



THE  
**PEW**  
CHARITABLE TRUSTS

January 21, 2022

Washington State Legislature  
416 Sid Snyder Ave SW  
Olympia, WA 98504

**RE: Support for SB 5619 / HB 1661 - Conserving and restoring kelp forests and eelgrass meadows in Washington State**

Dear Governor Inslee and Members of the Washington State Legislature,

Extensive losses of bull kelp and eelgrass have been documented in Puget Sound while drivers of decline are not well understood<sup>i</sup>. Conservation and restoration of Washington State's marine forests and eelgrass meadows is of paramount importance for sustaining the varied, diverse uses of our region's marine environment. Accordingly, our organizations are writing to express support for SB 5619 / HB 1661, which provides essential, timely action for conservation and restoration of these important marine habitats. We base our support on the nonpartisan research and analysis presented below to highlight how SB 5619 / HB 1661 advances existing priorities in Washington for preserving and recovering foundational elements of the marine ecosystem that are vital to human communities, diverse species, and the local food systems on which we rely.

This bill is timely. The majority of bull kelp forests in south Puget Sound have been lost: 80% loss relative to the broadest extent of kelp over 145 years.<sup>ii</sup> In the Central Sound, kelp beds around Bainbridge Island have disappeared entirely, with the most recent loss occurring in 2015. In the eastern portion of the Strait of Juan de Fuca near Port Townsend, kelp forests show signs of stress. Samish Indian Nation estimates a 36% decline in kelp forests in the San Juan Islands from 2006-2016 (a 305-acre loss).<sup>iii</sup>

Eelgrass has been more stable over the last several decades, however eelgrass recovery across Puget Sound is not occurring and remains below the 2020 conservation and recovery target outlined by the Washington State Department of Natural Resources (DNR) as reported to the Puget Sound Partnership in 2021.<sup>iv</sup> Declines are more common in certain areas: as the legislation's findings articulate (Section 1; article 5), rapid eelgrass loss has occurred in Westcott Bay in San Juan County. In 2000 there were 37 acres of eelgrass meadows; 20 years later less than one acre remains. For regional context, Oregon's Coos Bay has experienced steep declines in recent years<sup>v</sup> and in California, Morro Bay has lost more than 90 percent of its eelgrass since 2007.

While kelp forests and eelgrass meadows are found in different areas of the marine environment, they both provide similar benefits to people and wildlife by:

- Supporting Washington's salmon and groundfish populations, associated fisheries, and marine jobs
- Supporting tribal lifeways, thereby honoring sovereignty
- Capturing and storing carbon
- Reducing the effects of ocean acidification and improving water quality

## Supporting Washington's salmon, groundfish, associated fisheries and marine jobs

Kelp forests, eelgrass meadows, and other estuarine or nearshore habitats serve as nurseries to most of the fish and shellfish species harvested in the United States. In Washington, this includes salmon, steelhead, clams, oysters, and Dungeness crab, which in turn support more than 16,000 jobs.<sup>vi</sup> NOAA's National Marine Fisheries Service and the Pacific Fishery Management Council have designated habitats like eelgrass and kelp as Essential Fish Habitat and Habitat Areas of Particular Concern for salmon, groundfish, and coastal pelagic species, including herring.<sup>vii</sup> Support and passage of SB 5619 / HB 1661 will demonstrate a commitment to protect key habitats for the economic value they hold for sovereigns, stakeholders and residents of Washington State.

## Helping to honor tribal sovereignty and lifeways

Tribal Nations have been stewards of their ancestral lands and waters since time immemorial. Washington's kelp forests and eelgrass meadows are central to Tribal Nations, their knowledge, practices, cultural identity, family, history, and lifeways. These habitats are the sources of first foods like salmon and shellfish, and materials that were gathered for medicine and traditional practices. Bull kelp creates an incredibly versatile structural material used in baskets, fishing line, storage, and other traditional technologies. Tribal eelgrass and kelp connections are not just a thing of the past - connections thrive today, with elders passing teachings along to younger generations. We encourage Legislators to continue working with area Tribal Nations to further refine SB 5619 / HB 1661.

