



# Whatcom Marine Resources Committee (MRC) 2024 Bull Kelp Final Report

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Whatcom County Public Works—Natural Resources

Reporting Period: October 2023-September 2024



Northwest  
Straits  
INITIATIVE



PUGET SOUND  
PARTNERSHIP



Grant Number: SEANWS-2023-WhCoPW-00002

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## Abstract

Bull kelp (*Nereocystis lueketeana*) is the largest species of brown algae native to our region. This fast growing seaweed can grow up to 100 feet in a single year and is an important component of the rocky intertidal ecosystem of the Salish Sea. Bull kelp sequesters carbon, oxygenates the marine environment, protects against storm surge and shoreline erosion, and provides critical nutrients and habitat for a number of species in the Salish Sea. Animals critical to the food web, including herring and salmon, use bull kelp forests for protection and food during certain life stages.

Working in collaboration with the Northwest Straits Initiative, the Whatcom MRC monitors four floating bull kelp beds in Whatcom County at least once annually during the July – September growing season. This project supports a regional kelp monitoring program, and provides a better understanding of kelp distribution, bed sizes, kelp speciation, and kelp health within the Salish Sea.

Using handheld GPS units and kayaks, volunteers mapped kelp bed perimeters and collected additional data including water temperature and bed depth estimates to provide valuable information on the status of bull kelp in our region. In 2024, four bull kelp surveys were completed in Whatcom County including two surveys at Cherry Point/ Gulf Road, one survey at Aiston Preserve, and one survey at Southwest Lummi Island. All of the kelp beds either remained similar in size to previous years or increased slightly in size.

All kelp data is shared with the Northwest Straits Commission for comparison with similar information collected by other MRCs. Kelp data collected during these surveys are a key part of the Washington State Floating Kelp Indicator that informs science and management actions in our region.

## Project Goals

The goal of this project is to provide information on the status of floating kelp communities in Whatcom County. This project aims to support a regional kelp monitoring program, providing a better understanding of kelp distribution, bed sizes, kelp speciation and health within the Salish Sea.

For this reporting period of October 2023-September 2024, the primary goal was to complete at least one kelp survey at four locations throughout Whatcom County including Aiston Preserve (Lummi Island), Cherry Point/Gulf Road, Southwest Lummi Island, and Point Whitehorn.

## Project Engagement

The MRC relies on community volunteers to assist with bull kelp monitoring surveys. Additionally, the Northwest Straits Commission plays an integral role in preparing MRCs for the kelp monitoring season and assisting with data analysis and management.

## Partners

- **Northwest Straits Commission (NWSC):** Launched regional surveys of bull kelp beds using kayak-based survey protocols developed in 2014. The NWSC assists the MRC with planning and preparation for the kelp surveys and assists in data management and communication of results. The NWSC adds the kelp survey data to Sound IQ, making the data easily accessible and useful to a variety of users. The NWSC, along with the National Oceanic and Atmospheric Administration (NOAA), the Washington Department of Natural Resources (DNR), and various other organizations, help lead the collaborative multi-year development of the Puget Sound Kelp Conservation and Recovery Plan.

## Participants

Volunteers are a vital component of bull kelp monitoring surveys. Throughout the reporting period, 12 volunteers participated across 4 kelp surveys, contributing over 80 hours of volunteer time to the project. Two volunteers assisted at Aiston Preserve, four at the first Cherry Point survey, five at the second Cherry Point survey, and four at Southwest Lummi Island.

A full volunteer list is included in Appendix A.



Volunteers assist with bull kelp surveys in Whatcom County. Photo credits: Top left, bottom left, and bottom right: Dana Flerchinger, MRC staff. Top right: Eleanor Hines, former MRC member and volunteer.

## Methods

Using handheld GPS units and kayaks, MRC staff and volunteers mapped the perimeter of bull kelp beds and collected additional data including water temperature and bed depth to provide valuable information on the status of bull kelp along shorelines throughout Whatcom County. The bull kelp survey protocols are shown in Appendix B. To provide more consistency with the surveys, shoreline segments, which run perpendicular to shore, were developed in 2023. The shoreline segments set specific spatial locations that are returned to each year for the surveys. The data collected from the surveys was shared with the NWSC to compare to similar information collected by other MRCs and to integrate into the Washington State Floating Kelp Indicator to inform science and management actions in our region. The survey locations and dates are outlined below. A map detailing survey locations is shown on the following page.

