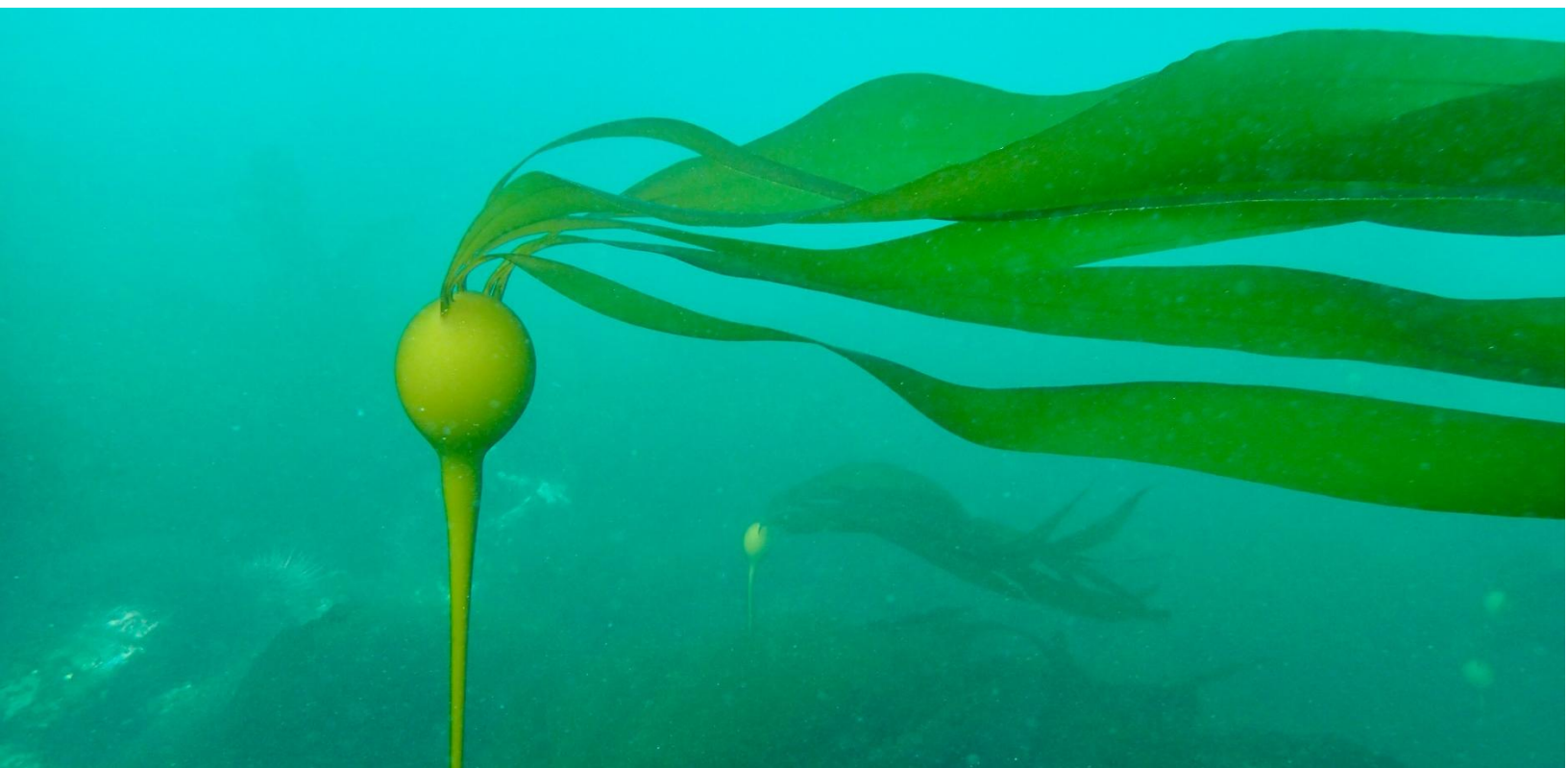




Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

October 2026

Prepared by Northwest Straits Commission, WA Department of Fish and Wildlife, WA Department of Natural Resources, and Marine Agronomics



Washington
Department of
**FISH and
WILDLIFE**



WASHINGTON STATE DEPT OF
**NATURAL
RESOURCES**



Authors and Contributors

Authors

Jeff Whitty, Northwest Straits Commission
Liz Bockstiegel, Washington Department of Fish and Wildlife
Danielle Claar, Washington State Department of Natural Resources
Matthew Curtis, Washington Department of Fish and Wildlife
Tom Mumford, Marine Agronomics

Kelp Plan Coordination Advisory Committee

Action Connection Subcommittee (in alphabetical order)

Liz Bockstiegel, Washington Department of Fish and Wildlife
Danielle Claar, Washington State Department of Natural Resources
Matthew Curtis, Washington Department of Fish and Wildlife
Tom Mumford, Marine Agronomics
Jeff Whitty, Northwest Straits Commission

Action Connection Reviewers (in alphabetical order)

Dayv Lowry, National Oceanic and Atmospheric Administration, Washington
Dana Oster, Northwest Straits Commission

Additional Members (in alphabetical order)

