

# THE 2016 ACTION AGENDA FOR PUGET SOUND



JUNE 2016

# ACTION AGENDA FOR PUGET SOUND

**LETTER FROM LEADERSHIP COUNCIL**

**EXECUTIVE SUMMARY**

**COMPREHENSIVE PLAN**

**IMPLEMENTATION PLAN**

**APPENDICES**

## **LETTER FROM LEADERSHIP COUNCIL**





# EXECUTIVE SUMMARY

# ACTION AGENDA FOR PUGET SOUND

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## **COMPREHENSIVE PLAN**

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## **APPENDICES**

- Appendix A | Strategies and Sub-strategies
- Appendix B | Cross-Cutting Sub-Strategies
- Appendix C | Ongoing Programs





## WHY DO WE NEED THE ACTION AGENDA?

Puget Sound is a unique and vital part of our region. It nourishes our health, economy, environment, and quality of life. A healthy Puget Sound is essential to sustaining a vibrant economy, meeting our obligations to treaty rights, and supporting our need for connection to the natural world. But Puget Sound is in trouble.

Over the past 150 years, human use has damaged Puget Sound, causing the degradation of water quality, water quantity, and habitat. Many Puget Sound species are in decline, habitat is in jeopardy, and food webs are changing. The human population keeps growing, resulting in more land development, infrastructure, and pollution. Our challenge is further complicated by uncertainty about how climate change and ocean acidification will affect the Puget Sound ecosystem.

## WHAT IS THE ACTION AGENDA?

The Action Agenda is our region's shared roadmap for Puget Sound recovery. The Action Agenda outlines the regional strategies and specific actions needed to protect and restore Puget Sound. The Action Agenda is a collective effort that is informed by science and guides effective investment in Puget Sound protection and restoration.

## HOW IS THE ACTION AGENDA ORGANIZED?

The Action Agenda is comprised of two components: the *Comprehensive Plan* and the *Implementation Plan*.

- The [\*Comprehensive Plan\*](#) charts the course for long-term Puget Sound recovery by outlining overarching strategies for successful protection and restoration, identifying the full scope of actions and funding necessary for recovery, and introducing the approaches by which issues and activities are prioritized, progress is evaluated, and strategies and actions are adapted over time.
- The [\*Implementation Plan\*](#) is the action component of the Action Agenda for the next two years. Based on the fundamental framework and broad strategies described in the *Comprehensive Plan*, the *Implementation Plan* defines the suite of Near Term Actions and ongoing programs that are needed in order to make progress toward achieving the 2020 recovery targets for Puget Sound Vital Signs.

NAVIGATING THE 2016 ACTION AGENDA	
How do we define recovery?	<a href="#"><i>Comprehensive Plan—Chapter 2</i></a>
Who makes the Action Agenda?	<a href="#"><i>Comprehensive Plan—Chapter 3</i></a>
How do we know if recovery efforts are effective?	<a href="#"><i>Implementation Plan—Chapter 2</i></a>
How do all the pieces work together?	<a href="#"><i>Comprehensive Plan—Chapter 4</i></a>
How will we pay for recovery?	<a href="#"><i>Comprehensive Plan—Chapter 5</i></a>
What work is planned in the next two years?	<a href="#"><i>Implementation Plan—Chapter 1</i></a>
What are the regional priorities for Puget Sound recovery?	<a href="#"><i>Implementation Plan—Chapter 3, 4 and 5</i></a>
How do existing and ongoing programs fit into Strategic Initiatives?	<a href="#"><i>Implementation Plan—Chapter 3, 4 and 5</i></a>
What if my program is not associated with a Strategic Initiative? Is it still part of the Action Agenda?	<a href="#"><i>Comprehensive Plan—Chapter 4</i></a> and <a href="#"><i>Appendix C</i></a>

## HOW HAS THE ACTION AGENDA CHANGED?

The Action Agenda is a living document. As our knowledge of the ecosystem advances and our understanding of the effectiveness of recovery actions evolve, the Action Agenda needs to keep pace, ensuring that it continues to serve as an effective shared roadmap. This 2016 Action Agenda reflects several new developments that focus and prioritize actions and resources.

The 2016 Action Agenda has been structured in two to align with funding cycles. Longer-term content is in the [Comprehensive Plan](#) and content that is updated biennially is in the [Implementation Plan](#). The 2016 Action Agenda applies the principles of adaptive management by improving the plan based on new information and lessons learned from past implementation successes and challenges. Specifically, experiences from implementing the [2012 and 2014](#)

[Action Agendas](#), the [updated Puget Sound Pressures Assessment](#), and efforts to develop Implementation Strategies for the Shellfish Beds and Estuaries have informed the 2016 Action Agenda.

The Action Agenda is in a transition from being guided by Strategic Initiatives to being guided by Implementation Strategies. The Strategic Initiatives are regional priorities that help direct spending and resources. The 2016 Action Agenda requires that all proposed Near Term Actions address one of the three Strategic Initiatives. Implementation Strategies are plans for achieving specific recovery. Implementation Strategies are introduced in the 2016 Action Agenda and it is anticipated that their role will increase in subsequent updates to the [Implementation Plan](#).

## HOW IS THE ACTION AGENDA FOCUSED ON STRATEGIC INITIATIVES?

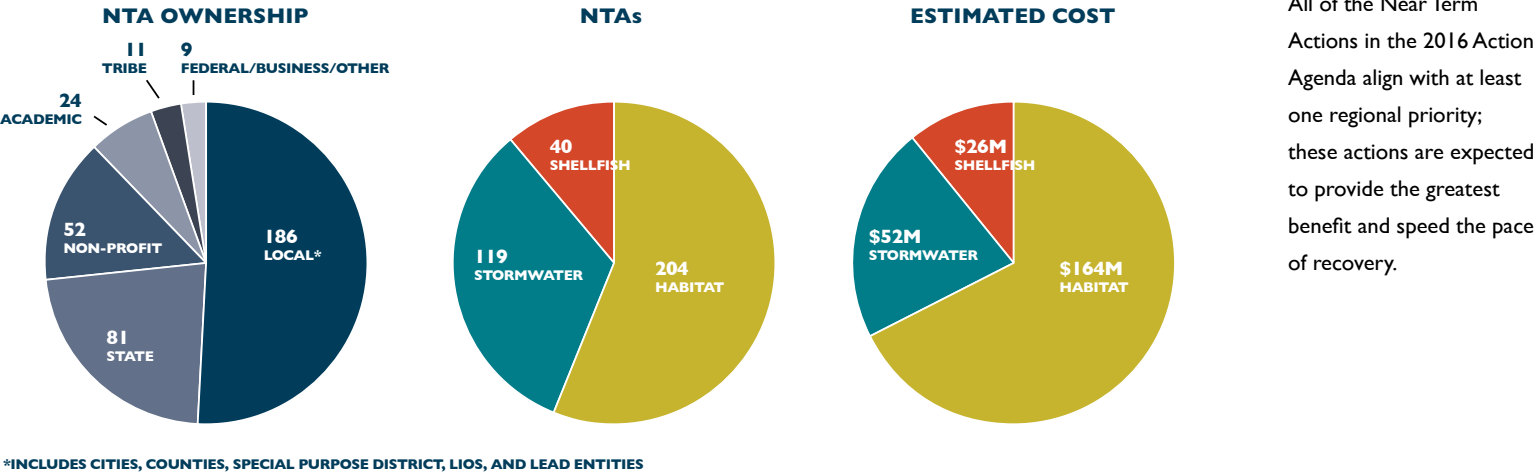
The Leadership Council has directed the *Implementation Plan* to focus on the Strategic Initiatives. The Strategic Initiatives emphasize the priority topics and issues critical to Puget Sound recovery. Three Strategic Initiatives are prioritized in this Action Agenda.

The 2016 *Implementation Plan* is focused on actions necessary to improve the Vital Signs associated with each of the three Strategic Initiatives. The plan refines this focus through prioritization of Near Term Actions, identification of ongoing programs that support the Strategic Initiatives, and a gap analysis that highlights suggestions to improve the current approach for the next biennial planning cycle.





FIGURE 1. 2016 NEAR TERM ACTIONS



### WHAT NEAR TERM ACTIONS ARE IN THE 2016 ACTION AGENDA?

Near Term Actions complement ongoing work and optimize funding and resources by focusing on priorities. Each Near Term Action was reviewed and ranked by technical teams established for each Strategic Initiative. The technical team included representatives from state, federal, tribal, local, nonprofit, academic, and private entities. The teams created an opportunity for partners to have a greater role in determining the content of the *Implementation Plan*.

A total of 398 proposed Near Term Actions were submitted in December 2015. Of these, the owners of 375 Near Term Actions responded to technical feedback to improve their project plans and their actions continued on to the second phase of review. Subsequently, 363 Near Term Actions met the requirements for

inclusion in the Action Agenda. The resulting Near Term Actions, estimated to cost \$242 million, focus the Action Agenda on the three Strategic Initiatives as follows:

- **119** Near Term Actions relate to the Stormwater Strategic Initiative to prevent pollution from urban stormwater runoff.
- **204** Near Term Actions relate to the Habitat Strategic Initiative to protect and restore habitat.
- **40** Near Term Actions relate to the Shellfish Strategic Initiative to protect and recover shellfish beds.

The distribution of the NTAs by Strategic Initiative, estimated cost and ownership are shown above in Figure 1.



# COMPREHENSIVE PLAN



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## CHAPTER I | INTRODUCTION

### WHY DO WE NEED THE ACTION AGENDA?

Puget Sound is a unique and vital part of our region. It nourishes our health, economy, environment, and quality of life. A healthy Puget Sound is essential to sustaining a vibrant economy, meeting our obligations to treaty rights, and supporting our need for connection to the natural world. But Puget Sound is in trouble.

Over the past 150 years, human use has damaged Puget Sound, causing the degradation of water quality, water quantity, and habitat. Many Puget Sound species are in decline, habitat is in jeopardy, and food webs are changing. Today, 4.5 million people live in the Puget Sound region. By 2040, a population of 7 million is projected, the equivalent of adding approximately four cities the size of Seattle to our watershed. Additionally, planned growth of fossil fuel shipping through the region will increase vessel traffic and the threat of spills. The rapid economic and population growth will lead to more land development, infrastructure, and pollution. Recovering Puget Sound will require increased focus on protecting habitat and managing land development to ensure that our restoration efforts outpace habitat loss, and begin to change the recovery trajectory of Puget Sound.

Our challenge is further complicated by uncertainty about how climate change and the stresses of ocean acidification will affect the Puget Sound ecosystem. Work we have done to clean up and restore areas—at great cost—is being undone as the chemicals we use in daily life make their way through stormwater runoff to contaminate Puget Sound waters.





## PUGET SOUND

Puget Sound is the largest estuary by water volume in the United States and connects with the international waters to form the Salish Sea. Carved by glaciers and fed by more than 10,000 rivers and streams, Puget Sound is defined by the movement of water. Beginning as snow in the Cascades and Olympics, fresh water flows down from these mountain ranges through streams and fertile river valleys into Puget Sound, connecting to a complex network of salt marshes, wetlands, smaller estuaries, bluffs, beaches, and bays. Puget Sound is a vast and beautiful estuary—a semi-enclosed, glacial fjord—where salt water from the Pacific Ocean mixes with fresh water draining from the surrounding watersheds. From the Canadian border south to Olympia and west to the Pacific Ocean, About 2,800 square miles of inland marine waters and 2,500 miles of shoreline comprise Puget Sound. Nearly 85 percent of Puget Sound's annual surface water runoff comes from 10 major river systems: the Nooksack, Skagit, Snohomish, Stillaguamish, Cedar/Lake Washington, Green/Duwamish, Puyallup, Nisqually, Skokomish, and Elwha.

**FIGURE I-1. PUGET SOUND REGION**



**Puget Sound orca whales are among the most toxin-contaminated mammals on earth <sup>a</sup>**

**Salmon populations are one-third as abundant as they were in 1908 and populations continue to decline. Chinook salmon populations are so low that recreational fishing days have been significantly reduced**

**The Puget Sound shoreline from Everett to Tacoma is closed to commercial shellfish harvest because of pollution <sup>b</sup>**

**Shellfish beds and swimming beaches are often closed because the water is too contaminated with fecal bacteria**



## **BEAUTIFUL ON THE SURFACE, BUT HARD TRUTHS ARE DIFFICULT TO IGNORE**

**Over one-quarter of Puget Sound shorelines—almost 700 miles—has been hardened by bulkheads that reduce fish and wildlife habitat**

**Hundreds of tons of toxic organic chemicals and metals end up in Puget Sound each year from cars, roofs, wood treatments, wood burning, boat paint, household pesticide use, consumer products, pharmaceuticals, and air emissions**

**The rivers and streams that flow into Puget Sound are the lifeblood of our region's ecosystems, yet only 64 percent of the major rivers in Puget Sound meet water quality standards**

**During the past 150 years, Puget Sound lost at least two thirds of its remaining old-growth forest, more than 90 percent of its native prairies, and 80 percent of its marshes**

<sup>a</sup> Ross, P.S., G.M. Ellis, M.G. Ikonomou, L.G. Barrett-Lennard, and R.F. Addison. 2000. High PCB Concentrations in Free-Ranging Pacific Killer Whales, *Orcinus Orca*: Effects of Age, Sex and Dietary Preference. *Marine Pollution Bulletin* 40:504-515. [Available here](#)

<sup>b</sup> However, there are some subtidal geoduck tracts approved for commercial harvest in this area, and Dash Point State Park is open for recreational harvest.

CONTINUED FROM PAGE I

The pressures are relentless and continue to take their toll on the Puget Sound ecosystem and the well-being of residents around the region. However, not all news is bad. Water quality has been maintained in shellfish growing areas. Today, safe shellfish harvesting is allowed in more areas than in 2007. Recent studies have shown that low-impact development techniques are improving conditions for coho salmon<sup>1</sup>.

The good news is that we can preserve the vitality Puget Sound brings to our region if we work together. This collective action will test the limits of our scientific knowledge and our will as a society. In response to growing awareness that Puget Sound was in serious trouble, in 2007, the Washington State Legislature passed legislation with large bipartisan majorities to create the Puget Sound Partnership. The legislation mandated a comprehensive recovery framework to replace what was seen as fragmented attempts at recovery. Specifically, the legislation mandated that the Partnership coordinate and lead the effort to protect and restore Puget Sound through a strategic, prioritized, science-based Action Agenda “that addresses all of the complex connections among the land, water, web of species, and human needs.”

Puget Sound will never be as it was 150 years ago, and the task of saving Puget Sound is large and complex. Success requires collaboration, clear direction, and effective action. Together with our partner agencies, organizations, and citizens, we can protect and restore Puget Sound by using science-informed, prioritized actions—this is what the Action Agenda is designed to do.

## WHAT IS THE ACTION AGENDA?

The Action Agenda is our region’s shared roadmap for Puget Sound recovery. The Action Agenda outlines the regional strategies and specific actions needed to protect and restore Puget Sound. It is designed to improve the effectiveness and efficiency of Puget Sound recovery by providing a coordinated plan of action and creating ways to identify and apply lessons learned over time. The Action Agenda complements other local or subregional planning processes such as salmon recovery plans and watershed plans by identifying a consolidated set of priorities and opportunities for federal, state, local, tribal, and private entities to invest resources and coordinate actions. In particular, the Action Agenda has been developed with the following intentions:

For the purposes of the Action Agenda, recovery is an inclusive term that covers the protection and restoration of essential resources and functions.

- **It is a collective effort.** By gathering diverse partners from state and federal agencies, tribal governments, local governments, and business and environmental groups; agreeing on a roadmap with prioritized actions; and sharing a vision for the future of Puget Sound, the Action Agenda offers partners a roadmap for making investments that will maximize results.
- **It is informed by science.** The Action Agenda is based on decisions that are supported by science through input from regional science experts with a variety of public, private, tribal, and academic affiliations and different technical and geographic areas of focus.

<sup>1</sup> Additional information regarding successful efforts to restore Puget Sound, visit the Puget Sound Partnership web page for [Effectiveness Monitoring](#).



- **It guides effective investment in Puget Sound.** The Partnership adopted an adaptive management framework to ensure a scientifically rigorous and systematic approach to developing the Action Agenda. By constantly assessing the effectiveness of actions and outcomes, tracking progress, and reprioritizing needs, our roadmap is an evolving indication of the highest return on investment for recovery at any point in time.
- **It meets the National Estuary Program's Comprehensive Conservation and Management Plan requirements.** The National Estuary Program is the primary method through which the U.S. Environmental Protection Agency provides funding for Puget Sound recovery.
- **It meets the Washington State Legislature mandates.** When the State of Washington created the Puget Sound Partnership, the State mandated creation of the Action Agenda to plan and coordinate the science-informed recovery of Puget Sound. It directs the Partnership to tailor programs and activities within the region to meet Puget Sound needs.

## HOW IS THE ACTION AGENDA ORGANIZED?

Two components comprise the Action Agenda: the Comprehensive Plan and the Implementation Plan.

- This ***Comprehensive Plan*** provides the roadmap for long-term Puget Sound recovery by outlining overarching strategies for successful protection and restoration. It aims to identify the full scope of actions and funding necessary for recovery and introduces the approaches by which issues and activities are prioritized, progress is evaluated, and strategies and actions are adapted over time.
- The ***Implementation Plan*** identifies actions that have been prioritized for implementation within the plan's 2-year timeframe that support the recovery goals and strategies identified in the Comprehensive Plan. It also lists the ongoing programs.

Readers can also access [supporting materials](#) that provide additional information, references, Local Integrating Organization long-term recovery plans, 2-year implementation plans, summaries of previous and ongoing planning efforts, and other related topics on the Action Agenda website. Hyperlinks to these materials are provided throughout this Action Agenda.



## CHAPTER 2 | FRAMEWORK FOR RECOVERY

Puget Sound recovery—which encompasses protection and restoration—is carried out in an adaptive management framework. Adaptive management is a way of learning continuously from past actions in order to improve future actions. The Puget Sound Partnership adopted a specific adaptive management model in 2009, called the Open Standards for the Practice of Conservation (Open Standards). The Open Standards framework builds on explicitly structured interactions among decisionmakers, implementers, scientists, and partners to encourage innovation, sharing of successful practices, and adaptation. The framework relies on a strong scientific basis and coordinated monitoring and reporting. The Puget Sound Partnership will be working continually toward managing recovery within this framework. A simplified adaptive management framework is illustrated in Figure 2-1, and its key steps are described below.

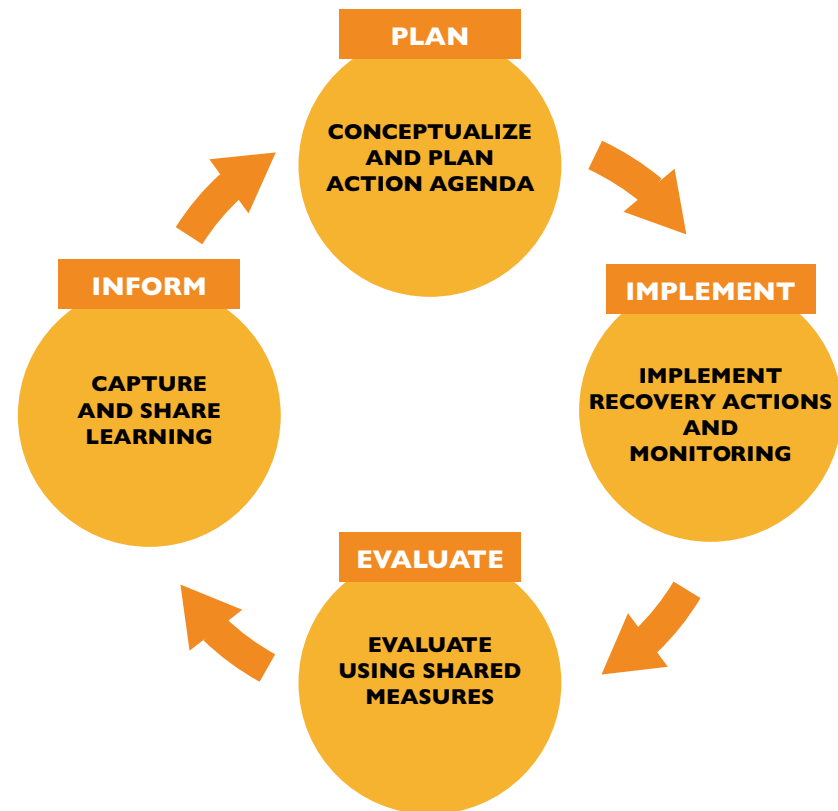
- **Plan.** The Action Agenda is the shared strategic roadmap to recovery. Conceptualizing and planning for the Action Agenda is the focus of this step. The process involves using the best available information and engaging regional experts to identify the problem, scope the overarching approach, define desired future conditions, analyze current conditions, identify and prioritize recovery actions for implementation based on anticipated effectiveness, and plan monitoring actions.
- **Implement.** Partners implement programs and projects identified in the Action Agenda to support Puget Sound recovery. The Puget Sound Partnership supports these efforts by mobilizing funding, removing barriers, catalyzing progress, and educating key decisionmakers and influencers so that partners have the resources they need to succeed.

- **Evaluate.** Partners track and report on implementation and conduct monitoring to evaluate action effectiveness and progress toward recovery based on shared measurements. Monitoring and reporting feed the adaptive management process with scientific findings.
- **Inform.** The Puget Sound Partnership captures and shares knowledge gained from evaluating effectiveness and ecosystem responses. The Partnership then adjusts priorities and adapts action-planning based on information gathered through the development, implementation, and evaluation of the previous planning cycle.

By developing this adaptive management framework, coordinating its implementation across the region, and monitoring and evaluating progress, the Partnership aligns and continually improves recovery efforts across partners' missions, jurisdictions, and funding approaches.

The roles and responsibilities of the Partnership, its boards, and partners in this framework are described in [Chapter 3, Managing Recovery](#). The strategic planning that supports the identification and prioritization of actions presented in the [Implementation Plan](#) is described in [Chapter 4, Planning Recovery](#). This chapter describes the shared measurements that guide action-planning and measure its success, how actions are implemented and tracked, how progress toward recovery goals is evaluated and reported, and how science informs each step in the cycle. In all aspects of Puget Sound recovery, the Partnership is guided by the principles of ecosystem management adopted in 2008.

**FIGURE 2-1.** A SIMPLIFIED ADAPTIVE FRAMEWORK FOR PUGET SOUND ECOSYSTEM RECOVERY



See the [Action Agenda adaptive management](#) infographic to illustrate and contextualize the terminology and process described in the Comprehensive Plan.



# GUIDING PRINCIPLES FOR ECOSYSTEM MANAGEMENT

The Guiding Principles for Ecosystem Management, adopted by the Leadership Council, Science Panel, and Ecosystem Coordination Board in 2008, guide the Puget Sound Partnership in its approach to ecosystem recovery.

- A. Address pressures and choose opportunities with the highest potential magnitude of impact.
- B. Address threats with the highest level of urgency. How imminent is the threat? Will it result in an irreversible loss? How resilient are the resources that are affected?
- C. Use strategies that have a reasonable certainty of effectiveness and reflect a balanced precautionary and adaptive approach.
  - Actions should have a realistic expectation that they will be effective in addressing the identified threat.
  - Actions and decisions about the use of resources should err on the side of caution to avoid irreversible ecological consequences.
  - Actions should be designed so they can be measured, monitored, and adapted.
- D. Use scientific input—about the importance, urgency, and reversibility of threats; opportunities for management impact; effectiveness of actions; and monitoring and adaptation—in designing, implementing, and evaluating strategies.
- E. Use strategies that are cost-effective in making efficient use of funding, personnel, and resources with realistic expectations of achieving results.
- F. Address the processes that form and sustain ecosystems and increase ecosystem resiliency rather than focusing narrowly on fixing individual sites. Consider the Salish Sea ecosystem perspective.
- G. Attempt to address threats at their origin instead of reacting after the damage has been done. Anticipate and prevent problems before they occur, and plan for extreme events. (With more people coming to the region and a changing climate, a proactive strategy is increasingly important.)
- H. Consider the linkages and interactions among strategies.
  - Address multiple threats and their interactions with strategies that work together. We cannot afford to look at problems or develop solutions in isolation.
  - Watch out for unintended consequences. Evaluate strategies so actions to address one problem do not cause harm to other ecosystem processes, functions, and structure, as well as social and economic considerations.
  - Integrate salmon recovery actions with ecosystem management actions.
- I. Account for the variations in ecosystem conditions and processes in different geographic areas of Puget Sound. Some parts of Puget Sound are fairly intact while others are severely degraded, and rebuilding strategies need flexibility to encompass regional differences. Ensure that no region or economic sector bears the entire brunt of the responsibility for implementing solutions.
- J. Account for human communities and values as fundamental, central elements of the Puget Sound ecosystem (the Puget Sound social-ecological system in other words).

## WHAT ARE THE SHARED MEASURES OF PROGRESS?

### RECOVERY GOALS

- **Healthy human population.** Healthy people are supported by a healthy Puget Sound.
- **Human quality of life.** Our quality of life is sustained by a healthy Puget Sound.
- **Species and food web.** Puget Sound species and the web of life thrive.
- **Protect and restore habitat.** Puget Sound habitat is protected and restored.
- **Water quantity.** Puget Sound rivers and streams flow at levels that support people, fish, and wildlife.
- **Water quality.** Puget Sound marine and fresh waters are clean.

The Washington State statute that created the Puget Sound Partnership defines six recovery goals (see text box).

FIGURE 2-2. PUGET SOUND VITAL SIGNS.



The outer ring shows each of the six recovery goals for Puget Sound, established by the Washington State Legislature. The inner wedges represent the 25 Vital Signs, each associated with its primary recovery goal.

VITAL SIGNS

To understand the health of the Puget Sound ecosystem and to describe desired future conditions, the Partnership needed clear, measurable targets for achieving the six recovery goals. The Partnership adopted the Vital Signs as these measures of health. The Vital Signs are directly aligned with the six recovery goals (Figure 2-2).

VITAL SIGN INDICATORS

Most Vital Signs are represented by one or more specific and measurable metrics—called indicators—that provide information about the condition of the Puget Sound ecosystem. The indicators are not intended to be comprehensive or representative of the full spectrum of issues that are related to a Vital Sign. The Vital Signs meet the following criteria:

- Scientifically and theoretically sound surrogates
- Relevant to management concerns
- Predictably responsive to ecosystem changes and management actions
- Linkable to a reference point or baseline condition
- Supported by available, high-quality data
- Understood by the public and policymakers

For example, the water quality goal is represented by four Vital Signs, including marine water quality. The marine water quality Vital Sign is represented by two indicators: marine water condition index and dissolved oxygen in marine waters. Figure 2-3 provides an example of a Vital Sign—orcas—for the species and food webs goal. In this case, the Vital Sign is represented by a single indicator, the number of southern resident killer whales (orcas).

RECOVERY TARGETS

The Puget Sound Partnership has adopted 2020 ecosystem recovery targets for many of the Vital Sign indicators. The recovery targets are science-informed statements of desired future conditions for each Vital Sign indicator. To lay the path for the 2020 ecosystem recovery targets, the Partnership has adopted interim milestones for 2014, 2016, and 2018. Together, the Vital Sign indicators and recovery targets can show how the ecosystem is improving or declining relative to baseline conditions and the desired future conditions across the six recovery goals.

The 2015 *State of the Sound* reported that the majority of Vital Sign indicators are, at best, only slowly changing. Few were on target—or even within reach of—their 2014 interim targets. Although progress has been made on some indicators and at local scales, little evidence suggests that the 2020 targets will be met.

FIGURE 2-3. RELATIONSHIP OF RECOVERY GOALS, VITAL SIGNS, INDICATORS, AND TARGETS





Table 2-1 identifies the specific Vital Signs, indicators, and 2020 targets. Partners monitor the Vital Sign indicators and report to the Partnership through the Puget Sound Ecosystem Monitoring Program. Reports on Vital Sign indicators, including evaluation of progress toward ecosystem recovery targets, are presented on the Partnership’s [website](#) and in the [State of the Sound](#).

TABLE 2-1. VITAL SIGNS AND RECOVERY TARGETS.

HEALTHY HUMAN POPULATION

VITAL SIGN	INDICATORS	2020 TARGETS
Onsite Sewage Systems	Onsite sewage inspection and repair	Inventory all onsite sewage systems in Marine Recovery Areas and other specially designated areas, be current with inspections at 95 percent, and fix all failures.
	Extent of Marine Recovery Areas program	Phase in an expansion of Marine Recovery Areas and other specially designated areas to cover 90 percent of Puget Sound's unsewered marine shorelines.
Shellfish Beds	Acres of harvestable shellfish beds	Achieve a net increase of 10,800 harvestable shellfish acres, including 7,000 acres where harvest had been prohibited, from 2007–2020.
Outdoor Activity	Swimming beaches	Meet U.S. Environmental Protection Agencies approved water quality standards at all monitored beaches in Puget Sound for enterococcus, a type of fecal bacteria.
	Nature-based recreation	Target not set.
	Nature-based work	Target not set.

HEALTHY HUMAN POPULATION

VITAL SIGN	INDICATORS	2020 TARGETS
Local Foods	Locally harvestable foods	Target not set.
	Recreational shellfish beds	Target not set.
Air Quality	Air quality in Puget Sound counties	Target not set.
Drinking Water	Drinking water indicator to be developed	Target not set.

TABLE 2-1. VITAL SIGNS AND RECOVERY TARGETS, CONTINUED

QUALITY OF LIFE

VITAL SIGN	INDICATORS	2020 TARGETS
Sound Stewardship	Engagement stewardship activities	Target not set.
	Sound Behavior Index	Target not set.
Economic Vitality	Natural resource industry output (gross domestic product, GDP)	Target not set.
	Percent GDP in natural resource industries relative to total GDP	Target not set.
	Employment in natural resource industries	Target not set.

QUALITY OF LIFE

VITAL SIGN	INDICATORS	2020 TARGETS
Good Governance	Good Governance Index	Target not set.
Sense of Place	Sense of place Index	Target not set.
	Psychological Wellbeing Index	Target not set.
	Overall life satisfaction	Target not set.
Cultural Wellbeing	Participation in cultural practices	Target not set.

**TABLE 2-1. VITAL SIGNS AND RECOVERY TARGETS, CONTINUED**

SPECIES AND FOOD WEB	VITAL SIGN	INDICATORS	2020 TARGETS
	Chinook Salmon	Chinook salmon population abundance as measured by the number of natural origin adult fish returning to spawn	Stop the overall decline and start seeing improvements in wild Chinook abundance in two to four populations in each biogeographic region.
	Orcas	Number of southern resident killer whales	Achieve an end-of-year census of 95 individual southern resident killer whales, which would represent a 1 percent annual average growth rate from 2010–2020.
	Pacific Herring	Biomass of spawning Pacific herring	Increase spawning herring throughout Puget Sound to about 19,000 tons. Stock targets are Cherry Point, 5,000 tons; Squaxin Pass, 880 tons; all other stocks, 13,500 tons.
	Birds	Population abundance, breeding success, and diet	Target not set.