Location	Survey Date	Number of Volunteers
Aiston Preserve	July 21st, 2024	2
Cherry Point/ Gulf Road	August 4th, 2024	4
Southwest Lummi Island	August 17th, 2024	4
Cherry Point/ Gulf Road	September 1st, 2024	5

Table 1: Summary of kelp survey locations, dates, and volunteers for the 2024 kelp monitoring season. The Point Whitehorn survey was unable to be completed due to inclement weather conditions.

# Whatcom MRC Kelp Bed Survey Locations



Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Figure 1: Whatcom MRC kelp bed survey locations.

## Results

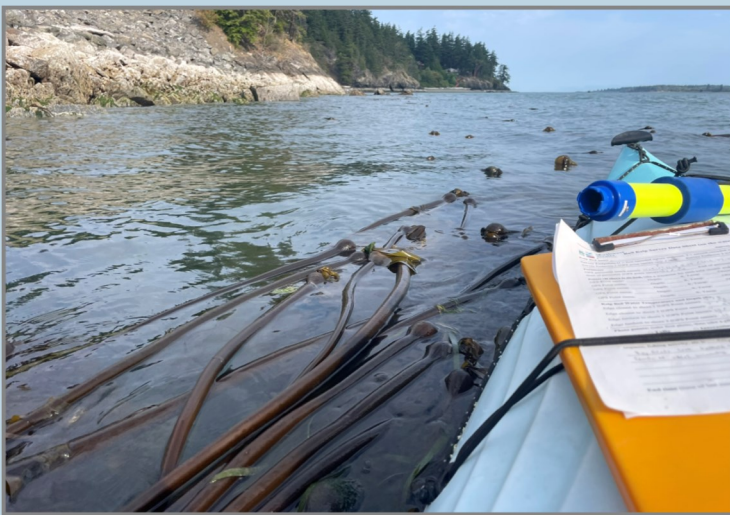
During the reporting season, four bull kelp monitoring surveys took place at Aiston Preserve (1 survey), Cherry Point/Gulf Road (2 surveys), and Southwest Lummi Island (1 survey). The MRC was not able to conduct the yearly survey at Point Whitehorn due to windy conditions on both the primary and backup sampling dates.

## Data Summary

Summaries of each of the surveys and the corresponding kelp bed perimeter tracks are outlined on the following pages.

## Aiston Preserve, Lummi Island: July 21st, 2024

The Aiston Preserve is located on the southeast flank of Lummi Mountain that previously supported a gravel mine, known as the Lummi Island Quarry. The site has been undergoing restoration of 20 acres of upland area and 500 linear feet of shoreline that were impacted by years of gravel mining. In 2021, the overwater structures including a pier, a loading ramp, and pilings left from mining activities, were removed. In 2023, shoreline restoration was completed and 800 trees were planted in areas previously occupied by the mine. Aiston Preserve opened to the public on July 15th, 2023. The surveys at this location provide insight on how this particular kelp bed is impacted by restoration efforts. The Aiston Preserve kelp bed is surveyed once a year at the end of July. This year, surveyors noted that many of the kelp blades in the main bed appeared tattered and short. Surveyors also recorded an additional kelp bed to the north of the main bed!



Aiston Preserve survey photos. Photo credits: Dana Flerchinger, MRC staff.



