Addendums Two & Three

Amendments to the 2014/2015 Action Agenda for Puget Sound
Leadership Council Approval: December 2014 (Two) & January 2015 (Three)

December 2014 2014 Action Agenda -- Amendment Two

A. Near-Term Action Amendments

1. Shellfish Strategic Initiative

Amendment: Identify Whatcom Near-Term Action (C 9.4 WH10), related to Whatcom shellfish recovery, as an action important to the Shellfish Strategic Initiative:

Strategy	Sub-Strategy		NTA	Performance Measures	Owner	Secondary Owner(s)
				•		
C	9.4	Develop and implement local and tribal pollution identification and correction programs.	WH10	**Implement Whatcom County Pollution Identification and Correction ~~Control~~ Program.** Through a partnership of local, state, and tribal agencies identify priority areas and implement projects to decrease bacteria levels in local marine waters, rivers, and streams. This program includes: • Monitoring and focus area identification. • Community outreach and engagement. • Technical and financial assistance for agricultural operations. • Technical and financial assistance for onsite sewage system operation and maintenance. • Stormwater retrofits. • Regulatory backstop. • Nutrient Management, TMDL Implementation. • This program is a component of and coordinated with the Whatcom Clean Water Program (C7.1).	• Through December 2016, conduct monthly sampling at approximately 90 stations. Conduct short-term ambient and bracketing monitoring in each focus area to identify pollution sources. Complete annual reviews of water quality results. • Through December 2016, identify a minimum of two focus areas per year. • Provide technical/financial assistance to 50 agricultural operations in focus areas per year. • Evaluate 75% of onsite sewage system in focus areas per year. Repair 100% of identified failures. • By December 2016, complete designs for two priority stormwater retrofits. • Water quality. • Shellfish beds.	Whatcom County	Whatcom CD, DOH, Ecology, WSDA, Lummi Nation, Nooksack Tribe

2. Ocean Acidification

Amendments:

2A: Include new text in the Action Agenda under Section D 4, "Coordinate and Advance Science and Monitoring," related to the ongoing work of the Governor's Marine Resources Advisory Council and integrating actions related to reducing the impacts of ocean acidification. The amended text is included at the end of this addendum under "B. Text Amendments".

2B: Include new Near Term Actions related to ocean acidification under Strategy D4, Sub-Strategy D 4.1, as follows:

Strategy		Sub-Strategy		Near Term Action	Performance Measures – from Budget Proposals	Owner	Secondary Owner(s)
D	4	Coordinate and Advance Science and Monitoring					
	4.1	Oversee Strategic Planning for Puget Sound Recovery Science					
			4.1.1	**Support ocean acidification research of the Washington Ocean Acidification Center (WOAC).** Support work to improve the understanding of current and future impacts of ocean acidification.	• <u>Research biological response to ocean acidification.</u> Conduct laboratory studies to assess the biological response of marine organisms to ocean acidification. By the end of each biennium, complete laboratory studies commensurate with biennial funding, • Make results of investigations available to the public.	UW	Ecology

			4.1.2	**Improve, expand and enhance Ocean Acidification Monitoring and Modeling.** Expand the existing monitoring program to better understand trends in ocean acidification; develop new modeling to build knowledge on effects of acidification to Puget Sound.	a. <u>Expand Ocean Acidification Monitoring Network-</u> • Continue to monitor existing sites, including physical, chemical and biological data, and coordinate with the Department of Ecology on water quality data monitoring. • By the end of each biennium, and commensurate with biennial funding, add sites to the monitoring network to encompass additional sites relevant to shellfish industry. • By the end of each biennium, and commensurate with biennial funding, enhance the existing monitoring programs - increase resolution, assess effects of acidification on wild stocks managed by state agencies, and build capacity for monitoring additional variables needed for modeling (e.g., pH and total Nitrogen). b. <u>Develop forecast modeling system</u> • Sustain existing forecast modeling. • By end of the biennium, and commensurate with biennial funding, enhance the forecast model system by establishing short-term forecasts of corrosive conditions for application to shellfish hatcheries, growing areas, and other areas of concern. • By the end of the biennium, interview shellfish growers and resource managers to assess the usefulness of the forecast model system and report results. • By the end of the biennium, measure use of forecast model by the public and shellfish growers.		

