

Puget Sound Kelp Research and Monitoring Workgroup
October 12, 2022
Meeting Summary

On Wednesday, October 12, 2022, the Puget Sound Kelp Research and Monitoring Workgroup convened to share and discuss programmatic and research project updates. The purpose of this workgroup is to share relevant information with the kelp research and monitoring community, as well as provide a forum for connecting around new ideas and needs. The following is a summary of the October meeting topics and discussion. Please refer to the meeting agenda and recording located on the Workgroup webpage for more information.

Meeting Summary

Welcome and Introductions

Helen Berry, DNR, welcomed participants to the meeting and reviewed the goals and objectives for the workgroup. Helen asked all participants to introduce themselves in the chat and share any updates they would like to have posted in the meeting summary. A list of attendees is located at the end of the meeting summary.

Brief Updates Round One

- Elizabeth Spaulding, Habitat Strategic Initiative, provided an overview of the Habitat Strategic Initiative Lead Request for Proposals. This RFP is funded through the EPA's Geographic Funds program and is designed to accelerate habitat conservation and restoration programs across Puget Sound. Proposals are due December 6, 2022. More information can be found at the HSIL website: <https://pugetsoundestuary.wa.gov/habitat-strategic-initiative/>

- Wendel Raymond, University of Washington, provided an update on the development of the Floating Kelp Canopy Vital Sign Indicator. The project team is moving into the final stage of the project. A proposed indicator will be available for review on December 20th, with a third public workshop to be convened on January 10, 2023. The final report and VS indicator will be submitted to Puget Sound Partnership on May 15, 2023.

- Max Showalter and Cynthia Harbison, Department of Natural Resources, provided an update on the Kelp Forest and Eelgrass Meadow Health and Conservation Plan. A Community Engagement Plan will be finalized and submitted to the legislature in December 2022 which will identify the various opportunities for Tribes, partners, and the public to provide feedback on the prioritization framework. For more information, please visit: <https://www.dnr.wa.gov/kelp-and-eelgrass-plan>

- Vienna Saccomanno, The Nature Conservancy, provided an update on Kelp Watch's expansion to Washington state. Kelp Watch utilizes Landsat data to analyze and map presence of kelp canopy along the coast over time, allowing researchers and managers to better understand

trends, particularly around large stressor events and changing climates. Analysis at the local scale may still need better resolution.

- How effective is Landsat data with our fringing narrow beds? 30x30m might underestimate our coverage in the inland sea.
 - Yes, for a few reasons including fringing reefs, the LTER dataset only maps kelp on the outer coast of WA.
- Vienna just led a publication of a pub that compared landsat, fixed wing and drone surveys. Really fascinating work that provides some insight into Todd's question (yet not in WA, so fewer of us local survey challenges).

<https://zslpublications.onlinelibrary.wiley.com/doi/full/10.1002/rse2.295>

Presentations

Kelp Plan – Inventory of Research and Monitoring Projects

Jeff Whitty, Northwest Straits Commission, provided an overview of the inventory of Puget Sound kelp research and monitoring projects and programs he is compiling in support of the Puget Sound Kelp Conservation and Recovery Plan. The first step in collecting information about this work is a survey open to anyone who has a kelp-related project. This survey will be open until November 23 and can be found here: <https://www.surveymonkey.com/r/DM8JSK5>. Please reach out to Jeff at WHITTY@nwstraits.org with questions or ideas.

Questions and Comments:

- It would be good to know who is involved in each project to build a network analysis.
- People are encouraged to list project partners on the survey.

BC/WA Kelp Node

Jasmine Schuster and Margot Hessing-Lewis, Hakai Institute, provided an overview of the recently convened Kelp Node, which is aimed at increasing transboundary coordination across the Salish Sea through facilitation of several working groups that will share research and discuss ongoing needs. For those interested in learning more about these working groups, visit the site here:

<https://quadracentre.org/meetings/kelp-node-working-group>

Questions and Comments:

- <http://www.coml.org/natural-geography-shore-areas-nagisa/>
- https://meetings.pices.int/publications/presentations/PICES_14/W4/W4_Rigby.pdf
- What benefit is there for participating in the UN Decade of the Ocean?
 - Access to funding opportunities and ability to connect to larger networks.
- How do we provide folks an opportunity to go both deep into the coordination work but also provide summaries of what is occurring?