PROTECT AND RESTORE HABITAT	VITAL SIGN	INDICATORS	2020 TARGETS
	Shoreline Armoring	Amount of shoreline armoring	From 2011 to 2020, remove more miles of armoring than are added in Puget Sound.
		Armoring of feeder bluffs	Prioritize feeder bluffs for removal of armoring and avoidance of new armoring.
		Use of soft-shore techniques to protect shoreline infrastructure	Soft-shore techniques are used for all new and replacement armoring unless it is demonstrably infeasible.
	Eelgrass	Eelgrass area	Increase eelgrass area in Puget Sound by 20 percent relative to the 2000–2008 baseline by 2020.



**TABLE 2-1. VITAL SIGNS AND RECOVERY TARGETS, CONTINUED**

PROTECT AND RESTORE HABITAT	VITAL SIGN	INDICATORS	2020 TARGETS
	Land Development and Cover	Land cover change: forest to developed	Maintain average annual loss of forested land cover to developed land cover in nonfederal lands at fewer than 1,000 acres per year, as measured with Landsat-based change detection.
		Land cover change: riparian restoration	Restore 268 miles of riparian vegetation or have an equivalent extent of restoration projects underway.
		Land development pressure: conversion of ecologically important lands	Maintain basin-wide loss of vegetation cover on ecologically important lands under high pressure from development at less than 0.15 percent of the total 2011 baseline land area over a five-year period.
		Land development pressure: proportion of basin-wide population growth distribution within urban growth areas (UGAs)	Maintain the proportion of basin-wide growth in UGAs at a minimum of 86.5 percent (equivalent to all counties exceeding their population growth goals by 3 percent) with all counties showing an increase over their 2000–2010 percentage.

PROTECT AND RESTORE HABITAT	VITAL SIGN	INDICATORS	2020 TARGETS
	Floodplains	Floodplain function (specific indicator not yet adopted)	Target not set.
		Floodplain area restored.	Restore, or have projects underway to restore, 15 percent of degraded Puget Sound floodplain area and have no net loss of floodplain function in any watershed.
	Estuaries	Number of salmon habitat recovery goals met	Achieve 10-year salmon recovery goals in all Chinook natal river deltas (or 10 percent of restoration need as proxy for river deltas lacking quantitative acreage goals in salmon recovery plans).
		Estuary acres restored	Restore 7,390 quality acres basin-wide, or 20 percent of total estimated restoration need.

WATER QUANTITY	VITAL SIGN	INDICATORS	2020 TARGETS
	Summer Stream Flows	Percent of rivers with stable, increasing, or decreasing flows	Increase, maintain, monitor, and/or restore summer flows in 12 key rivers, including those regulated by dams (Nisqually, Cedar, Skokomish, Skagit, and Green Rivers), and those that are not (Puyallup, Dungeness, Nooksack, Snohomish, Deschutes, North Fork Stillaguamish, and Issaquah Rivers).

**TABLE 2-1. VITAL SIGNS AND RECOVERY TARGETS, CONTINUED**

**WATER QUALITY**

VITAL SIGN	INDICATORS	2020 TARGETS
Marine Water Quality	Dissolved oxygen in marine waters	Keep dissolved oxygen levels from declining more than 0.2 milligram per liter in any part of Puget Sound because of human input.
	Marine Water Condition Index	Target not set.
Freshwater Quality	Water Quality Index	Maintain at least half of all monitored streams score 80 or above on the Water Quality Index.
	Benthic Index of Biotic Integrity (B-IBI)	Protect small streams that are currently ranked excellent by B-IBI for biological condition. Improve and restore streams ranked fair so their average scores become good.
	Number of impaired waters	Reduce the number of impaired waters.

**WATER QUALITY**

VITAL SIGN	INDICATORS	2020 TARGETS
Marine Sediment Quality	Sediment chemistry index	All Puget Sound regions and bays achieve chemistry measures reflecting "minimum exposure" with Sediment Chemistry Index (SCI) scores greater than 93.3.
	Sediment Quality Triad Index	All Puget Sound regions and bays, as characterized by ambient monitoring, achieve the following: Sediment Quality Triad Index (SQTI) scores reflect unaffected conditions (SQTI values greater than 81 in other words). The threshold criteria for unaffected sediments have been revised from 83 (when the Leadership Council adopted the target in 2011) to 81, based on quality control checks indicating the original calculation was incorrect.
	Percent of chemical measurements exceeding SQS	Have no sediment chemistry measurements exceeding the Sediment Quality Standards (SQS) set for Washington State.
Toxics in Fish	Contaminant levels below thresholds (PCBs, PAHs, PBDEs)	Maintain contaminant levels in fish below health effects thresholds (levels considered harmful to fish health or harmful to the health of people who consume them).
	Contaminant-related disease in fish	Reduce contaminant-related disease or impairments in fish to background levels.

## HOW DO WE IMPLEMENT AND MONITOR ACTIONS?

Project sponsors and partners implement the programs and projects identified in the Action Agenda and monitor the results. The Puget Sound Partnership supports implementation with the following actions:

- Stewarding the roadmap planning and update process.
- Maintaining the shared measurement and monitoring infrastructure in which all the data can be reported and effectiveness assessed.
- Supporting partners in implementation by mobilizing funding, removing barriers, and helping educate key decisionmakers and influencers.

Two tools are used to monitor the status of implementation activities. The [Action Agenda Report Card](#) and the [Puget Sound Recovery Atlas](#) track the status of Near Term Actions relative to project plans, provide information on projects completed or underway, and assess whether the expected outputs have been produced.

- **Action Agenda Report Card.** The Partnership's [Action Agenda Report Card](#) is updated with current Near Term Action status at least twice yearly based on periodic input from the Near Term Action owners. It allows the user to track Near Term Action performance and funding, corrective actions, and ownership. The report card aligns the Vital Signs, recovery targets, and Action Agenda strategies and sub-

strategies. Partnership staff members work with the Leadership Council's Subcommittee on Performance Management and Accountability to identify issues that would impede the implementation of Near Term Actions, such as funding gaps or policy conflicts.

- **Puget Sound Recovery Atlas.** The [Puget Sound Recovery Atlas](#) provides updates on project implementation. It identifies the project location on an interactive map and allows the users to filter projects by Vital Sign, fiscal year, and status.



## HOW DO WE EVALUATE THE EFFECTS OF PROGRAMS AND PROJECTS?

Although tracking actions is necessary, it is not sufficient; we must also understand the impact and effectiveness of these actions. We assess the effectiveness of recovery efforts by evaluating data to determine how well management actions and programs are working to achieve desired outcomes. The approach to effectiveness monitoring has two parts. First, we evaluate the effectiveness of actions that have already been implemented. Second, we communicate the results to decisionmakers as they plan the next round of recovery actions.

By monitoring and assessing effectiveness, the Puget Sound Partnership can describe the return on investment or benefit of recovery efforts. When the return or benefit meets or exceeds expectations, sharing results can encourage more implementation of successful approaches. When the return or benefit does not meet expectations, the recovery approaches can be modified. The knowledge gained is reflected in the biennial updates to the [Implementation Plan](#)—the strategies, regional priorities, and actions prioritized for the next cycle.

Several reporting mechanisms track and evaluate the effectiveness of the recovery efforts throughout Puget Sound. These tools track interim targets and report progress on achieving the recovery targets and goals.

- **Puget Sound Vital Signs.** Progress toward achieving the recovery targets is charted in the [Puget Sound Vital Signs](#) and reported biennially in the [State of the Sound](#). The data are compiled from a variety of monitoring programs and funding organizations in Puget Sound, including state and federal agencies, tribes, local jurisdictions, and nongovernmental

organizations. Technical and scientific experts from those organizations provide the data and oversee the interpretation of the results. Data quality assurance and documentation remain the primary responsibility of the individual contributors.

- **State of the Sound.** The [State of the Sound](#) reports on the data tracked in the [Puget Sound Vital Signs](#) and [Action Agenda Report Card](#). It helps partners and decisionmakers understand the state of the Puget Sound ecosystem, where progress is being made, where challenges remain, and where future action and focused investment are needed. The [State of the Sound](#), which is updated every 2 years, addresses the following questions:
  - How is the ecosystem doing?
  - Are we making progress in implementing identified recovery actions?
  - What have we learned and what are our next steps?

The [State of the Sound](#) is not intended to grade implementers on their work but reports implementation status and expenditures to the Governor and Washington State Legislature in response to the statutory requirements in [RCW 90.71.370\(3\)](#).

To increase our capacity to determine if the approaches and actions underway are the right path forward, the Puget Sound Ecosystem Monitoring Program staff and the Strategic Initiative Leads will monitor the effectiveness of protection and recovery efforts included in each of the three Strategic Initiatives. They will also develop communication materials to share lessons learned about the effectiveness of recovery efforts. These materials will provide us with essential information about the success and efficiency of various approaches and activities and help us decide how to prioritize actions in the future.

HOW DOES SCIENCE INFORM RECOVERY?

Science informs every step in the recovery framework. Scientific advice and review, scientific synthesis, and strategic investments in research, modeling, and monitoring all contribute to Puget Sound recovery. Adaptive decisionmaking depends on structured interactions between decisionmakers, implementers, scientists, and partners. These interactions occur across science-policy interfaces where scientific information is formulated to be accessible to policymakers and decisionmakers.

Scientific advice and engagement were instrumental in the Partnership’s development of shared measures, such as Vital Signs and ecosystem recovery targets. Scientific monitoring supports the reporting on progress toward recovery and assessment of effectiveness. One of the key scientific reports on ecosystem pressures in Puget Sound is the [Puget Sound Pressures Assessment](#).

- **Puget Sound Pressures Assessment.** The [Puget Sound Pressures Assessment](#) informs our understanding of the pressures on Puget Sound’s freshwater, marine, nearshore, and terrestrial resources. The assessment provides the scientific input for prioritizing recovery actions assuming that the biggest stressors and most vulnerable ecosystem endpoints are important considerations for recovery planning. Figure 2-4, for example, shows that pressures from development on hydrology negatively affect a specific endpoint, Coho salmon.

The [Puget Sound Pressures Assessment](#) was updated in 2014 to provide a scalable, systematic, and robust understanding of pressures on the Puget Sound ecosystem so we can more confidently identify and focus on what is most important. The assessment identifies the critical ecosystem vulnerabilities that must be

HOW DOES THE 2014 PRESSURES ASSESSMENT INFORM PLANNING?

During the 2016 implementation planning cycle, the 2014 [Pressures Assessment](#) was used in multiple ways to inform the process:

- Identify priority sub-strategies that would focus the Strategic Initiatives over the next 2 years.
- Establish regional priorities for the sub-strategies aligned with each Strategic Initiative.
- Develop Implementation Strategies for shellfish and estuaries.

A more detailed description is provided in the [2016 Implementation Plan Development Process Summary](#).

Looking forward to 2018 and beyond, the [Puget Sound Pressures Assessment](#) will be used during development of the remaining Implementation Strategies.

FIGURE 2-4. PRESSURES ASSESSMENT



addressed to achieve sustainable, long-term recovery, update sub-strategies, and inform the development of the regional priorities. The following results guide and inform science and management priorities:

- The vulnerability of endpoints (habitats and species) to stressors, which stressors have the most potential to affect these endpoints, and which endpoints are the most vulnerable at local and regional scales.
- The current intensity of stressors and distribution of endpoints at local and regional scales.
- Relative certainty about stressor-endpoint relationships.

Decision analysis and structured decisionmaking are scientific approaches used to identify and select alternative actions or strategic approaches. Factors considered in decision analyses may include the potential ecological impact of actions, geographic scope and severity of pressures, feasibility of actions, irreversibility of stresses, and resilience of ecosystems. Ratings on each factor are then considered by decisionmakers to select items to include in a recovery plan or in a budget proposal. The Partnership approaches strategic science planning, adaptive management, and decision support by using several tools and guiding documents. In addition to the Puget Sound Pressures Assessment, these planning and assessment tools include the [Strategic Science Plan](#) and [Biennial Science Work Plan](#), as well as the Implementation Strategies, which are discussed in [Chapter 4, Planning Recovery](#).

- **Strategic Science Plan.** The [Strategic Science Plan](#) provides the framework for development and coordination of the science activities necessary to support Puget Sound recovery under the Action Agenda. The plan is a high-level, living document that is revised as needed.

- **Biennial Science Work Plan.** The [Biennial Science Work Plan](#) identifies the scientific advancements needed to recover and protect Puget Sound. By identifying science work actions and recommending improvements to ongoing science in this plan, the Science Panel helps direct the allocation of limited resources to the issues where they are most needed for resolving uncertainties in knowledge and assisting with informed decisionmaking. The plan is a key companion to the Action Agenda.

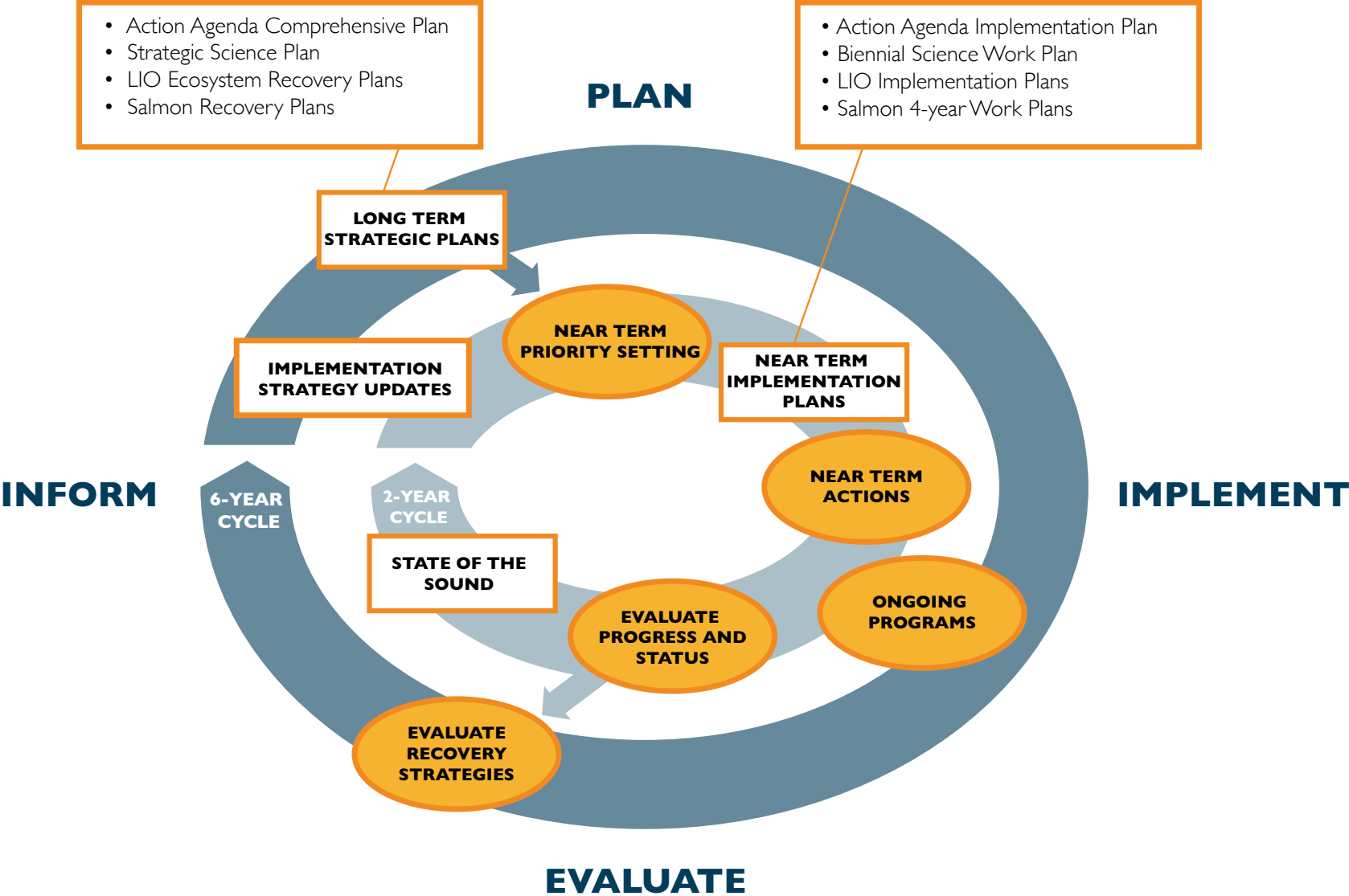
## HOW ARE THE RECOVERY PLANS INTEGRATED?

There are a number of different plans that support Puget Sound recovery. The Action Agenda provides the common framework for integrating recovery plans into a unified effort. Figure 2-5 depicts how long-term and near-term recovery plans will generally be integrated and adapted as we recover Puget Sound.

Consistent with the Action Agenda recovery framework, local and regional long-term strategic plans are science-based, increasingly informed by Implementation Strategies, and define our goals and overall strategies for recovery. From these broader plans, near term priorities are selected to guide the development of near term implementation plans that focus resources on the most important and timely work needed to further accelerate recovery. Progress is tracked, effectiveness of Near Term Actions and ongoing programs are evaluated, and the status of recovery indicators is monitored. An assessment of our progress and the status of Puget Sound are reported in the [State of the Sound](#). Accomplishments, lessons learned, and new science help us to inform and adapt Implementation Strategies, near term priorities, and action or program implementation. This process occurs in a 2-year cycle.



FIGURE 2-5. INTEGRATION AND ADAPTATION OF RECOVERY PLANS



Approximately every 6 years and as needed, we evaluate our long-term recovery strategies and update our long-term recovery plans based on lessons learned, the status of recovery indicators (and other resources), and new science.

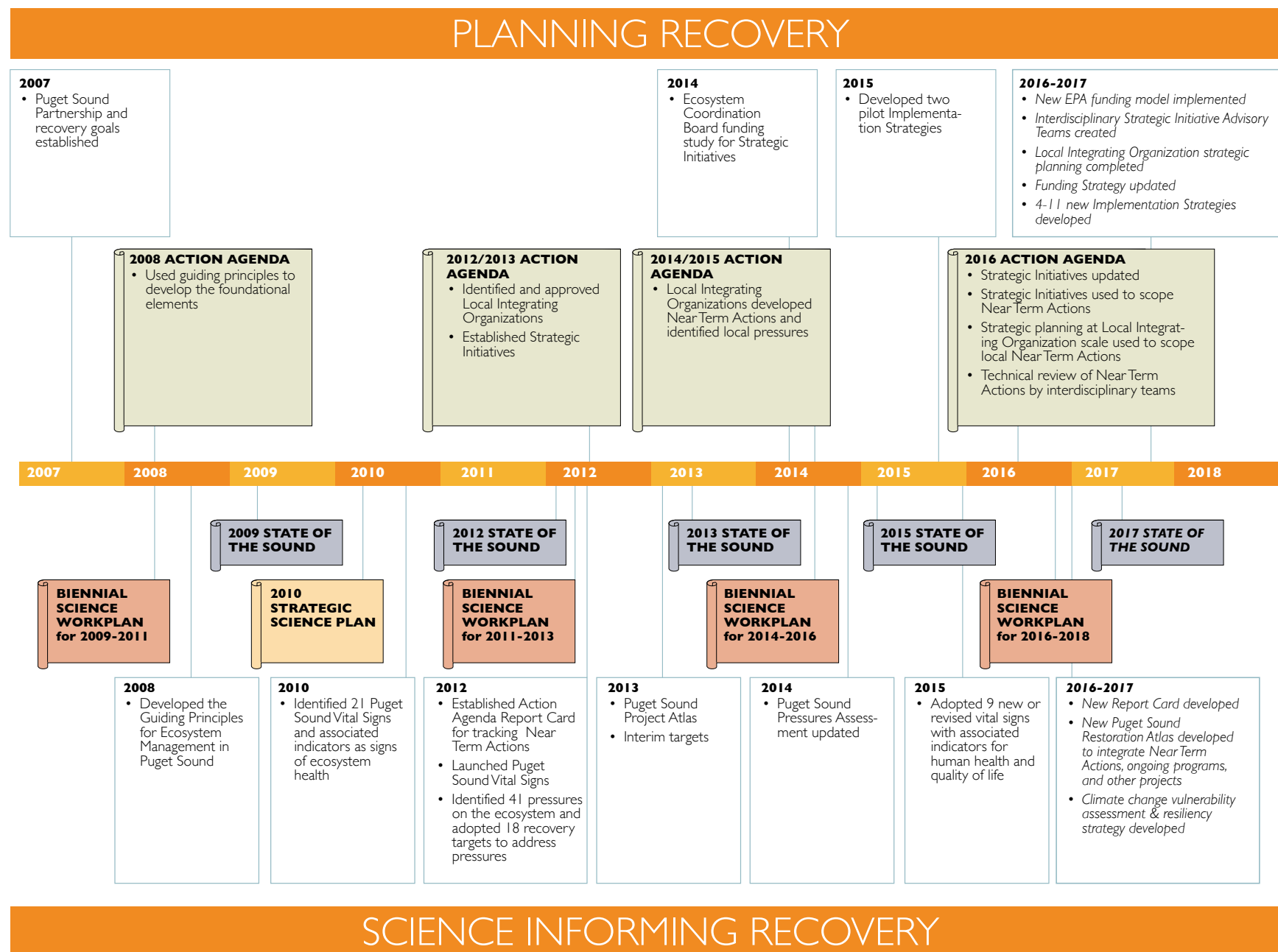
### HOW HAS THE ACTION AGENDA CHANGED?

The Action Agenda is a living document with a 10-year history (Figure 2-6). As our knowledge of the ecosystem and of the effectiveness of recovery actions evolves, the Action Agenda needs to keep pace. This 2016 Action Agenda builds on past Action Agendas and reflects several new developments that focus and prioritize actions and investments. The changes reflect a shift in the role of the Puget Sound Partnership to focus more on coordination and supporting Near Term Action owners who have the knowledge, expertise, and on-the-ground networks to excel at implementing projects and actions that contribute to Puget Sound recovery. This includes emphasizing stewardship strategies in the Near Term Action solicitation and recognizing the important role that the Local Integrating Organizations and other partners play in education and outreach.

The 2016 Action Agenda has two components: the Comprehensive Plan and the [Implementation Plan](#), as described in [Chapter 1, Introduction](#). In alignment with funding cycles, longer-term content is in the Comprehensive Plan, and content that is updated biennially is in the [Implementation Plan](#). As a living document and within the adaptive management framework, revisions and refinements to both components of the Action Agenda are considered when supported by new information.

The Action Agenda is in a transition between being guided by Strategic Initiatives and Implementation Strategies ([Chapter 4, Planning Recovery](#)). The Strategic Initiatives are regional priorities that help direct spending and resources. The 2016 Action Agenda requires that all proposed Near Term Actions address one of the three Strategic Initiatives. Implementation Strategies, by contrast, are plans for achieving specific recovery targets. Implementation Strategies are introduced in the 2016 Action Agenda, and it is anticipated that their role will increase in subsequent updates to the Implementation Plan.

FIGURE 2-6. ACTION AGENDA TIMELINE: 2007 TO 2017





## CHAPTER 3 | MANAGING RECOVERY

The Puget Sound region is home to more than 4 million residents, some of whom belong to tribes, communities, and organizations with diverse interests in Puget Sound recovery. The Puget Sound Partnership was created to steward the work of a broad set of partners toward recovery in a region with a growing, multicultural population.

This chapter describes the governing structure of the Partnership and the roles and responsibilities of the partners involved in Puget Sound recovery and specifically in the development of the Action Agenda.

The Partnership boards and organizations formally associated with the Partnership are depicted in Table 3-1. These groups and additional partners are described on page 24.



TABLE 3-1. STRUCTURE, RELATIONSHIPS, AND ROLES OF THE PARTNERSHIP AND PARTNERS

PUGET SOUND PARTNERSHIP	SUPPORTING ORGANIZATIONS AND WORK GROUPS
<ul style="list-style-type: none"><li>• Leadership Council*</li><li>• Ecosystem* Coordination Board</li><li>• Science Panel*</li><li>• Puget Sound Salmon Recovery Council*</li><li>• Puget Sound Partnership: Executive Director &amp; Staff</li></ul> <p>* Puget Sound Partnership boards</p>	<ul style="list-style-type: none"><li>• Strategic Initiative Leads and Advisory Teams</li><li>• Local Integrating Organizations</li><li>• Puget Sound Ecosystem Monitoring Program</li><li>• Salmon Recovery and Watershed groups</li><li>• NW Straits Commission &amp; Marine Resources Committees</li><li>• Environmental Caucus</li><li>• Academic Institutions</li><li>• Federal Caucus</li></ul>

MANAGEMENT CONFERENCE

The Partnership, its boards, and the decision-making structure in Figure 3-2 represent the *Management Conference*, which is the governance structure for Puget Sound recovery under the [National Estuary Program](#).

WHAT ARE THE ROLES AND RESPONSIBILITIES?

PUGET SOUND PARTNERSHIP

The Puget Sound Partnership coordinates the region’s collective effort to protect and restore Puget Sound. The Partnership brings together hundreds of partners to mobilize action and investments around a common agenda. The Partnership is not a regulatory, grant, nor implementation agency. It facilitates collaboration to optimize Puget Sound recovery.

The Partnership provides leadership through the collective development of a shared roadmap, measurements, and funding strategy. The Executive Director is appointed by the Governor to focus the work of the Partnership on the most critical and effective projects and serve as the communication link between all levels of government, the private sector, tribes, nongovernmental organizations, and the Partnership boards.

PUGET SOUND PARTNERSHIP BOARDS

The Puget Sound Partnership’s four boards (Leadership Council, Ecosystem Coordination Board, Science Panel, and Puget Sound Salmon Recovery Council) direct and support the Partnership in its charge of mobilizing and accelerating the science-informed effort to protect and restore Puget Sound. These four boards are integral to the Partnership’s role.

LEADERSHIP COUNCIL

The Governor appoints the seven-member Leadership Council, which sets policy and strategic direction for Puget Sound recovery. The Leadership Council adopts, revises, and guides implementation of the Action Agenda. It recommends the allocation of funds and ensures accountability. In addition, the Leadership Council serves as the regional salmon recovery organization for Puget Sound salmon

species (except Hood Canal summer chum) and supports the Puget Sound Salmon Recovery Council to oversee implementation of the [Puget Sound Salmon Recovery Plan](#). Advice and recommendations from boards, partners, and the public inform decisions.

#### ECOSYSTEM COORDINATION BOARD

The diverse 27-member Ecosystem Coordination Board focuses on problem solving and the practical aspects of Action Agenda implementation. Designed to be a representative group of implementers, the board includes one representative from each geographic action area; two representatives from the business community; two representatives from environmental interests; three representatives from tribal governments; one representative each from counties, cities, and port districts; and three representatives each from state and federal agencies with environmental management responsibilities in Puget Sound.

The board advises the Leadership Council and the Executive Director on major strategic and implementation decisions. The board is responsible for seeking funding and other resources, assisting with public education activities, and encouraging communication and collaboration among all the partners involved in Puget Sound recovery. The Finance Subcommittee leads work on the funding strategy for Puget Sound recovery.

#### SCIENCE PANEL

The 16-member Science Panel provides independent scientific advice to the Leadership Council and guidance for preparing the Action Agenda and its biennial report card, the [State of the Sound](#). The Science Panel has assisted in developing an ecosystem-level strategic science program, establishing indicators of ecosystem health, setting policy-based recovery targets, and advising on the

development of Implementation Strategies. The Science Panel is specifically responsible for developing a regional monitoring program, identifying critical research needs, and preparing the [Strategic Science Plan](#), [Biennial Science Work Plan](#), and [Puget Sound Science Update](#). Additionally, the Social Science Advisory Committee is a standing subcommittee that advises the Science Panel and staff on the application of the social sciences to advance Puget Sound recovery.

#### PUGET SOUND SALMON RECOVERY COUNCIL

The 32-member Puget Sound Salmon Recovery Council predates the Puget Sound Partnership and remains in place to assist the Leadership Council in carrying out its salmon recovery responsibilities ([RCW 77.85.090](#)) by advising on decisions related to salmon recovery. The council also supports the regional implementation of the [Puget Sound Salmon Recovery Plan](#). The council includes representatives of each of the 14 watershed areas covered by the plan, state and federal agencies engaged in salmon recovery in Puget Sound, tribes, businesses, local governments, the agricultural community, and environmental interests.

The Salmon Science Advisory Group of the Science Panel provides scientific support to the Puget Sound Salmon Recovery Council to assist with implementing and updating the [Puget Sound Salmon Recovery Plan](#), Action Agenda, and [Biennial Science Work Plan](#). The [Puget Sound Salmon Recovery Plan](#) and the forthcoming Steelhead Recovery Plan serve as an important foundation for the Habitat Strategic Initiative. The Salmon Recovery Council's recovery planning priorities, which can be found on the Partnership's [website](#), provide more information about these plans and current update and development efforts.

## SUPPORTING ORGANIZATIONS AND WORK GROUPS

Multiple boards, work groups, advisory bodies, and implementing networks affiliated with the Puget Sound Partnership provide scientific, advisory, and implementation support for Puget Sound recovery. These groups provide strategic advice on the Action Agenda update process, the setting of recovery targets, and the [Biennial Science Work Plan](#). They also provide specific guidance on the strategies for protecting and restoring watersheds; protecting and restoring nearshore and marine habitat; and preventing, reducing, and controlling nutrient, toxic, and pathogen loadings to Puget Sound. Many of these groups exist for reasons other than Puget Sound Recovery and give generously of their time for our collective effort.

Since April 2012, the Partnership has been supported by many standing subcommittees and advisory groups. Members are drawn from state and federal agencies and leadership bodies, as well as from key partners with subject expertise and interest in Puget Sound recovery. The contributors that have an explicit role are described below.

## STRATEGIC INITIATIVE LEADS AND ADVISORY TEAMS

Strategic Initiatives emphasize the priority topics and issues critical to Puget Sound recovery. Three Strategic Initiatives are emphasized in this Action Agenda: the Stormwater Strategic Initiative, the Habitat Strategic Initiative, and the Shellfish Strategic Initiative (all discussed in the [Implementation Plan](#)). Strategic Initiative Leads and Strategic Initiative Advisory Teams have been established for each Strategic Initiative to develop the biennial [Implementation Plan](#).

- **Strategic Initiative Leads** lead and provide technical leadership to the Strategic Initiative Advisory Team. They coordinate with each other and with the Puget Sound Partnership, make and manage subawards, and implement Strategic Initiative work approved in the [Implementation Plan](#). Strategic Initiative Leads were selected by the U.S. Environmental Protection Agency through a competitive process in 2016.
- **Strategic Initiative Advisory Teams<sup>2</sup>** are an opportunity for partners representing diverse organizations and perspectives to provide technical and policy input to the Strategic Initiative Leads on priorities and funding. Team members are technical and policy experts recruited from across the Puget Sound region. They represent a range of local, regional, and tribal experience and perspectives. The teams are jointly coordinated by the Strategic Initiative Leads and the Puget Sound Partnership, with the Strategic Initiative Leads providing technical and policy leadership and the Partnership providing process support.