			4.1.3	**Expand and enhance Ecology's Ocean Acidification Monitoring and Modeling for Regulatory Enforcement.** Expand the existing monitoring program to better understand trends in ocean acidification and distinguish local source impacts from Pacific ocean and global signals for regulatory purposes.	a. Expand Monitoring • By July 2015, include alkalinity and dissolved inorganic carbon (DIC) measurements at 6 marine flight stations as part of pilot study. • Produce status and trends reports on alkalinity and dissolved inorganic carbon by June 2016. • Calculate values of mean and variation of OA variables by June 2016. • Determine baseline trends on alkalinity and dissolved inorganic carbon by June 2016. b. Local Source Impacts Modeling. Develop a model and application to distinguish local source impacts (nutrients in water plus local carbon dioxide plus local carbon dioxide CO2 emissions) from Pacific Ocean and global signals. 1. Identify and publish where and how much local sources contribute to current ocean acidification levels in Puget Sound and the Salish Sea by June 2016. 2. Expand the capabilities of the modeling tool to link the acidification model into ecosystem components, such as eelgrass, shellfish, and herring, and explore how population growth (with increased wastewater and land cover change) could change our acidification impacts from local sources by 2019, if project is funded by 2019, if project is funded by NOAA.	Ecology	WOAC
			4.1.4	**Investigate Ocean Acidification mitigation strategies.** Investigate species resilience to corrosive conditions and other strategies that effectively mitigate acidification.	a. Native oyster resilience – Assess the capacity of Olympia oyster (Ostrea lurida) beds (restored and natural) to improve ocean acidification resilience in bays and inlets. The work will include: • Assessments of epibenthic zooplankton abundance, diversity and richness in native oyster beds reported by June 2017. • Assessments of carbonate chemistry in study sites. • In situ assessments of biodeposit production rates reported by June 2017. • Comparison of 2 shell enhancement materials reported by June 2017. b. Cultivation and harvest of seaweed - Research the effects of seaweed cultivation and harvest on carbonate chemistry and fish habitat to determine if seaweed cultivation and/or collection is an effective ocean acidification mitigation strategy.	WDFW	

					• Conduct a pilot program at two sites and measure the effect of seaweed removal off shellfish aquaculture gear at two shellfish farms in Samish Bay and Thorndyke Bay by June 2017. • Monitor fish utilization at cultivation arrays by June 2017. • Coordinate carbonate chemistry monitoring at cultivation sites with computer modeling and fish monitoring by June 2017. • Integrate state-agency monitoring activities with NOAA and UW monitoring activities by June 2017. • By June 2017, produce a report that measures the success of the pilot program. The success of a seaweed cultivation and harvest program will be determined by 1) fish utilization data at cultivated arrays; 2) quantification of nitrogen removed from shellfish farms and seaweed cultivation; and 3) tons of fertilizer produced from seaweed harvest.		

3.A Research on Hood Canal Bridge Impacts to Fish, Tidal Circulation and Water Quality

Amendment: Include a new Near-Term Action related to Hood Canal Bridge effects as NTA A6.4 HC9, as follows:

Strategy		Sub-strategy	NTA #	Near Term Action	Performance Measures – from Budget Proposals	Owner	Co-owner
A6		A6.4 Protect and recover steelhead and other imperiled salmonid species.	HC9	**Assess Hood Canal Bridge Impacts**. The Hood Canal Coordinating Council, in coordination with its member jurisdictions and Long Live the Kings, and in consultation with the Department of Transportation, will explore options to address ecosystem effects of the Hood Canal Bridge. This includes developing and implementing an assessment of effects of the Hood Canal Bridge to determine precisely and functionally, how the bridge is affecting tidal circulation, water quality, and migration of steelhead and other salmonid species. Findings of the assessment will be used to develop specific actions in future iterations of the Action Agenda.	• Results from assessment the assessment of effects to salmon, circulation and water quality are used to develop NTAs for 2016 Action Agenda. • By January 2015, HCCC and Long Live the Kings form working group to develop and direct an assessment of the effects of the Hood Canal Bridge. • By April 2015, funding secured to assess Hood Canal bridge effects. • By February 2016, report on effects released by working group. • By October 2016, collaborative group formed with WSDOT to identify solutions to address Hood Canal Bridge effects. • By October 2016, a report released exploring strategic actions to address Hood Canal bridge effects.	Hood Canal Coordinating Council	