Helen Berry, Washington State Department of Natural Resources
Megan Dethier, University of Washington, Friday Harbor Labs
Hannah Faulkner, Washington Department of Fish and Wildlife
Hilary Hayford, Puget Sound Restoration Fund
Margot Hessing-Lewis, Hakai Institute
Mike McHugh, Tulalip Tribes
Kurt Nelson, Tulalip Tribes
Zach Randell, Seattle Aquarium
Jodie Toft, Puget Sound Restoration Fund
Bree Turner, Washington State Department of Natural Resources-Habitat Strategic Initiative Lead
Todd Woodard, Samish Indian Nation

To reference this document please use the following:

Whitty, J., Bockstiegel L., Claar, D., Curtis, M., and Mumford, T. 2026. Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions. 39 pages. Available at: <https://nwstraits.org/our-work/kelp/>.

Funding

This work was made possible thanks to the support of the 2023-2025 Washington State Legislature Kelp Conservation Funding Proviso/Climate Commitment Act.

Cover Photo: Kelp forest. Image courtesy of Brooke Weigel.

Table of Contents

I. Introduction	4
1.1. Background	4
1.2. Report Purpose and Development	4
II. Results and Conclusion	5
Table 2. Goal 1 action connections	6
Table 3. Goal 2 action connections	17
Table 4. Goal 3 action connections	21
Table 5. Goal 4 action connections	28
Table 6. Goal 5 action connections	31
III. References	39

I. Introduction

1.1. Background

The Puget Sound Kelp Conservation and Recovery Plan (Kelp Plan; [Calloway et al. 2020; https://nwstraits.org/our-work/kelp/](https://nwstraits.org/our-work/kelp/)) provides a research and policy framework of six goals and 65 actions focused on kelp stressors (Goal 1), ecosystem value (Goal 2), distribution and trends (Goal 3), protective areas (Goal 4), restoration (Goal 5), and promoting awareness, engagement, and action (Goal 6). The 2023 Puget Sound Kelp Conservation and Recovery Plan: Status Update (Whitty and Oster, 2023) provided information on the advancements of the Kelp Plan goals and actions, and suggested that some actions and goals have progressed more than others. Identifying basic connections (links) between Kelp Plan actions can help in identifying potential bottlenecks.

1.2. Purpose and Process of Connecting Kelp Plan Actions

The purpose of this document is to highlight the most direct connections between Kelp Plan actions, to better understand the general progression of these actions and allow users to identify potential bottlenecks to focus additional capacity. An important note in this exercise is that many of these connections are iterative, and that the progression of some actions may be opportunistic and not follow the described order. Recognizing these dynamics, this document was developed to help inform and guide kelp conservation coordination, funding, research, and management efforts in Puget Sound.

The process of connecting Kelp Plan actions included initial connection identification, followed by a series of reviews, collaborative discussions, and refinements by the Action Connection Subcommittee and multiple reviews by members of the Kelp Plan Coordination Advisory Committee. While many connections between actions exist, only clear and direct connections (i.e., those where other actions are not intermediary steps) are included. Other less clear connections are likely but were not included.

A table of the action connections is presented in Section II. Each Kelp Plan action is presented individually on the left side of the table. “Connected actions” that flow into the action on the left (i.e., those that support the action on the left) and those that flow from the action on the left (i.e., those that are supported by the action on the left) are presented on the right of the table, as are actions that parallel the action on the left (i.e., actions that are similar but distinct to the action on the left). The 2023 status of each action (Whitty and Oster, 2023; Table 1) is included to help identify potential bottlenecks in action implementation.

Table 1. Kelp Plan action status scoring categories and definitions. Scores are presented numerically (1-4) and/or visually by color and convey general status, not quantitative metrics.

Score	Definition
Not started (1)	Action has not been started/no progress has been made
Off track (2)	Action started but no strong movement forward; action not likely to be accomplished without a substantial increase in effort (e.g., new projects, large scale-up of pilot or small projects)
Progressing (3)	Action moving forward and likely to be achieved with time and a minor to moderate increase in effort of projects (e.g., adding species, adding locations, increasing engagement, etc.)
On track (4)	Action completed OR current ongoing efforts will achieve intended action with time

II. Connections Across Kelp Plan Actions

The interconnectivity of Kelp Plan actions is highlighted through this connection exercise. Tables 2-6 summarize the identified direct connections between Kelp Plan actions and their associated status (as of 2023). In total, 124 connections were identified for the 54 actions in Kelp Plan Goals 1-5. Each of these actions had between 1 and 15 identified connections with another action in the same or different goal. Connections with actions from Goal 6 (Promoting awareness and engagement) are not included as direct connections, as many of these actions connect with entire goals and many actions across the Kelp Plan. Actions from Goal 6 are provided in Table 7 and are still critical to consider as a key part of implementing the full scope of the Kelp Plan.

The hope in creating this report is that it will be used by the collective partnership of entities and individuals working towards kelp conservation and recovery in Washington to help strategically focus and prioritize their time and efforts within their respective fields of interest.