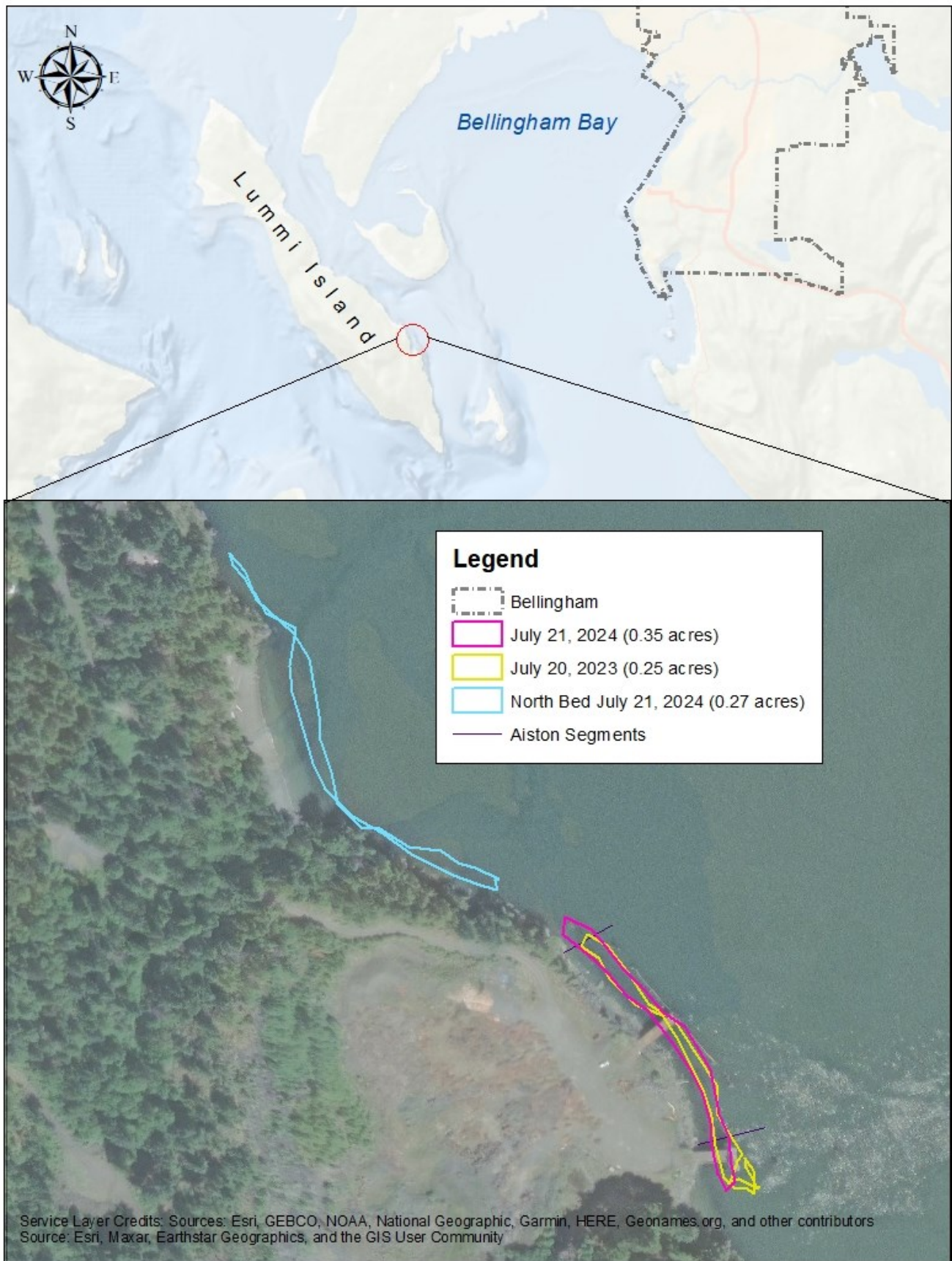


Figure 2: Aiston Preserve bull kelp survey perimeter tracks. The north bed shown in blue was mapped in addition to the main bed shown in pink. The main bed was slightly larger in size in 2024 as compared to 2023.

## Cherry Point/Gulf Road: August 4th and September 1st, 2024

The Cherry Point kelp bed is located along the Gulf Road shoreline in Ferndale within the Cherry Point Aquatic Reserve between the Petrogas Terminal and the BP Refinery Pier. The MRC began surveying this site in 2017. It is generally surveyed twice a year, depending on weather and tidal conditions. Due to the amount of data the MRC has collected from this site,

DNR is using the MRC's data to help inform the development of the [Floating Kelp Indicator](#) of the Puget Sound Vital Signs. In 2024, two surveys were conducted on August 4th and on September 1st. The kelp bed appeared healthy with lots of marine life observed utilizing the habitat.