Brief Updates Round Two

- Julia Ledbetter, DNR, provided an update on the recently observed losses of kelp at Squaxin Island. The Squaxin bull kelp forest area has decreased 97% over the last 10 years, and only 85 bull kelp bulbs were observed in July 2022, many with no blades. Numerous signs of stress have been documented. Ongoing monitoring and coordinated efforts to address stressors is underway.
 - What depths are those temperature data from?
 - 3 m relative to MLLW, so it's warmer at the surface.
- Jackie Selbitschka, Reef Check, provided an update on the 2022 dive sites that were recently established in Puget Sound. Fifty divers have been certified in Reef Check Washington protocols. A map of the 2022 dive sites can be viewed here:
<https://www.google.com/maps/d/u/0/viewer?mid=1WN7Eo4l8bRnMdJsHsiDKi3-qQ-x5sjl&ll=48.02348858014647%2C-122.81271191459382&z=8>
 - How does Reef Check approach data analysis and sharing results?
 - Volunteers support data entry that goes through QA/QC and then put into a data base that is publicly available and exportable.
 - In terms of dive approvals, any updates on being able to have UW and Reef Check divers in the water at the same time?
 - It's definitely possible, Reef Check has divers who are certified to dive in that tier.
 - Are any of the sites on soft sediment?
 - Yes, there are many sites that have soft or very small pebble substrate where kelp is still growing
 - Also into the Strait - we completed 2 surveys in the Port Angeles/Sequim stretch and still need to share those cords with Jackie.
 - Just a note. Not Puget Sound, but NWFSC has diver surveys on the WA coast at five sites between La Push and Neah Bay (2015-2022).
 - Seattle Aquarium has a large group of skilled "volunteer" divers. There's a few of us AAUS ReefCheck divers at DNR. NOAA also has reciprocity with AAUS.
- Chris Neufeld, Kelp Rescue Initiative, provided information on local and regional-scale regime shifts in British Columbia's rocky subtidal reefs. Kelp Rescue is also working on a green gravel outplant project, the results of which will be shared out next summer.
 - When and where should we expect to see more details?
 - This work is being led by Sam Starko and our goal is to get these patterns into the literature so that we can start the conversation with policy makers. So hopefully an open access journal in the next few months. Chris will share that out when it's available.
 - Fascinating use of ShoreZone! Great idea! We could do that in WA.
 - In Alaska sea otters are clearly a major part of healthy kelp beds because they use them and eat the kelp predators.

- This is more rhetorical for the group: but if we know temp is the issue how do we work that into conservation and restoration plans? We can't just turn the water temp down... Tricky situation.
 - I've thought about this a lot, and I think we can pair experimental data (like our experiments on the upper temp limits of reproduction of gametophytes) with environmental temp data to choose the most effective sites for restoration (aka ones that don't exceed the upper limits for bull kelp reproduction)
 - re: genomics, we'll continue to stay in contact so that the population genomics work we have underway for Nereo is aligned.
 - <https://news.ucsc.edu/2021/03/kelp-forests-monterey.html>
 - Have you been in touch with Bob Pacunski at the WDFW about their ROV work? They work largely below kelp depth most of the time, but they have tons of ROV data from throughout U.S. waters of the Salish Sea. They also surveyed areas in Canada in 2018 with Dana Haggarty and others. I used to head up that team and can put you in touch.
- Dayv Lowry, NOAA, provided information regarding the processing of the petition for ESA listing of Bull Kelp, which was submitted by the Center for Biological Diversity on September 1, 2022.
 - If this is across Nereo's full range, is this another opportunity for cross-boundary work?
 - Yes, this is absolutely a chance for cross-boundary work! The SR Team, if formed, will certainly reach out to Canadian colleagues for data/information.
 - What are the implications of putting bull kelp on the ES list? I know that some scientists are worried about this leading to more permits required to do experimental work with bull kelp. Can you comment on this? I know there are many benefits as well, like bringing increased funding to bull kelp research and conservation!
 - It would depend on the level of listing proposed. If bull kelp is listed as threatened there will be permits required, but scientific take will still be readily allowed. If the species is listed as endangered, however, any and all impacts will have to go through rigorous review and access to wild-collected samples will likely be reduced. There is a long road yet to travel here, as I noted, but NMFS' goal will always be to use science to conserve listed species. We can't do this without allowing crucial science to be conducted.
 - A listing for any reason will help with funding, research, and recovery.
 - The concern about research becoming *harder* is very valid, I think. Permitting issues already make many kinds of work difficult.
 - More funding will allow for a more detailed accounting of an extinction barring a bigger focus on the development of temperature tolerant strains, or admitting that the species will be lost and that restoration in our region will have to focus on communities of kelp more typical of warmer areas? This last one doesn't help bull kelp much.
 - I think it's really interesting how this petition integrates climate change- I'm sure we'll see more ESA as potential climate action tool cases in the future.
 - Will this process affect current bull kelp restoration efforts in WA? (as in the ability to collect & propagate sori)