Table 2. Goal 1 action connections. This table highlights identified, direct connections between each Goal 1 action (on left) and other connected actions (on right) from the Kelp Plan, and whether the action initially flows into or from those connected actions (noting these connections may be iterative). A few action connections are labeled as “parallel” as they have similar processes to the action on the left. Status scores (Table 1) of each action are presented to the right of its description. An arrow is used to depict the logical flow between actions and their connected action/s.

Action		Connected action/s	
1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		1.4.2. Develop tools to support planners' ability to review/access policy regulations that assist in decision-making.	Off track (2)
		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		1.5.3. Update survey guidelines and foster coordination among the organizations that conduct site-level surveys, such as the WDFW Macroalgae Habitat Interim Survey Guidelines and the Coastal Zone Training Program.	Off track (2)
1.2. Inform future management actions through continued research on the impacts of current and historical human activities on kelp forests.	Off track (2)	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge.	Progressing (3)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
		Action flows into: 1.4.3. Develop and implement long-term research and monitoring actions using rigorous scientific and adaptive management principles to determine the effectiveness of current regulations and protection actions.	Not started (1)
		5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)	Action flows from: 3.3.3. Encourage compatibility among protocols to support data synthesis, linking ecological functions, and relationships to local stressors.	Progressing (3)
		1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)
		1.2. Inform future management actions through continued research on the impacts of current and historical human activities on kelp forests (e.g., nutrient and sediment loading thresholds and impacts, turbidity effects on kelp recruitment, substrate availability, and impacts from recreational and commercial boating activities).	Off track (2)
		1.5.4. Form an interagency workgroup to review the kelp aquaculture permitting process and develop best management practices, such as cultivating native species, avoiding the spread of pathogens, and avoiding the use of harmful pesticides and other chemicals.	Not started (1)
		1.6.1 Coordinate and share research with the Nutrient Reduction Program and planning and implementation program, led by the DOE	Off track (2)
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
		4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
		4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)
		5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
		5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (do what is possible now but improve with progress of other actions.	Off track (2)	1.4.1. Fully consider kelp in programs that respond to and prevent chemical and oil spills (e.g., DOE Geographic Response Planning).	Off track (2)
		1.4.2. Develop tools to support planners' ability to review/access policy regulations that assist in decision-making.	Off track (2)
	Action flows from:	1.4.3. Develop and implement long-term research and monitoring actions using rigorous scientific and adaptive management principles to determine the effectiveness of current regulations and protection actions.	Not started (1)
		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically (e.g., CWA Section 404 definition of Vegetated Shallows, DNR's definition of submerged aquatic vegetation, and WDFW's Priority Habitats and Species list).	Not started (1)

Action		Connected action/s	
		1.6.1. Coordinate and share research with the Nutrient Reduction Program planning and implementation program, led by the DOE.	Not started (1)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		4.2.1. If necessary, identify priority enforcement needs relating to permits and recreational harvest activities to support existing protections.	Not started (1)
	Action flows into:	1.6. Reduce anthropogenic nutrient and sediment loading (e.g., stormwater and WWTP permitting, and TMDL planning).	Off track (2)
1.4.1. Fully consider kelp in programs that respond to and prevent chemical and oil spills (e.g., DOE Geographic Response Planning).	Off track (2)	Action flows from:	Progressing (3)
		1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically (e.g., CWA Section 404 definition of Vegetated Shallows, DNR's definition of submerged aquatic vegetation, and WDFW's Priority Habitats and Species list).	Not started (1)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action	Connected action/s		
1.4.2. Develop tools to support planners' ability to review/access policy regulations that assist in decision-making.	Off track (2)	Action flows from: 1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)
		1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
		1.10.1. Include kelp habitat in regional and local climate adaptation strategies and planning.	Not started (1)
		4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
1.4.3. Develop and implement long-term research and monitoring actions using rigorous scientific and adaptive management principles to determine the effectiveness of current regulations and protection actions.	Not started (1)	Action flows from: 1.2. Inform future management actions through continued research on the impacts of current and historical human activities on kelp forests (e.g., nutrient and sediment loading thresholds and impacts, turbidity effects on kelp recruitment, substrate availability, and impacts from recreational and commercial boating activities).	Off track (2)
		1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)

Action		Connected action/s	
1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)	Action flows from	
		1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)
		1.4.1. Fully consider kelp in programs that respond to and prevent chemical and oil spills (e.g., DOE Geographic Response Planning).	Off track (2)
		1.4.3. Develop and implement long-term research and monitoring actions using rigorous scientific and adaptive management principles to determine the effectiveness of current regulations and protection actions.	Not started (1)
		1.5.4. Form an interagency workgroup to review the kelp aquaculture permitting process and develop best management practices, such as cultivating native species, avoiding the spread of pathogens, and avoiding the use of harmful pesticides and other chemicals.	Not started (1)
		2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
	Action flows into:	1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
		1.5.1. Improve kelp-specific mitigation guidance and implementation.	Off track (2)
		1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically (e.g., CWA Section 404 definition of Vegetated Shallows, DNR’s definition of submerged aquatic vegetation, and WDFW’s Priority Habitats and Species list).	Not started (1)

