



## CHAPTER 4 | PLANNING RECOVERY

With limited resources, accomplishing Puget Sound recovery requires that we be focused and strategic. The framework for setting the Action Agenda is outlined below and illustrated in Figure 4-1. The elements of this framework are described in the following sections:

- Strategies and sub-strategies describe the overall, long-term directions and approaches needed to achieve the recovery targets.
- Strategic Initiatives focus recovery efforts on the highest-priority strategies and sub-strategies as we transition to using Implementation Strategies.
- The [Implementation Plan](#) describes the process for identifying and prioritizing recovery actions. The elements of that process (regional priorities and Implementation Strategies) and the two categories of recovery actions (Near Term Actions and ongoing programs) are defined there.

The Action Agenda provides the common framework for recovery planning in Puget Sound. At the local level, salmon recovery plans are integrated into the Local Integrating Organization recovery plans. The local plans inform and are guided by regional priorities and Implementation Strategies developed regionally. Cross-cutting issues that affect and are affected by all aspects of Puget Sound recovery form the setting for the Action Agenda. These issues inform each step of the process outlined above. These issues are briefly described in this chapter.

### WHAT ARE STRATEGIES AND SUBSTRATEGIES?

Strategies are the high-level approaches to address pressures on the Puget Sound ecosystem. Sub-strategies describe more focused approaches that contribute to achieving the broader strategies.

The strategies and sub-strategies have been developed to define the full range of approaches required to meet the six recovery goals. Ecosystem strategies are designed to relieve pressures to Puget Sound through projects, programs, and policy changes. Institutional strategies are designed to enhance the overall capacity of partners to improve recovery efforts through information sharing, education, and funding.

The Action Agenda includes 29 strategies and 106 sub-strategies. From these sub-strategies, a subset is selected to define the scope of the Strategic Initiatives and the focus of the actions and programs in the [Implementation Plan](#).

The order and numbering of the strategies and sub-strategies in Table 4-1 are for reference purposes only and do not represent priority or rank. The strategies and sub-strategies are consistent with the 2014 Action Agenda, but the numbering has been updated to reflect a change in organization. A list that crosswalks the two numbering systems is available in [Appendix A, Strategies and Sub-Strategies](#).

**FIGURE 4-1.** CONCEPTUAL FRAMEWORK FOR SETTING THE ACTION AGENDA

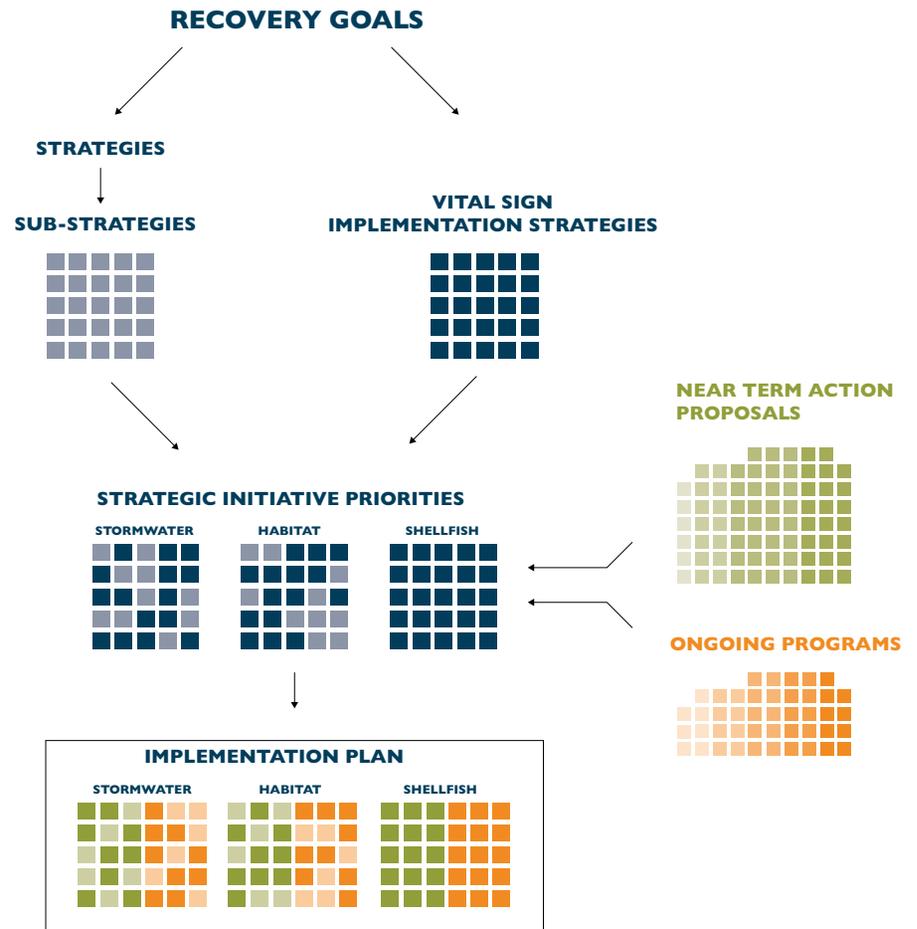


Figure 4-1 depicts the conceptual framework for setting the Action Agenda. Over the coming years, we are transitioning our emphasis between two complementary frameworks for defining the scope of the Strategic Initiatives and the focus of their actions and programs in the Implementation Plan. The left branch shows the more general approach of using strategies and sub-strategies while the right branch shows the more targeted approach of using Implementation Strategies.