3.B Minor Modifications

Amendment: Modify existing Near-Term Action A5.2.1 and remove redundant Near-Term Action A6.1.2, as follows:

Strategy		Sub-Strategy		Near-Term Action	Performance Measures	Type	Owner	Secondary Owner(s)
A	5.2	Align policies, regulations, planning, and agency coordination to support multi-benefit floodplain management, incorporating climate change forecasts.	1	**Improved permit process.** Support WDFW, Ecology, Corps, USFWS, and NOAA in ~~making changes~~ developing a strategy and budget for a new interagency permitting team to improve the ~~current~~ permitting process for floodplain projects.	• By December 2014, secure commitments from key permitting agencies to collaborate on improvements to the permit process. • By December 2015, dedicated permitting team(s) or alternate mechanism in place to support project implementation – contingent on funding	Sound-wide	The Nature Conservancy	Ecology, PSP
~~A~~	~~6.1~~	~~Implement high priority projects identified in each salmon recovery 3-year work plan.~~	~~2~~	~~**Restoration permit barriers**. Develop a strategy for a new interagency permitting team that would assist in faster permitting of habitat recovery projects, including multiple objective restoration projects.~~	~~• By July 2014, a strategy for a new interagency permitting team to assist in faster permitting of habitat recovery projects is completed.~~ ~~• By December 2015, have interagency team in place assist in faster permitting of habitat recovery projects.~~ ~~• By July 2014, work with lead to addressing permitting barriers for floodplain restoration projects.~~	~~Sound-wide~~	~~The Nature Conservancy~~	~~Ecology, PSP~~

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B. Text Amendments

2A. Ocean Acidification

Amendments: Revise the text of Strategy D 4, "Coordinate and Advance Science and Monitoring," Section 3 D of the 2014/2015 Action Agenda, (pages 3D-9 through 3D-11) to recognize the work of the Governor's Marine Resources Advisory Council (MRAC) and integrating actions related to reducing the impact of ocean acidification. New text is presented in underline, as follows:

"Strategies and Actions

D4. Coordinate and Advance Science and Monitoring

Convene and facilitate the implementation of a strategic science and regional monitoring program that improves decisions about how to restore and protect Puget Sound. Monitoring is a critical part of ecosystem recovery.

The overall objective of the Science Program is to inform and continually improve the scientific basis for decisions of Partners and policy-makers on how to protect and restore Puget Sound. The Partnership's science and monitoring team supports the Science Panel and Monitoring Steering Committee in enlisting the assistance of the Puget Sound scientific community in the work of the regional effort and communicating findings and implications. Science Program staff work closely with the Performance Management Team in assessing the region's overall progress in attaining the recovery targets and describing the status of the recovery effort.

This strategy focuses specifically on the Partnership's role in science and monitoring over the next 2 years. Science and monitoring are shared efforts and resources. In the future, this strategy could be expanded to more fully cover partner science activities.

OCEAN ACIDIFICATION

Ocean Acidification: From Knowledge to Action, Washington State's Strategic Response (Washington State Blue Ribbon Panel on Ocean Acidification 2012), states that although knowledge about the causes and consequences of ocean acidification is advancing rapidly, important gaps remain. The Governor's Marine Resources Advisory Council (MRAC), which was established by legislation in 2013, is charged with developing strategies to reduce the impact of ocean acidification and to implement the recommendations and actions identified by the Blue Ribbon Panel on Ocean Acidification. Support for ocean acidification research and monitoring is crucial. A sound scientific foundation is needed to guide actions aimed at reducing the risks of acidification on the Washington marine ecosystem and the organisms that it supports. The Blue Ribbon Panel recommends several strategies that advance scientific investigation and monitoring in support of efforts aimed at decreasing ocean acidification, including the following.

- Understanding the biological responses of local species to ocean acidification and associated stressors.
- Understanding the status and trends in ocean acidification in Washington's marine waters.
- Developing capabilities to identify real-time corrosive seawater conditions, as well as short-term forecasts and long-term predictions of global and local acidification effects.

The MRAC was created to continue the work of the Blue Ribbon Panel by ensuring on-the-ground implementation of the identified comprehensive strategy. Specifically, the MRAC was tasked with:

- Maintaining a sustainable coordinated focus on ocean acidification;
- Advising and working with the Washington Ocean Acidification Center on the effects and sources of ocean acidifications:
- Delivering recommendations to the Governor and Legislature on ocean acidification;
- Seeking public and private funding resources to support the MRAC recommendations;
- Assisting in conducting public education activities regarding ocean acidification.