Action		Connected action/s	
		1.5.3. Update survey guidelines and foster coordination among the organizations that conduct site-level surveys, such as the WDFW Macroalgae Habitat Interim Survey Guidelines and the Coastal Zone Training Program.	Off track (2)
1.5.1. Improve kelp-specific mitigation guidance and implementation.		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		2.1. Determine and quantify functional roles of kelp habitats for associated species and Provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
		2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)
		5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
		5.2.1. Develop best management practices for designing, installing, and maintaining compensatory mitigation sites and restoration projects.	Off track (2)
		5.2.3. Develop monitoring protocols to verify project success/compliance.	Off track (2)
		5.3.3. Use compensatory mitigation as a tool to restore goods and services provided by kelp forests.	Not started (1)

Action		Connected action/s	
1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically.	Not started (1)	1.4.1. Fully consider kelp in programs that respond to and prevent chemical and oil spills (e.g., DOE Geographic Response Planning).	Off track (2)
		Action flows from: 1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		1.5.4. Form an interagency workgroup to review the kelp aquaculture permitting process and develop best management practices, such as cultivating native species, avoiding the spread of pathogens, and avoiding the use of harmful pesticides and other chemicals.	Not started (1)
		1.10.1. Include kelp habitat in regional and local climate adaptation strategies and planning.	Not started (1)
		Action flows into: 1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
1.5.3. Update survey guidelines and foster coordination among the organizations that conduct site-level surveys, such as the WDFW Macroalgae Habitat Interim Survey Guidelines and the Coastal Zone Training Program.	Off track (2)	Action flows from: 1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)
		1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)

Action		Connected action/s	
1.5.4. Form an interagency workgroup to review the kelp aquaculture permitting process and develop best management practices, such as cultivating native species, avoiding the spread of pathogens, and avoiding the use of harmful pesticides and other chemicals.	Not started (1)	Action flows from: 1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		Action flows into: 1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
		1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically (e.g., CWA Section 404 definition of Vegetated Shallows, DNR's definition of submerged aquatic vegetation, and WDFW's Priority Habitats and Species list).	Not started (1)
1.6. Reduce anthropogenic nutrient and sediment loading (e.g., stormwater and WWTP permitting, and TMDL planning).	Off track (2)	Action flows from: 1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
1.6.1. Coordinate and share research with the Nutrient Reduction Program planning and implementation program, led by the DOE.	Not started (1)	Action flows from: 1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		Actions flows into: 1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
1.7. Support sustainable kelp harvest by informing recreational harvesters about regulations and sustainable kelp harvest methods.	Off track (2)	Action flows from: 4.2. Assess the extent of recreational kelp harvest and its potential impacts, and develop spatial management plans and strategies to reduce potential impacts from projected kelp harvest activities.	Off track (2)
1.8. Strive to incorporate kelp and other trophic considerations into fisheries management planning.	Off track (2)	Action flows from: 2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
1.9. Explore invasive macroalgae control alternatives, ecological roles, and long-term management considerations related to climate change.	Not started (1)	Action flows from: 1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)	Action flows from: 1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge.	Progressing (3)
		Action flows into: 1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps. 1.9. Explore invasive macroalgae control alternatives, ecological roles, and long-term management considerations related to climate change.	On track (4) Not started (1)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
		1.10.1. Include kelp habitat in regional and local climate adaptation strategies and planning.	Not started (1)
		1.12. Investigate the development of temperature-tolerant strains of native kelp species for potential use in restoration and mitigation outplanting.	Off track (2)
		4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
		4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)
		5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
1.10.1. Include kelp habitat in regional and local climate adaptation strategies and planning.	Not started (1)	1.4.2. Develop tools to support planners' ability to review/access policy regulations that assist in decision-making.	Off track (2)
	Action flows from:	1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
	Action flows into:	1.5.2. Add an explicit reference to kelp in existing regulations that include kelp protection but do not reference kelp specifically (e.g., CWA Section 404 definition of Vegetated Shallows, DNR's definition of submerged aquatic vegetation, and WDFW's Priority Habitats and Species list).	Not started (1)

Action		Connected action/s	
1.11. Investigate local effects within kelp beds on seawater chemistry and consider potential management opportunities for these benefits.	Off track (2)	Action flows into:	
		2.1.3. Use isotopic and biochemical analysis of Puget Sound species and other tools to assess kelp contributions to nearshore, deep water, and terrestrial food webs.	Off track (2)
		2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)
		5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)
1.12. Investigate the development of temperature-tolerant strains of native kelp species for potential use in restoration and mitigation outplanting.	Off track (2)	Action flows from:	
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.	Off track (2)
		Action flows into:	
		5.2.4. Support the development of local kelp seed banks for use in genetically appropriate restoration.	Off track (2)

Table 3. Goal 2 action connections. This table highlights identified, direct connections between each Goal 2 action and other connected actions from the Kelp Plan, and whether the action initially flows into or from those connected actions (noting these connections may be iterative). Status scores (see Table 1) of each action are presented to the right of its description.