<sup>2</sup> In developing the Implementation Plan, Strategic Initiative Transition Teams were convened and were later replaced by the more long-term Strategic Initiative Advisory Teams..

Together, the Strategic Initiative Leads and Strategic Initiative Advisory Teams are key to the development and implementation of the Action Agenda and have the following responsibilities:

- Identify regional recovery and protection priorities.
- Coordinate responses to issues that affect all three Strategic Initiatives (cross-cutting issues).
- Establish the appropriate sequences of actions to lead from present conditions to long-term goals.
- Solicit, identify, review, and prioritize local and regional Near Term Actions.
- Develop and apply evaluation criteria for the review of Near Term Actions.
- Recommend allocation of National Estuary Program and other funding sources for the Implementation Strategies.

#### LOCAL INTEGRATING ORGANIZATIONS

Local Integrating Organizations are the local governments, tribes, nonprofit organizations, watershed groups, marine resource groups, salmon recovery groups, interest groups, businesses, educational organizations, and citizens that enable communities to guide the implementation of Action Agenda priorities at a local scale and that prioritize local actions for investment. As of June 2016, the Leadership Council has recognized Local Integrating Organizations in nine geographic areas, and each organization receives capacity funding to support planning and coordination efforts (Figure 3-1). The lack of a Local Integrating Organization in the Samish/Skagit watershed has been identified as an important gap in the planning process.

**FIGURE 3-1.** LOCAL INTEGRATING ORGANIZATIONS MAP





The Local Integrating Organizations are responsible for developing local, long-term ecosystem recovery plans and identifying priority actions through associated 2-year implementation plans. These plans accomplish the following actions:

- Provide a strategy for local efforts that aligns with the roadmap and Vital Sign priorities, and focuses recovery planning and actions on the highest-priority recovery needs.
- Build on and work in conjunction with related recovery efforts, including salmon recovery, local growth management, Total Maximum Daily Loads (TMDL) to improve water quality, shellfish Pollution Identification and Correction (PIC) programs, and similar efforts.
- Incorporate stewardship and behavior change through collaboration with the Partnership.
- Ensure consistency (in terminology, structure, approach, and content) of local plans with the Action Agenda so that local priorities help inform decisionmaking and the sequencing of recovery actions.
- Use a rigorous, defensible process that will identify the highest-priority recovery strategies and actions in each Local Integrating Organization area and thereby help direct limited funding to where it will be most effective.
- Serve as a longer term, more durable strategic framework from which local Near Term Actions can be developed.
- Account for existing ongoing programs in the Local Integrating Organization area and identify gaps where additional work is needed.
- As more Implementation Strategies are developed for the Vital Signs, the Local Integrating Organizations will be able to use the Implementation Strategies to inform future 2-year work plans.

The Local Integrating Organizations provide several significant contributions to the development of the Action Agenda:

- Identify near-term ecosystem recovery priorities.
- Review and approve Near Term Actions from local entities for consistency with local priorities.
- Review Near Term Actions from regional entities to identify potential conflicts with local priorities.
- Build local, long-term strategies that contribute to identifying how timing and focusing regional strategies and high-priority actions within specific geographies can accelerate recovery. These plans based on the Action Agenda framework will be essential building blocks for the future Implementation Plans.

The Local Integrating Organizations contribute a great deal of time and resources to develop products, such as ecosystem recovery plans, and they are among the partners who play a key role in providing on-the-ground engagement with the public through outreach and education. Their work provides an essential link to integrating salmon recovery plans into the Action Agenda framework through the ecosystem recovery plans. They also connect regional efforts to the unique and diverse communities of Puget Sound. Detailed information about the organizations is available on the [Local Integrating Organizations web page](#).

#### SALMON RECOVERY AND WATERSHED GROUPS

State, federal, and local agencies, tribes, community groups, businesses, and nonprofit organizations work together to implement the [Puget Sound Salmon Recovery Plan](#) at both the watershed and regional scales. The plan outlines strategies and actions for achieving recovery of threatened salmon stocks in Puget Sound. The Puget Sound Salmon Recovery Council develops policies that affect salmon recovery and provides overarching guidance to those organizations and agencies participating in watershed restoration activities targeted at salmon recovery.

At the local scale, Lead Entities are the watershed-based organizations that oversee implementation of watershed chapters of the [Puget Sound Salmon Recovery Plan](#). Salmon recovery Lead Entities and watershed groups participate in Local Integrating Organizations, ensuring that the Local Integrating Organizations' long-term strategies and Near Term Actions incorporate salmon recovery priorities.

Primary among Lead Entities' responsibilities is management of an annual process to identify and prioritize habitat protection and restoration projects that will make the largest contribution to salmon recovery within their watersheds. These projects undergo significant technical and policy review at the local scale before being forwarded to the statewide Salmon Recovery Funding Board for further technical review and approval. Those projects that have received Salmon Recovery Funding Board approval are incorporated in to the Action Agenda by reference and inform the Near Term Actions in the [Implementation Plan](#).

#### PUGET SOUND ECOSYSTEM MONITORING PROGRAM

The Puget Sound Ecosystem Monitoring Program assesses progress toward Puget Sound recovery. The program consists of independent committees and work groups. It is guided by a steering committee and staffed by the Puget Sound Partnership. People and organizations from throughout the Puget Sound region actively participate in the many work groups of the program.

#### NORTHWEST STRAITS COMMISSION AND MARINE RESOURCES COMMITTEES

The Northwest Straits Commission is a regional coordinating body of community volunteers and scientists. The commission provides funding, training, and support to seven county-based Marine Resources Committees. The Northwest Straits Commission facilitates regional coordination and connects the committees' work to regional planning processes such as the Action Agenda and Puget Sound Nearshore Estuary Restoration Program.

#### ENVIRONMENTAL CAUCUS

The Environmental Caucus is represented on both the Ecosystem Coordination Board and the Puget Sound Salmon Recovery Council. The Environmental Caucus—which includes but is not limited to nongovernmental environmental organizations—brings an important perspective to the Ecosystem Coordination Board in its advisory role to the Leadership Council on funding and implementation of the Action Agenda and to the Salmon Recovery Council as it oversees funding and implementation of the [Puget Sound Salmon Recovery Plan](#).

#### ACADEMIC INSTITUTIONS

Several programs from regional academic institutions contribute to Puget Sound recovery. The Puget Sound Institute was established by the University of Washington, the U.S. Environmental Protection Agency, and the Puget Sound Partnership. It is a collaborative organization and serves as the bridge between the scientific community and the groups tasked with protecting and restoring Puget Sound.

#### GOVERNMENTAL ENTITIES

Federal, state, and local agencies as well as tribes collaborate with the Puget Sound Partnership and are important agents of leadership, funding, and regulatory support.

#### TRIBES

The Partnership Tribal Co-Management Council provides an official forum for the early and frequent involvement of tribes in Puget Sound Partnership activities, including policy and project development and prioritization. The council does not preclude establishing direct government-to-government relationships with each Puget Sound tribe. Most of the Puget Sound tribes hold treaty-reserved rights to resources throughout the Puget Sound region.

Tribes play an important role in ensuring that recovery efforts are consistent with tribal treaty rights and in raising tribal interests in planning and implementing the Action Agenda. The Partnership is committed to supporting the principles of the [Centennial Accord \(1989\)](#), which recognizes the sovereign status of federally recognized tribes and their unique government-to-government relationship with all federal agencies. The Governor has appointed a tribal leader to the Leadership Council, and the tribes have representatives on the Ecosystem Coordination Board, Science Panel, and Salmon Recovery Council.

#### TRIBAL MANAGEMENT CONFERENCE

The following language was provided by the Northwest Indian Fisheries Commission on behalf of the Tribal Management Conference:

“The Tribal Management Conference is a forum created by the U.S. Environmental Protection Agency’s new funding and decision model for the National Estuary Program for Puget Sound, and has been furthered formed and initiated by the Tribes. The Tribal Management Conference is a forum where Tribes coordinate their participation in the Action Agenda update, and will set priorities for Puget Sound recovery in the Action Agenda and provide direct input into the National Estuary Program decisional framework.

The Tribal Management Conference forum is intended to complement the government-to-government relationship between the State of Washington and Treaty Tribes identified in the [Centennial Accord](#)<sup>3</sup> without relieving state and federal agencies of their obligations to consult directly on a government-to-government basis with individual Tribes.

As a guiding framework, the Tribal Management Conference will work from the Tribal Treaty Rights at Risk initiative and Tribal Habitat Priorities. The Tribal Management Conference is a forum that will focus tribal participation in the protection and restoration of the Puget Sound ecosystem to protect all tribal treaty reserved rights, and with further emphasis on creating opportunities to actually protect and recover Puget Sound through the implementation of the actions necessary to produce sustainable and harvestable salmon and shellfish populations, and to provide clean water”

<sup>3</sup> See Centennial Accord between the Federally Recognized Indian Tribes in Washington State and the State of Washington. August 4, 1989

## FEDERAL

Federal agencies contribute to Puget Sound recovery by promoting information sharing, developing joint work priorities, and collaborating across agencies. Thirteen federal agencies have signed a [Memorandum of Understanding](#) to form a federal caucus committed to these working principles, and all federal agencies with Puget Sound interests are welcome to participate. Partner agencies include those with environment and natural resource responsibilities such as the National Oceanic and Atmospheric Administration, Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey, Natural Resources Conservation Service, and U.S. Army Corps of Engineers, as well as those with local defense and security responsibilities such as the U.S. Coast Guard, Army, and Navy. The federal caucus has a work plan to guide their engagement with Puget Sound recovery. The work plan supports implementation of priority recovery strategies and actions, including science and reporting.

## STATE

Several state agencies have responsibilities for managing natural resources and human health. These include, but are not limited to, the departments of Ecology, Natural Resources, Fish and Wildlife, Commerce, Transportation, Health, Agriculture, State Conservation Commission, Recreation and Conservation Office, the Governor's Office, and the Office of Financial Management.

## CITIES, COUNTIES, AND SPECIAL-PURPOSE DISTRICTS

Much of the effort to protect and restore Puget Sound continues to occur locally. Cities and counties are at the front line for addressing impacts—they develop and implement growth management plans and development regulations, manage surface water runoff, treat wastewater, and provide numerous benefits to citizens. Most counties and many cities participate in Local Integrating Organizations and Lead Entities. Working cooperatively with cities and counties is essential for federal and state agencies, tribes, and nongovernmental interests. In addition to participating as individual jurisdictions, counties work together through the Washington State Association of Counties and County Coastal Caucus, and cities work together through the Association of Washington Cities.

## TRANSBOUNDARY

As part of the greater Salish Sea ecosystem, Puget Sound is influenced and affected by events and activities in the United States and Canada. To facilitate coordinated and complementary action for long-term protection and restoration, regional mechanisms promote cooperation on transboundary issues on local and Sound-wide scales.

Key transboundary issues include:

- Vessel safety and risk management
- Oil spill prevention, preparedness, and response
- Marine survival of salmonid species
- Marine and freshwater quality
- Stream flows
- Flooding
- Marine species at risk (such as Chinook salmon, orcas)



- Toxics in the food web
- Shellfish beds

Transboundary coordination mechanisms include:

- Participation of Canadian representatives on the Partnership's boards
- Biennial Salish Sea Ecosystem Conference
- The U.S. Environmental Protection Agency and Environment and Climate Change Canada Statement of Cooperation
- The Washington State/British Columbia Environmental Cooperation Council
- Regional Joint Response Teams co-chaired by Canadian and U.S. federal agencies. The teams implement joint Canada-U.S. inland and marine pollution contingency plans that provide for an international coordination mechanism to ensure an appropriate and effective cooperative response between Canada and the United States in the event of an oil release or hazardous substances emergency along the shared inland boundaries and in marine waters, including in the Puget Sound/Georgia Basin region.
- The [International Airshed Strategy](#)

## WHAT IS THE DECISIONMAKING PROCESS?

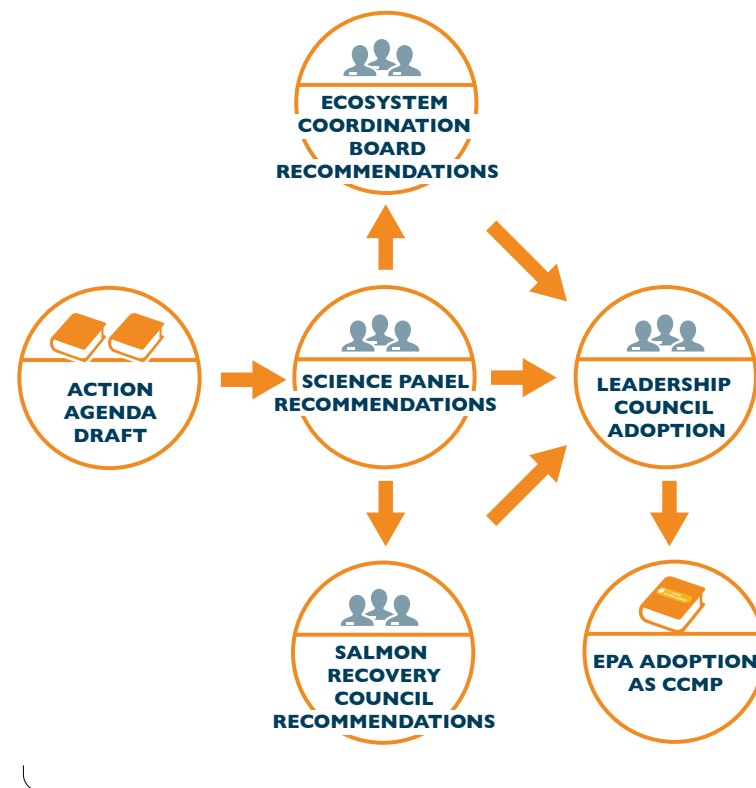
The Leadership Council sets the strategic direction for the Puget Sound Partnership regarding Puget Sound recovery and statutory obligations. Prior to setting direction or making decisions, the Leadership Council is typically presented with a broad proposal or concept by the Executive Director and staff. As appropriate, the Leadership Council may request specific input, ask questions, or seek advice from the Ecosystem Coordination Board, Science Panel, Puget Sound Salmon Recovery Council, or lead implementing agencies, as well as from organizations involved in Puget Sound recovery and interested members of the public. Depending on the issues and timing, the Leadership Council may hold special meetings or work sessions to seek input from relevant experts and partners. As much as possible, the meetings of the Ecosystem Coordination Board, Science Panel, and Salmon Recovery Council are staggered and structured to provide timely input to the Leadership Council.

The Open Standards for the Practice of Conservation, described in [Chapter 2, Framework for Recovery](#), support decisionmaking. The decisionmaking process receives inputs from science, performance management, and policy. Each of the partners may play one or more of these roles depending on the decision under consideration. The framework may be expanded to include additional tools and processes to inform decisionmaking (such as monitoring data, public outreach, integration of existing regional and national data).

Figure 3-2 shows how decisions related to implementation and action planning flow through the boards and onward to the Leadership Council. The Leadership Council may use this approach for major decisions on annual and biennial work plans for Partnership activities, state agency budget requests and legislation, and adaptive management decisions that result in new or changed actions, particularly when resulting in a strategic directional shift or revision to the Action Agenda. In a final step, the Leadership Council adopts the Action Agenda as the State's recovery plan for Puget Sound. Upon adoption, the Action Agenda is submitted to the U.S. Environmental Protection Agency for approval as the Comprehensive Conservation and Management Plan under the National Estuary Program.

Tribal representatives are encouraged to participate in every step of Action Agenda planning and decisionmaking. Tribal leaders or tribal staff members sit on each of the boards, including the Leadership Council, Ecosystem Coordination Board, Science Panel, and Puget Sound Salmon Recovery Council. Tribal staff members are also encouraged to be members of the Strategic Initiative Advisory Teams, as well as the multi-agency group that coordinates the work of the teams. Throughout the development and adoption of the Action Agenda, the Partnership works with the Northwest Indian Fisheries Commission to conduct meetings to share information about the Action Agenda with tribal representatives and listen to tribal perspectives. Tribes are also encouraged to provide comments during formal comment periods. In addition, tribes and the U.S. Environmental Protection Agency can conduct government-to-government consultations regarding National Estuary Program decisions.

**FIGURE 3-2. DECISIONMAKING PROCESS**



**TRIBAL PARTICIPATION ENCOURAGED THROUGHOUT PROCESS**



## 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

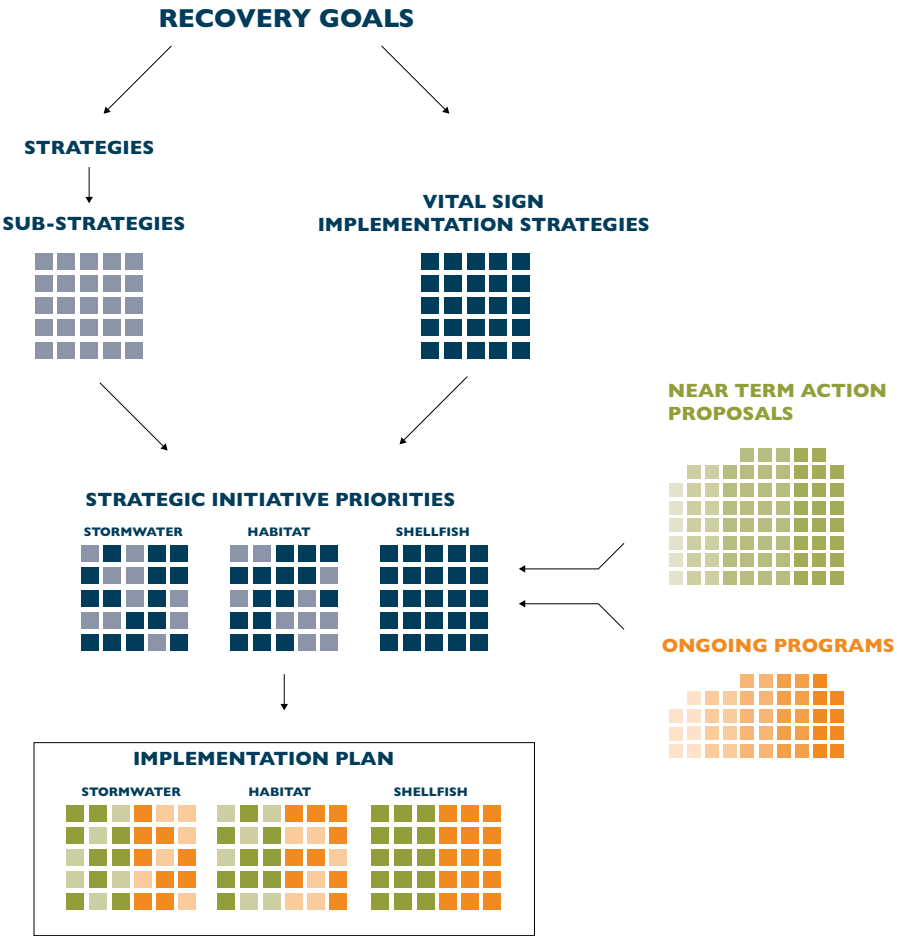


Figure 4-1 depicts the conceptual framework for setting the Action Agenda. Over the coming years, we are transitioning our emphasis between two complementary frameworks for defining the scope of the Strategic Initiatives and the focus of their actions and programs in the Implementation Plan. The left 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>	
<b>1<sup>a</sup></b>	<b>Focus land development away from ecologically important and sensitive areas</b>
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>	
<b>20</b>	<b>Effectively prevent, plan for, and respond to oil spills</b>
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
<b>21</b>	<b>Address and clean up cumulative water pollution impacts in Puget Sound</b>
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>	
<b>22</b>	<b>Provide the leadership framework to guide the Puget Sound recovery effort and set action and funding priorities</b>
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
<b>23</b>	<b>Support and build strategic, collaborative partnerships</b>
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>	
<b>24</b>	<b>Implement performance management</b>
24.1	Work collaboratively to track and report on implementation performance
24.2	Work collaboratively to report on recovery progress
<b>25</b>	<b>Coordinate and advance science and monitoring</b>
25.1	Oversee strategic planning for Puget Sound recovery science
25.2	Implement a coordinated, integrated ecosystem monitoring program
<b>26</b>	<b>Cultivate broad-scale stewardship practices and behaviors among Puget Sound residents that benefit Puget Sound</b>
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

INSTITUTIONAL STRATEGIES	
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. Whitely 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.



## CHAPTER 5 | FUNDING RECOVERY

Puget Sound recovery requires a sufficient and reliable source of funding—the lack of funding is the leading barrier to implementing recovery actions. We can increase our achievements by dedicating additional funding sources, increasing the efficiency and effectiveness of existing sources, and developing innovative, market-based programs. The Puget Sound Partnership works closely with partners to develop a dependable and diverse funding strategy that will support Puget Sound recovery today and into the coming decades. This chapter outlines current funding goals, current and anticipated changes to funding sources, and the funding strategy that will support Puget Sound recovery into the future.

## WHAT ARE OUR FUNDING GOALS?

The Action Agenda funding strategy aims to align and expand upon existing funding sources. The comprehensive funding strategy must meet the following goals:

- Sufficient funding to avoid annual funding shortfalls that compromise prioritized ongoing programs and Near Term Actions.
- Flexibility to coordinate investments in multiple environmental solutions, a more efficient approach than funding one resource or issue at a time.
- A comprehensive approach that treats recovery as a collective effort and not as unrelated programs.
- A strategic approach that links financial support to scientifically supported, regionally identified priorities.
- Stable and reliable sources of funding.

The funding strategy for Puget Sound recovery is ambitious and comprehensive. It depends on the engagement and support of many partners across all levels of government and nongovernmental organizations and will continue to evolve with the Action Agenda.

## WHAT ARE THE EXISTING FUNDING SOURCES FOR PUGET SOUND RECOVERY?

Federal, state, local, and tribal governments currently provide much of the funding for Puget Sound recovery actions. Other significant sources of funding are nongovernmental agencies, private foundations, businesses, and individuals. Market-based mechanisms include the transfer of development rights programs, redevelopment,<sup>8</sup> ecosystem services markets, and *in lieu fee* compensatory mitigation programs. State and federal funds allocated to the Puget Sound Partnership itself also fund partner organizations.

The major sources of federal, state, and local funding are described in the next sections.

### FEDERAL PROGRAMS

The federal government provides a significant source of funding for prioritized actions in the Action Agenda. Some federal agencies are funded to engage in protection and restoration activities and others award grants to support and match the work of nonfederal partners. For example, the U. S. Environmental Protection Agency provides funding to Washington State agencies to implement the Action Agenda. In turn, these agencies manage programs addressing the three Strategic Initiatives. The U. S. Environmental Protection Agency also awards grants to the Northwest Indian Fisheries Commission to advance tribal treaty rights and Puget Sound protection and restoration. Healthy tribal lands and waters are essential to the continued protection and security of tribal treaty rights and the economic and cultural well-being of tribes are directly linked to the health of their homelands and the natural

<sup>8</sup> Redevelopment often provides an opportunity to contribute to recovery by upgrading stormwater systems, increasing densities, removing structures that degrade or limit habitat, and implementing other improved development practices.

systems supporting their resource base. Grants such as these support Puget Sound federally recognized tribes in continuing to protect and restore the natural resources that are of utmost subsistence, cultural, commercial, and spiritual value.

Federal agencies can direct existing funds for national programs in this region. The following federal programs make important contributions to Puget Sound recovery programs. A full list of programs is provided in the [supporting materials](#).

- U. S. Environmental Protection Agency’s National Estuary Program and Geographic Programs for Puget Sound.
- National Oceanic and Atmospheric Administration’s Restoration Center.
- National Oceanic and Atmospheric Administration’s Pacific Coastal Salmon Recovery Fund grant programs.
- Various programs administered by the U.S. Fish and Wildlife Service, U.S. Geological Survey, National Park Service, U.S. Coast Guard, U.S. Department of Defense, U.S. Army Corps of Engineers, U.S. Forest Service, National Resources Conservation Service, Federal Emergency Management Administration, Federal Housing Administration, Federal Transit Administration, and other federal agencies that lead work related to Puget Sound recovery.

## STATE PROGRAMS

Washington State makes significant investments in capital projects that contribute to Puget Sound recovery, such as wastewater treatment plants, stormwater retrofits, and nearshore habitat protection and restoration. The Puget Sound Partnership is required by statute to review the budget requests of Washington State natural resource agencies and prioritize these requests relative to their alignment with and support of priorities in the Action Agenda. This prioritization is then provided to the Governor and the State Legislature to support their budgetary decisions.

The following state programs make important contributions to Puget Sound recovery programs. A full list of programs is provided in the [supporting materials](#):

- Puget Sound Acquisition and Restoration Fund
- Estuary and Salmon Restoration Program
- Floodplains by Design
- Stormwater Financial Assistance Program
- Salmon Recovery Funding Board grant programs
- Washington State Department of Ecology’s water quality grants and loan programs



## LOCAL GOVERNMENT

Cities, counties, and special-purpose districts<sup>9</sup> account for a significant portion of funding for actions that contribute to Puget Sound recovery. Local entities invest in wastewater treatment, septic tank management, stormwater management, infrastructure, shellfish and habitat protection, and restoration. Local funds can be generated through a variety of mechanisms authorized by Washington State, including utility fees and assessments on local properties such as conservation futures programs.

The Puget Sound Partnership supports Local Integrating Organizations consisting of local jurisdictions, area tribes, special-purpose districts, salmon recovery Lead Entities, and community organizations that provide biennial updates on local recovery priorities, long-term plans, and Near Term Actions. Each organization's members secure funding for projects such as salmon habitat restoration, floodplain restoration, and stormwater retrofits. The Local Integrating Organizations also provide input on state legislative proposals and funding authorities, and help to identify funding gaps in the [Implementation Plan](#).

## NONPROFIT AND PRIVATE ORGANIZATIONS

The private sector, including individuals, businesses, and philanthropic organizations, recognizes the benefit of a healthy Puget Sound to a healthy economy. Businesses and private landowners are also obligated to contribute to certain recovery priorities (for example, controlling polluted runoff from private property). The private sector can invest in Puget Sound recovery by forming public/private partnerships that address priority issues. For example, the National Fish and Wildlife Foundation's Community Salmon Fund provides funding for two of the Strategic Initiatives: habitat and shellfish. Similarly, cost-sharing opportunities are available from both the state and federal programs.

## HOW WILL FUNDING FOR PUGET SOUND RECOVERY CHANGE?

Puget Sound recovery programs benefit from federal, state, and local funding. Over time, these sources have evolved to provide new funding mechanisms and collaborative requirements. Two examples are described below.

### NATIONAL ESTUARY PROGRAM: NEW FUNDING MODEL

The U.S. Environmental Protection Agency's National Estuary Program funds Near Term Actions in the Action Agenda. In March 2015, the U.S. Environmental Protection Agency proposed changes to focus the funding process on the Action Agenda priorities, reduce administrative burdens on applicants, provide increased transparency and predictability in both ranking and funding decisions, and encourage broader collaboration during the decisionmaking process.

The new funding model ensures that funding is driven by priorities established in the Action Agenda. In this highly structured process, partners such as the Local Integrating Organizations, Puget Sound tribes, Puget Sound Salmon Recovery Council, Ecosystem Coordination Board, Science Panel, and Leadership Council have the opportunity to collaborate on recommendations for Near Term Actions and ongoing programs critical to the Strategic Initiatives. Through this process, the Puget Sound Partnership acts as a neutral, nonregulatory body with a significant role in planning, synchronizing, managing, and monitoring the recovery funding system to ensure the most efficient and effective path to Puget Sound recovery. The Strategic Initiative Leads work with their respective Strategic Initiative Advisory Teams ([Chapter 3, Managing Recovery](#)) to review and rank Near Term Actions according to priorities established in the Action Agenda and to formulate funding recommendations for National Estuary Program funds.

<sup>9</sup> Special-purpose districts exist separately from local governments and provide services such as water, electricity, and drainage.

## COORDINATED FUNDING AND INVESTMENT

State and federal agency partners are working to improve the implementation of Puget Sound recovery actions through coordinated funding and investment. Two efforts are underway, one at the state level and one involving all levels of government, tribes, and local communities. These programs aim to align financial resources and regulatory authorities to speed conservation and resiliency programs.

- Washington State Natural Resources Grant Program.** This initiative coordinates cross-agency grant programs that benefit water quality and salmon recovery. The intention is to maximize the benefits of public investment and minimize administrative burdens on local grant recipients. This coordinated funding model focuses limited resources on the investments most likely to contribute to Puget Sound recovery. This effort is led by the Washington State Department of Ecology and the Recreation and Conservation Office; it is also supported by the Washington Department of Fish and Wildlife, Puget Sound Partnership, Washington State Conservation Commission, the Governor's Results Washington, and the National Oceanic and Atmospheric Administration. This effort assists in the statutory requirements for state agencies to review and align their budgets, if necessary, with priorities in the Action Agenda.
- Resilient Lands and Waters Initiative.** This program identifies concrete steps by which state and federal agencies can synergize with local governments and organizations to accelerate ecosystem recovery. In a typical watershed, a dozen state, federal, and local government agencies are responsible for improving ecosystem services, but their mandates are typically narrowly focused on only selected resources, not the whole ecosystem. Communities living in watersheds, floodplains, and estuaries struggle with big problems and complicated situations that require us to mobilize a mix of financial, legislative,

scientific, and social resources to work collectively at the scale necessary to protect and restore ecosystems.

A pilot project in the Lowland Snohomish watersheds offers the opportunity to test this collaborative funding model. The Coordinated Investment Pilot is guided by an ad hoc steering committee led by the National Oceanic and Atmospheric Administration and the Puget Sound Partnership, with representatives from the Washington State Departments of Ecology, Fish & Wildlife, Natural Resources, and Agriculture; and representatives from the U.S. Fish and Wildlife Service, Natural Resource Conservation Service, U.S. Environmental Protection Agency, Federal Emergency Management Agency, and the U.S. Army Corps of Engineers. Key local partners include Snohomish County, Snohomish Conservation District, and the Tulalip Tribes of Washington. The committee is developing the following actionable steps to coordinate investments in large-scale watershed restoration:

- Positioning state and federal engineers and scientists to support local project teams.
- Developing and sharing transparent strategies and data describing ecosystem conditions.
- Making regulatory processes understandable, efficient, and goal-driven.
- Streamlining public funding mechanisms.
- Creating financial feedbacks that support stewardship.
- Developing more flexible ways of protecting open space that integrate farming, salmon recovery, and flood management.

Lessons from this pilot will inform future efforts and contribute to developing stable mechanisms to replicate successes in other watersheds in Puget Sound and beyond.

WHAT IS THE FUNDING STRATEGY FOR PUGET SOUND RECOVERY?

The Partnership funding strategy aims to develop and secure stable and diverse funding to implement Action Agenda priorities. The funding currently available from various sources is insufficient to fund the full costs of recovery efforts included in the Action Agenda. Given this reality, the funding strategy for Puget Sound recovery includes three key components:

- **Get the most from available funding.** Make the most of the available funding by narrowing the focus of implementation efforts on the Near Term Actions that will have the highest potential benefit to recovery efforts.
- **Define the funding gap and ways to bridge it.** Gain a clearer picture of the size and nature of the funding gap to develop immediate priorities and inform longer-term efforts to close and address the gap.
- **Refine and implement solutions to bridge the funding gap.** Clearly define and prioritize solutions to fill the funding gap, the steps needed for implementation, and roles and responsibilities.

