waypoint for kelp clusters with ≤10 bulbs within shoreline segment):

GPS Point: 22 Time: 10:21 Depth: 7.5m Temp at Surface: Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 24 Time: 10:40 Depth: 8.5m Temp at Surface: Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 26 Time: 10:50 Depth: 2m Temp at Surface: Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 27 Time: 11:10 Depth: .5m Temp at Surface: Temp at Depth:
DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

GPS Point: 23 Time: Depth: Temp at Surface: Temp at Depth:
Kelp Buoy DO(mg/L): DO(%): Sal(ppt): TDS(mg/L):

Photo points: (take first photo, then take a photo of this data sheet with the corresponding box checked)

☐ BeR ☐ ToBE ☐ BeL ☑ ToWa ☐ Volunteers/Other photos

Observations (consider bed density, animals, health of blades, understory kelp, human impacts, activity, etc.):

herons, biofouling on bulbs close to shore,

Survey End time: (time of last measurement or observation before returning to shore): 11:15

Northwest Straits INITIATIVE

Bull Kelp Data Sheets (on shore)

Pre-Survey Section (on the beach)

Trip Leader: Emily Buckner Date: 8/21/2025

Name of surveyors: Jon W, Teresa M, Brad B.

Location (Shoreline Segment): North Beach

Name of GPS unit or phone app 645x Accuracy of GPS: +/- ft

Weather conditions (circle one)

Clear Sun Haze Clouds Fog/mist Light rain Heavy rain

Tide height (ft): At Start Tide station:

Current (knots): Station/source:

Survey condition notes (wind/wave condition, current behavior, sparse kelp outside of perimeter?):
breezy.

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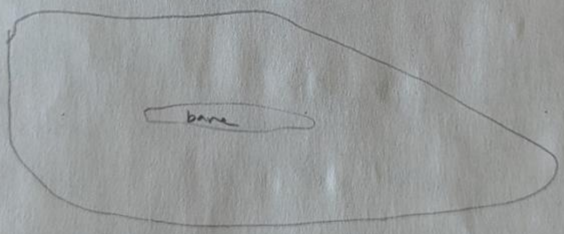

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