Action		Connected action/s		
2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)	Action flows from:	2.1.1. Monitor the use of kelp forests as nurseries, migration corridors, refuges, and high-quality forage grounds for salmonids, rockfish populations, forage fish, pinto abalone, and killer whales.	Off track (2)
			2.1.3. Use isotopic and biochemical analysis of Puget Sound species and other tools to assess kelp contributions to nearshore, deep water, and terrestrial food webs.	Off track (2)
			3.3.3. Encourage compatibility among protocols to support data synthesis, linking ecological functions, and relationships to local stressors.	Progressing (3)
		Action flows into:	1.5. Increase protection by addressing key gaps in existing regulations and implementation programs.	Off track (2)
			1.5.1. Improve kelp-specific mitigation guidance and implementation.	Off track (2)
			1.8. Strive to incorporate kelp and other trophic considerations into fisheries management planning.	Off track (2)
			2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)
			4.2. Assess the extent of recreational kelp harvest and its potential impacts, and develop spatial management plans and strategies to reduce potential impacts from projected kelp harvest activities.	Off track (2)
			5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
			5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)

Action	Connected action/s		
2.1.1. Monitor the use of kelp forests as nurseries, migration corridors, refuges, and high-quality forage grounds for salmonids, rockfish populations, forage fish, pinto abalone, and killer whales.	Off track (2)	Action flows from: 3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		Action flows into: 2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
2.1.2. Utilize local ecological knowledge to assess the value of kelp forests as fishing areas.	Off track (2)	Action flows from: 3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge.	Progressing (3)
		Action flows into: 2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)
		Action flows into: 5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)
2.1.3. Use isotopic and biochemical analysis of Puget Sound species and other tools to assess kelp contributions to nearshore, deep water, and terrestrial food webs.	Off track (2)	Action flows from: 1.11. Investigate local effects within kelp beds on seawater chemistry and consider potential management opportunities for these benefits.	Off track (2)
		Action flows into: 2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)

Action	Connected action/s		
2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)	Action flows from: 1.11. Investigate local effects within kelp beds on seawater chemistry and consider potential management opportunities for these benefits.	Off track (2)
		2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
		2.1.2. Utilize local ecological knowledge to assess the value of kelp forests as fishing areas.	Off track (2)
		Action flows into: 1.5.1. Improve kelp-specific mitigation guidance and implementation.	Off track (2)
		5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)

Table 4. Goal 3 action connections. This table highlights identified, direct connections between each Goal 3 action and other connected actions from the Kelp Plan, and whether the action initially flows into or from those connected actions (noting these connections may be iterative). Status scores (see Table 1) of each action are presented to the right of its description.

Action		Connected action/s	
3.1. Update and expand information on the current extent of canopy-forming and understory kelp.	Progressing (3)	Action flows from:	3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations. Progressing (3)
			3.3.2. Develop Puget Sound-specific subtidal monitoring protocol, and establish a network of partners conducting subtidal kelp index site monitoring (e.g., REEF Check, PSRF). Progressing (3)
		Action parallels:	3.3.1. Continue and expand surface monitoring of Puget Sound canopy-forming kelp. On track (4)
		Action flows into:	3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation. Progressing (3)
3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)	Action flows from:	3.1. Update and expand information on the current extent of canopy-forming and understory kelp. Progressing (3)
			3.3.1. Continue and expand surface monitoring of Puget Sound canopy-forming kelp. On track (4)
			3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge. Progressing (3)

Action	Connected action/s	
Action flows into:	1.1. Form interagency workgroups to increase collaboration and information sharing across management organizations to improve implementation and to address policy gaps.	On track (4)
	1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)
	1.4.1. Fully consider kelp in programs that respond to and prevent chemical and oil spills (e.g., DOE Geographic Response Planning).	Off track (2)
	1.12. Investigate the development of temperature-tolerant strains of native kelp species for potential use in restoration and mitigation outplanting.	Off track (2)
	2.1.1. Monitor the use of kelp forests as nurseries, migration corridors, refuges, and high-quality forage grounds for salmonids, rockfish populations, forage fish, pinto abalone, and killer whales.	Off track (2)
	3.3.4. Collaborate with the Puget Sound Partnership to expand the eelgrass Vital Sign to incorporate kelp indicators (such as kelp canopy area and understory kelp distributions).	Progressing (3)
	3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.	Off track (2)
	4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
	4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)
	4.1.2. Use withdrawal letters and set standards for lease agreements to ensure the protection of kelp forests (DNR).	Off track (2)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action	Connected action/s
	4.2. Assess the extent of recreational kelp harvest and its potential impacts, and develop spatial management plans and strategies to reduce potential impacts from projected kelp harvest activities. Off track (2) 5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation. Progressing (3)
3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3) Action flows from: 3.3.3. Encourage compatibility among protocols to support data synthesis, linking ecological functions, and relationships to local stressors. Progressing (3) 3.6. Form a research and monitoring workgroup to increase collaboration and information sharing across organizations. On track (4) 3.1. Update and expand information on the current extent of canopy-forming and understory kelp. Progressing (3) Action parallels: 3.3.1. Continue and expand surface monitoring of Puget Sound canopy-forming kelp. On track (4) 3.3.2. Develop Puget Sound-specific subtidal monitoring protocol, and establish a network of partners conducting subtidal kelp index site monitoring (e.g., REEF Check, PSRF Progressing (3) 3.3.4. Collaborate with the Puget Sound Partnership to expand the eelgrass Vital Sign to incorporate kelp indicators (such as kelp canopy area and understory kelp distributions). Progressing (3)