The [Implementation Plan](#) reflects the narrowed focus, aimed at achieving results to translate the first item into practice. The remaining two items are described below.

DEFINE THE FUNDING GAP AND WAYS TO BRIDGE IT

In 2014, the Ecosystem Coordination Board commissioned a study to identify a strategy for long-term funding of the Strategic Initiatives. The plan developed by the board’s Finance Subcommittee and economic consulting firms describes the funding needs, priorities, status, and gaps for each Strategic Initiative ([Funding Strategy for the Strategic Initiatives from the 2012–2013 Puget Sound Action Agenda](#)). The Finance Subcommittee recognized that it is not sufficient to simply evaluate the costs of the Near Term Actions and any associated funding gaps. Instead, it is crucial to include the costs of key ongoing programs and any existing gaps in funding those ongoing programs. In looking at both Near Term Action and ongoing program costs, the Finance Committee identified a funding gap of between \$206 and \$355 million per year for the Habitat Strategic Initiative, \$62 to \$265 per year for the Stormwater Strategic Initiative, and \$27 to \$42 million for the Shellfish Strategic Initiative, as shown in Table 5-1.

TABLE 5-1. 2012– 2013 STRATEGIC INITIATIVE FUNDING GAPS

STRATEGIC INITIATIVE	ANNUAL COST	CURRENT FUNDING	CURRENT ANNUAL FUNDING GAP
Stormwater	\$540–\$690 million	\$425–\$575 million	\$62–\$265 million
Habitat	\$325–\$441 million	\$86–\$119 million	\$206–\$355 million
Shellfish	\$41–\$53 million	\$12–\$14 million	\$27–\$41 million

The Finance Subcommittee also made the following eight overarching recommendations that continue to inform our funding strategy:

- **Water infrastructure.** Support new funding for an appropriate integrated water infrastructure; model watershed approach after the salmon recovery efforts.
- **Septic management.** Support new funding for the Washington State Department of Health’s septic loan and septic management programs to address all funding needs in the Shellfish Strategic Initiative.
- **Stormwater management.** Seek increased state funding for stormwater projects and street sweeping, sediment removal, and selective highway retrofits as immediate priorities while supporting a long-term strategy for stormwater investments in the Puget Sound basin.
- **Funding across jurisdictions.** Consider options for collecting and distributing funds across jurisdictional boundaries at a watershed, multiwatershed, or Puget Sound-wide scale to address differences in funding capacity. Consider the concept of a regional funding district.
- **Habitat Strategic Initiative.** Support ongoing funding for the three Strategic Initiatives, with emphasis on the Habitat Strategic Initiative, where the funding gap is larger relative to the Shellfish Strategic Initiative and Stormwater Strategic Initiative.
- **State highway system.** Seek increased funding for stormwater and other environmental improvements in a state transportation package; align environmental spending for highways with watershed and regional priorities for cleanup and restoration.
- **Strategic prioritization.** Advocate for strategic prioritization of federal and state infrastructure funding based on economies of scale, science advancement, equity and social justice, agriculture and resource land protection, and workforce development.
- **Biennial review.** Review and revise the funding strategy during the biennial updates of the Action Agenda.

## REFINE AND IMPLEMENT SOLUTIONS TO BRIDGE THE FUNDING GAP

In addition to maintaining, enhancing, and focusing government funding, securing and stabilizing more funding will be a continuous need. As efforts proceed to implement the recommendations described above, the Ecosystem Coordination Board Finance Subcommittee is working to develop longer-term solutions to bridge the funding gaps and satisfy evolving priorities, including completing an actionable work plan in the fall of 2016. The following actions will support stable and sustainable funding for Puget Sound recovery:

- **Expanding private and philanthropic partnerships.** To date, Action Agenda implementation has relied heavily on public funds. Through multi-benefit efforts like Floodplains by Design, we are looking to better engage private and philanthropic partners by ensuring that actions reflect and provide for their interests and ecosystem benefits. Recent investments from Boeing and a number of philanthropic organizations suggest that this approach resonates. Part of the strategy is to more explicitly expand multi-benefit, coordinated investments beyond floodplains.

- **Allocating resources across local watersheds.** Funding available for local jurisdictions is not typically distributed evenly throughout a watershed. Urban areas with a large tax base typically have more funding, while more rural areas tend to have a lower tax base. This disparity can be challenging for recovery efforts, as there is often more opportunity for better ecosystem protection and restoration in less dense areas. Our funding strategy includes identifying funding methods that can work across city and county jurisdictional boundaries to employ a watershed approach to investment, thereby using limited funding where it will have the greatest ecosystem benefits regardless of jurisdiction.
- **Prioritizing state and federal grants for projects that encourage compact growth patterns, density and redevelopment, and rural lands protection.** Redevelopment and increased density in existing developed areas yield multiple benefits and help to distribute the costs of recovery. When currently developed areas are redeveloped through private investment, stormwater systems are retrofitted to meet current standards. Also, redevelopment and increased density help to protect and preserve existing habitat outside and within urban areas. Part of the strategy is to encourage and incentivize redevelopment to leverage private contributions for Puget Sound recovery.
- **Establishing a center to organize and stimulate conservation markets for resource lands.** Conservation markets have the potential to use market forces to achieve ecological objectives. Mechanisms can include transferring development rights, mitigation banking, and trading schemes that leverage cost differentials associated with different entities and pollutant sources to realize the same reduction in a given pollutant. Developing, implementing, and advocating for the widespread use and acceptance of these market mechanisms requires a centralized advocate for a long-term view and cross-regional coordination.
- **Maximizing funding for protection efforts supplemented by restoration projects.** It is much more cost effective to protect functioning areas of the ecosystem than it is to restore degraded areas. Many grant and other programs currently favor restoration work over protection. As a means of reducing, or at least managing, increases in the overall cost of Puget Sound recovery, we need to maximize protection today to reduce more costly restoration in future years.
- **Prioritizing state and federal grants to encourage compact urban development and rural lands protection.** Reducing the conversion and development of rural lands is essential to protecting Puget Sound. The anticipated rapid population growth in the region will result in development. Encouraging cities to absorb the majority of this growth will reduce the ecosystem impacts that negatively affect Puget Sound. Prioritizing public expenditures and incentivizing private investments to expand the abilities of cities to grow up and not out will protect essential ecosystem services.
- **Addressing match requirements and local government or nongovernmental organization funding constraints.** Some entities cannot meet the match requirements of many grant programs; some areas are better positioned to use grant funds than these less advantaged areas. As a result, the most valuable protection and restoration work from an ecosystem perspective is not always funded and completed. The funding strategy looks at ways to modify match requirements to better consider the ability of an entity to provide the match so that we are not excluding valuable protection and restoration projects. Ultimately, this makes protection and restoration work more cost effective.





CHAPTER 6 | GLOSSARY

Some terms defined in this glossary are unique to the Action Agenda. Others are generally related to recovery planning.

TERM	DEFINITION
<a href="#">Action Agenda Report Card</a>	Provides online status of Near Term Actions.
<a href="#">Action Agenda</a>	Provides long-term strategies and Near Term Actions for Puget Sound recovery.
adaptive management	Process of applying knowledge gained from ongoing plans and actions to future plans and actions.
<a href="#">Biennial Science Work Plan</a>	Sets priorities for scientific work required for Puget Sound recovery.
<a href="#">Comprehensive Plan</a>	One of two components of the Action Agenda; outlines the strategies, actions, and funding necessary for Puget Sound recovery.
cross-cutting issue	An issue that affects many aspects of Puget Sound recovery spatially or temporally. Key cross-cutting issues are tribal resources, climate change, ocean acidification, salmon recovery.

TERM	DEFINITION
cross-cutting sub-strategy	A sub-strategy that supports more than one Strategic Initiative.
Ecosystem Coordination Board	One of the Puget Sound Partnership's four boards, provides strategic and implementation oversight for the Action Agenda.
ecosystem recovery plan	Action-based recovery plan developed by a Local Integrating Organization.
effectiveness monitoring	Review of data to determine whether recovery actions had the intended or expected results.
Guiding Principles for Ecosystem Management	Rules or frameworks for decisions in ecosystem management that set the priorities for ecosystem recovery.
human well-being	Human well-being refers to everything that allows humans to thrive. It includes familiar topics such as physical and psychological health, as well as governance, social, cultural, and economic well-being. For the purposes of Puget Sound recovery, the focus is on human well-being as it relates to human engagement with the natural environment of Puget Sound.
<a href="#">Implementation Plan</a>	One of two components of the Action Agenda; identifies actions to be implemented in the 2-year timeframe.

TERM	DEFINITION
Implementation Strategy	Recovery plans for accelerating progress toward achieving the 2020 ecosystem recovery targets for the Vital Signs.
Lead Entity	Watershed-based organization that oversees implementation of watershed chapters of the <a href="#">Puget Sound Salmon Recovery Plan</a> .
Leadership Council	One of the Puget Sound Partnership's four boards, appointed by the Governor to set policy and strategy for the Partnership.
Local Integrating Organization	A consortia of local and tribal organizations that guides the planning and implementation of actions at the ecosystem scale and prioritizes local actions for investment in one of nine geographical areas around Puget Sound.
Management Conference	Directs governance for each estuary program in the National Estuary Program. The governing structure of the Puget Sound Partnership serves as the Management Conference.
Near Term Action	Trackable and measurable activity to reduce pressures and contribute to achieving the recovery targets. Identified in the <a href="#">Implementation Plan</a> . Developed at the regional and local scale and begin implementation within 2 years.

TERM	DEFINITION
ongoing programs	Continuing efforts—regulatory, oversight, technical support, guidance—that provide the foundation for Puget Sound ecosystem protection and recovery and align with the Action Agenda priorities.
Open Standards	The Open Standards for the Practice of Conservation link science, policy, and performance management, and are the foundation of the adaptive management framework for the recovery efforts coordinated by the Puget Sound Partnership.
Partnership Tribal Co-Management Council	Provides opportunities for early and frequent involvement of the tribes in Puget Sound Partnership activities.
performance management	An evaluation and reporting on program effectiveness. Implementation of the Action Agenda is tracked in the <a href="#">Puget Sound Vital Signs</a> , <a href="#">Puget Sound Recovery Atlas</a> , <a href="#">Action Agenda Report Card</a> , <a href="#">State of the Sound</a> , and <a href="#">Open Standards for the Practice of Conservation</a> .
pressures	Human activities that stress the ecosystem but may benefit humans. As reported in the <a href="#">Puget Sound Pressures Assessment</a> , there are 41 critical ecosystem pressures (species and habitats).

TERM	DEFINITION
Puget Sound Ecosystem Monitoring Program	Program to evaluate progress toward Puget Sound recovery.
Puget Sound Partnership	State agency that coordinates actions for Puget Sound recovery.
<a href="#">Puget Sound Pressures Assessment</a>	Summarizes pressures on specific endpoints in Puget Sound ecosystems and identifies ecosystem vulnerabilities.
<a href="#">Puget Sound Recovery Atlas</a>	Provides online updates on project implementation and ongoing programs.
Puget Sound Salmon Recovery Council	One of the Puget Sound Partnership's four boards, advises the Leadership Council on decisions related to salmon recovery.
<a href="#">Puget Sound Salmon Recovery Plan</a>	Adopted by the National Marine Fisheries Service in 2007 to guide recovery of salmon species in Puget Sound.
<a href="#">Puget Sound Vital Signs</a>	Online tool that tracks health of the 25 Vital Signs.
recovery	Encompasses the protection and restoration of essential resources and functions.
recovery goals	Six statutory goals that guide the work of the Puget Sound Partnership.
recovery targets, 2020	Quantitative targets for recovering a specific Vital Sign by 2020. Established for 16 Vital Signs.

TERM	DEFINITION
science-informed decisionmaking	Structured approach to deciding on actions and strategies for Puget Sound recovery.
Science Panel	One of the Puget Sound Partnership's four boards; provides independent scientific advice to the Leadership Council.
<a href="#">State of the Sound</a>	Summarizes recovery progress, challenges, and investment every 2 years.
Strategic Initiative	A significant problem identified to prioritize implementation and funding of Near Term Actions. The three Strategic Initiatives address stormwater, habitat, and shellfish.
Strategic Initiative Lead	Organization with technical expertise that supports development of Near Term Actions and long-term strategies in support of a Strategic Initiative. Acts as the Strategic Initiative lead agency.
Strategic Initiative Advisory Team	Committee of technical experts who advise the Strategic Initiative Lead.
<a href="#">Strategic Science Plan</a>	Framework for coordinating the science required for Puget Sound recovery as outlined in the Action Agenda.
strategy	A high-level approach to address pressures on the Puget Sound ecosystem and achieve recovery targets. There are 29 strategies.

TERM	DEFINITION
sub-strategy	A specific approach to address pressures on the Puget Sound ecosystem and achieve recovery targets. There are 106 sub-strategies.
supporting organizations	Key agencies, organizations, and advisory bodies that support the work of the Puget Sound Partnership.
Vital Signs	Twenty-five signs that gauge the health and recovery of Puget Sound.
Vital Sign indicators	One or more specific and measurable metrics for each Vital Sign.





# IMPLEMENTATION PLAN



# ACTION AGENDA FOR PUGET SOUND

## **LETTER FROM LEADERSHIP COUNCIL**

## **EXECUTIVE SUMMARY**

## **COMPREHENSIVE PLAN**

## **IMPLEMENTATION PLAN**

## **APPENDICES**

- Appendix A | Strategies and Sub-strategies
- Appendix B | Cross-Cutting Sub-Strategies
- Appendix C | Ongoing Programs

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## CHAPTER I

### INTRODUCTION AND RANKED NEAR TERM ACTIONS

The *Implementation Plan* is the *action* component of the Action Agenda. It represents the collective effort focused on Puget Sound recovery for the next 2 years. Based on the fundamental framework and broad strategies described in the [Comprehensive Plan](#), the *Implementation Plan* defines the suite of Near Term Actions and programs that are needed to make progress toward achieving the 2020 recovery targets for Puget Sound Vital Signs.<sup>1</sup>

- **Near Term Actions** are activities that are proposed, developed, aligned, and ranked as part of developing the *Implementation Plan*. They may include new programs, specific projects, scientific investigations, improvements, or enhancements to ongoing programs, and other types of actions.
- **Ongoing programs** are programs that are part of existing Puget Sound recovery efforts and include activities that align with the *Implementation Plan* priorities and timeline.

<sup>1</sup> Note that the list of Near Term Actions is not a comprehensive list of actions necessary to achieve recovery. Completing all of these Near Term Actions does not ensure that the 2020 recovery targets will be met.

The Leadership Council has directed the *Implementation Plan* to focus on the Strategic Initiatives. The Strategic Initiatives emphasize the priority topics and issues critical to Puget Sound recovery. Together, the Near Term Actions and ongoing programs advance the Strategic Initiatives at the local and soundwide scale. Three Strategic Initiatives are prioritized in this *Action Agenda*.

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

The *Implementation Plan* is organized as follows:

- Immediately following this introduction are the three ranked lists of Near Term Actions for the Strategic Initiatives. A sortable list of the Near Term Actions is available in the [Action Agenda Report Card](#) and detailed information about ongoing programs is available in the [Puget Sound Recovery Atlas](#). The remaining chapters then explain how the Near Term Actions were generated and how the information can be used.
- [Chapter 2, Development, Use, and Measurement of the Implementation Plan](#), describes how the Implementation Plan was developed, how it will be used, and how success will be measured. This chapter also discusses how the development of the 2016 Action Agenda differs from the development of the 2014 Action Agenda. The 2016 Action Agenda applies the principles of adaptive management by building the plan on new information and lessons learned from past implementation successes and challenges. Specifically, experiences from implementing the 2012 and 2014 Action Agendas, the

updated [Puget Sound Pressures Assessment](#), and efforts to develop [Implementation Strategies](#) for the shellfish and estuaries Vital Signs have informed the 2016 Action Agenda. Additional information that explains the process used to develop the *Implementation Plan* is available online in the [Process Summary](#).

- [Chapter 3, Stormwater Strategic Initiative: Prevent Pollution from Urban Stormwater Runoff](#); [Chapter 4, Habitat Strategic Initiative: Protect and Restore Habitat](#); and [Chapter 5, Shellfish Strategic Initiative: Protect and Recover Shellfish Beds](#), present the Strategic Initiatives. Each chapter identifies the sub-strategies aligned with each Strategic Initiative and their associated Vital Signs. For each aligned sub-strategy, each chapter lists the regional priorities identified by the Strategic Initiative Transition Teams and related ongoing programs. Each chapter concludes with a list of gaps and barriers that may be addressed as part of future work on the Strategic Initiative.

## FOCUSING ON STRATEGIC INITIATIVES

The 2016 *Implementation Plan* is focused on actions necessary to improve the Vital Signs associated with each of the three Strategic Initiatives. The plan refines this focus by prioritizing of Near Term Actions, ongoing programs, and identifying critical gaps.

- **Priority Near Term Actions.** Near Term Actions complement ongoing work and optimize funding and resources by focusing on priorities. The Near Term Actions addressing regional priorities are expected to have the greatest benefit and to speed the pace of recovery. Each funding source may have unique goals (such as a focus on educational programs or funding opportunities that are available for public health projects) may find the sortable Near Term Action tables in the [Action Agenda Report Card](#) useful to evaluate actions that meet specific criteria.



- **Ongoing programs.** Near Term Actions complement the ongoing work associated with long-term programs. The 2016 *Implementation Plan* links ongoing programs with each sub-strategy to provide a complete picture of the work that supports each Strategic Initiative. Information about ongoing programs is available in [Appendix C, Ongoing Programs](#), and the [Puget Sound Recovery Atlas](#) (the latter is an online resource that supports this Action Agenda).
- **Gap analysis.** The gap analysis evaluates the Near Term Action portfolio to identify imbalances relative to the sub-strategies and regional priorities, geography, type of action proposed, and barriers hampering recovery efforts.

## RANKED NEAR TERM ACTIONS

Table 1-1 shows the ranked list of Near Term Actions for the [Stormwater Strategic Initiative](#). Table 1-2 shows the ranked list of Near Term Actions for the [Habitat Strategic Initiative](#). Table 1-3 shows the ranked list of Near Term Actions for the Shellfish Strategic Initiative. Full Near Term Action proposals that include performance measures for each Near Term Action are available in the [Action Agenda Report Card](#). Regional priorities, ongoing programs, and findings from a gap analysis associated with each Strategic Initiative are described in [Chapter 3, Stormwater Strategic Initiative: Prevent Pollution from Urban Stormwater Runoff](#); [Chapter 4, Habitat Strategic Initiative: Protect and Restore Habitat](#); and [Chapter 5, Shellfish Strategic Initiative: Protect and Recover Shellfish Beds](#).

## NEAR TERM ACTIONS ASSOCIATED WITH THE STORMWATER STRATEGIC INITIATIVE

The following table for the Stormwater Strategic Initiative includes the rank of the Near Term Action within the Strategic Initiative, the score (from 1 to 10) awarded by the Strategic Initiative Transition Teams, the sub-strategy the Near Term Action is most closely

aligned to (see [Appendix A](#) for sub-strategy descriptions), the owner, a brief action description of the Near Term Action, estimated cost, and the Near Term Action number (a reference number for easy access to the Near Term Action details in the [Action Agenda Report Card](#)). A sortable list of Near Term Actions is available in the [Action Agenda Report Card](#).

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3)

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
1	9.4	Stormwater Chemical Characterization and Watershed Prioritization	9.1	University of Washington	Improve source control by using advanced analytical instrumentation to identify novel and unrecognized toxicant chemicals in stormwater to prioritize high-risk basins and watersheds.	\$232,000	2016-0289
2	9.3	Characterization of Contaminants of Emerging Concern in Regional Waters	9.1	University of Washington	Conduct focused, coordinated sampling of contaminants of emerging concern in potential sources (stormwater, wastewater) and receptors (biological tissue, water) to characterize risks and prioritization for followup action.	\$200,000	2016-0281
3	9.1	Next-Phase Protection and Restoration Plans for B-IBI Basins	1.1	King County <sup>1</sup>	Identify stressors affecting B-IBI (benthic index of biotic integrity) scores and develop basin-specific plans for 10 basins needing protection (to maintain excellent scores) and three basins needing restoration (to improve scores from fair to good).	\$510,700	2016-0382
4	8.9	Exempt Solid Waste Facility Oversight	10.4	Department of Ecology	Inspect 150 solid waste facilities, exempt from solid waste permitting, to prevent and reduce threats to the environment from stormwater runoff that affects water quality (toxics, pH, turbidity).	\$250,000	2016-0189

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
4	8.9	Stormwater Threats and Clean Water Solutions for Puget Sound Salmonids	9.1	U.S. Fish and Wildlife Service	Assess stormwater runoff impacts on Puget Sound salmon and habitats. Predict extent to which development and climate change may undermine conservation and recovery efforts. Identify mitigation strategies to aid long-term habitat conservation and restoration.	\$1,200,000	2016-0217
6	8.7	Regional Illicit Discharge Detection Training	10.5	King County	Continue training staff who administer stormwater management programs in western Washington to detect illicit discharges detection. Provide updates to the Illicit Connection/Illicit Discharge Field Screening and Source Tracing Guidance Manual.	\$125,000	2016-0095
7	8.6	Mountains to Sound Greenway Trust: Next Generation Education Program	10.5	Stillaguamish Tribe	In collaboration with ECO Net, coordinate the Mountains to Sound Greenway Trust's Next Generation Education Program's science-based environmental and outdoor education lesson plans for 4th- through 10th-grade students in the Green / Duwamish (WRIA 9), Lake Washington / Cedar / Sammamish (WRIA 8), and Snoqualmie (WRIA 7) watersheds in King County.	\$54,168	2016-0159
7	8.6	Copper-Free Boat Paint Implementation	10.4	Department of Ecology	Work with boatyards and boat owners to replace the use of copper boat paint with effective alternatives that will eliminate copper releases to the Puget Sound waters, including the stormwater pathway.	\$150,000	2016-0301

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
9	8.4	Alternatives Assessments for High-Priority Chemicals	9.1	Department of Ecology	Conduct an alternatives assessment for polychlorinated biphenyls in pigments and phthalates used as plasticizers in order to reduce toxic loadings in Puget Sound waters.	\$800,000	2016-0283
9	8.4	Develop and Implement Chemical Action Plan Recommendations	9.1	Department of Ecology	Implement high-priority stormwater-related recommendations from completed chemical action plans and develop a new plan for perfluorinated compounds to reduce toxic chemical loadings.	\$1,113,000	2016-0353
9	8.4	Puget Sound Watershed Characterization Review and Update	1.1	Department of Ecology	Review and update of Puget Sound watershed characterization indices to develop a climate change module. Incorporate new data to keep assessments accurate and current in how they inform land use decisions by local governments.	\$228,000	2016-0399
12	8.3	Determine Organics and Bacterial Reductions by Treatment Best Management Practices	10.2	Department of Ecology	Measure how effectively best management practices remove certain organics such as polyaromatic hydrocarbons and bacteria such as fecal coliforms and enterococci.	\$300,000	2016-0338
13	8.2	Roadside Ditch Assessment: Development of Rating System	10.3	King County	Assess roadside ditches to characterize biofiltration and retention characteristics and develop a rating and classification system based on risk and maintenance needs, resulting in a Puget Sound-wide model for reducing stormwater pollutants and flow impacts.	\$149,750	2016-0099

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
13	8.2	Legacy Pollutant Removal Prioritization Study	10.3	Department of Ecology	Determine the most effective areas for legacy load removal based on land use and under which stormwater management regime the contributing area was developed.	\$400,000	2016-0342
15	8.1	South Fork Dogfish Creek Restoration, Design Phase	10.4	City of Poulsbo	Construct a regional stormwater treatment facility, restore 800 feet of degraded stream channel and riparian corridor, and replace a culvert that blocks fish passage.	\$250,000	2016-0017
15	8.1	Reducing Stormwater Impact from Downtown District of Seattle	10.5	Seattle 2030 District	Develop a replicable program to reduce stormwater peak discharge in an urban district through education, collaboration, and study with building owners and managers and public and private partners.	\$360,000	2016-0086
15	8.1	Puget Sound Starts... at My School!	10.5	Snohomish Conservation District	Involve students, staff, and families in the design, installation, and maintenance of four low-impact development projects on school campuses in Everett and Mill Creek.	\$97,200	2016-0218
18	8	Expanding Local Source Control	10.4	Department of Ecology	Fund local governments to conduct source control site visits and monitoring that will eliminate polluted stormwater, spills, and toxic waste discharges from businesses to the stormwater pathway.	\$1,490,000	2016-0177
18	8	Regional Implementation of the Puget Sound Starts Here Campaign	27.1	King County	Enhance the Puget Sound Starts Here campaign to raise public awareness of the Sound's health and provide umbrella support and resources for on-the-ground behavior change programs to promote best practices that support ecosystem recovery.	\$1,140,000	2016-0205



**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
18	8	Puget Sound Clean Cars	9.1	Department of Ecology	Implement automotive design solutions and maintenance options to reduce vehicle leaks and accelerate automotive industry changes that will reduce petroleum-based toxics loading to the stormwater pathway.	\$550,000	2016-0284
21	7.9	Better Ground	10.5	Puget Sound Conservation Districts Caucus	Increase impact at the local level by providing urban and rural residents with website and outreach tools to implement best management practices on private property.	\$274,275	2016-0246
21	7.9	Invertebrate Supplementation as Restoration Action in Select B-IBI Basins	1.1	King County	Facilitate the colonization of invertebrates in select basins where B-IBI (benthic index of biotic integrity) scores are lower than expected. If B-IBI scores improve and remain high, no other restoration actions may be needed.	\$238,000	2016-0383
23	7.8	Makah Hake Plant Above Ground Storage Tank Clean Up	10.4	Makah Tribe	Remove a 300,000-gallon aboveground storage tank in Neah Bay, a site recognized as a brownfield site by the U.S. Environmental Protection Agency and located 340 feet from the Strait of Juan De Fuca and harvestable shellfish beds.	\$200,000	2016-0021
23	7.8	Reducing Zinc Pollution to Puget Sound	9.1	Department of Ecology	Accelerate the use of innovative zinc-free products to reduce stormwater delivery of zinc, which is toxic to aquatic life. Assess alternative coatings, rubber, and automotive lubricants for hazards and performance with those interested in use.	\$395,000	2016-0164

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
23	7.8	Safer Choice Consumer Products	9.1	Department of Ecology	Implement a social marketing campaign to increase the awareness and use of U.S. Environmental Protection Agency Safer Choice labeled products to reduce toxics loading to the Puget Sound environment. Safer Choice labels help consumers select products with safer chemical ingredients.	\$500,000	2016-0282
26	7.7	Building Green Cities	10.3	Department of Commerce	Use a social marketing and economic behaviors approach and a work group to develop and test guidance on barriers and motivations or incentives for developers to include low-impact development treatments in urban center redevelopment projects.	\$735,000	2016-0053
27	7.6	Liberty Bay Bioretention and Low-Impact Development Program	10.4	City of Poulsbo	Construct bioretention cells and other low-impact development facilities at priority commercial and residential areas to support TMDL goals and upgrades to shellfish bed classifications.	\$300,000	2016-0018
27	7.6	Snohomish County Natural Yard Care Behavior Change Campaign	10.5	Snohomish County	Implement a Natural Yard Care Behavior Change campaign to decrease toxic loading in Snohomish County in alignment with King County.	\$231,483	2016-0262
27	7.6	Crescent Creek Watershed Technical Assistance and Best Management Practices Implementation.	10.4	Whidbey Island Conservation District	Deliver water quality technical assistance to landowners in the Crescent Creek watershed. Provide best management practices design and implementation for water quality on their land.	\$120,750	2016-0299

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
30	7.5	Latino Stormwater and Low-Impact Development Outreach Project in Southwest Snohomish County	10.5	Washington State University Extension	Improve water quality conditions in selected southwest Snohomish County streams and lakes by increasing engagement with underserved local Latinos in stormwater pollution efforts.	\$76,185	2016-0162
30	7.5	Pilot Testing for South Park Water Quality Facility	9.1	City of Seattle	Conduct pilot testing of up to three active water quality treatment technologies for treating runoff from a highly industrial area in South Park, which discharges to the Duwamish River.	\$2,793,000	2016-0167
30	7.5	GreenLink Watershed Plan for Bell Creek Basin, Sequim and Clallam County	1.1	Futurewise	Create a watershed-based plan and conduct public engagement to identify practical, implementable green infrastructure projects and recommendations to improve surface and groundwater quality, habitat, and community assets for the Bell Creek basin.	\$248,700	2016-0199
30	7.5	Urban Tree and Forest Canopy Cover Toolkit	10.1	King Conservation District	Research and develop a toolkit for Puget Sound communities about trees, forest canopy, and stormwater so that local staff has increased awareness and resources to implement tree programs that strategically enhance stormwater management and habitat function.	\$153,500	2016-0343
34	7.4	Water Quality Focused Street Sweeping Program	10.4	City of Olympia	Expand a limited street sweeping program to serve the entire city with a focus on water quality to reduce pollutants released to surface waters. Geographic information system-based analysis will direct development and implementation of sweeper operating procedures and routes.	\$356,805	2016-0010

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
34	7.4	Fishtrap Creek Stormwater Project	10.3	Whatcom Conservation District	Reduce stormwater runoff and improve water quality in Fishtrap Creek by designing and constructing low-impact development stormwater practices at the Northwest Washington Fair and Event Center in the City of Lynden.	\$679,962	2016-0039
34	7.4	Phthalates Research for Source Control	10.4	Futurewise	Analyze phthalates in external use products and in samples from publicly accessible locations to improve source control for phthalates in the stormwater pathway that may recontaminate sediment cleanup sites in Puget Sound.	\$176,900	2016-0255
34	7.4	Gold Creek Tributary 0088 Small Basin Retrofit Planning and Design	10.3	King County	Create a basin-wide stormwater retrofit plan for the Gold Creek Tributary 0088 stream basin. Develop predesigns for at least two identified retrofit projects and 90 percent design plans for at least one retrofit project.	\$357,616	2016-0274
34	7.4	Stormwater Treatment System Effectiveness	10.3	University of Washington	Use existing stormwater treatment system data to evaluate the performance of best management practices against various contaminants. Use data reported in Phase I of National Pollutant Discharge Elimination System stormwater permits (S8F) and Technology Assessment Protocol (TAPE), among others.	\$30,000	2016-0285
39	7.3	King County Natural Yard Care Behavior Change Campaign	27.1	King County <sup>1</sup>	Collaborate with partners to update a local-scale natural yard care campaign in King County that extends updated program and Puget Sound Starts Here messages, workshops, speaker training, incentives, evaluation, and website support.	\$295,000	2016-0241