- So if Global Warming is one of the biggest threats to the species and rationales for listing, how does listing help the species? Global Warming is so bound up with such bigger issues. I understand the importance of monitoring but at what point are we (barring advances in genetically modified / temperature resilient strains) just watching it all go extinct? Believe it or not I'm not trying to be a downer but these are the big kinks that I hit as I try and think how we protect our bull kelp.

Future of Work Group Discussion

Work group participants took a short poll regarding their preference on how to move forward with the Research & Monitoring Work Group now that the two-year pilot has concluded. Based on poll results, Department of Natural Resources will continue to facilitate the Work Group. For those participants who polled that they believe changes were warranted, please share ideas with Helen Berry.

- I'm interested in a high-level perspective of workgroup output to make connections with the work on anthropogenic nutrient reduction policy and planning that I'm doing. I don't need to be involved in the technical details and discussions. My offering of an idea for change is to provide opportunity for high-level workgroup tracking/communication of policy or management discussions separately from (but informed by) all the good technical work that the workgroup scientists are doing.

Round Table Discussion

- Tom Mumford shared that there is a nascent opportunity to do whole genome sequencing of kelp for the state of Washington through Meridiangenome.org. The kelp community would need to provide samples, which could be done in conjunction with Sam Starko and Chris Neufeld's work. For those interested in discussing further, please reach out to Tom.
 - Samish would be happy to do collection of species in the San Juans
- Helen Berry and Tom Mumford facilitated a discussion on exploring the implications of seaweed farming and how to advance this discussion more broadly. Meg Chadsey shared that Washington Sea Grant is taking the first step by hosting the Seaweed Knowledge Symposium on December 8th, which will discuss what is and is not well understood at this point, as well as potential impacts on conservation and restoration of native kelp. This one-day event will ideally kick off a work group of some type to move this exploration forward.
 - <https://www.kuow.org/stories/rising-tide-pacific-northwest-could-soon-double-or-triple-its-small-number-of-seaweed-farms>
 - Concerns: Farms build up biomass that provides habitat but then at harvest time it all disappears. Temporary benefit unless there is a requirement to leave some for restoration benefits. Also, and this does not apply to Samish specifically, but long line operations for aqua culture may cause a lot of concern with Tribal Treaty rights around fishing areas and access.
 - I'm also skeptical of the habitat benefits as the material is being grown "out of season" so to speak.

- Evaluating the biodiversity benefits of kelp aquaculture
<https://link.springer.com/article/10.1007/s10811-022-02822-y>