Action		Connected action/s	
3.3.1. Continue and expand surface monitoring of Puget Sound canopy-forming kelp.	On track (4)	Actions supported by: 3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3)
		Action parallels: 3.1. Update and expand information on the current extent of canopy-forming and understory kelp.	Progressing (3)
		Action flows into: 3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
3.3.2. Develop Puget Sound-specific subtidal monitoring protocol, and establish a network of partners conducting subtidal kelp index site monitoring (e.g., REEF Check, PSRF).	Progressing (3)	Action flows from: 3.3.3. Encourage compatibility among protocols to support data synthesis, linking ecological functions, and relationships to local stressors.	Progressing (3)
		Action parallels: 3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3)
		Action flows into: 3.1. Update and expand information on the current extent of canopy-forming and understory kelp.	Progressing (3)
		3.3.4. Collaborate with the Puget Sound Partnership to expand the eelgrass Vital Sign to incorporate kelp indicators (such as kelp canopy area and understory kelp distributions).	Progressing (3)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
3.3.3. Encourage compatibility among protocols to support data synthesis, linking ecological functions, and relationships to local stressor.	Progressing (3)	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
		3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3)
		3.3.2. Develop Puget Sound-specific subtidal monitoring protocol, and establish a network of partners conducting subtidal kelp index site monitoring (e.g., REEF Check, PSRF).	Progressing (3)
3.3.4. Collaborate with the Puget Sound Partnership to expand the eelgrass Vital Sign to incorporate kelp indicators (such as kelp canopy area and understory kelp distributions).	Progressing (3)	3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3)
		3.3.2. Develop Puget Sound-specific subtidal monitoring protocol, and establish a network of partners conducting subtidal kelp index site monitoring (e.g., REEF Check, PSRF).	Progressing (3)

Action		Connected action/s	
3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge.	Progressing (3)	1.2. Inform future management actions through continued research on the impacts of current and historical human activities on kelp forests (e.g., nutrient and sediment loading thresholds and impacts, turbidity effects on kelp recruitment, substrate availability, and impacts from recreational and commercial boating activities).	Off track (2)
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		2.1.2. Utilize local ecological knowledge to assess the value of kelp forests as fishing areas.	Off track (2)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.	Off track (2)	Action flows from: 3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action		Connected action/s	
		1.12. Investigate the development of temperature-tolerant strains of native kelp species for potential use in restoration and mitigation outplanting.	Off track (2)
		5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
		5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
		5.2.4. Support the development of local kelp seed banks for use in genetically appropriate restoration.	Off track (2)
3.6 Form a research and monitoring workgroup to increase collaboration and information sharing across organizations.	On track (4)	Action flows into: 3.3. Coordinate and expand efforts to strategically monitor canopy-forming and understory kelp throughout Puget Sound and build collaborations between organizations.	Progressing (3)

Table 5. Goal 4 action connections. This table highlights identified, direct connections between each Goal 4 action and other connected actions from the Kelp Plan, and whether the action initially flows into or from those connected actions (noting these connections may be iterative). Status scores (see Table 1) of each action are presented to the right of its description.

Action		Connected action/s	
4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		1.4.2. Develop tools to support planners' ability to review/access policy regulations that assist in decision-making.	Off track (2)
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)
		4.1.2. Use withdrawal letters and set standards for lease agreements to ensure the protection of kelp forests (DNR).	Off track (2)
4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.	Off track (2)
		1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.	Progressing (3)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)

Action		Connected action/s	
		Action parallels: 4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
		4.1.2. Use withdrawal letters and set standards for lease agreements to ensure the protection of kelp forests (DNR).	Off track (2)
4.1.2. Use withdrawal letters and set standards for lease agreements to ensure the protection of kelp forests (DNR).	Off track (2)	Action flows from: 3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		Action parallels: 4.1. Protect kelp habitat in existing and new reserves, refuges, and protected areas.	Progressing (3)
		4.1.1. Increase the protection of existing kelp forests through organizations like DNR and USFWS.	Off track (2)
4.2. Assess the extent of recreational kelp harvest and its potential impacts, and develop spatial management plans and strategies to reduce potential impacts from projected kelp harvest activities.	Off track (2)	Action flows from: 2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
		3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.	Progressing (3)
		Action flows into: 1.7. Support sustainable kelp harvest by informing recreational harvesters about regulations and sustainable kelp harvest methods.	Off track (2)
		4.2.1. If necessary, identify priority enforcement needs relating to permits and recreational harvest activities to support existing protections.	Not started (1)

Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions

Action	Connected action/s		
4.2.1. If necessary, identify priority enforcement needs relating to permits and recreational harvest activities to support existing protections.	Not started (1)	Action flows from: 4.2. Assess the extent of recreational kelp harvest and its potential impacts, and develop spatial management plans and strategies to reduce potential impacts from projected kelp harvest activities.	Off track (2)
		Action flows into: 1.4. Fully implement and enforce available protections for kelp through existing regulations, programs, and policies (e.g., DOE SMA Guidance, Local SMPs, WDFW HPA, DNR Aquatic Use Authorizations, mitigation programs, NMFS ESA and EFH consultations).	Off track (2)

Table 6. Goal 5 action connections. This table highlights identified, direct connections between each Goal 5 action and other connected actions from the Kelp Plan, and whether the action initially flows into or from those connected actions (noting these connections may be iterative). Status scores (see Table 1) of each action are presented to the right of its description.