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
39	7.3	Penn Cove Watershed Stormwater Technical Assistance and Best Management Practice Implementation	10.4	Whidbey Island Conservation District	Deliver water quality technical assistance to landowners in the Penn Cove watershed. Provide best management practice design and implementation for water quality on their land.	\$147,200	2016-0329
41	7.2	Identifying Sources of Toxic Contaminants Harmful to Juvenile Salmon	9.1	Department of Ecology	Support actions to reduce and control contaminants entering Puget Sound by identifying sources and pathways of toxics that may impede salmon recovery goals.	\$273,000	2016-0048
41	7.2	Expand implementation of Nonpoint Pollution Reduction Activities	10.4	Department of Ecology	Significantly expand the implementation of water cleanup plans (TMDLs) by implementing best management practices that improve stormwater quality. Increase the on-the-ground implementation of water quality projects on both privately and publicly held land.	\$460,000	2016-0176
41	7.2	Maxwelton Watershed Water Quality Outreach and Best Management Practice Implementation	10.4	Whidbey Island Conservation District	Deliver water quality technical assistance to landowners in the Maxwelton watershed. Provide best management practice design and implementation for water quality practices on their land.	\$54,050	2016-0323
41	7.2	West Central Outreach and Behavior Change Plan with Kitsap Environmental Education Programs/Kitsap ECO Net	10.5	KEEP/ ECO Net	Develop a coordinated environmental education, outreach, and behavior change plan that addresses regional priorities and vital signs.	\$85,000	2016-0358



**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
41	7.2	Perrinville Creek Basin Green Stormwater Infrastructure Study	10.1	Snohomish Conservation District	Complete a green stormwater infrastructure feasibility and impact assessment across the City of Lynnwood and City of Edmonds in the high-priority Perrinville Creek basin.	\$97,750	2016-0364
46	7.1	Measure Pharmaceuticals, Personal Care Products, and Perfluoroalkylated Substances in Budd Inlet and Port Gardner Bay	9.1	Department of Ecology	Assess pharmaceuticals, personal care products, and perfluoroalkyl substance concentrations in sediments from Budd Inlet and Port Gardner Bay, completing the Puget Sound urban bay baseline for future source control work.	\$175,000	2016-0043
46	7.1	Spring Street Waterfront Storm Water Filtration Vault	10.4	Town of Friday Harbor	Construct a waterfront vault containing cartridge filters to clean stormwater that drains from the Friday Harbor urban environment. Design the vault to filter 100 percent of the first flush of rainwater entering the storm sewer system.	\$911,000	2016-0158
46	7.1	10th Avenue NE Drainage Improvements Project	10.3	City of Shoreline	Improve water quality and reduce flooding along 10th Ave NE between NE 165th Street and NE 175th Street by converting up to 1,000 linear feet of existing ditches into bioretention facilities and installing other stormwater improvements.	\$660,000	2016-0182
49	7	Salmon Heroes: Field-Based Education Program for Improved Water Quality	10.5	Environmental Science Center	Expand the program to bring Salmon Heroes to more students across the south-central Puget Sound area, particularly in low-income areas.	\$91,500	2016-0108

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
49	7	Reducing Toxic Flame Retardants to Puget Sound	9.1	Department of Ecology	Phase out and eliminate the use of flame-retardants, which are toxic to orca whales and other species of Puget Sound. Encourage the manufacture and sale of furniture and other products without halogenated flame-retardants.	\$100,000	2016-0187
49	7	Bell Creek Basin Assessment	1.1	City of Sequim	Assess storm flows in the Bell Creek basin given projections of increasing storm intensity and development. Use modeling to evaluate alternative strategies for stormwater management to best protect and improve water and habitat quality.	\$480,000	2016-0202
49	7	Low Impact Development Training Program	10.5	Department of Ecology	Continue the low-impact development training program and continue to develop and deliver training to MS4 permittees and others.	\$2,000,000	2016-0336
49	7	Ebey's Prairie Watershed Stormwater Remediation	10.4	Whidbey Island Conservation District	Design and construct a stormwater collection, conveyance, and transfer system delivering to an irrigation pond for use during the dry season.	\$92,000	2016-0337
54	6.9	Forbes Creek/ North Rose Hill Basin Retrofit Planning	10.3	City of Kirkland	Plan for stormwater retrofit of a portion of the Forbes Creek watershed that accounts for 13 percent of the watershed area yet contributes 30 percent of the peak flows. Stormwater retrofits will serve an area not likely to redevelop.	\$337,400	2016-0004
54	6.9	The Puget Sound Stormwater Infrastructure Framework	10.1	King County <sup>1</sup>	Develop a common regional mapping system for stormwater systems so jurisdictions can maintain their system more efficiently, work together, and share information and resources to better manage stormwater.	\$85,000	2016-0097

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
54	6.9	K–12 Field Investigation Program	10.5	Mason Conservation District	Coordinate local partners to provide reliable field sites for place-based curricula with Mason County schools.	\$187,569	2016-0170
54	6.9	Enhanced Stormwater System Maintenance for Mitigation	10.3	City of Tacoma	Implement enhanced maintenance practices such as system cleaning and street sweeping as cost-effective stormwater management tools.	\$350,000	2016-0203
54	6.9	Technical and Financial Assistance: Private Property Low-Impact Development Retrofits in Kirkland	10.3	City of Kirkland	Use technical assistance and rebates to encourage low-impact development retrofits of commercial and residential property to reduce the volume of stormwater runoff into Kirkland's local water bodies.	\$265,000	2016-0232
54	6.9	Clean Water for Salmon: Accelerating Market Shift to Salmon-Safe	10.5	Salmon-Safe	Incentivize “beyond compliance” stormwater management, habitat conservation, and water quality protection at 25 new development projects, more than doubling the Salmon-Safe “zero watershed impact” footprint in the greater Seattle area.	\$97,200	2016-0291
54	6.9	Industrial Stormwater Management Workshops Series	10.5	ECOSS	Expand industrial stormwater management workshops program providing comprehensive knowledge, tools, and onsite technical assistance to the 744 industrial stormwater general permit holders in the Puget Sound region.	\$200,000	2016-0298

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
54	6.9	Puget Sound Regional Citizen Action Training School	10.5	Nooksack Salmon Enhancement Association	Engage the citizens of Puget Sound by providing extensive education from regional experts oriented around stormwater and habitat restoration. Support participants in achieving hands-on solutions in their communities.	\$296,125	2016-0373
62	6.8	Pierce County Implementation of Puget Sound Starts Here	10.5	Pierce Conservation District	Support the activities of Pierce ECO Net by funding group coordination, collaborative community education efforts, professional development for network members, and local Puget Sound Starts Here advertising.	\$75,000	2016-0037
62	6.8	Don't Drip and Drive Vehicle Leak Reduction Program	27.1	King County <sup>1</sup>	Implement a multi-pronged integrated regional program to reduce the amount of toxic contaminants from automobile leaks in stormwater through research, development of partnerships and tools, and implementation of a behavior change campaign.	\$1,025,000	2016-0317
62	6.8	Pesticide Impacts in Berry Production	10.4	Department of Agriculture	Evaluate impacts on water quality from pesticide use in berry productions. Work with berry growers to minimize negative impacts from agricultural practices.	\$356,695	2016-0406
62	6.8	Snohomish County Local Implementation of Puget Sound Starts Here	27.1	Washington State University Extension	Collaborate with ECO Net partners to launch a local-scale Puget Sound Starts Here campaign in Snohomish County that is hands-on, face-to-face, and results in increased awareness and adoption of water quality behavioral changes.	\$76,185	2016-1195
66	6.7	Lake Whatcom Stormwater Improvement Projects: Phase 2	10.3	Whatcom County	Design and construct low-impact development stormwater treatment facilities to remove pollutants from stormwater entering Lake Whatcom.	\$520,000	2016-0013

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
66	6.7	Accelerate Stormwater Actions	10.1	The Nature Conservancy	Galvanize a regional coalition, including public and private partners, to accelerate adoption of efficient, effective, and equitable approaches to sustainable stormwater management across Puget Sound.	\$3,100,000	2016-0047
66	6.7	Second Phase of U.S. Geological Survey Pesticide in Stream Study	10.4	King County <sup>1</sup>	Change behavior around pesticide sales and use in King County to reduce pesticides in urban streams during rainstorms.	\$165,000	2016-0235
66	6.7	Communicating Best Practices with Underserved Audiences	10.5	King County <sup>1</sup>	Engage ethnic community media to provide access to information and examples of practices, build capacity and networks, and gain mutual understanding to engage communities in environmental issues.	\$300,000	2016-0312
66	6.7	Retention of Agricultural Lands at Risk of Conversion in Puget Sound	1.1	State Conservation Commission	Identify the projected risk of agricultural land conversion to nonagricultural uses using the Washington State Parcel Database developed by the University of Washington School of Environmental and Forest Sciences.	\$124,000	2016-0371
66	6.7	Urban Climate Resiliency in the Snohomish Basin	10.5	Snohomish Conservation District	Develop social marketing strategies and two demonstration projects for urban climate resilience in new and planned developments in the Snohomish Basin.	\$87,000	2016-0374
72	6.6	Spill Kit Incentive Program and Multilingual Technical Assistance	10.5	ECOSS	Provide multilingual stormwater-related training, resources, and technical assistance to small and medium-sized businesses so they can implement environmentally responsible practices and control sources of pollutants.	\$150,000	2016-0302



**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
72	6.6	MS4 Permit Implementation Assessments	10.2	Department of Ecology	Conduct audits of stormwater management programs required under the municipal stormwater phase II permits. Take a focused look at specific aspects of the stormwater management programs being implemented.	\$0	2016-0344
72	6.6	Copper in Compost Research for Source Control and Low-Impact Development Techniques	9.1	Futurewise	Analyze sources of copper in commercial compost (used in bioretention stormwater facilities) to provide data to assist in source reduction so that stormwater flowing through these facilities has reduced rather than increased copper.	\$260,000	2016-0349
72	6.6	Soos Creek Stewards	10.5	Mid Sound Fisheries Enhancement Group	Improve water quality by training a team of watershed stewards, providing technical assistance to streamside landowners, and installing early action best management practices on streamside properties.	\$230,000	2016-0356
72	6.6	South Sound Discovery Farms	10.4	American Farmland Trust	Create a program for quantitatively measuring and documenting water quality benefits of different best management practices in the Pacific Northwest through the establishment of Discovery Farm research sites on farmland in the Green Duwamish watershed.	\$327,261	2016-0394
77	6.5	Arlington Stormwater Treatment and Emerging Contaminant Reduction	10.1	City of Arlington	Complete design and install infrastructure needed to release reclaimed water to Old-town stormwater wetland to provide dry-season hydrological support and treatment of endocrine disruptors.	\$68,985	2016-0083

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
77	6.5	Enhanced Maintenance for Stormwater Mitigation-Sweeping and System Cleaning	10.3	City of Shoreline	Implement enhanced maintenance practices such as system cleaning and street sweeping as cost-effective stormwater management tools.	\$1,502,500	2016-0168
77	6.5	Forest Health Management for Reduced Stormwater Runoff and Land Conversion	1.1	Puget Sound Conservation Districts Caucus	Perform GIS mapping to identify and prioritize forestlands for preservation and restoration. Target forest health management services to reduce or prevent conversion, reduce stormwater runoff, and protect and improve water quality.	\$2,145,000	2016-0332
77	6.5	Improved Treatment of Phosphorus in Stormwater	9.1	University of Washington	Evaluate a low-cost phosphorus treatment medium to allow its widespread use in stormwater treatment systems throughout the region.	\$190,000	2016-0381
81	6.4	Stormwater Stewards	10.5	Washington State University Extension	Organize capable, committed, and well-trained citizen volunteers to provide peer-to-peer technical assistance to other residents seeking opportunities to manage and treat polluted runoff on their home or small-commercial sites.	\$299,628	2016-0093
82	6.3	Salmon Safe Green Stormwater Infrastructure	10.3	Cascadia College	Retrofit two bioswales on the Cascadia/ University of Washington, Bothell joint campus to improve water quality in North Creek, renew Salmon-Safe certification, and enhance the campus' ability to serve as a living laboratory.	\$99,000	2016-0006
82	6.3	Permeable Pavement Standards Development Based on Lessons Learned	9.1	City of Tacoma	Test new permeable mix designs and material testing procedures to further pavement durability, develop permeable pavement standards, and increase confidence in permeable pavements.	\$550,000	2016-0224

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
82	6.3	Municipal Stormwater Pollution Accountability Project	10.2	Puget Soundkeeper Alliance	Reduce stormwater pollution to Puget Sound by holding municipalities accountable for implementing stormwater permit requirements. Mandate low-impact development as the commonly used and preferred approach to development.	\$166,000	2016-0278
82	6.3	Fisherman's Harbor Stormwater Quality Improvement Project	10.4	City of Everett	Provide treatment to the primary significant sources of untreated stormwater being discharged to the Fisherman's Harbor development area including three Port of Everett and two City of Everett stormwater outfalls.	\$1,500,000	2016-0311
82	6.3	Water Quality Certainty Program for Agriculture	10.4	Department of Ecology	Implement a process over the next 2 years to identify and prioritize agricultural best management practices that will meet water quality standards (such as a certainty program for farmers).	\$110,000	2016-0318
87	6.2	Keep Puget Sound Sewage Free	9.1	Olympic Environmental Council	Assess alternative approaches for managing and treating biosolids to reduce toxic loading into Puget Sound.	\$95,050	2016-0340
88	6.1	Birch Bay Stormwater Improvement Projects	10.3	Whatcom County	Initiate final engineering design for a stormwater retrofit project in the Birch Bay watershed with treatment facilities to remove pollutants from stormwater entering Birch Bay.	\$180,000	2016-0015
88	6.1	Replicable Model for Depave and Low-Impact Development Retrofits	10.5	Pierce Conservation District	Develop a model for depaving and low-impact development retrofits and a guide for technical assistance to allow easy adoption of the program throughout Puget Sound.	\$242,000	2016-0032

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
88	6.1	Stormwater Retrofit Jefferson County	10.3	Jefferson County Marine Resources Committee	Partner with City of Port Townsend to install eight high-priority bioremediation projects (structural retrofit) to address stormwater problems in existing developed areas in the city (uptown/ downtown) and county (Hood Canal area).	\$96,000	2016-0109
88	6.1	Stormwater Assessment and Effectiveness Monitoring Program	10.1	San Juan Islands Conservation District	Based on the completed pilot study, implement a program to further define the identified sources of contamination, monitor changes to general water quality, and measure effectiveness of retrofits.	\$160,000	2016-0188
88	6.1	Puget Sound Conservation District Stormwater Action Team	10.5	Puget Sound Conservation Districts Caucus	Raise the capacity of stormwater services in conservation districts and their partners across Puget Sound through the replication of rain garden, sound education, depave, and monitoring programs.	\$192,050	2016-0292
93	6	Village Rain Garden Project and Storm Water Education	10.5	Weed Warriors	Engage a diverse community, students, and adults, in stormwater education, pollution control, and rain garden creation, including elements from the Puget Sound Starts Here program.	\$64,600	2016-0325
93	6	Encourage Best Management Practices and Behaviors that Address Nutrient-Driven Ocean Acidification	10.5	Washington Sea Grant	Develop and disseminate outreach materials focused on the contribution of land-based nutrients to local ocean acidification to encourage adoption of nutrient-control best management practices and behaviors to benefit marine water quality and shellfish health.	\$164,000	2016-0366
95	5.9	Regional Spill Reporting Hotline	10.4	King County <sup>1</sup>	Identify key points of contact for spills in Puget Sound to eliminate guesswork, notify the appropriate jurisdiction of the incident, and track important data.	\$310,000	2016-0096

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
95	5.9	Pet Waste Reduction through Veterinary Clinic Outreach	10.5	Washington State University Extension	Change dog owner behavior to encourage scooping, bagging, and trashing pet waste by initiating more than 16,000 conversations between vet clinic staff and clients, potentially removing over 136,000 pounds of fecal matter in 1 year.	\$103,371	2016-0163
97	5.8	Analysis of Impacts to Vital Signs from Victoria, BC Sewage	10.4	University of Washington	Conduct a literature review of the impacts of untreated sewage from Victoria, British Columbia, to marine water quality and shellfish in the Salish Sea. Write a draft policy statement for future phases. Victoria is the single largest source of untreated sewage entering the Salish Sea.	\$18,600	2016-0156
97	5.8	Spatial Assessment of Low-Impact Development and Stormwater Facilities	1.1	Department of Ecology	Create GIS base layer of low-impact development and structural stormwater controls funded by Department of Ecology grants in the Puget Sound. Assess and quantify area treated to learn of gaps where additional stormwater management is needed.	\$100,000	2016-0326
99	5.6	Woodland and Rody Stream Corridor Improvements	10.3	Pierce County	Roughen the Rody Creek channel to reduce downstream sedimentation and obtain land for a sedimentation pond for Woodland Creek.	\$1,800,000	2016-0077
99	5.6	Stormwater Maintenance Equipment Incentive Project	9.1	Futurewise	Create a competition for development of stormwater maintenance equipment to incentivize research and development of pervious pavement sidewalk cleaners and portable vacuor equipment so that specialized and smaller-scale facilities can be better maintained and function well.	\$140,000	2016-0316



**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
101	5.5	Swan Creek Culvert Replacement and Streambank Stabilization	10.3	Pierce County	Conduct feasibility study and alternatives analysis of the repair or replacement of the 64th Street culvert. This under-functioning culvert is contributing to the erosion of the creek as the culvert is undermined at the inlet and a scour pool has formed at the culvert outlet.	\$250,000	2016-0023
101	5.5	Atmospheric Deposition of Toxics in Urban Stormwater	9.1	Department of Ecology	Assess the significance of indirect atmospheric deposition of toxics through stormwater loading to Puget Sound.	\$272,000	2016-0028
101	5.5	Stormwater Outreach and Education Collaboration and Best Management Practices Prioritization	10.5	Washington State University Extension	Collaborate with organizations from the Stillaguamish / Snohomish watersheds to prioritize local stormwater best management practices that can be addressed through outreach and education. Coordinate and prioritize actions to improve on-the-ground success.	\$31,980	2016-0183
101	5.5	Clallam County TMDL Pre-Assessment	21.1	Clallam County	Coordinate monitoring of 303(d)-impaired waters to deprioritize segments that are no longer impaired, identify additional segments needing remediation, and facilitate local cleanups and/or TMDLs.	\$124,000	2016-0252
101	5.5	Green Stormwater Infrastructure for Schools and Faith-Based Organizations	10.3	City of Seattle	Create curriculum for schools, provide for student-installed rain gardens and cisterns, and replace impervious surfaces with pervious surfaces or bioretention at faith-based organizations.	\$2,000,000	2016-0264
106	5.4	Lake Whatcom Stormwater Improvement Projects: Phase 3	10.3	Whatcom County	Design and construct low-impact development stormwater treatment facilities to remove pollutants from stormwater entering Lake Whatcom.	\$565,000	2016-0014

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
106	5.4	Planting Trees to Increase Stormwater Infiltration.	1.1	Department of Natural Resources	Assist communities to plan for and plant trees by developing management tools that incorporate trees into local stormwater management strategies and enhance the health and functional capacity of urban trees.	\$2,457,671	2016-0152
106	5.4	Livingston Watershed Agricultural and Residential Stormwater best Management Practices Implementation	10.5	Snohomish Conservation District	Provide community education and outreach, technical assistance, and cost-share funding for voluntary stormwater and agricultural best management practices.	\$91,300	2016-0155
106	5.4	Clover Creek Water Quality Improvements	10.4	Pierce County	This proposal will retrofit two Clover Creek stormwater outfalls with filter devices to address the creek's low marks for water quality near Brookdale Road.	\$600,000	2016-0238
106	5.4	Stormwater Manual Training	10.5	Department of Ecology	Provide training for engineers and others who use the Stormwater Manual to design or review best management practices.	\$150,000	2016-0330
111	5.2	Enhanced Street Sweeping Program in Black Diamond	10.4	City of Black Diamond	Increase the number of times city streets are swept from two to three times per year to 18 times per year to prevent pollutants, such as phosphorus, draining to local water bodies.	\$50,000	2016-0117
111	5.2	Stormwater Ditch Best Management Practices Retrofits	10.3	San Juan County	Inventory problem roadside ditches, prioritize retrofits, select and design retrofits, and construct 1,000 feet of best management practice-based ditch retrofits to improve stormwater treatment and conveyance.	\$97,500	2016-0223

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
111	5.2	Stormwater Treatment Retrofits for Urban Growth Areas	10.1	San Juan County	Complete two priority stormwater treatment projects in urban growth areas where there is little or no stormwater treatment, as identified in the County Basin Plan.	\$657,000	2016-0227
114	5.1	Second and Pussyfoot Creeks Community Project	10.5	King Conservation District	Extend a subbasin targeted outreach and implementation model to two new priority subbasins of WRIA 10. Focus on water quality, water quantity, and salmon-habitat related technical assistance, education, financial assistance.	\$225,000	2016-0339
115	5	Reducing Stormwater Pollution: Effectiveness Assessment	10.4	Puget Sound Partnership	Conduct effectiveness monitoring of stormwater management actions across Puget Sound. Interpret information about successful measures to reduce stormwater pollution at the regional level and integrate it into local and regional decisions.	\$340,000	2016-0313
116	4.9	Improving Soil Health to Reduce Runoff and Conserve Water	10.1	San Juan Islands Conservation District	Acquire a no-till drill and share it with agricultural operators to improve soil health, sequester carbon, retain moisture, and reduce runoff.	\$95,000	2016-0137
117	4.7	Stormwater Pond Best Management Practices Retrofits	10.1	San Juan County	Inventory ponds, perform field assessments, prioritize and design retrofits, and work with willing landowners to construct best management practice-based stormwater pond retrofits to improve stormwater treatment and stream flow.	\$84,000	2016-0225

**TABLE I-1.** RANKED LIST OF STORMWATER NEAR TERM ACTIONS (CHAPTER 3), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
118	4.3	Oak Harbor Marina Stormwater Improvement Project	10.3	City of Oak Harbor	Remove approximately 700 feet of the current storm drain that flows directly into Oak Harbor with a natural filtering system. Increase the launch ramp angle to reduce pollutants from vehicles that have to be submerged to launch a vessel.	\$1,200,000	2016-0120
119	4.1	Pilot Testing a Stormwater Treatment Facility With Mycological Fungi	10.1	San Juan County	Pilot a project that augments a stormwater treatment facility with mycological fungi to improve treatment for E. coli and biological oxygen demand, the primary contaminants of concern in San Juan County stormwater.	\$490,000	2016-0228

<sup>1</sup> King County Near Term Actions for the Stormwater Strategic Initiative were submitted by the Water and Land Resources Division within the Department of Natural Resources and Parks.

## NEAR TERM ACTIONS ASSOCIATED WITH THE HABITAT STRATEGIC INITIATIVE

The following table for the Habitat Strategic Initiative includes the rank of the Near Term Action within the Strategic Initiative, the score (from 1 to 10) awarded by the Strategic Initiative Transition Teams, the sub-strategy the Near Term Action is most closely

aligned to (see [Appendix A](#) for sub-strategy descriptions), the owner, a brief action description of the Near Term Action, estimated cost, and the Near Term Action number (a reference number for easy access to the Near Term Action details in the [Action Agenda Report Card](#)). A sortable list of Near Term Actions is available in the [Action Agenda Report Card](#).

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4)

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
1	9.5	Beach Lake Acquisition and Restoration	16.2	Coastal Watershed Institute	Acquire and restore a 25-acre shoreline property adjacent to the Elwha River delta to protect natural processes and restore critical nearshore habitat for Endangered Species Act-listed salmon. Remove infrastructure, livestock, and approximately 2,000 feet of shoreline armor. Establish public access.	\$2,000,000	2016-1236
2	9.3	Community-Scale Sea Level Rise and Coastal Hazard Assessment in Puget Sound	8.2	University of Washington	Develop improved projections of community-scale changes in sea level, surge, and waves in Puget Sound and facilitate their incorporation in planning.	\$1,300,000	2016-0089
3	9.2	Aquatics, Puget Sound Creosote Removal Program	16.2	Department of Natural Resources	Remove creosote-treated piles, associated overwater structure, and creosote-treated beach debris from Puget Sound.	\$2,045,000	2016-0161

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
4	9.1	Shoreline Armoring Reduction Project	16.3	Northwest Straits Foundation	Prevent and reduce shore armoring in North Puget Sound by providing technical consultation, engineering design, and permitting assistance to shoreline landowners willing to forego installation or remove or soften shore armor.	\$380,000	2016-0001
4	9.1	Possession Sound Nearshore Protection	16.1	Whidbey Camano Land Trust	Purchase and permanently protect 10 acres of estuarine intertidal wetlands and 37 acres of mature forested upland with 2,800 feet of feeder bluffs. Restore degraded portions by removing creosote removal and controlling invasive species.	\$1,365,000	2016-0058
6	9	WRIA 9 Marine Shoreline Monitoring and Compliance Project	8.3	King County <sup>1</sup>	Survey the marine shorelines of WRIA 9 for shoreline condition and to understand if compliance rates have changed as a result of the pilot project in 2012–2013.	\$100,000	2016-0116
7	8.9	Accelerate Integrated Floodplain Management	5.4	The Nature Conservancy	Expand and accelerate integrated, reach-scale efforts to improve floodplain functions, restore salmon habitat, reduce flood damage, and achieve other benefits such as improved water quality, recreation, and agricultural viability.	\$975,000	2016-0019
8	8.8	Shannon Point Feeder Bluff Armoring Removal	16.3	Northwest Straits Foundation	Remove 770 feet of armoring on a City of Anacortes feeder bluff at Shannon Point in Skagit County.	\$360,000	2016-0003
8	8.8	Strategic Mapping of Priority Drift Cells for Protection and Restoration	16.1	Department of Ecology	Use boat-based LiDAR and photos to inventory and quantify shoreline armoring, overhanging riparian vegetation, large woody debris, feeder bluff activity, and geomorphic metrics for prioritized drift cells with exceptional value for protection and restoration.	\$400,000	2016-0398



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
8	8.8	Higher Volume Port Area Evaluation	20.1	Makah Tribe	Complete a study, based on the 2010 Puget Sound Vessel Traffic Risk Assessment Final Report, to verify that the maritime shipping community has sufficient, highly capable oil spill response resources available to respond to major oil spills to support Puget Sound recovery.	\$85,000	2016-0400
11	8.6	Maylors Point Feeder Bluff Armoring Removal	16.3	Northwest Straits Foundation	Remove 1,500 feet of armoring on U.S. Navy-owned feeder bluff at Maylors Point in Island County.	\$367,000	2016-0088
11	8.6	Henderson Inlet Habitat Protection and Restoration	16.1	Capitol Land Trust	Acquire in fee title 105 acres of biologically sensitive estuary, nearshore habitat, and riparian habitat along the shoreline of Henderson Inlet in Thurston County, Washington. Restore the marine shoreline of the Harmony Farms property.	\$1,237,000	2016-0094
11	8.6	Recovery of Select Freshwater Salmonid Habitat in the San Juan Islands	2.2	San Juan County Lead Entity	Prioritize the protection and restoration of freshwater salmonid fish habitat in San Juan County.	\$50,000	2016-0136
11	8.6	Aquatic Restoration Program, McNeil Island Shoreline Restoration	16.2	Department of Natural Resources	Restore functions and natural processes of the nearshore ecosystem on McNeil Island through the removal of shoreline armoring and other debris.	\$400,000	2016-0160

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
11	8.6	Puget Sound Vessel Traffic Risk Assessment Update	20.1	Department of Ecology	Update the 2010 Puget Sound Vessel Traffic Risk Assessment Final Report to emphasize recent changes and impacts on vessel traffic due to oil transportation through the Puget Sound region. Develop recommendations as appropriate.	\$275,000	2016-0219
11	8.6	Accelerating Estuary Restoration in Puget Sound	16.2	Department of Fish and Wildlife	Implement a subset of the 16 estuary restoration recommendations provided in Recommendations to Accelerate Estuary Restoration in Puget Sound.	\$1,100,000	2016-0375
17	8.5	Piner Point Acquisition and Restoration	16.3	King County <sup>1</sup>	Purchase almost 8 acres, including more than 400 feet of bluff-backed beach at Piner Point. Fully restore the site, including removing more than 200 feet of creosote bulkhead, retaining walls, and structures.	\$1,600,000	2016-0180
17	8.5	Harper Estuary Bridge	16.2	Kitsap County	Construct a bridge to replace a culvert and associated roadway to restore tidal flow to a small estuary at Harper, South Kitsap County, in support of other restoration in the area.	\$3,106,000	2016-0234
17	8.5	Skokomish River Floodplain Restoration	5.4	Mason Conservation District	Expand on the Floodplains by Design program to conduct community outreach, project design, and implementation of previously identified and prioritized floodplain restoration actions in the Skokomish River Valley.	\$1,456,000	2016-0265
20	8.4	Seahorse Siesta Feeder Bluff Armor Removal	16.3	Northwest Straits Foundation	Remove 136 feet of armor (in the form of an old barge and 70 to 100 cubic yards of vertical concrete wall) from the toe of a high feeder bluff at the Seahorse Siesta Community Beach in Langley, Island County.	\$495,000	2016-0090

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
20	8.4	Oak Harbor Marina Water Shading Reduction Project	16.2	City of Oak Harbor	Remove and dispose of covered moorage roofs, support structures, 21 dock fingers, and 10 piles on D and E docks. Remove approximately 46,000 square feet of shading.	\$1,250,000	2016-0121
22	8.3	Cornet Bay Pier Retrofit	16.2	Northwest Straits Foundation	Remove armoring and creosoted pilings at the Marine Maintenance Pier at Cornet Bay and replace 85 feet of solid decking with slatted decking to increase light to the intertidal zone.	\$587,000	2016-0085
22	8.3	Lower Russell Road Levee Setback and Habitat Restoration	5.4	King County Flood Control District	Set back and replace the existing flood containment system along the east bank of the Green River between river miles 17.8 and 19.2, and excavate portions of the hydrologically isolated floodplain to an elevation that is inundated under the river's altered flow regime to improve flood protection and restore riparian and aquatic habitat.	\$9,800,000	2016-0126
22	8.3	Little Squalicum Creek Estuary Restoration Project	16.2	City of Bellingham	Restore lost juvenile salmonid habitat in the lower Nooksack Basin by creating a 1.42-acre estuary with vegetated saltmarsh, mudflat habitat, and a fish-accessible tidal connection with Little Squalicum Creek.	\$1,100,000	2016-0154
22	8.3	Scheuerman Creek Riparian and Marine Shoreline Restoration	16.3	City of Seattle	Develop a conceptual design and cost estimates for shoreline armoring removal and stream mouth restoration of Scheuerman Creek in Discovery Park, Seattle. Provide new fish access to 1,700 feet of protected, high-quality habitat.	\$150,000	2016-0181