Cherry Point/Gulf Rd. survey photos. Photo credits: Top left: Gillian Flippo, volunteer. Top middle: Eleanor Hines, volunteer. Top right and bottom left: Dana Flerchinger, MRC staff. Bottom right: Suzanne Shull, NWSC.

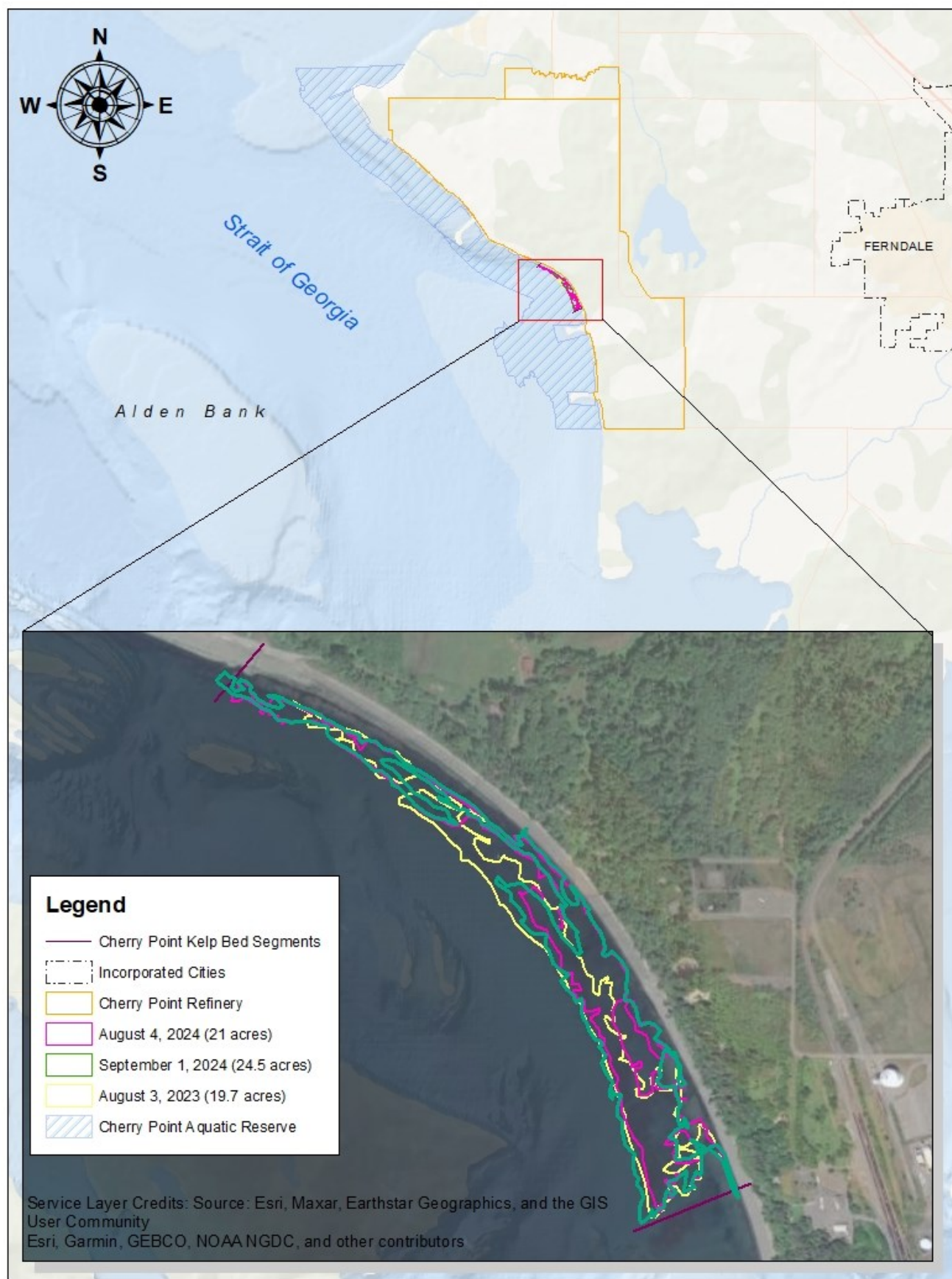
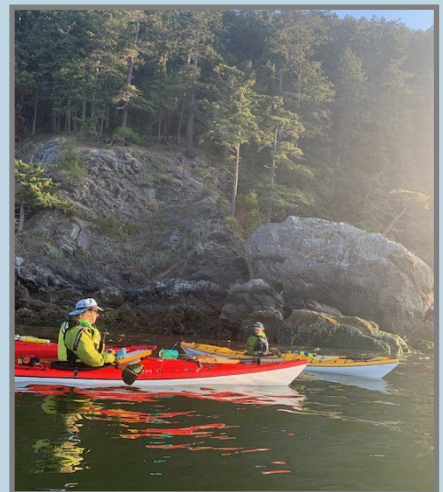