## Capturing and storing carbon

Kelp converts inorganic carbon into carbon that fuels the food web, serving as a substantial building block for many of the fish, crab, and shellfish we eat and rely on (including mussels, rockfish, red rock crab). Kelp absorbs carbon dioxide during photosynthesis, fixing more carbon than tropical rainforests, seagrasses, and coral reefs. Washington State's bull kelp forests absorb an estimated 27 to 136 metric tons of carbon each day.<sup>viii</sup> Eelgrass plays a vital carbon sequestration role too, absorbing carbon dioxide and methane and storing them in its root system.

## Reducing the effects of ocean acidification and improving water quality

Growing evidence indicates that kelp and eelgrass can help lessen the local effects of ocean acidification, which can inhibit the ability of some marine life, such as oysters and Dungeness crab, to form shells.<sup>ix</sup> Preserving kelp forests and eelgrass meadows could help remediate ocean acidification as well as hypoxia, or low oxygen, which has created die-off events in the Pacific Ocean.<sup>x</sup> By acting as a massive filter, eelgrass improves water quality by absorbing pollutants. Research has demonstrated a reduction in harmful chemicals such as polychlorinated biphenyls (PCBs) in areas with eelgrass beds.<sup>xi</sup> Other studies on the West Coast have shown that bacteria found in the beds help prevent harmful algal blooms.<sup>xii</sup> This flowering marine plant also traps and retains sediment, resulting in clearer, cleaner water.

## Needed and timely

This legislation is needed and timely, building on broad based support in Washington for protecting marine ecosystems, and advancing critical elements called out in both the Puget Sound Kelp Conservation and Recovery Plan<sup>xiii</sup> and Washington's Blue Ribbon Panel's reports on Ocean Acidification.<sup>xiv</sup>

Strengths of the bill include:

- Prioritizing areas of kelp and eelgrass for conservation/restoration using criteria. An essential criterion includes those forests and meadows that are at highest risk of permanent loss.
- Conducting an inventory and assessment of existing tools at the state's disposal to accelerate conservation and restoration of kelp forests and eelgrass meadows.
- Providing a periodic summary to the legislature regarding barriers to plan implementation and legislative or administrative recommendations to address the barriers.
- The secure, base funding named in SB 5619 / HB 1661 is essential to fully realizing the intent of the legislation.

## Recommendations

- The bill sets a goal of restoring 10,000 acres of kelp forest and eelgrass meadows by 2040. The science indicates a need for action sooner. Regional planning and monitoring programs in place in Washington state demonstrate the need for a more ambitious timeline, including but not limited to DNR's own kelp<sup>xv</sup> and eelgrass<sup>xvi</sup> monitoring, synthesis and priority-making at the Puget Sound

Partnership, and work done by the Samish Indian Nation<sup>xvii</sup> and Swinomish Indian Tribal Community.<sup>xviii</sup>

- The bill should include required interim acreage milestones biannually starting in 2024 to achieve 10,000 acres with the most rapid pace and thus garnering the great climate benefits. Successfully achieving an interim goal could result in greater investment by the state over time.
- The importance of working closely with Tribal Nations to identify priority conservation and recovery sites should be emphasized.
- The bill could be strengthened by also developing a strategy for public outreach and education, since successful conservation and recovery of kelp forests and eelgrass meadows depend on a broad understanding of their importance, and recognition of the growing stressors associated with nutrient pollution and rising seawater temperatures.
- The inventory of existing tools at the state's disposal (Section 3(b)ii), and the accompanying assessment of those tools to support the goals of the bill, should include an estimate of the fiscal and staff resources necessary to achieve the goal over varying timelines, for instance, 10,000 acres by 2030, by 2035, and 2040. This will provide a fuller understanding of outcome-based fiscal needs at varying rates of deployment.
- The bill should explicitly identify the need to work with other agencies that have regulatory authority that would apply to implementation of priority conservation and restoration sites once they have been identified.

Again, we support passage of SB 5619 / HB 1661 and thank you in advance for your consideration of Washington State's marine forests and eelgrass meadows. We also invite you to view an interactive story map [Exploring Puget Sound's Kelp Forests](#) or the primer [Six Reasons to Protect Eelgrass](#) to learn more about these vital resources.