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
22	8.3	Chico Creek Culvert (Golf Club Hill Road) and Floodplain Restoration	2.2	Kitsap County	Replace a triple box culvert at Golf Club Hill Road (Chico Creek) with a bridge sized to meet stream simulation standards. Restore associated floodplains as designed with the proposed bridge.	\$3,916,000	2016-0233
22	8.3	Ebright Creek Fish Passage Project	1.2	City of Sammamish	Replace aging, double, concrete culverts on East Lake Sammamish Parkway to re-establish full levels of passage for aquatic species in Ebright Creek.	\$900,000	2016-0333
22	8.3	Transboundary Vessel Safety Summit	20.1	Makah Tribe	Promote and coordinate the proactive use of maritime risk assessments by holding a transboundary vessel safety summit in 2017 to establish strategic priorities for enhancing vessel oil spill prevention, preparedness, and response in the region.	\$650,000	2016-0362
29	8.2	Freestad Lake Barrier Lagoon Restoration	16.2	Department of Fish and Wildlife	Restore nearshore processes in a (historic) barrier lagoon on the southeast shore of Samish Island and in the Samish River estuary.	\$325,000	2016-0128
31	8.1	Permanent Marine Shoreline Protection in San Juan County	16.1	Friends of the San Juans	Provide outreach, technical assistance, and funding for shoreline protection projects with willing waterfront homeowners in priority areas.	\$300,000	2016-0139
31	8.1	Dockton Park Bulkhead Removal	16.3	King County <sup>1</sup>	Remove about 210 feet of concrete bulkhead from King County-owned bluff-backed beach in the Maury Island Aquatic Reserve.	\$200,000	2016-0166

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
33	8	Seed Nursery and New Restoration Techniques for Puget Sound Eelgrass	16.2	Department of Natural Resources	Implement eelgrass seed production techniques at the newly established Marine Aquatic Vegetation Experimental Nursery. Use non-diver seed dispersal methods at priority nearshore restoration sites. Assess restoration success and cost effectiveness.	\$436,619	2016-0277
33	8	Integrated Floodplain Management	5.4	Snohomish County	Facilitate the implementation of multiple-benefit floodplain restoration and protection projects in the Snohomish and Stillaguamish basins by increasing cooperation and coordination among fish, farm, and flood control stakeholders.	\$250,000	2016-0310
33	8	George Davis Creek Fish Passage Project	1.2	City of Sammamish	Replace and modify a culvert and structure on East Lake Sammamish Parkway and modify an existing instream weir to re-establish full levels of passage for aquatic species in George Davis Creek.	\$1,300,000	2016-0335
33	8	Floodplain Recovery Target Refinement	5.4	Department of Ecology	Improve floodplain project selection and performance tracking toward vital sign targets. Integrate existing region-wide datasets with local knowledge and data to establish floodplain footprint and function/degradation metrics.	\$300,000	2016-0401
37	7.9	Stillaguamish Priority Riparian Plantings	2.2	Snohomish Conservation District	Reach out to landowners and plant riparian areas identified in the newly released Stillaguamish Temperature TMDL Adaptive Assessment and Implementation Project report completed by Snohomish County.	\$69,000	2016-0067
37	7.9	Arlington South Slough Fish/Flood Project	6.1	City of Arlington	Address the floodplain connectivity-limiting factor in the South Slough through flood modeling and design.	\$490,000	2016-0084

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
37	7.9	Expand Conservation District Shore-Friendly Programs across Puget Sound	16.3	Mason Conservation District	Connect shoreline owners with science-based, nonregulatory, professional technical assistance to reverse the trends of shoreline armoring and degradation. Facilitate change toward stewardship and conservation.	\$576,005	2016-0172
37	7.9	Riparian Restoration Throughout the Greater Puget Sound	2.2	Puget Sound Conservation Districts Caucus	Expand on efforts to restore and protect naturally functioning riparian and floodplain areas by conducting planting, site maintenance, knotweed inventory, and control. Develop a unified riparian implementation-tracking tool.	\$1,537,000	2016-0270
37	7.9	Marine Shoreline Technical Assistance and Project Identification for Homeowners and Landowners	16.3	King Conservation District	Accelerate marine shoreline improvement program to identify and implement marine riparian enhancement and bulkhead removal projects on private property with homeowners and landowners currently on a waiting list to receive technical assistance.	\$499,300	2016-0327
37	7.9	River Sediment Delivery to Puget Sound Delta and Nearshore Environments	16.2	U.S. Geological Survey	Quantify magnitude and timing of sediment delivery to critical delta and nearshore environments that will provide readily available data for modeling restoration projects and identify delta and nearshore environments resiliency.	\$835,400	2016-0369
37	7.9	South Prairie Creek (River Miles 4.0 to 4.6) Floodplain Project Phase I	5.4	South Puget Sound Salmon Enhancement Group	Implement a phase I approach to restore instream habitat and channel profile. Reforest 18 acres in advance of a phase 2 project to restore 0.5 mile of side channel habitat. Reconnect and replant 45 acres of floodplain on South Prairie Creek.	\$1,648,000	2016-1158



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
44	7.8	Restore Naturally Functioning Riparian Buffers in South Sound	2.2	Mason Conservation District	Expand on efforts to restore and protect naturally functioning riparian and floodplain areas that support aquatic habitat by conducting planting, site maintenance, and knotweed inventory and control.	\$253,494	2016-0091
44	7.8	Spring Beach Acquisition	16.1	King County <sup>1</sup>	Permanently protect 23.75 acres, including 677 feet of marine shoreline, bluff-backed beach, creeks, and wetlands on southwest Vashon Island.	\$674,000	2016-0134
44	7.8	Issaquah Creek Basin Riparian Restoration	2.2	Mountains to Sound Greenway Trust	In collaboration with the City of Issaquah, Washington State Parks, King County, and private landowners, continue a comprehensive campaign to restore riparian habitat in the Issaquah Creek basin.	\$200,000	2016-0269
44	7.8	Monitoring Effectiveness of Shoreline Restoration	16.2	University of Washington	Monitor the effectiveness of ongoing and new shoreline restoration projects for their ecological impacts, with an emphasis on marine fish (salmon, herring).	\$188,000	2016-0328
48	7.7	Riparian Restoration Along South Prairie Creek	2.2	Pierce Conservation District	Restore 18 acres along 1 stream mile of riparian habitat within 200 feet of South Prairie Creek in partnership with South Puget Sound Salmon Enhancement Group.	\$200,000	2016-0027
48	7.7	Advancing Sea Level Rise Adaptation in San Juan County	16.1	Friends of the San Juans	Increase capacity to address the impacts of rising sea levels and improve resiliency through community engagement, technical assistance, and facilitation of on-the-ground, multi-objective adaptation projects.	\$64,500	2016-0140

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
48	7.7	Updating the San Juan Salmon Recovery Chapter	16.1	San Juan County Lead Entity	Identify indicators that are suitable for monitoring, create a local monitoring plan that ties into the regional recovery plan, create an adaptive management plan, and update the 2005 San Juan salmon recovery chapter to the National Oceanic and Atmospheric Administration.	\$45,000	2016-0144
48	7.7	Expand Conservation District Shoreline Technical Assistance in Puget Sound	16.3	Puget Sound Conservation Districts Caucus	Establish a network of conservation district programs to collaborate with shoreline landowners and promote naturally functioning marine shorelines using outreach, technical assistance, site assessments, design, and cost-share for restoration and protection projects.	\$1,142,368	2016-0268
48	7.7	Hood Canal Bridge Impact Assessment	8.2	Hood Canal Coordinating Council	Engage partners to execute the Hood Canal Bridge Ecosystem Impact Assessment Plan to pinpoint how the bridge is negatively affecting the health of the Hood Canal ecosystem and increasing mortality of Endangered Species Act-listed salmon and steelhead.	\$3,500,000	2016-0305
48	7.7	Evaluate the Status of Marine Birds at Greatest Risk from Oil Spills	20.1	Seattle Audubon Society	Expand the current Puget Sound seabird survey to include areas at high risk from increased vessel traffic. Train all participating citizen scientists to respond when there is an oil spill.	\$75,000	2016-0322
54	7.6	Pepin Creek Restoration Project	2.2	City of Lynden	Relocate two significant Nooksack River watershed tributary fish-bearing deep roadside ditches into a single forested, meandering stream channel.	\$9,900,000	2016-0040

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
54	7.6	Conservation Reserve Enhancement Program Expansion	2.2	State Conservation Commission	Expand the Conservation Reserve Enhancement Program statewide by completing an assessment of rivers and streams to guide future grants, identify landowner motivations to increase participation, identify additional funds required for incentives, and conduct a pilot project.	\$150,000	2016-0073
54	7.6	Shoreline Stewardship Technical Assistance Program	16.3	San Juan Islands Conservation District	Promote naturally functioning marine shorelines through outreach, technical assistance, site assessments, and design. Cost-share with interested waterfront homeowners on shoreline restoration and protection projects.	\$400,000	2016-0145
54	7.6	Discovery Bay Landowner Outreach	16.2	Jefferson County Marine Resources Committee	Support current shoreline armor removal, water quality, and pollution identification and control programs in Discovery Bay. Implement neighborhood-based outreach and educational programs to increase the likelihood of changed behaviors for landowners.	\$20,000	2016-0197
58	7.5	Bowman Bay Wetland Connection Feasibility and Design	16.2	Northwest Straits Foundation	Investigate the feasibility and prepare a design for restoring tidal exchange between Bowman Bay and a 1-acre backshore wetland.	\$91,000	2016-0008
58	7.5	Assessing Changes in Marine Water Quality Related to Antifouling Paints	8.3	Department of Ecology	Evaluate current contaminant levels (primarily metals) in marine waters from vessel moorage areas (marinas) in order to satisfy state legislative mandate to understand impacts on marine waters and sediments from vessels with antifouling paints.	\$133,000	2016-0030

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
58	7.5	Dungeness Feeder Bluff Conservation	16.1	Coastal Watershed Institute	Work with already identified, willing landowners to conserve unarmored feeder-bluff shorelines in the Dungeness Drift cell by purchasing bluff-edge parcels, relocating homes landward, and purchasing conservation easements on unarmored parcels.	\$1,000,000	2016-0080
58	7.5	Groundwater Availability for Summer Low Flows	1.3	U.S. Geological Survey	Calculate current and future monthly groundwater budgets of recharge, water use, and groundwater discharge for subbasins in the Puget Sound lowland. Compare budgets to surface-water withdrawals and streamflows to identify summer low-flow resilience.	\$450,000	2016-0103
58	7.5	Nooksack River Floodplain Acquisitions	5.4	Whatcom County	Acquire floodplain properties to protect existing habitat functions, provide future habitat restoration opportunities, and increase the options available to reduce future flood risk to human life and safety and public and private infrastructure.	\$6,000,000	2016-0112
58	7.5	Deschutes River Estuary Restoration	16.2	Squaxin Tribe	Restore tidal processes to 275 acres of large-river delta at the mouth of the Deschutes River. Complete one of the final two studies needed before restoration can begin by creating an equitable funding strategy.	\$100,000	2016-0174
58	7.5	Crescent Creek Culvert Daylighting Project Phase 2	16.2	City of Gig Harbor	Complete designs and permitting for a new culvert or bridge structure at the mouth of Crescent Creek.	\$900,000	2016-0200
58	7.5	Monitoring Biological Endpoints Of Eelgrass ( <i>Zostera marina</i> ) Restoration	16.2	University of Washington	Monitor the effectiveness of ongoing and new eelgrass restoration projects for their ecological impacts, with emphasis on marine fish (salmon, herring) and invertebrates.	\$188,000	2016-0324

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
66	7.4	Riparian/Land Cover Change Analysis and Decision Support System	8.2	Pierce County	Develop a riparian and land cover change analysis and decision support system for WRIA 10 Puyallup Watershed.	\$195,000	2016-0029
66	7.4	Titlow Estuary Restoration	16.2	South Puget Sound Salmon Enhancement Group	Remove shoreline armor and fill, restore fish passage and tidal hydrology, reclaim estuarine and emergent wetlands, and remediate effects of stormwater in Titlow Park.	\$866,000	2016-0092
66	7.4	Oil Spill Trainings to Increase Preparedness of the Local Communities	20.3	Clallam County Marine Resources Committee	Increase the capacity of volunteers to assist in an oil spill response by providing hazwoper and oiled wildlife trainings. Raise the general awareness of communities about oil spills and show how residents can contribute to cleanup efforts.	\$54,000	2016-0138
66	7.4	Marine Resources Committee, Port Susan	16.2	Snohomish County Marine Resources Committee	Reduce and prevent new construction of shoreline armoring in the Port Susan Marine Stewardship Area. Target communication with landowners of priority sites for armor removal, protection, and restoration.	\$290,000	2016-0171
66	7.4	Develop a Riparian Restoration Program in Thurston County	2.2	Thurston County	Develop a riparian restoration program to improve water quality and mitigate impacts from stormwater and nonpoint pollution, restore habitat, increase resiliency to floods and droughts, and support recreational use of streams.	\$305,000	2016-0175
66	7.4	Shoreline Segmentation: Citizens Improving Oil Spill Response Data	20.3	Northwest Straits Commission	Train volunteers to do shoreline segmentation according to the Northwest Area Contingency Plan, thus filling an important gap in oil spill response data.	\$90,000	2016-0239

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
66	7.4	George Davis Creek Habitat Assessment	2.2	King County <sup>1</sup>	Determine the extent, quantity, and quality of potential spawning and rearing habitat features for aquatic species, especially for native kokanee and other salmonids.	\$48,000	2016-0254
66	7.4	Improving Implementation Of Shoreline Modification Regulations	8.3	Department of Fish and Wildlife	Improve implementation of shoreline modification regulations by developing a tool to document and assess the determination of need and design for marine shoreline stabilization projects.	\$600,000	2016-0350
66	7.4	Puget Sound-Wide Zooplankton Monitoring Program	8.2	Long Live the Kings	Fund the ongoing, comprehensive, collaborative Puget Sound-wide zooplankton monitoring program, aiding the transition of this program from its pilot phase to a long-term monitoring effort fully integrated into the Puget Sound Ecosystem Monitoring Program and housed with a logical partner in the management community.	\$680,000	2016-0367
66	7.4	Ocean Acidification Hotspots and Sources of Shellfish Resilience	16.2	Department of Natural Resources	Advance understanding of ecosystem resilience by collecting environmental and biological data in Puget Sound nearshore environments to identify areas where shellfish experience stress from ocean acidification and rising temperatures.	\$140,000	2016-0405
66	7.4	Kristoferson Creek Fish Passage Improvements	6.1	Snohomish Conservation District	Correct two barriers at the mouth of Kristoferson Creek, Camano Island, thus improving access to rearing habitat for nonnatal juvenile Chinook salmon and steelhead and opening 1.6 miles of spawning and rearing access.	\$45,750	2016-1216
77	7.3	Lowman Beach Park Seawall Removal	16.3	City of Seattle	Remove an existing seawall, regrade the shoreline, and daylight a remnant of Pelly Creek.	\$200,000	2016-0064



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
77	7.3	Richardson Creek Barrier Removal	6.1	Snohomish Conservation District	Remove a passage barrier at the mouth of Richardson Creek, a high-priority salmon spawning and rearing stream in the Woods Creek watershed, opening up 3.9 miles of habitat.	\$188,000	2016-0069
77	7.3	Stream Crossings Prioritization Along Puget Sound Shores with a Railroad	16.2	Confluence Environmental Company	Collaborate with stakeholders in a science-based prioritization of railroad stream crossings on the Puget Sound shores. Engage BNSF Railway to discuss implementation, maintenance, restoration, and mitigation.	\$260,000	2016-0198
77	7.3	Floodplain Strategic Planning	5.3	Department of Ecology	Provide guidance and \$2 million in grants to local parties to develop multi-benefit floodplain management strategies that identify priority areas for floodplain restoration.	\$2,000,000	2016-0213
77	7.3	Huge Creek Culvert Replacement	2.2	Pierce County	Fund the replacement of an undersized obstructive culvert on Huge Creek, a tributary to Minter Creek located on 160th Street (SW Countyline Road).	\$662,735	2016-0240
77	7.3	Guidance Manual for No Net Loss of Ecological Functions in Critical Areas	1.2	Department of Fish and Wildlife	Create a guidance manual that explains, for the benefit of local governments, how to develop and implement ordinances, objectively assess impacts and mitigation, and adaptively manage for no net loss of ecological functions and values in critical areas.	\$313,000	2016-0272
77	7.3	Mountains to Sound Greenway Trust Next Generation Education Program	2.2	Mountains to Sound Greenway Trust	Plant the seeds for a sustainable future by providing 4th-through 10th-grade students with hands-on, inquiry-based science curriculums aligned with Washington State learning standards that dovetail with what students learn in the classroom.	\$90,000	2016-0273

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
77	7.3	Establish Community Forests	1.2	Department of Natural Resources	Assist local communities in retaining working forestlands at risk of conversion to development by creating community forests for the benefit of habitat, water quality, and water quantity.	\$3,500,000	2016-0360
77	7.3	Fish Passage Evaluation	2.2	Department of Natural Resources	Re-evaluate fish passable culverts to determine if they remain fish passable, if they require maintenance, or if they have become fish barriers again.	\$71,000	2016-1029
86	7.2	Olaf Strad Channel Relocation Design	2.2	Adopt-a-Stream Foundation	Design plans for the relocation of 1,100 feet of the channel of Olaf-Strad Creek (part of the Quilceda Creek system) away from the road to create spawning and rearing habitat, improve water quality, and create a native riparian buffer of the creek.	\$50,000	2016-0102
86	7.2	Dungeness Off-Channel Reservoir	2.2	Clallam Conservation District	Pursue property preacquisition actions and complete final design and permitting for construction of a large off-channel reservoir to store spring snowmelt and winter runoff for use as late summer irrigation in place of Dungeness River water diversions.	\$1,575,000	2016-0125
86	7.2	Completing High-Resolution Change Detection 2015 with Land Cover and Extending through the 2017 National Agricultural Imagery Program Flight	1.2	Department of Fish and Wildlife	Upgrade and continue the high-resolution change detection program and incorporate land-cover mapping over those portions of Puget Sound that have LiDAR coverage. Complete the 2013 to 2015 change mapping and for 2015 to 2017.	\$480,000	2016-0141

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
86	7.2	Marine Resources Committee, Snohomish Estuary Cleanup	16.2	Snohomish County Marine Resources Committee	Restore estuarine and nearshore habitats. Remove derelict vessels and creosote to improve habitat in the Snohomish Estuary for a number of species, including Chinook salmon.	\$1,500,000	2016-0169
86	7.2	Re-Greening the Green:Acquisition Easements and Revegetation	6.1	King County <sup>1</sup>	Acquire easements and plant tall, native shade trees on strategically important properties on the Lower Green River to reduce high water temperatures and low dissolved oxygen.	\$1,110,000	2016-0195
86	7.2	Zackuse Creek Fish Passage and Stream Restoration Project	1.2	City of Sammamish	Replace an aging culvert on East Lake Sammamish Parkway and restore approximately 200 feet of riparian habitat upstream to re-establish full levels of fish passage in Zackuse Creek.	\$1,185,000	2016-0334
86	7.2	Implement Eelgrass Recovery Strategy in Quartermaster Harbor Focus Area	16.2	Department of Natural Resources	Implement the eelgrass recovery strategy by assessing eelgrass growing conditions, common stressors, and environmental conditions in the Quartermaster Harbor Focus Area, and comparing results to water quality projects.	\$337,500	2016-0357
86	7.2	Establish a Tribal Oil Spill Caucus	20.1	Makah Tribe	Expand tribal participation in the Vessel Traffic Risk Assessment steering committee and other regional forums addressing vessel traffic and oil spills.	\$90,000	2016-0359
94	7.1	Bear Creek and Little Bear Creek Riparian Improvement Project	2.2	Forterra	Restore contiguous riparian habitat on Bear Creek, its tributaries and lakes, and Little Bear Creek using a multi-jurisdictional approach on public and private lands to protect, enhance, and recover ecosystem processes and function.	\$300,000	2016-0024

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
94	7.1	Mercer Island Riparian and Shoreline Restoration	2.2	King County <sup>1</sup>	Restore native plants and remove invasive species from Mercer Island by a multijurisdictional public-private partnership on public and private lands to protect, enhance, and recover ecosystem processes and function on shorelines, wetlands, and waterways.	\$281,500	2016-0033
94	7.1	Snohomish Watershed Floodplain Invasive Species Removal and Restoration	2.2	King County <sup>1</sup>	Restore and maintain riparian ecosystems in the Snohomish watershed by re-establishing native plant communities and engaging landowners in the long-term stewardship of their property.	\$700,500	2016-0036
94	7.1	Advancing Integrated Dungeness and Elwha Floodplain Recovery	5.4	North Olympic Peninsula Lead Entity	Engage stakeholders to conduct feasibility, landowner outreach, and predesign work in order to advance large, floodplain and ecosystem restoration actions.	\$250,000	2016-0130
94	7.1	Duwamish Basin Steward	16.2	WRIA 9 Lead Entity	Hire a part-time Duwamish Basin Steward to implement, advocate for, and track Duwamish habitat improvements that further local and regional salmon recovery efforts.	\$192,208	2016-0146
94	7.1	Feasibility Study for Vessel Traffic Regional Citizen Advisory Council	20.1	San Juan County	Conduct an investigation and feasibility study regarding the creation of an avenue for public participation in the oversight of transportation of fossil fuels in the Salish Sea, such as the formation of a Regional Citizen Advisory Council.	\$275,000	2016-0153
94	7.1	Climate Change Vulnerability Assessment and Adaptation Plan	8.2	Kitsap County	Identify key resources (natural and infrastructure) that would be affected by climate change and the expected impacts of climate change. Create an adaptation plan for each resource.	\$350,000	2016-0190

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
94	7.1	Shore Friendly Incentives in King, Snohomish and Pierce Counties	16.3	Futurewise	Implement shore-friendly awareness and incentives program to motivate armor removal on marine and freshwater residential shorelines in King, Snohomish, and Pierce Counties, enhancing technical assistance programs for landowners.	\$834,810	2016-0236
94	7.1	SC2 Climate Change Science Communications	1.2	Western Washington University	Translate climate-related science into enhanced communication materials, accessible and relevant to local decisionmakers and interested public in the Skagit Valley.	\$240,000	2016-0361
103	7	Lummi Island Quarry Habitat Restoration Project	16.2	Northwest Straits Foundation	Complete the feasibility and design for the restoration of habitat functions to 20 acres of nearshore area and 500 feet of shoreline on Lummi Island at the site of a former rock quarry.	\$260,000	2016-0005
103	7	Cedar River Stewardship-in-Action	2.2	City of Seattle	Restore and maintain riparian ecosystems in the Cedar River watershed by re-establishing native plant communities and engaging landowners in the long-term stewardship of their property.	\$525,000	2016-0022
103	7	Tolt River Mouth and Frew Floodplain Reconnection Feasibility and Design	6.1	King County <sup>1</sup>	Design two floodplain reconnection projects on the Tolt River near the confluence with the Snoqualmie River. Remove and set back the left bank at the mouth of the Tolt River and Lower Frew levees to restore floodplain processes.	\$1,600,000	2016-0046
103	7	East Kitsap Steelhead Recovery Plan Development	1.2	Suquamish Tribe	Develop the East Kitsap Steelhead Recovery Plan, a comprehensive recovery strategy focused on habitat restoration and protection strategies. Plan will integrate steelhead into the existing salmon recovery framework for the West Sound watershed.	\$120,000	2016-0062

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
103	7	Advancing Western Strait Fish Passage Barrier Removal	2.2	North Olympic Peninsula Lead Entity	Correct the fish passage barriers in WRIA 19 to restore habitat and salmon access to spawning and rearing areas.	\$200,000	2016-0131
103	7	The Family Forest Fish Passage Program	2.2	Department of Natural Resources	Assist in the elimination of barriers to fish passage, reduce sediment delivery to live waters, and provide monetary relief for small forest landowners while complying with the Forests & Fish road rules.	\$294,300	2016-0148
103	7	25th Ave NE (Ballinger Creek) Flood Reduction Project	2.2	City of Shoreline	Replace 625 feet of undersized pipes with daylighted channel and large box culverts along Ballinger Creek to provide fish passage, improve habitat, restore floodplains, and reduce flooding.	\$5,300,000	2016-0184
103	7	Developing a Natural Resources Asset Management Program	1.2	Kitsap County	Create a natural resources asset management program to assist local government fiscal, permitting, and management decisions and to improve citizen awareness of ecosystem services.	\$375,000	2016-0192
103	7	Regional Local Regulatory Compliance Tracking Systems Pilot	1.3	Jefferson County	Develop and implement an enhanced database and permitting system unifying four regulatory, community development and environmental protection agencies to improve coordination, processes, regulatory compliance, and public engagement with an eye toward regional expansion.	\$550,000	2016-0280



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
103	7	Puget Sound Integrated Coastal Inundation Modeling and Mapping	8.2	U.S. Geological Survey	Create regional-scale, high-resolution coastal flood models of shorelines, deltas, and large coastal river systems in Puget Sound based on CoSMoS (Coastal Storm Modeling System) and a new storm model developed for Whatcom, Skagit, and Island counties that evaluates the potential combined impacts of future sea level rise, shoreline modifications, and hydrologic changes.	\$2,000,000	2016-0293
103	7	Enhancing Critical Areas Ordinance Effectiveness via Adaptive Management	1.2	Department of Fish and Wildlife	Use high-resolution change detection to assess ecological integrity of critical areas throughout Puget Sound and develop critical area adaptive management strategies with local governments and state agencies.	\$331,200	2016-0368
103	7	Salish Sea Geospatial Data Clearinghouse	1.2	Western Washington University	Develop a central geospatial data clearinghouse populated with seamless environmental datasets for the Salish Sea region. Produce web maps highlighting specific environmental themes.	\$88,276	2016-0372
115	6.9	Crescent Harbor Creek Restoration	2.2	Skagit River System Cooperative	Restore natural stream and floodplain processes, conditions, functions, and biological responses in lower Crescent Harbor Creek and the Crescent Harbor Salt Marsh, a 206-acre estuary restoration site located at the mouth of Crescent Harbor Creek.	\$750,000	2016-0055
115	6.9	Shoreline Monitoring Toolbox: Protocol Implementation and Data Management	16.3	Washington Sea Grant	Provide standardized approaches to monitoring shorelines in Puget Sound. Support local monitoring implementation and data management to inform actions to reach the Shoreline Armoring Vital Sign targets.	\$240,000	2016-0119

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
115	6.9	West Central LiDAR Data Collection	1.3	Kitsap County	Update LiDAR data collection to better define habitat and subsequent protection and development areas.	\$130,000	2016-0245
115	6.9	Woods Creek Culvert Barrier Removal	2.2	Snohomish Conservation District	Remove four fish passage barriers on Woods Creek, a tributary to the Skykomish River.	\$550,000	2016-0261
115	6.9	State Hydraulic Code Compliance Assurance Program	8.3	Department of Fish and Wildlife	Improve compliance with the state hydraulic code through increased public education, technical assistance, and civil and criminal enforcement actions.	\$1,076,092	2016-0377
115	6.9	Marine Shoreline Design Guidelines: Engineering Technical Assistance, Training, and Outreach	16.3	Department of Fish and Wildlife	Provide engineering technical assistance, training, and outreach to landowners and contractors to encourage minimization of armor or soft techniques if armoring is necessary.	\$150,000	2016-0380
121	6.8	Hood Canal Shoreline Outreach and Technical Assistance	16.3	Washington State University Extension	Collaborate with Shore Stewards and Shore-Friendly Mason programs to conduct outreach to residents in the Hood Canal watershed, providing peer-reviewed information on home and landscape management and technical assistance for shoreline management.	\$247,353	2016-0104
121	6.8	Oak Harbor Marina Beach Soft Armoring Project	16.3	City of Oak Harbor	Remove approximately 1,100 feet of the current shoreline armoring (riprap and rocks) and install soft armoring. The new soft armoring may consist of indigenous materials such as plants, gravel, sand, logs, and root masses.	\$800,000	2016-0122

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
121	6.8	Beach Strategies for Nearshore Restoration and Protection in Puget Sound	16.1	Coastal Geologic Services	Address critical regional data gaps recognized by the Puget Sound Ecosystem Monitoring Program, develop a nearshore data toolbox, and identify parcel-scaled beach restoration and protection priorities to support the success of the Implementation Strategies.	\$338,136	2016-0123
121	6.8	Portage Creek Culvert Barrier Removal	2.2	Snohomish Conservation District	Remove two adjacent fish passage barriers on Portage Creek, a tributary to the Stillaguamish River, and replace it with one single crossing, thus opening approximately 9 miles of salmon bearing streams.	\$175,000	2016-0260
121	6.8	Hood Canal Climate Adaptation Planning	1.2	Hood Canal Coordinating Council	Engage partners in a comprehensive climate adaptation planning process to incorporate recommendations into the Hood Canal Integrated Watershed Plan. Provide actionable guidance to integrate into existing regional planning processes.	\$250,000	2016-0303
126	6.7	Balancing Fish, Farms, and Floods in King County's Snoqualmie Watershed	6.1	King County <sup>1</sup>	Implement a buffer task force initiative to provide a riparian buffer strategy that balances salmon recovery with agricultural viability, and develop a long-term strategy for agricultural land management in the Snoqualmie Agricultural Production District.	\$400,000	2016-0045
126	6.7	WRIA I Fish Barrier	2.2	WRIA I Lead Entity	Design, permit, and restore access to historic anadromous salmonid habitats by removing or replacing human-made barriers with passable structures such as side-arm floodgates, larger culverts, or bridges.	\$1,370,000	2016-0110

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
126	6.7	West Central Nearshore Restoration Prioritization and Armor Removal	16.3	Kitsap County	Continue to analyze, prioritize, and restore public and private marine nearshore habitats in the West Central Action Area through armor removal.	\$500,000	2016-0196
126	6.7	Salish Sea Marine Survival Project	8.2	Long Live the Kings	Fully fund and implement the Salish Sea Marine Survival Project (2014-2018): A United States-Canada effort to determine the causes of juvenile Endangered Species Act-listed Chinook salmon and steelhead, and juvenile coho salmon mortality in the marine waters of Puget Sound and the Strait of Georgia.	\$3,000,000	2016-0212
126	6.7	Fish Barrier Correction	2.2	Department of Natural Resources	Remediate fish barriers on Forest Service-controlled roads located on Department of Natural Resources-managed lands.	\$600,000	2016-1027
126	6.7	Green Shores for Home Phase II: Implementation Phase	16.3	Washington Sea Grant	Implement a voluntary credit and rating program encouraging shore-friendly development of single-family shoreline properties using technical guidance for shoreline processes, habitat, water quality, and stewardship.	\$820,000	2016-1219
132	6.6	Puget Sound Benthic Index Revision, Validation, Adoption as Vital Sign	1.2	Department of Ecology	Support development and validation of a robust, objectively determined benthic index to identify the condition of sediment-dwelling invertebrate communities in Puget Sound. This index will be adopted as a new Vital Sign indicator.	\$100,000	2016-0044