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES

<b>ECOSYSTEM STRATEGIES</b>	
1 <sup>a</sup>	Focus land development away from ecologically important and sensitive areas
1.1	Identify and prioritize areas for protection, restoration, and best suitable for (low-impact) development
1.2	Support local governments to adopt and implement plans, regulations, and policies consistent with protection and recovery targets, and incorporate climate change forecasts
1.3	Improve, strengthen, and streamline implementation and enforcement of laws, plans, regulations, and permits consistent with protection and recovery targets
1.4	Ensure full, effective compensatory mitigation for impacts that cannot be avoided
<b>2</b>	<b>Protect and restore upland, freshwater, and riparian ecosystems</b>
2.1	Protect and conserve ecologically important lands at risk of conversion
2.2	Implement and maintain priority freshwater and terrestrial restoration projects
2.3	Implement restoration projects in urban and developed areas while accommodating growth, density, and infill development
<b>3</b>	<b>Protect and steward ecologically sensitive rural and resource lands</b>
3.1	Use integrated market-based programs, incentives, and ecosystem markets to steward and conserve private forest and agricultural lands
3.2	Retain economically viable working forests and farms
<b>4</b>	<b>Encourage compact regional growth patterns and create dense, attractive, mixed-use, and transit-oriented communities</b>
4.1	Integrate growth, infrastructure, transportation, and conservation planning at subregional levels and across jurisdictions
4.2	Provide infrastructure and incentives to accommodate new and re-development in urban growth areas
4.3	Enhance and expand the benefits of living in compact communities

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>ECOSYSTEM STRATEGIES</b>	
<b>5</b>	<b>Protect and restore floodplain function</b>
5.1	Improve data and information to accelerate floodplain protection, restoration, and flood hazard management
5.2	Align policies, regulations, planning, and agency coordination to support multi-benefit floodplain management, incorporating climate change forecasts
5.3	Protect and maintain intact and functional floodplains
5.4	Implement and maintain priority floodplain restoration projects
<b>6</b>	<b>Protect and recover salmon</b>
6.1	Implement high-priority projects identified in each salmon recovery watershed's 4-year work plan
6.2	Implement high-priority salmon recovery actions identified in other parts of the Action Agenda and the Biennial Science Work Plan
6.3	Implement harvest, hatchery, and adaptive management elements of salmon recovery
6.4	Protect and recover steelhead and other imperiled salmonid species
6.5	Maintain and enhance the community infrastructure that supports salmon recovery
<b>7</b>	<b>Protect and conserve freshwater resources to increase and sustain water availability for instream flows</b>
7.1	Update Puget Sound instream flow rules to encourage conservation
7.2	Decrease the amount of water withdrawn or diverted and per capita water use
7.3	Implement effective management programs for groundwater
<b>8</b>	<b>Focus development away from ecologically important and sensitive nearshore areas and estuaries</b>
8.1	Use complete, accurate, and recent information in shoreline planning and decisionmaking at the site-specific and regional levels
8.2	Support local governments to adopt and implement plans, regulations, and policies that protect the marine nearshore and estuaries, and incorporate climate change forecasts
8.3	Improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect the marine and nearshore ecosystems and estuaries

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>ECOSYSTEM STRATEGIES</b>	
<b>9</b>	<b>Prevent, reduce, and control the sources of contaminants entering Puget Sound</b>
9.1	Implement and strengthen authorities and programs to prevent toxic chemicals from entering the Puget Sound ecosystem
9.2	Promote the development and use of safer alternatives to toxic chemicals
9.3	Adopt and implement plans and control strategies to reduce pollutant releases into Puget Sound from air emissions
9.4	Provide education and technical assistance to prevent and reduce releases of pollution
9.5	Control wastewater and other sources of pollution such as oil and toxics from boats and vessels
9.6	Increase compliance with and enforcement of environmental laws, regulations, and permits
<b>10</b>	<b>Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales</b>
10.1	Manage urban runoff at the basin and watershed scale
10.2	Prevent problems from new development at the site and subdivision scale
10.3	Fix problems caused by existing development
10.4	Control sources of pollutants
10.5	Provide focused stormwater-related education, training, and assistance
<b>11</b>	<b>Prevent, reduce, and control agricultural runoff</b>
11.1	Target voluntary and incentive-based programs that help working farms contribute to Puget Sound recovery
11.2	Ensure compliance with regulatory programs designed to reduce, control, or eliminate pollution from working farms