Attendance

Allie Simpson, Northwest Straits Commission
 Allison Brownlee, Dept of Natural Resources
 Allison O’Sullivan, Suquamish Tribe
 Andrew Ryan, Dept of Natural Resources
 Bart Christiaen, Dept of Natural Resources
 Birdie Davenport, Dept of Natural Resources
 Bob Kiel, Seattle Aquarium
 Bob Pacunski, Department of Fish and Wildlife
 Brenda Campbell, Pew Charitable Trusts
 Brooke Weigel, University of Washington
 Bruce Morse
 Chris Neufeld, Bamfield Marine Sciences Centre
 Corey Oldham, Dept of Natural Resources
 Cynthia Catton, Dept of Natural Resources
 Cynthia Harbison, Dept of Natural Resources
 Dan Abbott, Reef Check
 Dana Oster, Northwest Straits Commission
 Dave Lowry, NMFS
 David Winfrey
 Dennis Yancey, Marauder Robotics
 Devin Robinson, Tulalip Tribes
 Dustin Bilhimer, Dept. of Ecology
 Eliza Heery, Smithsonian
 Elizabeth Matteri, Dept of Natural Resources
 Elizabeth Spaulding, Dept of Natural Resources
 Emily Smith
 Erica Bleke, Dept of Natural Resources
 Franchesca Perez, Stillaguamish Tribe
 Gray McKenna, Puget Sound Restoration Fund
 Jeff Gaeckle, Dept of Natural Resources
 Hank Carson
 Hayley Turner
 Helen Berry, Dept of Natural Resources
 Hilary Hayford, Puget Sound Restoration Fund
 Hugo Flores, Dept of Natural Resources
 Jackie Selbitschka, Reef Check

Jane Watson, Vancouver Island University
 Jamey Selleck, NOAA/NRC
 Jameal Samhoury, NOAA
 Jason Toft, UW SAF
 Jasmin Schuster, Hakai Institute
 Jeff Whitty, Northwest Straits Commission
 Jessi Florendo, Puget Sound Restoration Fund
 Jill Lipoti, Island County MRC
 John Vavrinec, PNNLM
 Jodi Toft, Puget Sound Restoration Fund
 Julia Ledbetter, Dept of Natural Resources
 Julianna Sullivan, Port Gamble S’Klallam Tribe
 Kathleen Hurley, Port of Seattle
 Katrina Radach, Puget Sound Partnership
 Ken Collins
 Lalena Amiotte, Dept of Natural Resources
 Lara Arber, WDFW
 Laura Parfrey, Univ of B.C.
 Lauren Johnson
 Liam Coleman, Simon Fraser University
 Lindy Hunter, Swinomish Fisheries
 Margaret Homerding, Nisqually Indian Tribe
 Margo Hessing-Lewis, Hakai Institute
 Mark Donohue, Salish Seaweeds
 Mary Ramirez, Puget Sound Partnership
 Max Calloway
 Max Lambert, WDFW
 Max Showalter, Dept. of Natural Resources
 Meg Chadsey, Washington Seagrant
 Megan Dethier, UW Friday Harbor Labs
 Megan Williams
 Melissa Sanchez, Dept of Natural Resources
 Michael Ulrich, Dept of Natural Resources
 Mike McHugh, Tulalip Tribes
 Miranda Roethler, University of Washington
 Nick Tolimieri, NWFSC

Nicole Naar, Washington Sea Grant
Noel Sharp, Dept of Natural Resources
Paul Chittaro
Paul McCollum, Port Gamble S'Klallam Tribe
Paul Williams, Suquamish Tribe
Pike Spector, Olympic Coast National Marine
Sanctuary
Rietta Hohman
Robin Fales, UW Friday Harbor Labs
Sadie Small, UW Friday Harbor Labs
Sherryl Bisgrove, Simon Fraser University
Siobhan Schenk
Silven Read, Simon Fraser University
Steve Marx, Pew Charitable Trust
Steve Rubin, USGS Western Fisheries Research
Center
Suzanne Shull, Padilla Bay Research Center
Tallulah Winquist
Tim McClure, Dept of Natural Resources
Tina Whitman, Friends of the San Juans
Tish Conway-Cranos, Department of Fish and
Wildlife
Todd Woodard, Samish Indian Nation
Tom Mumford, UW Friday Harbor Labs
Torren Valdez, Midsound Fisheries
Tyler Cowdrey, Dept of Natural Resources
Vienna Saccomanno, The Nature Conservancy
Wendel Raymond, University of Washington
Wendy Buffett, Dept of Ecology
Wesley Hull, Dept of Natural Resources
Zachary Randell, Seattle Aquarium