Action	Connected action/s		
5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)	Action flows from:	1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions.
			Off track (2)
			1.10. Investigate climate change impacts to improve management decisions, such as prioritizing locations for kelp protected areas, restoration sites, and mitigation activities.
			Progressing (3)
			2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.
			Off track (2)
			3.2. Make distribution and trends data available to agencies and the public for use in spatial planning, project planning, and regulatory implementation.
			Progressing (3)
			3.4. Expand understanding of historical distributions and trends by compiling historical information sources and exploring traditional ecological knowledge.
			Progressing (3)
			3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.
			Off track (2)
	Progressing (3)	Action flows into:	1.5.1. Improve kelp-specific mitigation guidance and implementation.
			Off track (2)
			5.1.1. Target management actions that reduce stressors at priority restoration sites.
			Off track (2)

Action		Connected action/s	
		5.1.3. Develop a mitigation bank of priority locations for kelp enhancement and restoration projects, and for when in-situ mitigation is not viable.	Not started (1)
		5.3.2. Reach out to restoration funding sources to include funding for kelp restoration.	Off track (2)
5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)	Action flows from: 1.2. Inform future management actions through continued research on the impacts of current and historical human activities on kelp forests (e.g., nutrient and sediment loading thresholds and impacts, turbidity effects on kelp recruitment, substrate availability, and impacts from recreational and commercial boating activities). 1.3. Identify priority stressors that negatively affect Puget Sound kelp on a sub-regional scale to target management actions. 5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Off track (2) Off track (2) Progressing (3)
		1.10.1. Include kelp habitat in regional and local climate adaptation strategies and planning.	Not started (1)
		5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
		5.3. Fund and implement restoration activities at priority sites.	Off track (2)
		5.3.1. Target restoration-funding sources for stressor reduction and population enhancement projects.	Off track (2)

Action		Connected action/s	
		5.3.3. Use compensatory mitigation as a tool to restore goods and services provided by kelp forests.	Not started (1)
5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)	3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.	Off track (2)
		5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
		5.2.1. Develop best management practices for designing, installing, and maintaining compensatory mitigation sites and restoration projects.	Off track (2)
		5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)
		5.2.3. Develop monitoring protocols to verify project success/compliance.	Off track (2)
		5.2.4. Support the development of local kelp seed banks for use in genetically appropriate restoration.	Off track (2)
		5.3.1. Target restoration-funding sources for stressor reduction and population enhancement projects.	Off track (2)
		5.3. Fund and implement restoration activities at priority sites.	Off track (2)

Action		Connected action/s	
5.1.3. Develop a mitigation bank of priority locations for kelp enhancement and restoration projects, and for when in-situ mitigation is not viable.	Not started (1)	Action flows from: 5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)
		Action flows into: 5.3.3. Use compensatory mitigation as a tool to restore goods and services provided by kelp forests.	Not started (1)
5.2. Continue development of kelp restoration techniques for use in enhancement projects and mitigation.	Progressing (3)	5.2.1. Develop best management practices for designing, installing, and maintaining compensatory mitigation sites and restoration projects.	Off track (2)
		Action flows into: 5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forests.	Progressing (3)
		5.2.3. Develop monitoring protocols to verify project success/compliance.	Off track (2)
		5.3.1. Target restoration-funding sources for stressor reduction and population enhancement projects.	Off track (2)
5.2.1. Develop best management practices for designing, installing, and maintaining compensatory mitigation sites and restoration projects.	Off track (2)	Action flows from: 5.2. Continue development of kelp restoration techniques for use in enhancement projects and mitigation.	Progressing (3)

Action		Connected action/s	
		1.5.1. Improve kelp-specific mitigation guidance and implementation.	Off track (2)
		5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
		5.2.3. Develop monitoring protocols to verify project success/compliance.	Off track (2)
5.2.2. Define measurable project success standards to include ecosystem goods and services and long-term persistence of kelp forest.	Progressing (3)	1.11. Investigate local effects within kelp beds on seawater chemistry and consider potential management opportunities for these benefits.	Off track (2)
		2.1. Determine and quantify functional roles of kelp habitats for associated species, and provide guidance to managers for regulatory implementation, such as endangered species habitat conservation.	Off track (2)
		2.1.2. Utilize local ecological knowledge to assess the value of kelp forests as fishing areas.	Off track (2)
		2.2. Calculate the value of kelp ecosystem services for use in developing mitigation guidance.	Not started (1)
		5.2. Continue development of kelp restoration techniques for use in enhancement projects and mitigation.	Progressing (3)
		5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)