Figure 3: Cherry Point/Gulf Rd. bull kelp survey perimeter tracks. The area of the bed increased in 2024 as compared to 2023.

## Southwest Lummi Island: August 17th, 2024

The MRC has been monitoring the kelp bed off of Southwest Lummi Island since 2016. To reach this site, volunteers leave from the Aiston Preserve and camp at a DNR managed campground on the island to survey the bed at a +1' outgoing tide. This year, the kelp bed appeared healthy, with sparse kelp extending past the north and south of the bed defined by the shoreline segments. Volunteers also noted that there was lots of kelp present on the paddle from the monitoring site and the campground. Due to the amount of data the MRC has collected from this site, DNR is using the MRC's data to help inform the development of the [Floating Kelp Indicator](#) of the Puget Sound Vital Signs.



Southwest Lummi Island survey photos. Photo credits: Eleanor Hines, volunteer and former MRC member.

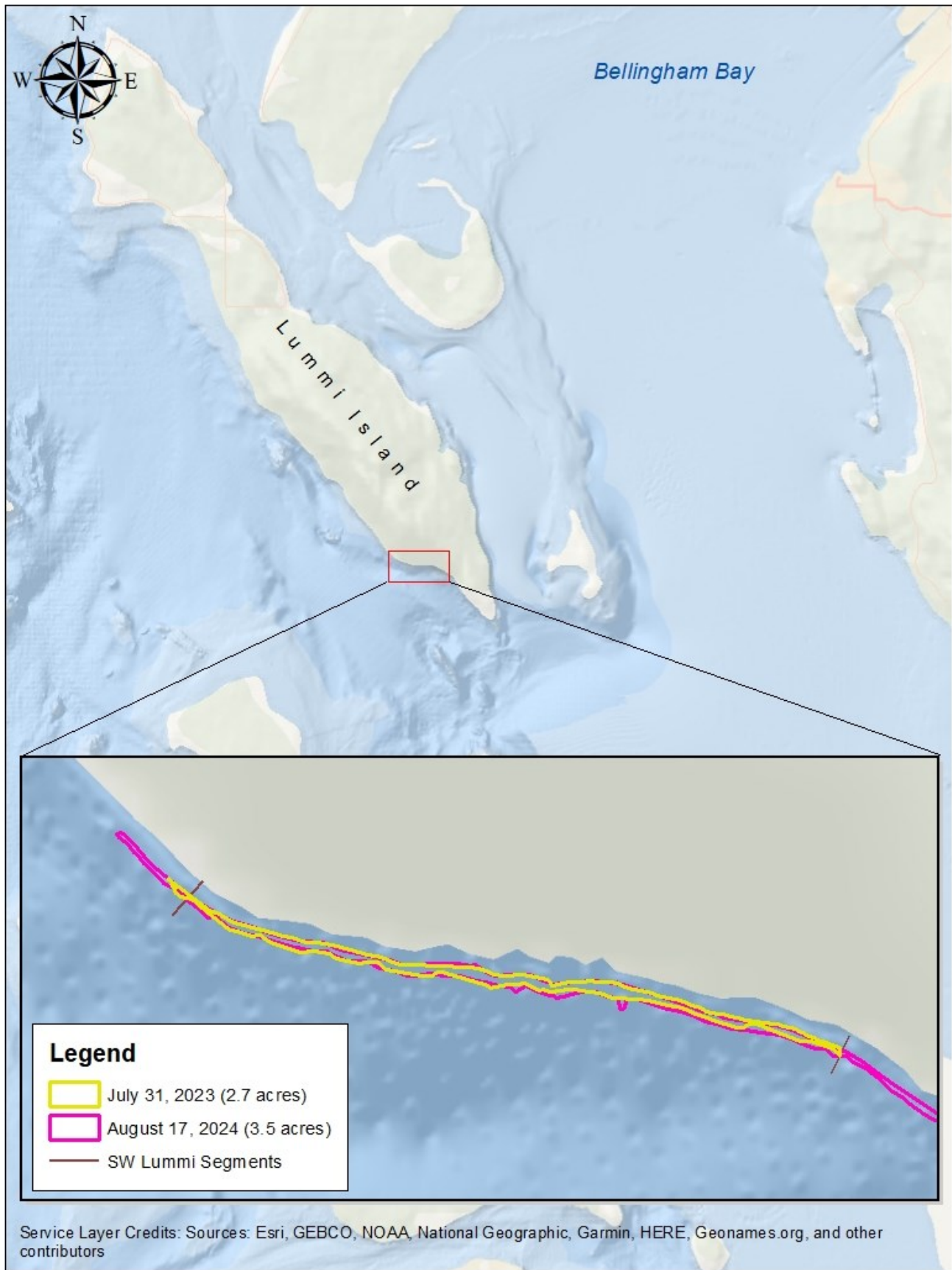


Figure 4: Southwest Lummi Island bull kelp survey perimeter tracks. The area of the bed increased in 2024 as compared to 2023.