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>ECOSYSTEM STRATEGIES</b>	
<b>12</b>	<b>Prevent, reduce, and control surface runoff from forest lands</b>
12.1	Achieve water quality standards on state and privately owned working forests through implementation of the Forest and Fish Report
12.2	Maintain forest roads and implement road abandonment plans for working forest lands subject to the forest practices rules on schedule, and ensure federal forest managers meet or exceed state standards for road maintenance and abandonment on federal lands
<b>13</b>	<b>Prevent, reduce, and/or eliminate pollution from decentralized wastewater treatment systems</b>
13.1	Effectively manage and control pollution from small onsite sewage systems
13.2	Effectively manage and control pollution from large onsite sewage systems
13.3	Improve and expand funding for onsite sewage systems and local onsite sewage system programs
<b>14</b>	<b>Prevent, reduce, and/or eliminate pollution from centralized wastewater systems</b>
14.1	Reduce the concentrations of contaminant sources of pollution conveyed to wastewater treatment plants through education and appropriate regulations, including improving pretreatment requirements
14.2	Reduce pollution loading by preventing and reducing combined sewer overflows
14.3	Implement priority upgrades of municipal and industrial wastewater facilities in urban and urbanizing areas and address outfalls
14.4	Ensure all centralized wastewater treatment plants meet discharge permit limits through compliance monitoring, technical assistance, and enforcement, where needed
14.5	Promote appropriate reclaimed water projects to reduce pollutant loading to Puget Sound
<b>15</b>	<b>Protect and restore the native diversity and abundance of Puget Sound species, and prevent and respond to the introduction of terrestrial and aquatic invasive species</b>
15.1	Implement species recovery plans in a coordinated way
15.2	Create a more integrated planning approach to protect and enhance biodiversity in the Puget Sound ecosystem
15.3	Prevent and rapidly respond to the introduction and spread of terrestrial and aquatic invasive species
15.4	Answer key invasive species research questions and fill information gaps

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>ECOSYSTEM STRATEGIES</b>	
<b>16</b>	<b>Protect and restore nearshore and estuary ecosystems</b>
16.1	Permanently protect priority nearshore physical and ecological processes and habitat, including shorelines, migratory corridors, and vegetation, particularly in sensitive areas such as eelgrass beds and bluff-backed beaches
16.2	Implement prioritized nearshore and estuary restoration projects and accelerate projects on public lands
16.3	Remove armoring, and use soft armoring replacement or landward setbacks when armoring fails, needs repair, or is non-protective, and during redevelopment
16.4	Implement a coordinated strategy to achieve the 2020 eelgrass recovery target
<b>17</b>	<b>Protect and restore marine ecosystems</b>
17.1	Protect intact marine ecosystems particularly in sensitive areas and for sensitive species
17.2	Implement and maintain priority marine restoration projects
<b>18</b>	<b>Protect and steward working waterfronts and improve public access to Puget Sound</b>
18.1	Use, coordinate, expand, and promote financial incentives and programs for best practices at ports and in the marine industry that are protective of ecosystem health
18.2	Increase access to and knowledge of publicly owned Puget Sound shorelines and the marine ecosystem
<b>19</b>	<b>Ensure abundant, healthy shellfish for ecosystem health and for commercial, subsistence, and recreational harvest consistent with ecosystem protection</b>
19.1	Improve water quality to prevent downgrade and achieve upgrades of important current tribal, commercial, and recreational shellfish harvesting areas
19.2	Restore and enhance native shellfish populations
19.3	Ensure environmentally responsible shellfish aquaculture based on sound science
19.4	Enhance the public’s connection to shellfish and increase recreational harvest opportunities
19.5	Answer key shellfish safety research questions and fill information gaps

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>ECOSYSTEM STRATEGIES</b>	
20	Effectively prevent, plan for, and respond to oil spills
20.1	Prevent and reduce the risk of oil spills
20.2	Strengthen and integrate spill response readiness of the state, tribes and local governments
20.3	Respond to spills and seek restoration using the best available science and technology
21	Address and clean up cumulative water pollution impacts in Puget Sound
21.1	Complete total maximum daily load studies and other necessary water cleanup plans for Puget Sound to set pollution discharge limits and determine responses to water quality impairments
21.2	Clean up contaminated sites within and near Puget Sound
21.3	Protect and restore water quality at swimming beaches and recreational areas
21.4	Develop and implement local and tribal pollution identification and correction programs

<b>INSTITUTIONAL STRATEGIES</b>	
22	Provide the leadership framework to guide the Puget Sound recovery effort and set action and funding priorities
22.1	Provide backbone support for the recovery effort and Management Conference
22.2	Maintain and update the Action Agenda as the shared recovery plan
23	Support and build strategic, collaborative partnerships
23.1	Advance the coordination of local recovery actions through Local Integrating Organizations
23.2	Build and maintain collaborative partnerships with tribes to identify and advance recovery actions