The Action Agenda directly supports the work of MRAC and the Blue Ribbon Panel recommendations by supporting scientific efforts to conduct laboratory studies related to the effects of ocean acidification on organisms and ecosystems, establish an ocean acidification monitoring network, and establish the ability to forecast corrosive conditions that would be detrimental to shellfish and other organisms. The Partnership will continue to coordinate with MRAC and as MRAC identifies priority actions that reduce the impacts of ocean acidification in Puget Sound, the Partnership will integrate these into the Action Agenda.

D4.1 Oversee and coordinate strategic planning for Puget Sound recovery science

The Partnership, with guidance from the Science Panel, leads the technical steps identified in the Open Standards process (Section 1, *Recovery Context*) for strategic planning and prioritization, including identifying key ecosystem components, drivers and pressures on the ecosystem, assessing linkages and risks and assisting in setting of targets for reducing risks and pressures. Strategic planning can occur in both the near-term (2-year) horizon, as well as longer timeframes.

Ongoing Programs

Continue to Build Scientific Knowledge and Policy-Relevant Information for Decision Makers
The Partnership will continue to build an accessible, peer-reviewed base of scientific knowledge about ecosystem status and the effectiveness of strategies and actions and indicators, which provides policy-relevant information for decision makers.

The Partnership with the oversight of the Science Panel and collaboration with the Puget Sound Institute works to build the scientific knowledge to inform decision-making and to update and revise the Action Agenda. This includes setting expectations for the quality of the work; preparing key technical documents, reports, and peer-reviewed publications based on that work; and coordinating with the Puget Sound Institute at the University of Washington Tacoma to develop a web-based compendium of research and information for policy makers and stakeholders. In addition, the Partnership strives to learn from the experiences of other ecosystem restoration programs, as well as share lessons learned.

Science Program staff support the Science Panel to provide synthesis of scientific findings and effectively communicate these findings to the Puget Sound Management Conference.

Maintain and expand a network of scientific expertise for informing decision makers

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The Partnership will maintain and expand a network of scientific experts for informing decision makers. A key role of the Partnership is to build and catalyze capacity for scientific efforts by convening, coordinating and enlisting the Puget Sound scientific community (agencies, tribal nations, universities, citizen groups) in implementing a strategic science program. The responsibilities for this biennium include enlisting the scientific community in the review indicators, analysis of recovery targets, and assessment of pressures on the ecosystem.

Key Ongoing Program Activities

- Updating the Biennial Science Work Plan on a 2-year cycle in conjunction with the Action Agenda. The Biennial Science Work Plan is the mechanism by which the Partnership and its partners identify, prioritize and direct monitoring, research, support of decisions, and funding to focus on the key scientific uncertainties that are hindering political or technical actions to recover and protect Puget Sound.
- Building the Puget Sound Partnership Technical Memorandum Series.
- Publishing and updating the Puget Sound Science Review.
- Participating in the formulation of the *State of the Sound*.
- Overseeing peer review of technical documents and products.
- Facilitating collaboration among the members of the Science Panel, Puget Sound Institute, Nearshore Science Team, Recovery Implementation Technical Team, the Governor's Marine Resources Advisory Council, Washington Ocean Acidification Center at the University of Washington, and other regional partners, including Canada."

January 2015 2014 Action Agenda – Amendment Three

Habitat Strategic Initiative

Amendment: Adopt a new San Juan Island Near-Term Action (C 8.3 SJI 13), related to oil spill preparedness and response, for the 2014/2015 Action Agenda and identify it as an action important to the Habitat Strategic Initiative, as follows:

Strategy	Sub-Strategy		Near-Term Action	Performance Measures	Type	Owner	Secondary Owner(s)
C	8.3	Respond to spills and seek restoration using the best available science and technology.	SJI 13	Evaluate Oil Spill Response Capability in the San Juan Islands & Adjacent Waters.	San Juan County will coordinate with key partners to evaluate the San Juan county equipment planning standard area, including Haro Strait and Boundary Pass by June, 2015 and report its findings by September, 2015. The assessment will describe the adequacy of the current system to meet state rules and will include recommendations to address any deficiencies that may be identified.	Local	San Juan County	