## Outcomes

During the 2024 kelp monitoring season, the MRC completed at least one bull kelp survey at Aiston Preserve, Cherry Point/Gulf Road, and Southwest Lummi Island. Due to windy weather conditions on both the primary and backup dates, Point Whitehorn was unable to be surveyed this year. The Point Whitehorn kelp bed is the trickiest to monitor due to the large swells and waves that can make kelp difficult to see and can cause safety concerns for kayakers. Wind also strongly impacts conditions at this site. The MRC plans to set two backup dates next year to increase the likelihood that this site will be surveyed in 2025.

## Outputs

Over the course of the monitoring season:

- 4 bull kelp surveys took place at 3 sites throughout Whatcom County
- 49.6 acres of kelp were documented
- 12 volunteers participated
- Over 80 volunteer hours were contributed



Survey photos from Cherry Point (left) and Aiston Preserve (right). Photo credit: Dana Flerchinger, MRC staff.

## Results in Context

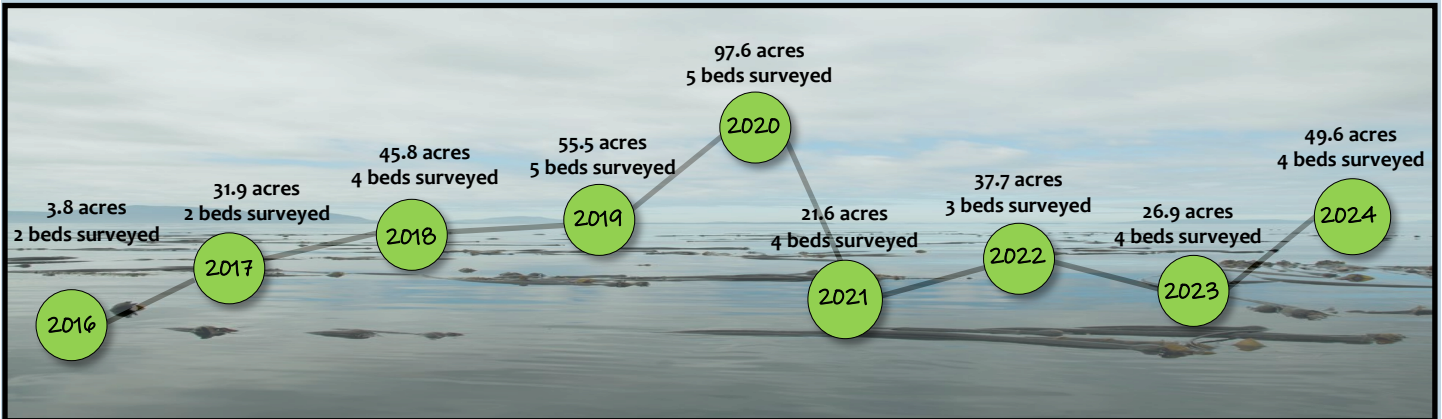


Figure 5: MRC kelp survey information from 2016-2024 including the number of surveys completed and the total bull kelp bed acreage surveyed per year.