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>INSTITUTIONAL STRATEGIES</b>	
24	Implement performance management
24.1	Work collaboratively to track and report on implementation performance
24.2	Work collaboratively to report on recovery progress
25	Coordinate and advance science and monitoring
25.1	Oversee strategic planning for Puget Sound recovery science
25.2	Implement a coordinated, integrated ecosystem monitoring program
26	Cultivate broad-scale stewardship practices and behaviors among Puget Sound residents that benefit Puget Sound
26.1	Prioritize targeted stewardship issues, actions, and audiences based on problem severity, problem frequency, availability of and confidence in science (natural and social) behind the problem, and ability to influence change
26.2	Develop and promote science-based targeted communications and behavior change strategies across the region
26.3	Enable and encourage residents to take informed stewardship actions addressing infiltration, pollution reduction, habitat improvement, forest cover, soil development, critical areas, reductions in shoreline armoring, and specific actions identified in other sub-strategies
26.4	Improve effectiveness of local and regional awareness building and behavior-change programs through vetted messages, proven strategies, and outcome-based evaluation. Guide partners in use of formative research and diffusion of priority best management practices
26.5	Enhance resources to sustain and expand effective behavior change and volunteer programs that support Action Agenda priorities and that have demonstrated, measurable outcomes
26.6	Create a repository of market, social, and audience research to support stewardship work. Include research and data from local, state, and federal governments, nonprofit, and private sector sources. Synthesize and disseminate to partners
26.7	Review practices and issues that require solutions beyond the Puget Sound region such as automotive, manufacturing and distribution of toxins, and pharmaceutical waste management. Develop strategies and partnerships outside the Puget Sound region to address issues

**TABLE 4-1.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>INSTITUTIONAL STRATEGIES</b>	
<b>27</b>	<b>Build issue awareness and understanding to increase public support and engagement in recovery actions</b>
27.1	Implement a long-term, highly visible, coordinated public-awareness effort using the Puget Sound Starts Here brand to increase public understanding of Puget Sound’s health, status, and threats. Conduct regionally scaled communications to provide a foundation for local communications efforts. Conduct locally scaled communications to engage residents in local issues and recovery efforts
27.2	Incorporate and expand Puget Sound-related content in diverse delivery settings (such as recreation, education institutions, local government, neighborhood and community groups, nonprofit organizations, businesses). Connect residents with public engagement and volunteer programs
27.3	Incorporate Puget Sound place-based content into K-12 curricula throughout the Puget Sound region. Connect schools with technical assistance, inquiry-based learning opportunities, and community resources. Implement student service projects connected to ecosystem recovery. Link schools to organizations with structured volunteer opportunities
27.4	Foster a long-term sense of place among Puget Sound residents. Encourage direct experiences with Puget Sound’s aquatic and terrestrial resources through recreation, informal learning, and public access sites
27.5	Build awareness of stewardship-building efforts among elected officials, executive staff, funders, resource managers, and others with resource allocation ability. Emphasize program roles, needs, and relationship with other Action Agenda strategies and program outcomes
<b>28</b>	<b>Build social and institutional infrastructure that supports stewardship behaviors and removes barriers</b>
28.1	Apply appropriate social science to Puget Sound recovery to increase clarity and effectiveness of targeted actions, audiences, opportunities, strategies, and evaluation metrics
28.2	Build capacity among partner organizations to advance priority stewardship actions. Provide technical support and training to advance program effectiveness, evaluation, and support of Action Agenda priorities
28.3	Maintain centralized capacity to sustain and enhance the regional Puget Sound Starts Here campaign
28.4	Provide public information conduits connecting individuals to local activities, resources, and decisionmaking processes—including cost-share programs, technical assistance, volunteer experiences, and ways to engage in civic structures and processes

**TABLE 4-I.** STRATEGIES AND SUB-STRATEGIES , CONTINUED

<b>INSTITUTIONAL STRATEGIES</b>	
28.5	Enhance strategic networks and tools that support stewardship partners and outcomes including ECONet, STORM, the Northwest Straits Initiative and Marine Resource Committees, tribes, municipalities not covered by stormwater permits, public agencies, funders, universities, nongovernmental organizations, and others
28.6	Work regionally and locally to remove implementation barriers (such as physical, economic, regulatory, enforcement, policy), and enable and incentivize adoption of stewardship actions
29	Funding strategy
29.1	Maintain and enhance federal funding for implementation of Action Agenda priorities
29.2	Focus federal agency budgets and national programs on Action Agenda priorities
29.3	Maintain, enhance, and focus state funding for implementation of Action Agenda priorities
29.4	Maintain and enhance local funding for implementation of Action Agenda priorities
29.5	Develop opportunities for private sector and philanthropic funding for implementation of Action Agenda priorities
29.6	Develop and implement market-based mechanisms for implementation of priorities in the Action Agenda
Notes: <sup>a</sup> The order and numbering of the strategies and sub-strategies in Table 4-I are for organizational purposes and do not represent priority or rank	

## WHAT ARE STRATEGIC INITIATIVES?

Strategic Initiatives prioritize near-term recovery efforts and funding to focus on the most meaningful improvements for Puget Sound. In 2012, the Puget Sound Partnership and two of its boards, the Ecosystem Coordination Board and the Science Panel, established three Strategic Initiatives:

- Stormwater Strategic Initiative: Prevent pollution from urban stormwater runoff.
- Habitat Strategic Initiative: Protect and restore habitat.
- Shellfish Strategic Initiative: Protect and recover shellfish beds.