Sincerely,



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The Pew Charitable Trusts



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Puget Sound Restoration Fund

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- <sup>i</sup> M. Calloway et al., “Puget Sound Kelp Conservation and Recovery Plan” (Northwest Straits Commission, NOAA’s National Marine Fisheries Service, Puget Sound Restoration Fund, Washington State Department of Natural Resources, and Marine Agronomics., 2020), <https://nwstraits.org/media/3020/pugetsoundkelpconservationandrecoveryplan.pdf>.
- <sup>ii</sup> H. Berry, “Long-Term Changes in Kelp Forests in an Inner Basin of the Salish Sea,” *PLoS ONE* 16, no. 2 (2021), <https://doi.org/10.1371/journal.pone.0229703>.
- <sup>iii</sup> Ibid.
- <sup>iv</sup> P.S. Partnership, “Puget Sound Vital Signs - Indicators: Eelgrass,” last modified 6/14/2021, accessed 1/20/2022, <https://vitalsigns.pugetsoundinfo.wa.gov/VitalSign/Detail/12>; *ibid*.
- <sup>v</sup> S.S.N.E.R.R. Ali Helms, “Eelgrass Declines in the South Slough Estuary, Oregon”, March 26, 2019), <https://oregoncoaststem.oregonstate.edu/sites/oregoncoaststem.oregonstate.edu/files/Curriculum/ORSEA/eelgrassoverview - notes.pdf>.
- <sup>vi</sup> National Oceanic and Atmospheric Administration, “2017 Fisheries Economics of the United States,” National Oceanic and Atmospheric Administration, accessed 1/29/21, <https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states>.
- <sup>vii</sup> NOAA Fisheries - Habitat Conservation, “Essential Fish Habitat on the West Coast,” last modified 2021, <https://www.fisheries.noaa.gov/west-coast/habitat-conservation/essential-fish-habitat-west-coast>.
- <sup>viii</sup> C.A. Pfister, “The Dynamics of Kelp Forests in the Northeast Pacific Ocean and the Relationship with Environmental Drivers,” *Journal of Ecology* 106 (2018): 1520–33, <https://doi.org/10.1111/1365-2745.12908>.
- <sup>ix</sup> G.G. Waldbusser, “Slow Shell Building, a Possible Trait for Resistance to the Effects of Acute Ocean Acidification,” *Limnology and Oceanography* 61, no. 6 (2016): 1969-83, <https://doi.org/10.1002/lno.10348>.
- <sup>x</sup> A.M. Ricart et al., “Coast-Wide Evidence of Low Ph Amelioration by Seagrass Ecosystems,” *Global Change Biology* (2021), <https://doi.org/10.1111/gcb.15594>.
- <sup>xi</sup> M. H.Huesemann, “In Situ Phytoremediation of Pah- and Pcb-Contaminated Marine Sediments with Eelgrass (*Zostera Marina*),” *Ecological Engineering* 35, no. 10 (2009): 1395-404, <https://doi.org/10.1016/j.ecoleng.2009.05.011>.
- <sup>xii</sup> E. Jacobs-Palmer, “A Halo of Reduced Dinoflagellate Abundances in and around Eelgrass Beds,” *PeerJ* 8 (2020), <https://doi.org/10.7717/peerj.8869>.
- <sup>xiii</sup> Calloway et al., “Puget Sound Kelp Conservation and Recovery Plan.”
- <sup>xiv</sup> W.S.B.R.P.o.O. Acidification, “Ocean Acidification: From Knowledge to Action” (2012), <https://apps.ecology.wa.gov/publications/documents/1201015.pdf>.
- <sup>xv</sup> W.D.o.N.R. (WA-DNR), “Kelp Monitoring,” <https://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-science/kelp-monitoring#:~:text=Long%2DTerm%20Monitoring%20of%20Floating,kelp%20canopy%20extent%20since%201989.&text=Explore%20the%20kelp%20data%20interactively,Marine%20Spatial%20Planning%20mapping%20application>.
- <sup>xvi</sup> W.D.o.N.R. (WA-DNR), “Nearshore Habitat Eelgrass Monitoring,” accessed 1/20/2022, <https://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-science/nearshore-habitat-eelgrass-monitoring>.
- <sup>xvii</sup> S.I. Nation, “A Decade of Disappearance: Bull Kelp in the San Juan Islands,” <https://storymaps.arcgis.com/stories/b9f979a547004c32a616b5319a6410c0>.
- <sup>xviii</sup> S. Sax, “A Shellfish Company Gets into the Weeds,” *High Country News*, December 28, 2021, <https://www.hcn.org/issues/54.1/north-food-a-shellfish-company-gets-into-the-weeds>.