The MRC began monitoring bull kelp beds throughout Whatcom County in 2016. Since then, depending on the number of sites that were able to be surveyed per year, kelp acreage has fluctuated across the sites by year. As compared to the 2023 kelp data, the MRC saw increases in bull kelp bed acreage at Aiston Preserve, Cherry Point/Gulf Road, and Southwest Lummi Island in 2024.

Kelp data collected during these surveys are a key part of the Washington State Floating Kelp Indicator that informs science and management actions in our region.

## Project Highlights

As a result of doing this project, we now have a better pulse on the health of kelp in Whatcom County. Over the years of monitoring, it appears that our beds are more or less stable, though natural variation exists with some years yielding larger or smaller bed perimeters, healthier or less healthy looking kelp, and can vary in timing. Tying our local data into regional datasets helps us to better understand what larger scale trends may be occurring. One of our sites is a restoration site, and continues to grow each year, indicating the removal of over water structures and other restoration efforts likely benefited the kelp habitat.

Kelp provides important biogenic habitat that is worth protecting because of all the ecosystem benefits and services it provides. Kelp helps support the salmon and orca we all care about, yet we are only just starting to really understand kelp in Puget Sound. When we started this project, there was barely any data on the location and abundance of kelp beds. Our MRC had to refer back to maps over 100 years old to determine the locations of historical beds in Whatcom County. Through this project, we have been able to gain a much better understanding of the health and abundance of our Whatcom County kelp beds. We always share with volunteers that these surveys in part started because folks realized kelp beds were disappearing from South Puget Sound, but lacked the data to support it. We want to make sure we protect our kelp beds before it's too late, and this project is one great way to do just that.

- Eleanor Hines, Kelp Project Lead and Former WMRC Member



## Project Highlights– Survey Volunteers

“Having lead kelp surveys over the years, it’s always exciting to see the faces of volunteer paddlers light up as they observe the kelp bed in a new and different way striking a new level of curiosity for not just kelp, but all of the critters that inhabit the kelp beds. Volunteers often comment on how they enjoy getting out on the water and paddling for a purpose- to gather kelp data and personally play a role in protecting the nearshore environment they love to paddle on. Volunteers often walk away learning something new- from identifying a new species or seeing a critter or kelp do something they hadn’t noticed before.”

-Eleanor Hines, kelp project lead and volunteer since 2015

“I’m honored to be able to participate in the kelp surveys. As a kayaker, swimmer, and lover of the Salish Sea, it means a lot to me to contribute a small part to the health of this vital ecosystem that brings me so much joy. Since I don’t have a science background, it’s also fun to learn a bit more from Eleanor each year about how and why we measure as well as the other factoids she shares along the way.”

-Rachel Krinsky, kelp volunteer

“Participating in the kayak kelp surveys makes me feel more connected to my community and to the region I call home. It is so rewarding to have the opportunity to apply an activity I already love towards volunteer work that contributes to the health of the marine environment. It is fascinating to see how the kelp beds change over time. During the surveys, I love being able to learn from experts and other volunteers about the ecology of kelp beds and about other interesting sustainability projects in the region. My favorite part of the work is how it helps me see my "backyard" through a different lens; it helps me slow down and appreciate the interconnectedness of the human world and the natural world, the challenges of that relationship, and the hope that stems from efforts to foster healthy marine environments.”

- Sarah Stanley, kelp volunteer

## Lessons Learned and Next Steps

Based on the 2024 survey season, the MRC is going to plan more backup dates to account for windy conditions. Many of our sites are strongly impacted by even light winds, so having more days available in case of cancellations would be helpful.



Volunteers in a bull kelp bed. Photo credit: Eleanor Hines, volunteer and former MRC member.

## Appendices

- Appendix A: List of Volunteers
- Appendix B: Bull Kelp Monitoring Protocols