To develop the Strategic Initiatives, the Partnership evaluated and ranked the relative ecological impact of each sub-strategy. The Partnership then grouped sub-strategies with the greatest potential to address the most critical threats to a healthy Puget Sound and their associated Near Term Actions and ongoing programs into Strategic Initiatives. The Partnership revisited which sub-strategies were

### STORMWATER STRATEGIC INITIATIVE: THE CHALLENGE

Nonpoint sources of pollution, such as stormwater and changes in the hydrology of runoff patterns, are the biggest threats to Puget Sound water quality. Polluted stormwater carries toxins, nutrients, sediment, and bacteria to Puget Sound, where these pollutants affect aquatic life and public health. Land development can increase stormwater runoff from impervious surfaces. Climate change and its effects on precipitation and runoff are significant variables in managing stormwater.

### HABITAT STRATEGIC INITIATIVE: THE CHALLENGE

Puget Sound habitat supports a multitude of fish, seabird, invertebrate, and plant species as well as a burgeoning human population. Human impacts on habitat have translated to declines—sometimes over a brief period of time—in many marine species. Habitat loss and decline is closely tied to tribal treaty rights that are at risk. The primary challenges to Puget Sound habitat are as follows:

- Hardened shorelines
- Filled estuaries
- Channelized rivers, altered floodplains, and loss of riparian corridors
- Competition for fresh water
- Oil and chemical spills
- Loss of habitat for protected species
- Vulnerability to climate change

### SHELLFISH STRATEGIC INITIATIVE: THE CHALLENGE

Shellfish make an essential contribution to the culture, recreation, and economy of the Puget Sound region. Northwest tribes have harvested shellfish for about 12,000 years. Commercial shellfish harvests generate about \$180 million annually in economic benefits to the state. The filtering and recycling capacities of shellfish are also essential to marine waters. Shellfish beds require excellent water quality, a requirement that is threatened by direct discharges of pollutants as well as stormwater and surface runoff. The rapid pace of ocean acidification exceeds the ocean's capacity to restore pH and chemical balance, causing shellfish to corrode more rapidly. While intensive shellfish aquaculture can supply shellfish to a demanding market, it can stress the Puget Sound ecosystem.

included in the Strategic Initiatives during the 2016 Action Agenda planning cycle to incorporate scientific research, policy advances, and knowledge from the adaptive management process. Some of these sub-strategies, known as cross-cutting sub-strategies, support more than one Strategic Initiative ([Appendix B, Cross-Cutting Sub-Strategies](#)). Specific information about the Strategic Initiatives is presented in the [Implementation Plan](#).

As described in [Chapter 3, Managing Recovery](#), the Strategic Initiative Leads, Strategic Initiative Advisory Teams<sup>4</sup>, Science Panel, Ecosystem Coordination Board, and Salmon Recovery Council are key partners in updating the Strategic Initiatives, which are ultimately adopted by the Leadership Council.

The Strategic Initiatives serve a crucial role in Puget Sound recovery by directing efforts and funding toward priorities that address the most critical threats and opportunities. Strategic Initiatives will increasingly be informed by Implementation Strategies.

### WHAT ARE IMPLEMENTATION STRATEGIES?

Implementation Strategies are our new framework for prioritization. They are discrete, sequenced strategic plans for accelerating progress in achieving the Puget Sound 2020 ecosystem recovery targets. The Implementation Strategies articulate the long-term recovery pathways and approaches most likely to improve conditions of a specific Vital Sign. They are expected to be revised and to improve with each cycle of the adaptive management process. The Implementation Strategies inform the Action Agenda,

the [Biennial Science Work Plan](#), effectiveness and trend monitoring, and salmon recovery planning.

Each Implementation Strategy is being designed to accomplish the following goals:

- Identify priority approaches for improving the conditions of a specific Vital Sign.
- Assess and combine elements of local and regional recovery efforts, ongoing programs, Near Term Actions from the Action Agenda, and results from the [Puget Sound Pressures Assessment](#).
- Identify priority pressures affecting the Vital Sign and key barriers to achieving the recovery target.
- Identify monitoring activities and needs, research priorities, and adaptive management elements and processes.
- Identify key geographic areas associated with the recovery target.
- Estimate costs of achieving the recovery target.

The vision for Implementation Strategies is that they will serve the entire community engaged in recovery related to a particular Vital Sign. This community includes legislators and policy makers, local implementers, funding agencies, recovery practitioners, and professionals. Our intent is that Implementation Strategies will ultimately increase the confidence and consensus of this entire community in the collective approach to success, drive adaptive

<sup>4</sup> For the 2016 Action Agenda Update, temporary groups called the Strategic Initiative Transition Teams were involved in the implementation planning pending selection and formation of the Strategic Initiative Leads and the Strategic Initiative Advisory Teams.

management, inform the funding strategy and decisionmaking, and accelerate progress toward meeting the target.

As of 2016, two pilot Implementation Strategies had been partially developed: one for estuaries and one for shellfish beds. These have been used as a model for developing additional Implementation Strategies and informing development of the [Implementation Plan](#). As more Implementation Strategies are developed, they will increasingly become the decisionmaking framework for biennial work planning, monitoring, and adaptive management.