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
132	6.6	Crockett Lake Invasive Species Removal	15.3	Whidbey Camano Land Trust	Remove invasive species at Crockett Lake and restore native plant communities over 460 acres. Targets hairy willow-herb and poison hemlock, which have spread fast and are threatening the health of this critically important wetland.	\$100,000	2016-0057
132	6.6	Myrtle Edwards Park Shoreline Improvement	16.3	City of Seattle	Remove shoreline armoring at Myrtle Edwards Park.	\$75,000	2016-0065
132	6.6	Native Growth Protection Area Plantings in Priority Rural Areas	2.2	Snohomish Conservation District	Develop targeted outreach materials and strategies to connect with high-priority native growth protection areas. Restore 4 acres of riparian habitat in Snohomish County to address documented water quality impairments.	\$80,000	2016-0070
132	6.6	Living with Beavers Program	6.1	Snohomish Conservation District	Expand upon and market a technical assistance and cost-share program to encourage residents of Snohomish County to allow beavers to remain on their property.	\$50,000	2016-0071
132	6.6	Puget Sound Chinook Recovery Nearshore Chapter Update	16.1	Department of Fish and Wildlife	Update of the nearshore chapter to include a synthesis of nearshore research and climate change science to better inform the development of nearshore recovery strategies and investments for Puget Sound Chinook recovery.	\$322,500	2016-0376
132	6.6	Add Ocean Acidification Parameters to Ecology Monitoring Network	1.3	Department of Ecology	Expand alkalinity and dissolved inorganic carbon monitoring to improve near-surface pH measurements and understand buffer capacity of our estuarine system in the context of climate change. Explore feasibility of adding instruments to ferry vessel monitoring program.	\$333,060	2016-0408

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
139	6.5	North Bellingham Bay Nearshore Restoration and Stewardship Program	16.2	Nooksack Salmon Enhancement Association	Apply a landscape-level strategy to achieve habitat restoration and community and landowner outreach and education along shoreline immediately adjacent to the Nooksack River Delta.	\$47,488	2016-0041
139	6.5	Citizens for a Healthy Bay Student Stewardship Program	8.2	Citizens for a Healthy Bay	Engage middle and high school students in citizen science and hands-on projects to become environmental stewards in the Puyallup River watershed, including Commencement Bay.	\$70,000	2016-0081
139	6.5	Develop Data and Support for Floodplain Management Strategies	1.2	Whatcom County	Perform technical analyses and facilitate the development of reach-scale floodplain management strategies and projects and the integration of these strategies with floodplain and watershed recovery planning efforts.	\$1,305,000	2016-0113
139	6.5	Eelgrass and Forage Fish Mapping in Snohomish County	8.2	Snohomish County Marine Resources Committee	In collaboration with the Stillaguamish Tribe, map eelgrass and forage fish throughout Snohomish County to fill existing data gaps essential to restoration planning.	\$260,000	2016-0165
139	6.5	Olympia Oyster Reintroduction-Feasibility and Planning in Hood Canal	16.2	Jefferson County Marine Resources Committee	Test the feasibility of restoring a native marine habitat (extensive Olympia oyster beds) in Quilcene Bay (Hood Canal) by establishing test plots and identifying other promising locations.	\$35,000	2016-0230
139	6.5	Riverton Creek Flapgates Removal Project	2.2	City of Tukwila	Remove two flapgates that are partially blocking fish passage between the Duwamish River and Riverton Creek.	\$763,475	2016-0249
139	6.5	Riparian Revegetation Along the Green/Duwamish River	2.2	City of Tukwila	Provide much-needed shade over segments of the Green/Duwamish River.	\$119,678	2016-0250



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
139	6.5	Habitat Evaluation Procedures	1.3	City of Seattle	Quantify the shoreline habitat into habitat units that represent the ecological value of the shoreline environments to provide a foundation for measuring negative impacts on development on ecological function.	\$150,000	2016-0354
147	6.4	Bowman Bay Armor Removal Planting Maintenance	16.3	Northwest Straits Foundation	Maintain .25 acre of newly planted backshore and shoreline native vegetation to support successful restoration of Bowman Bay shoreline following removal of 500 linear feet of shore armor in 2015.	\$24,000	2016-0002
147	6.4	Watershed Improvement District Planning	2.2	Whatcom Conservation District	Develop comprehensive surface water management plans for four Whatcom County Watershed Improvement Districts formed in 2014 and update the existing management plan for one district expanded in 2014.	\$508,375	2016-0038
147	6.4	Snohomish Conservation District Free Trees Program	2.2	Snohomish Conservation District	Expand the Free Trees Program to reach more small-parcel landowners in urban and rural areas and provide free trees to landowners where increased forest coverage will result in a public benefit.	\$30,000	2016-0257
147	6.4	Bigelow Creek Rechannelization South Wetland Complex Habitat Enhance	6.1	City of Everett	Establish off-channel habitat, restore Bigelow Creek to its predevelopment alignment, and create intertidal habitat.	\$2,058,598	2016-0258

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
147	6.4	Strategic West Central Water Type and Environmental DNA Assessment	1.2	Wild Fish Conservancy	Expand water type and environmental DNA assessments to include prioritized west Puget Sound basins under substantial conversion pressure. Address data gaps crucial to the implementation of critical area ordinances, effective habitat restoration, and species recovery planning.	\$455,000	2016-1237
152	6.3	Snohomish County Climate Resilient Agriculture Strategy	5.4	Snohomish Conservation District	Develop an agriculture strategy for Snohomish County that incorporates climate change projections into a plan for a resilient, economically viable, and community-sustaining agricultural industry into the future.	\$190,000	2016-0075
152	6.3	Port Angeles Harbor Beach Restoration and Shoreline Softening	16.3	City of Port Angeles	Restore 8,606 feet (1.62 miles) of marine shoreline in Port Angeles Harbor by completing beach and estuary restoration projects.	\$892,498	2016-0242
152	6.3	Hood Canal Chinook Salmon Recovery Plan Update	1.2	Hood Canal Coordinating Council	Update the Skokomish Chinook and mid-Hood Canal Chinook chapters of the Puget Sound Chinook Recovery Plan.	\$370,000	2016-0308
152	6.3	Model Volunteer Program for Oil Spill Response / Assessment	20.3	Washington State University Extension	Create and implement a community-based oil spill assessment and response effort that will serve as a model for other regions. Expand nearshore benthic/intertidal citizen science data collection and quality.	\$56,150	2016-0315

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
156	6.2	Green-Duwamish River Invasive Species Removal and Restoration	2.2	King County <sup>1</sup>	Restore native plants and remove invasive species from the Green and Duwamish Rivers by a multi-jurisdictional public-private partnership on public and private lands to protect enhance and recover ecosystem processes and function.	\$240,000	2016-0034
156	6.2	Cold Water Prediction and Verification Study	1.2	King County <sup>1</sup>	Implement a pilot project to predict and verify cold-water refugia.	\$125,000	2016-0118
156	6.2	Numerical Groundwater Model to Support Stream Flow Management Needs	7.1	Public Utility District No. 1 of Whatcom County	Develop a groundwater model that will estimate potential temporal and spatial impacts on surface water resources from activities ranging from large-scale changes in land use to the use of an individual groundwater supply well for domestic irrigation.	\$900,000	2016-0124
156	6.2	Howard Hanson Dam Downstream Fish Passage Facilitation and Coordination	6.1	King County <sup>1</sup>	Facilitate and coordinate stakeholder and public input in the design of Howard Hanson Dam downstream fish passage projects.	\$250,000	2016-0194
156	6.2	Climate Action Planning and Implementation on the North Olympic Peninsula	1.2	North Olympic Peninsula Resource Conservation and Development Council	Implement adaptive strategies in the Climate Change Preparedness Plan for the North Olympic Peninsula.	\$270,000	2016-0204
156	6.2	West Central Intrinsic Potential Modeling for Steelhead	1.2	Kitsap County	Model the intrinsic potential for steelhead in the West Central Local Integrating Organization using updated LiDAR data.	\$36,000	2016-0243

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
156	6.2	Ground/Surface Water Assessment of Morse and Salt Creeks	1.2	Clallam County	Characterize the ground/surface water interactions along the Morse and Salt Creek drainage basins to address critical information gaps important for the implementation of watershed management plans and allocation of water rights.	\$454,000	2016-0309
156	6.2	Innovative Study of Alternative and Working Riparian Buffers	2.2	Snohomish Conservation District	Test plant pallets, variable widths, and other factors to establish potential alternative and working buffer standards for agricultural lands that provide equivalent or better habitat and water quality than current practices and increase farmer participation.	\$920,000	2016-0388
164	6.1	Climate Resiliency in Snohomish River Floodplain	5.4	Snohomish Conservation District	Develop climate resilient approaches to achieving net benefits to agriculture and salmon habitat in the Snohomish River floodplain.	\$665,000	2016-0074
164	6.1	Chinook Wind Mitigation Project	16.2	King County <sup>1</sup>	Design and construct a mitigation project in the transition zone of the Duwamish River. The goal is to fund the project entirely with mitigation fees collected through King County's in lieu fee mitigation program.	\$6,000,000	2016-0147
164	6.1	Vessel Traffic Risk Consequences in the Salish Sea	20.1	San Juan County Marine Resources Committee	Analyze the consequences of vessel traffic risks and make recommendations to prevent significant harm to resources and communities that rely on vessel transport.	\$200,000	2016-0149
164	6.1	Reduce Elevated Water Temperatures in the Sammamish River	2.2	WRIA 8 Lead Entity	Develop lasting solutions to decrease water temperatures in the Sammamish River during juvenile and adult salmon migration periods.	\$175,000	2016-0231

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
168	6	Shoreline Inventory Snohomish County	8.3	Snohomish County	Supplement the inventory and analysis of shoreline conditions in Snohomish County.	\$350,000	2016-0403
169	5.9	Initiatives to Support Infill in Urban Growth Areas in Snohomish County	4.2	Snohomish County	Support opportunities and incentives to increase capacity and accommodate growth in urban areas with three independent initiatives.	\$500,000	2016-0391
169	5.9	Critical Forage Fish Habitat Identification and Protection	8.3	Department of Fish and Wildlife	Document the location, extent, and characteristics of currently undocumented critical forage fish habitat in Puget Sound.	\$286,000	2016-0392
171	5.8	Hidden Lake Dam Removal Project	2.2	City of Shoreline	Remove the Hidden Lake Dam and re-establish Boeing Creek at the project location to improve fish passage. Improved sediment transport will benefit nearshore habitat at the mouth of Boeing Creek.	\$4,465,000	2016-0186
171	5.8	City of Port Orchard Annapolis Creek Fish Passage Enhancement	16.2	City of Port Orchard	Replace a culvert that is partially blocking fish passage near the mouth of Annapolis Creek with an engineered box culvert to eliminate the barrier and improve the pocket estuary near the mouth of the creek.	\$450,000	2016-0276
171	5.8	Chambers Creek Dam Acquisition and Design	6.1	Forterra	Acquire the Chambers Creek Dam and complete a site restoration plan (final design) based on the data derived from the master plan under multiple dam removal scenarios (feasibility study funded by Salmon Recovery Funding Board in December 2015).	\$389,000	2016-1245

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
174	5.7	Floodplain Restoration Design for Two Sites	5.4	Whatcom County	Analyze Reach I levee reconfigurations to ensure treaty fishing rights are not adversely affected. Conduct alternatives analysis and design for drainage, pump station, and possible riparian and wetland enhancements in lower Fishtrap Creek.	\$450,000	2016-0114
174	5.7	Improve Effectiveness of State Hydraulic Code rules	8.3	Department of Fish and Wildlife	Support implementation (permitter proficiency) and effectiveness monitoring of hydraulic project approval features such as fish passage culverts, marine armoring, overwater structures, and streambank armoring.	\$500,000	2016-0132
174	5.7	Haystack Creek Culvert Barrier Removal	2.2	Snohomish Conservation District	Remove four fish passage barriers on Haystack Creek, a tributary to Tychman Slough and the Skykomish River, opening 2.3 miles of anadromous salmonid habitat.	\$550,000	2016-0259
174	5.7	Hood Canal Steelhead Recovery Plan Development	1.2	Hood Canal Coordinating Council	Convene partners to develop a Hood Canal Steelhead Recovery Plan.	\$370,000	2016-0396
178	5.6	Snoqualmie Hydrology	2.2	Snoqualmie Tribe	Investigate low-flow hydrology in the lower mainstem Snoqualmie River (below Snoqualmie Falls) and identify opportunities for habitat enhancement and protection.	\$150,000	2016-0007
178	5.6	Working Buffers to Improve Riparian Buffer Width and Function	2.2	Snohomish Conservation District	Provide technical assistance and cost-share funding to install agroforestry practices on working farms as a way of widening traditional riparian buffers.	\$70,000	2016-0025
178	5.6	Donkey Creek Basin Habitat Management Plan	1.2	City of Gig Harbor	Develop a habitat management plan to protect the ecological quality of the Donkey Creek drainage basin and the associated salmon run.	\$90,000	2016-0201



**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
178	5.6	No Net Loss Evaluation Framework	1.2	The Watershed Company	Develop an evaluation framework for Puget Sound jurisdictions for the future 8-year review cycles of their shoreline master program. Provide a low-cost method to assess the effectiveness of meeting Washington State's no net loss standard.	\$95,000	2016-0314
178	5.6	Hood Canal Nearshore Inventory, Assessment, and Prioritization	6.1	Hood Canal Coordinating Council	Develop a Hood Canal nearshore inventory assessment and identify priorities to guide funding and implementation of nearshore actions and projects.	\$200,000	2016-0393
183	5.5	Engaging the Community in Strait Ecosystem Recovery	2.2	Washington State University Extension	Collaborate with the Washington State University Extension, North Olympic Salmon Coalition, and Feiro Marine Life Center to provide training and engage community volunteers in implementing Strait Ecosystem Recovery Network habitat near-term actions.	\$140,800	2016-0107
184	5.4	Seattle Public Utilities Fish Passage Barrier Replacement Projects	2.2	City of Seattle	Start three new fish passage and culvert barrier removal projects.	\$2,400,000	2016-0129
184	5.4	Olympia Oyster Restoration Project in the Strait of Juan de Fuca	16.2	Clallam County Marine Resources Committee	Expand or enhance Olympia oyster habitat restoration efforts in two Department of Fish and Wildlife target restoration sites in the Strait of Juan de Fuca. Engage the public, through these restorations, in actions needed to restore Puget Sound.	\$79,500	2016-0143

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
184	5.4	Hood Canal Human Wellbeing indicator Development & Research	1.2	Hood Canal Coordinating Council	Work with member jurisdictions and regional social scientists to expand on existing human wellbeing research in Hood Canal to refine and expand its ecosystem indicators and improve its data collection methods.	\$120,000	2016-0307
184	5.4	Stillaguamish River Knotweed Control and Reforestation	2.2	Snohomish County	Continue methodical downstream campaign to control and eradicate invasive knotweeds from the North Fork and South Fork Stillaguamish and follow by conifer planting. Survey and treat 70 acres per year and replant 10 acres over 4 years.	\$30,000	2016-1046
188	5.3	Camano Island State Park Restoration Public Involvement	16.2	Skagit River System Cooperative	Support outreach efforts to restore fish access and natural tidal conditions, functions, and biological responses in a 4.5-acre historic pocket estuary in Camano Island State Park.	\$217,760	2016-0059
188	5.3	Samish Bay and Padilla Bay Oxygen, Acidification, and Bacteria Submodels	1.3	Department of Ecology	Develop submodels of Samish Bay and Padilla Bay from the Salish Sea circulation, dissolved oxygen, and acidification model.	\$297,989	2016-0063
188	5.3	Forage Fish Survey and Baseline Habitat Map for Commencement Bay	8.2	Citizens for a Healthy Bay	Conduct forage fish survey and baseline habitat mapping for Commencement Bay for identification, protection, and restoration of habitat. Provide critical information in the event of an oil or chemical spill and opportunities for citizen science.	\$85,000	2016-0079

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
188	5.3	Policy on Dispersant Use in San Juan County Waters	20.3	University of Washington	Prepare a literature review and draft policy statement on the environmental consequences of dispersant use following an oil spill in cold waters. This will support an informed decision in the event of an oil spill.	\$35,000	2016-0151
192	5.2	Assess Stream Baseflow Trends in the Puget Sound Watershed	1.3	Department of Ecology	Assess stream baseflow trends in the Puget Sound watershed and the trends and potential drivers for observed summer low flows in support of salmon habitat protection and recovery.	\$250,000	2016-0101
193	5.1	West Sound Eelgrass Monitoring Program	1.2	Suquamish Tribe	Continue implementation of a monitoring plan to document the status and trends of eelgrass beds in the East Kitsap nearshore. Supplements existing sampling and planned future sampling of eelgrass condition.	\$150,000	2016-0060
193	5.1	Nisqually Community Forest Acquisition	2.2	Nisqually Community Forest	Permanently protect habitat for threatened Nisqually steelhead and Chinook salmon and protect the recovery trajectory of the Mashel subbasin through acquisition of sensitive properties under threat of forestry practices that could result in excessive erosion.	\$8,750,000	2016-0173
193	5.1	Improve Temperature and Dissolved Oxygen in the Lake Washington Ship Canal	2.2	WRIA 8 Lead Entity	Develop lasting solutions that will decrease water temperatures and increase dissolved oxygen concentrations in the Lake Washington Ship Canal during salmon migration.	\$175,000	2016-0226

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
193	5.1	Ballard Locks Infrastructure Updates to Improve Fish Passage	2.2	WRIA 8 Lead Entity	Implement prioritized Ballard Locks infrastructure improvements such as updating failing machinery and structures to support fish passage and facility operations.	\$5,450,000	2016-0229
197	5	Queryable Spatial Data Service for Habitat Restoration Projects (GLAD)	1.2	Department of Fish and Wildlife	Develop an expandable cross-agency/ stakeholder queryable public spatial data system for tracking habitat restoration and improvements toward Puget Sound recovery (Geospatial Land Activities Dataservice).	\$250,000	2016-0221
197	5	Hood Canal County-Wide Planning Policy Assessment	1.2	Hood Canal Coordinating Council	Investigate countywide planning policies and regulatory programs in Hood Canal to determine opportunities to enhance regional alignment across jurisdictions.	\$115,000	2016-0397
199	4.9	Hood Canal Integrated Watershed Plan Monitoring and Adaptive Management	1.2	Hood Canal Coordinating Council	Provide the strategic framework for ecosystem recovery in Hood Canal. Monitor selected ecosystem indicators for progress toward Integrated Watershed Plan goals and adapt approach as needed.	\$60,000	2016-0297
199	4.9	Coordinated Approach to Support Effectiveness Monitoring in Puget Sound	2.2	Department of Ecology	Create a GIS platform and implementation metrics to assess the most effective water quality protection efforts. Use results to prioritize the best strategies to address nonpoint source pollution in the Puget Sound region.	\$254,000	2016-0363
201	4.8	Nearshore Habitat Restoration/ Harvestable Shellfish Resources Study	16.1	Department of Fish and Wildlife	Study potential impacts on shellfish resources from restoring natural nearshore processes at Duckabush Estuary and a reference site.	\$75,000	2016-0387

**TABLE I-2.** RANKED LIST OF HABITAT NEAR TERM ACTIONS (CHAPTER 4), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
202	4.6	Watershed Education for Decisionmakers: Stillaguamish Basin	1.2	Sound Salmon Solutions	Increase the awareness and involvement of local decisionmakers in local environmental issues, especially related to water quality, stormwater, shellfish protection, and salmon recovery.	\$35,000	2016-0133
203	4.4	Online Application and Database Management Tool for Hydraulic Project Approvals	1.3	Department of Fish and Wildlife	Develop and deploy an application and database management tool to provide submittal, payment, and tracking of Hydraulic Project Approval applications online; enable public viewing and commenting on applications; and train staff to process, issue, and track data for applications.	\$700,000	2016-0049
204	4	Tidal Water-Crossing Structure Study	8.2	Department of Fish and Wildlife	Study water-crossing structures in tidal systems to support updated technical guidance for fish barrier assessment, prioritization, and design of culverts, bridges, and tidegates in tidal areas.	\$250,000	2016-0385

<sup>1</sup> King County Near Term Actions for the Habitat Strategic Initiative were submitted by the Water and Land Resources Division within the Department of Natural Resources and Parks.

## NEAR TERM ACTIONS ASSOCIATED WITH THE SHELLFISH STRATEGIC INITIATIVE

The following table for the Shellfish Strategic Initiative includes the rank of the Near Term Action within the Strategic Initiative, the score (from 1–10) awarded by the Strategic Initiative Transition Teams, the sub-strategy the Near Term Action is most closely

aligned to (see [Appendix A](#) for sub-strategy descriptions), the owner, a brief action description of the Near Term Action, estimated cost, and the Near Term Action number (a reference number for easy access to the NTA details in the [Action Agenda Report Card](#)). A sortable list of Near Term Actions is available on the [Action Agenda Report Card](#).

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5)

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
1	8.4	Kitsap County Shoreline Monitoring Program	19.1	Kitsap Public Health District	Conduct marine shoreline monitoring program in Kitsap County to maintain the status of harvestable acreage and upgrade Liberty Bay and Miller Bay.	\$500,000	2016-0237
2	7.9	Land Application of Manure Practices in North Puget Sound Counties	9.6	Department of Agriculture	Use water quality monitoring, source identification sampling (bracket), and surveillance to evaluate manure use in crop production (initially berry use at planting and as mulch) in north Puget Sound counties.	\$467,797	2016-0407
3	7.8	Clean Marina Washington Program Expanded and Funded in Puget Sound	9.5	Puget Soundkeeper Alliance	Fund and expand Clean Marina Washington program to provide no-discharge zone and vessel sewage outreach to marinas and boaters.	\$140,000	2016-0295
4	7.7	Whatcom County Enhanced Pollution Identification and Correction Program	21.4	Whatcom County	Apply an enhanced and adaptively managed pollution identification and correction program to reduce bacteria levels in creeks and marine waters to an expanded geographic area in Whatcom County.	\$2,130,000	2016-0054



**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
5	7.6	South Sound Shellfish Recovery	19.1	Pierce County	Implement plans for water quality closure responses associated with shellfish protection districts at Burley Lagoon; Nisqually Reach; McLane Cove; Henderson Inlet; and Filucy, Rocky, Vaughn, and Oakland Bays.	\$5,694,900	2016-0011
5	7.6	Implement Clallam County's Enhanced Pollution Identification and Correction Program in the Marine Recovery Area	21.4	Clallam County	Increase harvestable shellfish beds, monitor water quality, and identify and correct sources of pollution (such as onsite sewage systems, agriculture, pet waste) in Meadowbrook Creek/Slough and up the watershed to Matriotti Creek.	\$298,000	2016-0319
7	7.5	Nondairy Inspectors: Whatcom and Skagit Shellfish Recovery	11.2	Department of Ecology	Hire three nonpoint compliance staff to identify and stop nondairy discharges of livestock manure in the Whatcom Clean Water Program in WRIA 1 and in the Clean Samish Initiative in WRIA 3.	\$723,239	2016-0286
7	7.5	Financing Options for Healthy Onsite Sewage Systems	13.3	Snohomish County	Provide affordable financing options and education to help residents in the Snohomish-Stillaguamish watersheds maintain healthy onsite sewage systems through grants, rebates, and workshops.	\$206,950	2016-0306
9	7.4	Liberty and Miller Bay Working Farms' Water Pollution and Control Project	11.1	Kitsap Conservation District	Provide technical assistance to help farmers identify what activities cause risk to shellfish growing areas in Liberty and Miller bays. Implement best management practices to reduce and control pollution.	\$230,800	2016-0275

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
10	7.3	BEACH Program Bacterial Assessment at Recreation Swim and Shellfish Beaches	19.1	Department of Ecology	Conduct 2 years of weekly monitoring for fecal indicator bacteria at public saltwater swimming and shellfish beaches throughout Puget Sound from Memorial Day through Labor Day.	\$180,000	2016-0076
10	7.3	Map Stormwater Outfalls in Unpermitted MS4 Areas	19.1	Department of Natural Resources	Work with local jurisdictions, Washington State University Stormwater Center, and the Department of Health to identify and map stormwater outfalls located in the Puget Sound drainage basin outside of the MS4 stormwater permitted areas.	\$245,000	2016-0193
12	7.2	Hood Canal Regional Pollution Identification and Correction Program	21.4	Hood Canal Coordinating Council	Collaborate with Jefferson, Kitsap, and Mason Counties and the Port Gamble S'Klallam and Skokomish tribes to implement prioritized pollution identification and correction work and advance water quality monitoring throughout Hood Canal.	\$444,500	2016-0300
13	7.1	Farmers for Clean Water	11.1	Whatcom Conservation District	Employ advanced social strategies to enhance existing regulatory and incentive-based programs so livestock owners will universally adopt practices needed to reopen and sustain shellfish harvest areas into the future.	\$600,610	2016-0402
14	7	Notification to Septic System Owners in Marine Recovery Areas	13.1	Department of Health	Respond to an accelerated pollution identification and control program as more septic system failures are identified and require investigation and followup.	\$100,000	2016-0191

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
14	7	Skagit County Compliance Assurance Program	21.4	Department of Health	Coordinate with Skagit County to propose enhancements to the pollution identification and correction program for the Samish Bay watershed, including additional hotspot investigation, use of a sewage-detecting dog, accelerated property inspections, and septic system dye testing.	\$244,000	2016-0206
14	7	Skagit County Chemical Tracers Implementation	19.1	Department of Health	Use the information and techniques developed in the current National Estuary Program grant to implement basin-wide sampling for chemical tracers of human and agricultural fecal coliform pollution.	\$37,800	2016-0207
17	6.9	State Oversight of Pollution Identification and Correction Programs	19.1	Department of Health	Explore options, assign responsibilities, and build program capacity for state oversight of pollution identification and control programs.	\$75,000	2016-0220
18	6.8	Skagit County Storm Sampling	21.4	Department of Health	Provide additional resources to expand the Skagit County storm-sampling program to better characterize and locate fecal coliform pollution in the Samish Bay watershed and manage the Samish Bay Growing Area.	\$80,000	2016-0209
18	6.8	Implement a No-Discharge Zone within Puget Sound	9.5	Department of Ecology	Implement a no-discharge zone for all or parts of Puget Sound, following a final petition and determination by the U.S. Environmental Protection Agency.	\$141,000	2016-0256

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
20	6.7	Achieve Shellfish Upgrades in Miller Bay by Restoring Olympia Oysters	19.1	Puget Sound Restoration Fund	Upgrade 275 acres of shellfish beds in Miller Bay by restoring 2 acres of Olympia oysters and installing native oyster gardens to enhance filtration, increase access to shellfish, and provide incentives for improving water quality.	\$194,102	2016-0056
20	6.7	Enhanced Onsite Sewage Systems in Clallam County's Marine Recovery Area	13.1	Clallam County	Upgrade harvestable shellfish beds, inventory all onsite sewage systems for inspection, fix failing systems, educate owners, update the Onsite Sewage System Management Plan, and attain stable funding.	\$250,000	2016-0251
20	6.7	Lower Stillaguamish Pollution Identification and Correction Program	21.4	Snohomish County	Continue working with partner agencies to identify and remove sources of fecal coliform and nutrient pollution in the Lower Stillaguamish River basin, primarily from onsite sewage systems, livestock manure, and household pet waste.	\$300,000	2016-0395
23	6.5	Phase II Skagit County Social Marketing Study	21.4	Department of Health	Coordinate with Skagit County to continue with Phase II of a social marketing study, which will include evaluating existing outreach and education material, creating new materials, and providing overall recommendations to guide future efforts.	\$25,000	2016-0208
24	6.3	Regional Standards for Core Functions of Local Septic System Programs	13.1	Department of Health	Assess core functions of the local septic system operations and maintenance programs and develop clearer state standards to locate and document systems, notify system owners, apply common inspection requirements, report and track system operations and maintenance activities, and enforce corrective actions.	\$200,000	2016-0211

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
25	6.2	Ecology Best Management Practices Implementation Coordinator	11.1	Department of Ecology	Hire one best management practices implementation coordinator to assist in implementing best management practices for nondairy livestock that protect water quality in watersheds that affect shellfish growing areas.	\$233,945	2016-0287
26	6.1	Island County Pollution Identification and Correction Program	21.4	Island County	Supports Phase 2 of the pollution identification and correction program in Island County. Identify bacteria sources in target watersheds with known surface water quality exceedances.	\$200,000	2016-0105
26	6.1	Nonpoint Source Reduction Actions in Shellfish Watersheds	11.2	Department of Ecology	Provide two inspectors to work with livestock operators using an agency-wide initiative to increase the effectiveness of agency actions resolving nonpoint pollution problems with livestock producers in shellfish watersheds.	\$420,000	2016-0178
26	6.1	Viral Indicator	19.1	Department of Health	Develop capacity to evaluate temporal, geographic, and interspecies variability of viral indicator concentrations in shellfish tissue and marine waters.	\$200,000	2016-0266
26	6.1	Puget Sound Clean Waters Livestock Stewardship Program	11.1	State Conservation Commission	Provide enhanced educational opportunities, technical assistance and conservation planning tools, project designs, and financial assistance to livestock owners to prevent fecal coliform pollution.	\$8,410,000	2016-0370
30	6	SepticSmart Educational Campaign	13.1	Department of Health	Conduct an intensive educational campaign aimed at onsite sewage system owners in the Puget Sound region focused on the importance of operation and maintenance.	\$300,000	2016-0216

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
30	6	Discovery Bay-Port Townsend Pollution Identification and Correction	19.1	Jefferson County	Assess bacteria and nutrient pollution in the Discovery Bay watershed and Port Townsend, analyze water quality trends, extend existing data, enforce septic corrections, and prioritize agricultural best management practices to protect 5,000 acres of shellfish beds.	\$368,533	2016-0389
32	5.9	Expand Pollution Identification and Correction Program and Onsite Sewage Management in King County per Revised Code of Washington 70.118A	13.1	King County <sup>1</sup>	Manage septic systems and other pollution sources, such as agriculture, using efficient mechanisms to better protect public health and natural resources.	\$500,000	2016-0035
33	5.8	Targeted Livestock Best Management Practice Implementation	11.1	San Juan Islands Conservation District	Provide targeted outreach to livestock managers in known areas of water quality concern to promote implementation of best management practices that will control sources of bacterial contamination and excess nutrients and improve water quality.	\$250,000	2016-0157
34	5.5	Thurston County Urban Septic to Sewer Conversion	13.1	Thurston County	Protect shellfish-growing areas through program that converts urban septic to sewer systems. Conduct public outreach and develop codes, policies, and city-specific implementation plans to adopt the conversion program.	\$180,000	2016-0179



**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
35	5.4	Shellfish Effectiveness Monitoring	19.1	Puget Sound Partnership	Conduct effectiveness monitoring to provide the information needed to determine if actions intended to restore shellfish beds are successful. Assess the effectiveness of actions to accelerate restoration and support good decisions.	\$200,000	2016-0331
36	5.2	Enhanced Whatcom Marine Resources Committee Pollution Identification and Correction Program in North Chuckanut Bay	19.1	Whatcom County	Expand water quality sampling and community outreach to enhance a pollution identification and correction project in North Chuckanut Bay. Restore the recreational shellfish area.	\$15,000	2016-0115
37	4.9	Puget Sound Shore Stewards	13.1	Washington State University Extension	Educate and engage shoreline property owners regarding home and landscape management activities that protect and improve shoreline function and water quality.	\$495,880	2016-0106
38	4.4	Bringing Together Farms and Fish for Water Quality and Habitat Protection	11.1	Thurston Conservation District	Restore riparian function while preserving farmland adjacent to salmon-bearing streams.	\$300,000	2016-0352
39	4	Monetizing Stewardship of Dairy Manure	11.1	State Conservation Commission	Determine conditions for a viable market for products derived from dairy manure produced in the Nooksack and Skagit watersheds to incentivize manure management practices that reduce their adverse impact on critical shellfish beds.	\$310,000	2016-0244

**TABLE I-3.** RANKED LIST OF SHELLFISH NEAR TERM ACTIONS (CHAPTER 5), CONTINUED

RANK	SCORE	NEAR TERM ACTION TITLE	SUB-STRATEGY	OWNER ORGANIZATION	DESCRIPTION	COST OF CURRENT PHASE	NEAR TERM ACTION #
40	3.4	Puget Sound Water Quality Trading Market Proof of Concept	11.1	State Conservation Commission	Build on the Department of Ecology report on conservation markets and explore whether there are adequate buyers and sellers in Puget Sound watersheds for the potential implementation of a water quality trading program. Serve as a proof of concept for how to achieve Puget Sound recovery through an incentives approach.	\$350,000	2016-0404

<sup>1</sup> King County Near Term Actions for the Shellfish Strategic Initiative were submitted by the Water and Land Resources Division within the Department of Natural Resources and Parks.