Action		Connected action/s		
5.2.3. Develop monitoring protocols to verify project success/compliance.	Off track (2)	Action flows from:	5.2. Continue development of kelp restoration techniques for use in enhancement projects and mitigation.	Progressing (3)
			5.2.1. Develop best management practices for designing, installing, and maintaining compensatory mitigation sites and restoration projects.	Off track (2)
		Action flows into:	1.5.1. Improve kelp-specific mitigation guidance and implementation.	Off track (2)
			5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
5.2.4. Support the development of local kelp seed banks for use in genetically appropriate restoration.	Off track (2)	Action flows from:	1.12. Investigate the development of temperature-tolerant strains of native kelp species for potential use in restoration and mitigation outplanting.	Off track (2)
			3.5. Identify the genetic structure of kelp populations, including connectivity, dispersal, and population dynamics.	Off track (2)
		Action flows into:	5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
			5.3. Fund and implement restoration activities at priority sites.	Off track (2)
5.3. Fund and implement restoration activities at priority sites.	Off track (2)	Action flows from:	5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
			5.2.4. Support the development of local kelp seed banks for use in genetically appropriate restoration.	Off track (2)

Action		Connected action/s	
		5.3.1. Target restoration-funding sources for stressor reduction and population enhancement projects.	Off track (2)
		5.3.2. Reach out to restoration funding sources to include funding for kelp restoration.	Off track (2)
		Action parallels: 5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
5.3.1. Target restoration-funding sources for stressor reduction and population enhancement projects.	Off track (2)	Action flows from: 5.1.1. Target management actions that reduce stressors at priority restoration sites.	Off track (2)
		5.2. Continue development of kelp restoration techniques for use in enhancement projects and mitigation.	Progressing (3)
		Action flows into: 5.1.2. Reintroduce kelp through outplanting at sites that are recruitment limited.	Not started (1)
		5.3. Fund and implement restoration activities at priority sites.	Off track (2)
5.3.2. Reach out to restoration funding sources to include funding for kelp restoration.	Off track (2)	Action flows from: 5.1. Develop a spatial plan identifying regions and sites for priority restoration actions and mitigation.	Progressing (3)

Action		Connected action/s	
		Action flows into: 5.3. Fund and implement restoration activities at priority sites.	Off track (2)
5.3.3. Use compensatory mitigation as a tool to restore goods and services provided by kelp forests.	Not started (1)	Action flows from: 1.5.1. Improve kelp-specific mitigation guidance and implementation. 5.1.1. Target management actions that reduce stressors at priority restoration sites. 5.1.3. Develop a mitigation bank of priority locations for kelp enhancement and restoration projects, and for when in-situ mitigation is not viable.	Off track (2) Off track (2) Not started (1)

Table 7. Kelp Plan Goal 6 actions. This table lists the actions in Goal 6 and their status scores (see Table 1). It does not list connections between actions as many of these actions are directly connected with too many other actions to effectively convey as well as entire goals themselves. However, it is important to consider these actions when exploring action connections.

Action	
6.1. Share information on (1) the value and role of kelp ecosystems as critical nearshore habitat and food web support (for forage fish, rockfish, salmon, and killer whales) in Puget Sound; and (2) the growing concern regarding significant losses to bull kelp canopies.	Progressing (3)
6.1.1. Educate decision-makers (federal, state, and local entities) regarding the value of kelp, local declines, and the needs articulated in the Kelp Plan.	Progressing (3)
6.1.2. Work with Tribal partners to elevate the prominence of traditional ecological knowledge regarding kelp.	Progressing (3)
6.1.3. Encourage partners (e.g., Tribes, anglers, commercial fishermen, Washington Public Port Association, industry, recreational harvesting groups, and NGOs) to help tell the story of kelp to local communities and decision-makers.	Progressing (3)
6.1.4. Develop curricula and other educational tools focused on Puget Sound kelp ecosystems for K-12 classrooms and other education forums (e.g., aquariums, science centers, reserves).	Off track (2)
6.1.5. Carry out targeted outreach and advocacy to develop support for the implementation of the goals outlined in the Kelp Plan.	Progressing (3)
6.1.6. Develop public educational materials and maps on how boaters and outdoor recreation groups can minimize their impacts to kelp (e.g., parks, boat launches, marinas).	Not started (1)
6.2. Build research capacity and coordinate knowledge sharing of ongoing kelp recovery projects and research gaps.	On track (4)
6.2.1. Create and maintain a regularly scheduled forum for information sharing and knowledge gathering between Tribal, federal, state, and local entities.	On track (4)
6.2.2. Coordinate kelp conservation actions and research activities with the Salish Sea International Kelp Alliance, British Columbia, and states of Oregon and California.	On track (4)
6.2.3. Coordinate knowledge sharing through regular participation in conferences, workshops, publications, social media, etc.	On track (4)

III. References

Calloway, M., Oster, O., Berry, H., Mumford, T., Naar, N., Peabody, B., Hart, L., Tonnes, D., Copps, S., Selleck, J., Allen, B., and Toft, J. 2020. Puget Sound Kelp Conservation and Recovery Plan. Prepared for NOAA-NMFS, Seattle, WA. 52 pages plus appendices.

Whitty, J., and Oster, D. 2025. Puget Sound Kelp Conservation and Recovery Plan: Identifying connections between actions.