The following Vital Signs have been prioritized for Implementation Strategy Development (completion targets):

- Estuaries (2015)
- Shellfish beds (2015)
- Floodplains (2016)
- Land development and land cover (2016)
- Shoreline armoring (2016)
- Chinook (2016)
- Freshwater quality (2017)
- Marine water quality (2017)
- Summer stream flows (2017)

## WHAT ARE NEAR TERM ACTIONS?

Near Term Actions are discrete, measurable activities and initiatives that contribute to achieving recovery targets and that can reasonably begin or achieve specific milestones within the next 2 years. Near Term Actions are included in the [Implementation Plan](#) and are tracked on the [Action Agenda Report Card](#) and reported in the [State of the Sound](#). Near Term Actions may be proposed by governmental organizations, academic institutions, nonprofit organizations, businesses, and individuals. They are required to be consistent with the Strategic Initiatives included in the [Implementation Plan](#) and local recovery plans developed by the Local Integrating Organizations. City and county governments, tribes, and state agencies are the primary implementers of the Near Term Actions.

## WHAT ARE ONGOING PROGRAMS?

Ongoing programs are recognized as a critical foundation for Puget Sound recovery. They are continuing efforts that provide regulatory oversight, technical support, implementation resources, or guidance that may have preceded the Action Agenda. Examples include programs related to implementation of the Growth Management Act at both the state and local level, salmon recovery programs, and Washington State Department of Ecology Clean Water Programs. They are not considered Near Term Actions because they are not discrete recovery actions—they are *ongoing*. However, the Near Term Action solicitation did request actions that were designed to improve, expand, or otherwise change an ongoing program—providing an opportunity for actions related to ongoing programs to be included in the ranking of Near Term Actions. Many ongoing programs are associated with state, federal, tribal, and local land use and environmental regulatory programs and have independent, long-term funding.

[Appendix C, Ongoing Programs](#), provides a list of key ongoing programs that contribute directly to achieving Puget Sound recovery goals. A list of ongoing programs that contribute to Puget Sound recovery will be maintained in the [Puget Sound Recovery Atlas](#). Ongoing programs that support the Strategic Initiatives are identified in the [Implementation Plan](#).

### WHAT ARE CROSS-CUTTING ISSUES?

Cross-cutting issues affect multiple aspects of Puget Sound recovery and have regional implications. They provide a focus for developing new Near Term Actions and influence progress toward the recovery targets. Since 2008, the Puget Sound Partnership has worked with boards, partners, and advisory groups to identify and refine key cross-cutting issues and to determine how these issues need to be addressed in the Action Agenda. The four cross-cutting issues addressed in the 2016 Action Agenda are tribal treaty rights and resources, climate change, ocean acidification, and recovery of endangered salmonids. Cross-cutting issues are integrated into the strategic initiatives, strategies, and actions in the [Implementation Plan](#). Tribal treaty rights are foundational to all three Strategic Initiatives, and the Habitat Strategic Initiative corresponds directly with recovery of endangered salmonids and all fish and aquatic species. Climate change and ocean acidification are integrated during the action planning process, as described further in the [Implementation Plan](#).

### TRIBAL TREATY RIGHTS

Puget Sound has been home to populations of native tribal communities for thousands of years. U.S. federal courts have established tribes as co-managers of fish and shellfish resources in Washington waters. As co-managers, tribal governments are on the front lines of Puget Sound recovery. A healthy Puget Sound ecosystem is central to tribal culture, spiritual practices, well-being, and economic health. The treaty tribes of western Washington have

*Our considerable investment in habitat restoration has not been able to turn the powerful tide of loss and degradation...If salmon are to survive, we must begin to achieve real gains in habitat protection and restoration. The path we are on leads to the extinction of the salmon resource and our treaty-reserved rights.*

—Treaty Rights At Risk—A Report from the Treaty Indian Tribes in Western Washington, July 2011

expressed strong concern over declining habitat and the need for federal agencies in the Puget Sound region to coordinate efforts and prioritize Puget Sound recovery.

In 2011, the Treaty Tribes of Puget Sound and the Coast released a paper entitled [Treaty Rights at Risk—Ongoing Habitat Loss, the Decline of the Salmon Resource, and Recommendations for Change](#), in which the tribes point out that the right to fish reserved for them in the treaties is meaningless if there are no fish left to catch. They cite numerous examples from across Puget Sound of continued loss of habitat due to shoreline armoring, loss of forest, increase in paved lands, and filling and diking of estuarine wetlands. The paper is a call to action, intended to galvanize and energize response by federal, state, local, and tribal governments and policy makers to reverse the downward slide of salmon and their habitat.

Puget Sound tribes have engaged in an intensive coordination process to identify priority actions to address the continued loss of salmon habitat. Although there is close agreement between the [Tribal Habitat Priorities](#) and the Strategic Initiatives, more work is needed to ensure progress. The Partnership continues to work with tribes through the Partnership Tribal Co-management Council to address additional items in the [Tribal Habitat Priorities](#) throughout Puget Sound.

## CLIMATE CHANGE

Climate change has—and will continue to have—important impacts on natural resources and ecosystems throughout the Puget Sound region. Ocean acidification,<sup>5</sup> reduced snowpack, lower summer stream flows, warmer temperatures, increased landslide risk, erosion, and more frequent and intense flooding will affect the delicate

biological balance of habitats and species. Human ecosystems will also change as agricultural systems, infrastructure, and even health and safety are affected by higher temperatures, reduced snowpack, and precipitous weather events.

The Puget Sound Partnership is working closely with institutions such as the University of Washington Climate Impacts Group

### **CLIMATE CHANGE RESPONSE STRATEGIES (PREPARING FOR A CHANGING CLIMATE: WASHINGTON STATE'S INTEGRATED CLIMATE RESPONSE STRATEGY, WASHINGTON STATE DEPARTMENT OF ECOLOGY 2012)**

This report sets seven high-priority and comprehensive response strategies for climate change:

- **People.** Protect people and communities from climate change impacts by enhancement of core public health and emergency response capacity.
- **Assets.** Reduce risk of damage to buildings, transportation systems, and other infrastructure through restoration of ecosystem services, relocation of critical assets, and consideration of future climate while siting new development.
- **Productive lands.** Reduce forest and agriculture vulnerability to climate change impacts through land use preservation, mitigation of wildfire risk, and invasive pest and disease control.
- **Water.** Improve water management to address climate-related supply reductions through integrated water management, enhanced water conservation and efficiency, water allocations in salmon-bearing streams, and integration of future climate into agency decisionmaking.
- **Wildlife.** Safeguard fish and wildlife and protect critical ecosystem services that support human and natural systems through habitat restoration, species protection, and reduction of stresses on species and the ecosystems.
- **Coastal communities.** Reduce the vulnerability of coastal communities, habitat, and species through degradation prevention, upland habitat creation, and reduction of sources of land-based carbon and polluted runoff that contribute to ocean acidification.
- **Strengthen local capacity.** Support the efforts of local communities and strengthen capacity to respond to and engage with the public through identification of new funding mechanisms, improved coordination and support for an integrated approach, enhanced information-gathering, and engaging the public.

<sup>5</sup> Because multiple factors influence ocean acidification, this topic is addressed as one of the four cross-cutting issues and not discussed in detail under this climate change section.

and the Department of Ecology to ensure that recovery efforts are informed by changing conditions and advances in our shared understanding of risks posed by climate change. Climate change was first systematically integrated into the process of soliciting, identifying, and refining Near Term Actions in the 2016 Action Agenda. Experts from the University of Washington Climate Impacts Group guided the Near Term Action owners on how to improve the longevity of projects by understanding the likely future climatic conditions in the region.

The Washington State Department of Ecology's climate change response strategies were originally integrated into the 2012 Action Agenda and aligned with strategies, sub-strategies, and Near Term Actions. These strategies continue to influence ongoing planning and implementation efforts.

The continuing efforts of ongoing programs and the design and implementation of Near Term Actions are key to incorporating the climate response strategies in planning and implementation efforts. It is important that we continue to support ongoing programs and Near Term Actions that directly address climate change because these actions can help the region adapt to climate change by protecting and improving the condition and resiliency of our natural systems. It may also be valuable to understand how a Near Term Action, once implemented, is likely to perform under future climate conditions. For example, are we spending a lot of money restoring and protecting habitat that could be under water in 20 years while also developing the upland area that may be the future shoreline?

**CLIMATE CHANGE DRIVERS IN PUGET SOUND (STATE OF KNOWLEDGE: CLIMATE CHANGE IN PUGET SOUND, UNIVERSITY OF WASHINGTON CLIMATE IMPACTS GROUP 2015)**

The following trends in climate are projected for the Puget Sound region. Natural variability on the seasonal, annual, or decadal scale may temporarily amplify or obscure long-term climate change.

- **Temperature.** Additional warming for the 21st century will be two to ten times as large as the warming experienced in the 20th century.
- **Precipitation.** Precipitation patterns will show larger variation between years and decades—a less consistent environment in terms of rainfall.
- **Heavy rainfall.** Heavy rainfall events will be more frequent and more intense.
- **Sea level rise.** Varied level of increase around Puget Sound will affect coastal flooding risks.
- **Ocean acidification.** Projected pH levels in Puget Sound will continue to decrease; acidification will continue to increase and affect marine species.

The Puget Sound Partnership has been working with the University of Washington Climate Impacts Group to align Near Term Actions with the latest climate change science so that the link between each Near Term Action and climate change is clear. The [Implementation Plan](#) identifies regional priorities specifically designed to solicit actions that assess climate change impacts on communities and that develop adaptation plans where impacts are demonstrated.

The [Implementation Plan](#) will be revised as part of the biennial update. Each iteration of the plan will be informed by the best available science. This knowledge will improve our ability to integrate adaptation and resiliency into future planning and the development of Implementation Strategies. Additionally, some federal programs, such as the National Estuary Program, require participants, such as Puget Sound, to provide a risk-based assessment of climate change impacts and resiliency planning. Work is currently underway to consider how the Action Agenda will meet these new climate-ready estuary requirements by 2020. Key milestones and projected timelines for integrating climate change vulnerability assessments and resiliency planning into the Action Agenda are as follows:

- Complete climate change vulnerability analysis for Puget Sound (2017).
- Consider climate resiliency in Ecosystem Recovery Plans and Near Term Actions (ongoing).
- Include climate change adaptation strategies in the Implementation Strategies (ongoing).
- Strategic Initiative Leads and Strategic Initiative Advisory Teams identify ways for Near Term Action owners to consider climate change impacts (2017).
- Meet Climate-Ready Estuary requirements with the 2020 Action Agenda (2020).

## OCEAN ACIDIFICATION

The increasing acidity of oceans is a global phenomenon that is fundamentally altering our marine ecosystems. Washington's marine waters are vulnerable to ocean acidification because of regional factors such as upwelling, stormwater runoff with nutrients and organic carbon, and local emissions, which exacerbate the acidifying effects of global carbon dioxide emissions. Ocean acidification can affect a wide range of organisms, from seagrasses to fish and shellfish. If conditions persist or worsen, ocean acidification could impose some of the most significant and direct climate change impacts on the Puget Sound ecosystem and the aquaculture industry. In 2012, the [Washington State Blue Ribbon Panel on Ocean Acidification](#) published its findings and recommendations to chart a course for addressing the causes and consequences of acidification.<sup>6</sup>

- Reduce emissions of carbon dioxide.
- Reduce local land-based contributions to ocean acidification.
- Increase our ability to adapt to and remediate the impacts of ocean acidification.
- Invest in our ability to monitor and investigate the causes and effects of ocean acidification.
- Inform, educate, and engage partners, the public, and decisionmakers in responding to ocean acidification.
- Maintain a sustainable and coordinated focus on ocean acidification at all levels of government.

<sup>6</sup> Adelman, H. and L. Whitley Binder (eds). Ocean Acidification: From Knowledge to Action, Washington State's Strategic Response. Washington State Department of Ecology, Olympia, Washington. Publication 12-01-015. [Available here](#)

The Marine Resources Advisory Committee is leading efforts to plan actions based on the Blue Ribbon Panel recommendations and provide input on development of Near Term Actions in the [Implementation Plan](#) and the [Biennial Science Work Plan](#).

## RECOVERY OF ENDANGERED SALMON

The Leadership Council is the regional salmon recovery organization for Puget Sound. The Leadership Council works closely with the Salmon Recovery Council to oversee funding and implementation of the [Puget Sound Salmon Recovery Plan](#).

The Partnership works with its boards to integrate salmon recovery and overall ecosystem recovery efforts. Although the [Puget Sound Salmon Recovery Plan](#) was written to meet federal requirements under the [Endangered Species Act](#), most—if not all—of its strategies and actions contribute to overall ecosystem recovery. Likewise, many of the strategies in the Action Agenda are essential for salmon recovery. Connecting these two efforts seamlessly and efficiently is necessary to achieve our twin goals of salmon recovery and ecosystem recovery.

Similarly, on the scientific front, the Science Panel has incorporated the Puget Sound Salmon Recovery Council’s recovery planning priorities into the development of the [Biennial Science Work Plan](#). Moving into the future, the Science Panel’s Salmon Science Advisory Group will provide the Puget Sound Salmon Recovery Council with scientific advice to reduce uncertainty, develop and focus priorities, and integrate habitat protection, habitat restoration, harvest management, and hatchery management strategies and actions.

Recovering threatened salmon species in Puget Sound remains an urgent priority of the Leadership Council, the Puget Sound Salmon Recovery Council, and the Puget Sound Partnership. Bold and sustained action to protect and restore habitat—complementing

ongoing efforts to improve harvest and hatchery management practices—will be required to reverse the declining trends in threatened salmon populations in Puget Sound. Working together, we must ensure the Puget Sound ecosystem is resilient enough to support salmon in the face of climate change, population growth, ocean acidification, and other pressures.

## HOW DO WE PRIORITIZE ACTIONS?

The [Implementation Plan](#) describes the planning process and regional priorities that inform the selection of Near Term Actions. It also identifies ongoing programs related to each sub-strategy and the gaps and barriers that may be addressed as part of future Strategic Initiatives. The Puget Sound Partnership is required to prioritize actions in the [Implementation Plan](#) to inform the allocation of limited federal, state, and local resources.<sup>7</sup> Setting priorities often requires addressing the delicate balance across the spectrum of ecological and human needs.

The Partnership continues to create a more systematic and replicable approach to prioritization. This includes creating a transparent, durable framework for the prioritization process and reaching out to technical and policy experts, restoration practitioners, partners, and decisionmakers to gather information on the impacts of each proposed Near Term Action. The priority-setting process is collaborative, information-based, transparent, and replicable and illuminates where gaps in knowledge or uncertainty are particularly relevant to our understanding of what various actions might achieve. The [Implementation Plan](#) provides details on the most recent planning process.

<sup>7</sup> RCW 90.71 requires the Partnership to prioritize actions necessary to recover Puget Sound.