## CHAPTER 2

### DEVELOPMENT, USE, AND MEASUREMENT OF THE IMPLEMENTATION PLAN

This chapter describes the development of the *Implementation Plan*, how it will be used, how success will be measured, and how new information and lessons learned from past Action Agendas informed the *Implementation Plan*.

#### HOW WAS THE IMPLEMENTATION PLAN DEVELOPED?

The *Implementation Plan* was developed over approximately 1 year through a structured approach integrating science in decisionmaking. The intent of the development process was to ensure the Action Agenda is science-informed; focuses on the Stormwater, Habitat, and Shellfish Strategic Initiatives; represents the actions needed at the regional and local level, and is prioritized using predefined criteria in a manner that is highly transparent.

The Puget Sound Partnership convened interdisciplinary teams for each of the Strategic Initiatives. These teams defined regional priorities, and developed criteria for scoring Near Term Actions. Regional and local implementers proposed Near Term Actions responsive to the regional priorities and the Strategic Initiative Transition Teams scored and ranked the Near Term Actions (Tables 1-1 to 1-3). More description of the process can be found in the [Process Summary](#) posted with Supporting Materials.

Cross-cutting sub-strategies affect multiple aspects of Puget Sound recovery and have regional implications, so they support all three Strategic Initiatives. They provide an opportunity to develop new Near Term Actions and programs in a way that produces multiple benefits from the same investments. Planning for the 2016 *Implementation Plan* included the seven cross-cutting sub-strategies described in Appendix B, *Cross-Cutting Sub-Strategies*. These cross-cutting sub-strategies are summarized below.

**Climate change impacts.** An important component in addressing recovery is to consider and address the impacts of climate change in all implementing actions proposed for the Action Agenda. Sea level rise, increased frequency and severity of flooding, erosion, and temperature changes—all will increase risks to vulnerable communities, infrastructure, and ecosystems.

#### **Riparian corridor management.**

Protection and restoration of riparian corridors is an important cross-cutting strategy that protects freshwater streams from increased water temperatures, protects water quality, and retains or enhances habitat.

**Regulation and enforcement.** The Ecosystem Coordination Board proposed that increasing regulatory compliance is also a cross-cutting sub-strategy that supports each of the three Strategic Initiatives.

#### HOW ARE THE CROSS-CUTTING ISSUES FROM THE COMPREHENSIVE PLAN ADDRESSED IN THE IMPLEMENTATION PLAN?

**Tribal Treaty Rights:** There is close agreement between the tribal habitat priorities and all three Strategic Initiatives. Clean water and habitat are essential to fish and shellfish harvests.

**Climate Change:** Near Term Actions were required to address climate change impacts.

**Ocean Acidification:** Near Term Actions related to this issue were directed to Marine Resource Advisory Committee for review and feedback.

**Recovery of Endangered Salmonids:** The Habitat and Stormwater Strategic Initiatives are both aligned with this issue by focusing efforts on physical and chemical habitat loss and degradation.

**Science.** Sound science provides the continued basis for decisions of partners and policy-makers on how best to protect and restore Puget Sound. Although the Puget Sound Partnership is charged with assessing the region's overall progress toward recovery targets and describing the status of recovery efforts, there are numerous gaps in our collective understanding that scientific study can address with shared efforts and resources.

**Monitoring.** The Action Agenda includes strategies and sub-strategies that coordinate and integrate science assessments and monitoring to help determine the status and trends of the health of Puget Sound. There may be opportunities to coordinate implementation across the three Strategic Initiatives.

**Behavior change.** Behavior change is considered important to many of the sub-strategies as a means to incentivize human actions that are beneficial to recovery or to deter human actions that are harmful

to or further degrade Puget Sound. Sub-strategies that include communication and behavior change strategies support programs and actions that cut across the three Strategic Initiatives.

**Awareness and education.** Awareness and education, along with behavior change, cut across all three Strategic Initiatives. The sub-strategies that support these issues include increasing awareness and understanding of Puget Sound's health, status, and threats, as well as engaging the public in educational and technical training efforts.

Partners were asked to address these issues and sub-strategies during development of the Near Term Actions. The Strategic Initiative Transition Teams considered the alignment of Near Term Actions with cross-cutting issues in scoring to ensure that these important cross-cutting issues were adequately addressed.

## HOW WILL THE IMPLEMENTATION PLAN BE USED?

The *Implementation Plan* directs investment to the actions most needed over the next 2 to 4 years to advance Puget Sound recovery. The ranked list helps the region use resources efficiently and effectively to make progress on indicator targets. A sortable list of the Near Term Actions is available in the *Action Agenda Report Card* and can be used to identify actions that meet specific criteria for certain funding opportunities. Additionally, the *Implementation Plan* can be used to identify and address emerging issues, inform future planning, and influence legislation.

## DIRECTING INVESTMENT

The ranked list of Near Term Actions informs funders looking to invest in actions that best address the regional priorities and have a high probability of success. Regardless of the scale of implementation, funders can identify the relative contribution of an action to regional priorities. The key ongoing programs identified in the *Implementation Plan* signify to funders that partners collectively recognize the importance of maintaining these programs and support their full implementation.

The Management Conference would like funders, such as the National Estuary Program,<sup>2</sup> state grants, and others to allocate funding for the Action Agenda using the information provided by Near Term Action scores, ongoing programs, and regional priorities,

<sup>2</sup> While the National Estuary Program is important to funding the Action Agenda, it is neither the only nor the major source of funds.

and actions that address gaps and barriers. The Strategic Initiative Advisory Teams will develop a funding package recommendation for each of the Strategic Initiatives, documenting the rationale for their choices, particularly for any deviations from the ranked lists. As more Implementation Strategies are developed, they will inform the recommendations for the funding package. These recommendations will be presented to the Strategic Initiative Leads who will develop the final funding package. They, too, are expected to document the basis for their decisions and provide the rationale for any deviations from the Strategic Initiative Advisory Team recommendations. In addition, the list of Near Term Actions and ongoing programs can be used to pursue state and local government funding during budget cycles, as well as nonprofit and private funding.

In these ways, the list of technically reviewed and scored Near Term Actions and the ongoing programs facilitate more direct funding of implementation, thus reducing competitive funding cycles and allowing partners to focus on recovery implementation.

## TRACKING EMERGING ISSUES

In addition to directing funding, the *Implementation Plan* identifies emerging issues, often gaps where regional priorities are not being addressed. Identifying these issues can catalyze further monitoring and scientific evaluation and set the stage for the competitive funding process to encourage proposals that address specific issues.

## INFORMING FUTURE PLANNING

The *Implementation Plan* informs future planning for, learning about, and understanding of recovery priorities. Identifying scientific and monitoring projects can help resolve uncertainty in practices and approaches for addressing barriers to recovery. Results of these investigations and of additional science work actions identified in the [Biennial Science Work Plan](#) can be used to improve development



of future actions or to modify approaches to solicitation and plan development.

Progress on this *Implementation Plan*, as well as emerging issues and new scientific information, will inform future *Implementation Plans*, a process described in the adaptive management cycle. The [Action Agenda Report Card](#) is an online resource that tracks implementation of the Near Term Actions. As additional quantitative measures that track progress become available, that information will be made accessible to the public through the [Action Agenda Report Card](#) and future [State of the Sound](#) reports.

## INFLUENCING LEGISLATION

The *Implementation Plan* can influence legislation by identifying key ongoing programs seeking legislative action (such as removing legal barriers to implementation) or by supporting increased funding to maintain or stimulate important state or local governmental work (such as enforcing existing regulations).

## HOW WILL WE MEASURE SUCCESS?

A roadmap is of little value if we do not know where we are or track progress toward our destination. This Action Agenda's [Comprehensive Plan](#) and its biennial *Implementation Plan* provide the region's shared roadmap for Puget Sound recovery. The *Implementation Plan* charts the course toward recovery over the next 2 years and provides useful points of reference for tracking progress.

The Puget Sound Partnership's monitoring systems provide the opportunity to learn continuously about recovery and protection efforts. Progress reports and science-based evaluation provide the information necessary to adjust management actions to achieve the greatest beneficial outcomes for the resources expended.

We measure success around three issues: tracking implementation, tracking results, and assessing effectiveness. These are tracked using multiple tools and reporting documents, as described in Table 2-1. For more detailed information on performance measurement, see [Chapter 2, Framework for Recovery](#), of the *Comprehensive Plan*.

**TABLE 2-1.** PUGET SOUND RECOVERY MEASUREMENT SYSTEMS

MEASUREMENT SYSTEM	DESCRIPTION	LINK
Action Agenda Report Card	Tool for implementation tracking. Includes all Near Term Actions, their performance measures, and current implementation status.	<a href="#">Report Card</a>
State of the Sound	The biennial report that assesses implementation and progress toward the 2020 targets for Puget Sound recovery. The 2017 <i>State of the Sound</i> will report on implementation of the 2014 Action Agenda and this 2016 <i>Implementation Plan</i> .	<a href="#">State of the Sound</a>
Vital Signs	The suite of 25 Vital Signs that gauge the health and recovery of the Puget Sound ecosystem.	<a href="#">Vital Signs</a>
Assessing effectiveness	The Puget Sound Ecosystem Monitoring Program staff and the Strategic Initiative Leads are proposing to monitor, together, the effectiveness of recovery efforts in each of the three Strategic Initiatives.	<a href="#">Evaluating Actions to Recover Puget Sound</a>

## HOW IS THE 2016 IMPLEMENTATION PLAN IMPROVED?

As prescribed by the adaptive management process, the 2016 *Implementation Plan* applies lessons from the 2012 and 2014 Action Agendas to build on successes, remedy challenges, and improve strategic planning. The development of the plan and solicitation for Near Term Actions is more focused on critical issues, resulting in actions that are better designed and qualified to address near-term recovery needs. Additionally, each iteration of the Action Agenda, and particularly the 2016 *Implementation Plan*, more fully integrates science into the planning and decisionmaking processes. The enhanced clarity regarding priorities and intended outcomes in the 2016 *Implementation Plan* will accelerate the pace of recovery in Puget Sound.

## LEARNING THROUGH ADAPTIVE MANAGEMENT

Adaptive management is the cyclical process of planning, implementing, evaluating, and applying new information to subsequent planning activities. Development of the 2016 *Implementation Plan* was informed by new data and analysis resulting from implementing the 2012 and 2014 Action Agendas. With each iteration of the *Implementation Plan*, we improve our understanding of the status and trends of Vital Sign indicators and the pressures on Puget Sound's freshwater, marine-nearshore, and terrestrial resources.

- **Lessons learned.** In preparation for the 2015 [State of the Sound](#), the Puget Sound Partnership closely studied Near Term Actions types, implementation status, funding, and the relationships that these factors might have to the overall outcome of the Vital Signs. This study revealed two important points.

- Near Term Actions associated with Strategic Initiatives were more likely to be *complete* or *on plan* than actions not associated with the Strategic Initiatives.
- Lack of sufficient funding is a major barrier to implementation of Near Term Actions, and thus of the Action Agenda and Puget Sound recovery.

Based on these analyses, the Strategic Initiatives are the focus of the 2016 *Implementation Plan*, and actions associated with each Strategic Initiative are prioritized to optimize limited resources.

- **Status of Vital Sign indicators.** Many Vital Sign indicators have not changed or have deteriorated in the last 2 years. The need to accelerate the pace of recovery has focused the development of Implementation Strategies for each Vital Sign. The Implementation Strategies for shellfish and estuaries help to identify and prioritize actions associated with the Shellfish Strategic Initiative and the Habitat Strategic Initiative.
- **Better understanding of pressures.** The [2014 Puget Sound Pressures Assessment](#) identified critical ecosystem vulnerabilities. This informed updates to the sub-strategies associated with each Strategic Initiative and led to development of regional priorities for the Strategic Initiatives. Partners were encouraged to consider regional priorities and particularly those associated with sub-strategies that affect all three Strategic Initiatives when developing and ranking Near Term Actions. These priorities also informed the assessment of gaps and development of other recommended actions.





## CHAPTER 3

### STORMWATER STRATEGIC INITIATIVE: PREVENT POLLUTION FROM STORMWATER RUNOFF

This chapter presents the Stormwater Strategic Initiative. It describes the Vital Signs related to challenges presented by stormwater and the aligned sub-strategies. It then presents the regional priorities, ongoing programs, gaps, and recommendations for the Stormwater Strategic Initiative. The Strategic Initiative Leads for the Stormwater Strategic Initiative are the Washington State Departments of Ecology and Commerce and Washington State University.

Throughout this chapter, the tables show links and associations that reflect primary relationships. Many of the Near Term Actions included in this Strategic Initiative contribute to achieving objectives of multiple sub-strategies, in addition to the primary sub-strategy provided.

## WHAT VITAL SIGNS ARE LINKED TO STORMWATER?

The Stormwater Strategic Initiative contributes to achieving the recovery targets for the Vital Signs listed below and shown in Figure 3-1.

- Shellfish beds
- Swimming beaches (Outdoor activities)
- Sound behavior (Sound Stewardship)
- Chinook salmon
- Orcas
- Birds
- Summer stream flows
- Marine water quality
- Freshwater quality
- Marine sediment quality
- Toxics in fish
- Swimming beaches

Note: Updated Human Quality of Life and many Healthy Human Population Vital Signs have not been aligned to the Strategic Initiatives.

FIGURE 3-1. VITAL SIGNS RELATED TO THE STORMWATER STRATEGIC INITIATIVE

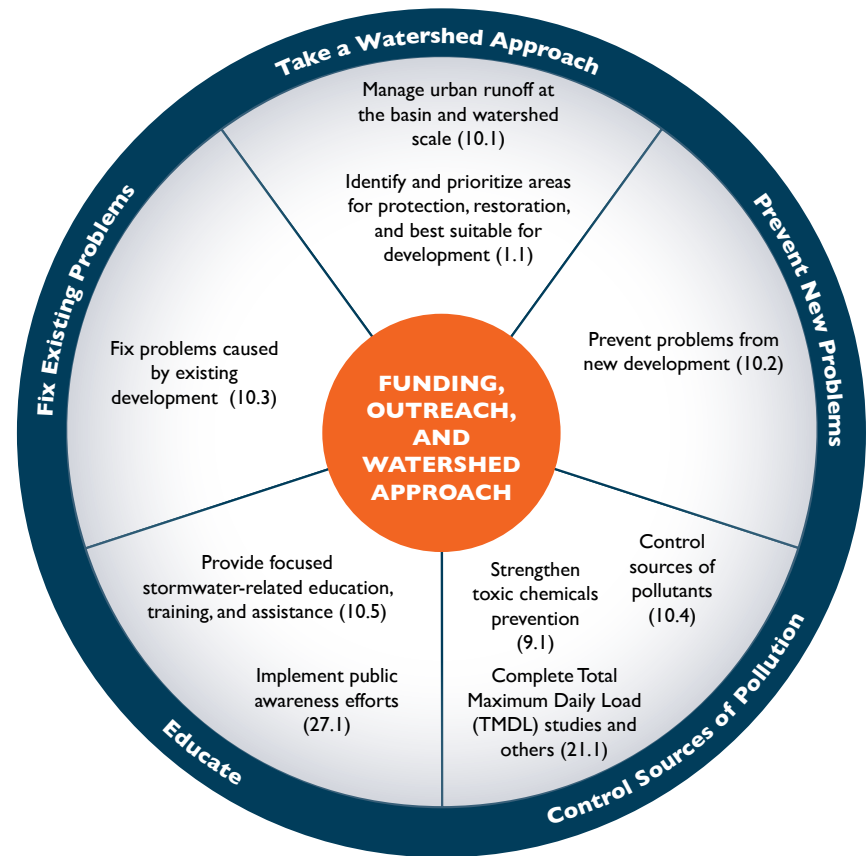


## WHAT SUB-STRATEGIES ARE ALIGNED TO THE STORMWATER STRATEGIC INITIATIVE?

Stormwater runoff affects chemical, hydrological, and biological processes of receiving waters. Stormwater runoff in many streams that drain into Puget Sound causes pollution, habitat degradation, and altered flow regimes, thus degrading both the quality and quantity of water and threatening biological species and communities. The strategies and actions for the Stormwater Strategic Initiative are organized into five actions: take a watershed approach to management, prevent new problems, fix existing problems, control sources of pollution, and educate (Figure 3-2).

- **Take a watershed approach to management.** Runoff cannot be fully managed at the site or parcel scale—runoff must be managed at the broader basin and watershed scales. Local land-use decisions directly affect runoff quantity and quality in watersheds.
- **Control sources of pollution.** The implementation of National Pollutant Discharge Elimination System (NPDES) permits, which control water pollution by regulating point sources (industrial, wastewater, and stormwater), is considered one of several cost-effective ways to control and prevent polluted stormwater from reaching Puget Sound. With an increase in annual investment, local governments could implement even more means of controlling pollution, but they need financial help from the state and federal governments to reflect the shared responsibility of recovering Puget Sound.
- **Fix existing problems.** To seek capital retrofit funds, we need more detailed and comprehensive information about the highest-priority existing problems, conceptual designs, and project-specific cost estimates.

**FIGURE 3-2.** SUB-STRATEGIES INCLUDED IN THE STORMWATER STRATEGIC INITIATIVE



- **Prevent new problems.** The most cost-effective way to keep pollutants from getting into Puget Sound is to keep them from being introduced into the environment in the first place. Taking proactive steps now to prevent toxics at their source and to control stormwater runoff will help reduce the risk of damage to infrastructure, and it will safeguard fish, wildlife, and habitats.
- **Educate.** We need to continue to educate and engage individuals and communities in reducing impacts from stormwater. In addition, we must help stormwater managers at the local level learn to implement low-impact stormwater management measures and ensure that we have an educated workforce with the tools to eliminate the threat to Puget Sound from polluted stormwater runoff.

### WHAT ARE THE REGIONAL PRIORITIES AND ONGOING PROGRAMS FOR STORMWATER?

The specific sub-strategies supporting the Stormwater Strategic Initiative are summarized in Table 3-1. Table 3-1 is organized according to sub-strategy identification number; sub-strategies and ongoing programs have not been ranked or prioritized. Regional priorities and ongoing programs are identified for each aligned sub-strategy and summarized. The sub-strategies that support all three Strategic Initiatives are identified in [Appendix B, Cross-Cutting Sub-Strategies](#), and are not listed in the subsequent sections of this chapter. Additional information about ongoing programs, including funding status, will be available in the [Puget Sound Recovery Atlas](#).

**TABLE 3-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE STORMWATER STRATEGIC INITIATIVE

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>1.1</b>	Identify and prioritize areas for protection, restoration, and best suitable for low-impact development.	<ul style="list-style-type: none"> <li>Natural Heritage Program for Priority Species and Ecosystems—Department of Natural Resources</li> <li>Puget Sound Watershed Characterization Assessment—Department of Ecology (lead), Department of Fish and Wildlife, Puget Sound Partnership</li> <li>Puget Sound Salmon Recovery Plan—National Marine Fisheries Service</li> <li>Watershed Survey and Planning—Natural Resources Conservation Service</li> <li>Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removal of invasive species, planting native vegetation, and restoring creeks and streams—Local governments</li> <li>Small Communities Initiative—Department of Commerce</li> <li>Growth Management Services—Department of Commerce</li> <li>Ongoing Stream Typing—Department of Natural Resources</li> <li>Priority Habitats and Species database—Department of Natural Resources</li> <li>Watershed Plan Implementation and Flow Achievement Capital Grant Program—Department of Ecology</li> </ul>	<p><b>1.1-1:</b> Geographic Information System (GIS) mapping of areas appropriate for protection, restoration, and low impact development.</p> <p><b>1.1-2:</b> Produce watershed characterization assessments.</p> <p><b>1.1-3:</b> Improve regional base maps, such as stream layers, catchment boundaries, or stream typing.</p>
<b>9.1</b>	Implement and strengthen authorities and programs to prevent toxic chemicals from entering the Puget Sound environment.	<ul style="list-style-type: none"> <li>Hazardous Waste and Toxic Reduction Program, Local Source Control Program, Dangerous Waste and Pollution Prevention Plan (Pollution Prevention)—Department of Ecology (lead), 25 other local jurisdictions</li> </ul>	<p><b>9.1-1:</b> Create and implement chemical action plans.</p> <p><b>9.1-2:</b> Promote green chemistry and other alternative assessments to address toxics.</p> <p><b>9.1-3:</b> Develop tools, studies, or information to more effectively implement stormwater permits.</p> <p><b>9.1-4:</b> Research emerging contaminants.</p>



**TABLE 3-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE STORMWATER STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>10.1</b>	Manage urban runoff at the basin and watershed scale.	<ul style="list-style-type: none"> <li>Puget Sound Watershed Characterization Assessment—Ecology (lead), Washington Department of Fish and Wildlife, Puget Sound Partnership</li> </ul>	<p><b>10.1-1:</b> Undertake basin and watershed planning that integrates land use planning and stormwater management.</p> <p><b>10.1-2:</b> Undertake capital planning on catchment or watershed basis.</p> <p><b>10.1-3:</b> Develop and implement approaches that regionalize operational and pollution reduction efforts and activities.</p>
<b>10.2</b>	Prevent problems from new development at the site and subdivision scale.	<ul style="list-style-type: none"> <li>NPDES Permit Program—Department of Ecology (State lead), U.S. Environmental Protection Agency</li> <li>NPDES Permit Program (Phase II Municipal)—Department of Ecology</li> <li>Growth Management Services—Department of Commerce</li> <li>Low Impact Development Program—Washington State University Extension</li> </ul>	No regional priorities specified for Sub-strategy 10.2 at this time.
<b>10.3</b>	Fix problems caused by existing development.	<ul style="list-style-type: none"> <li>Stormwater Programs (NPDES Phase I and II implementation)—Municipal stormwater discharge permit holders - Cities and Counties</li> <li>Growth Management Services—Department of Commerce</li> <li>Northwest Straits Initiative— Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>	<p><b>10.3-1:</b> Prioritize where retrofits occur.</p> <p><b>10.3-2:</b> Provide infrastructure and incentives to accommodate re-development within designated urban centers in urban growth areas.</p> <p><b>10.3-3:</b> Assess the maintenance needs and life-cycle strategies for existing stormwater infrastructure, and prioritize infrastructure replacement needs.</p> <p><b>10.3-4:</b> Research, create, and/or implement innovative approaches to promote retrofit programs on private property.</p> <p><b>10.3-5:</b> Research, study, and/or pilot legacy pollutant removal programs with intent of filling data gaps.</p>

**TABLE 3-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE STORMWATER STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>10.4</b>	Control sources of pollutants.	<ul style="list-style-type: none"> <li>Pumpout Washington—Washington Sea Grant, Washington State Parks and Recreation Commission</li> <li>Small Oil Spills Program—Washington Sea Grant</li> </ul>	<p><b>10.4-1:</b> Promote source control and technical assistance programs at the local level.</p> <p><b>10.4-2:</b> Reduce pollutants from onsite sewage system sources, agriculture operations, and/or toxics from residential and commercial uses.</p> <p><b>10.4-3:</b> Promote enforcement and compliance related to pollution source control.</p>
<b>10.5</b>	Provide focused stormwater-related education, training, and assistance.	<ul style="list-style-type: none"> <li>Technical Assistance and Homeowner Support to Improve Local Water Quality—Washington Sea Grant</li> <li>Whatcom Watershed Information Network—Washington State University Extension, Washington Sea Grant</li> <li>Stormwater Education Programs—Multiple: Ecology (lead), Puget Sound Partnership, Washington State University Extension, nongovernmental organizations</li> </ul>	<p><b>10.5-1:</b> Design, develop, and implement innovative stormwater education programs that target residents and businesses.</p> <p><b>10.5-2:</b> Promote stormwater education programs that are designed to be replicated across Puget Sound.</p>
<b>21.1</b>	Complete total maximum daily load (TMDL) studies and other necessary water cleanup plans for Puget Sound to set pollution discharge limits and determine response strategies to address water quality impairments.	<ul style="list-style-type: none"> <li>Water Quality Programs, Water Quality Assessment and Water Quality Improvement Program—Department of Ecology (lead), U.S. Environmental Protection Agency</li> </ul>	No regional priorities specified for Sub-strategy 21.1 at this time.



**TABLE 3-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE STORMWATER STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>27.1</b>	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.	<ul style="list-style-type: none"> <li>• Puget Sound Starts Here—Multiple: federal, state and local governments, tribes and nongovernmental organizations, Puget Sound Partnership, Department of Ecology, STORM coalition</li> <li>• Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>	<b>27.1-1:</b> Promote and enhance the Puget Sound Starts Here program and take it to the next level.

## WHAT ARE THE GAPS AND BARRIERS?

The Stormwater Strategic Initiative Transition Team identified the followings gaps and barriers for the Stormwater Strategic Initiative. The following gaps and recommendations should be addressed during implementation of the *2016 Action Agenda*.

### GAPS

- Actions that address land use planning and management policies, specifically to encourage compact development in urban centers.
- Actions that address hydrology and land cover issues.
- Actions toward developing common data tools for data beyond geographic information systems (GIS).
- Enhanced coordination and dissemination of best practices across the region.
- Coordination between regulatory mechanisms that drive stormwater management (Clean Water Act) and land use management (Growth Management Act).
- Connection between municipal permitting agencies and the regional planning process for permitting.
- Geographically comprehensive planning efforts.

### BARRIERS

- Capacity for regional permit effectiveness monitoring and research.
- Sustainable funding for ongoing programs.
- Political will for regulatory actions and change.

**PROTECT AND  
RESTORE HABITAT**

STRATEGIC INITIATIVE

**CHAPTER 4**

## HABITAT STRATEGIC INITIATIVE:

## PROTECT AND RESTORE HABITAT

This chapter presents the Habitat Strategic Initiative. It describes the Vital Signs related to challenges facing habitat and the aligned sub-strategies. It then presents the regional priorities, ongoing programs, gaps, and recommendations for the Habitat Strategic Initiative. The Strategic Initiative Leads for the Habitat Strategic Initiative are the Washington State Departments of Fish and Wildlife and Natural Resources.

Throughout this chapter, the tables show links and associations that reflect primary relationships. Many of the Near Term Actions included in this Strategic Initiative contribute to achieving objectives of multiple sub-strategies, in addition to the primary sub-strategy provided.

## WHAT VITAL SIGNS ARE LINKED TO HABITAT?

The Habitat Strategic Initiative contributes to achieving the recovery targets for the Vital Signs listed below and shown in Figure 4-1.

- Shellfish beds
- Swimming beaches (Outdoor Activities)
- Chinook salmon
- Orcas
- Pacific herring
- Birds
- Shoreline armoring
- Eelgrass
- Land development and cover
- Floodplains
- Estuaries
- Summer stream flows
- Marine sediment quality
- Toxics in fish

Note: Updated Human Quality of Life and many Healthy Human Population Vital Signs have not been aligned to the Strategic Initiatives.

FIGURE 4-1. VITAL SIGNS RELATED TO THE HABITAT STRATEGIC INITIATIVE



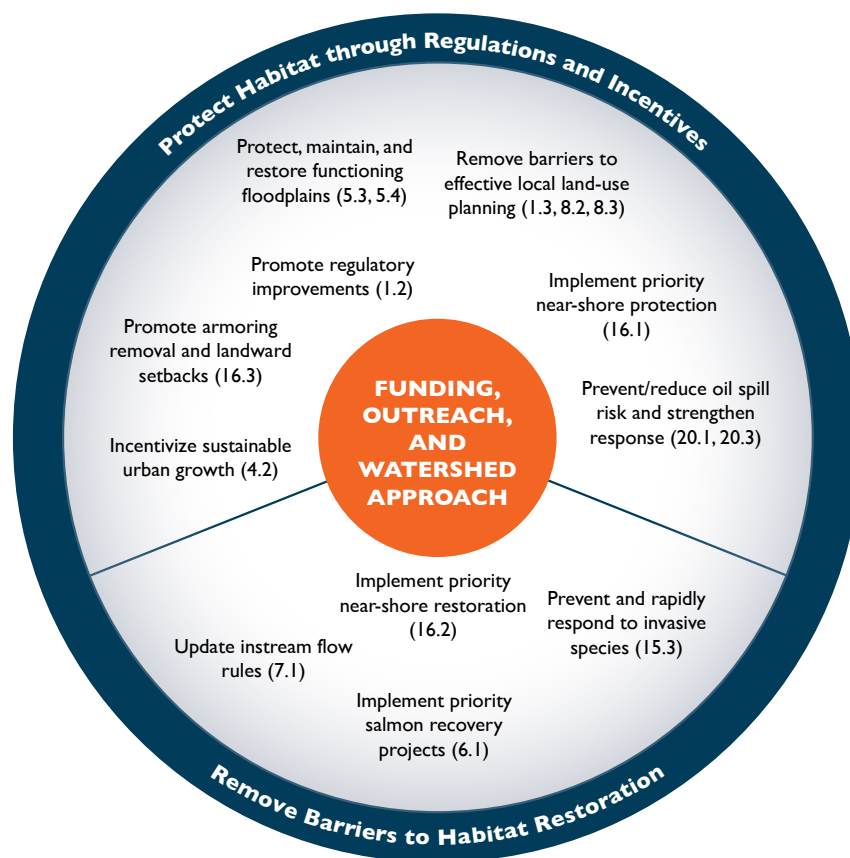
## WHAT SUB-STRATEGIES ARE ALIGNED TO THE HABITAT STRATEGIC INITIATIVE?

The strategies and actions for this Strategic Initiative are organized into two themes: protect habitat through regulations and incentives (including acquisition), and remove barriers to habitat restoration (Figure 4-2).

- **Protect habitat through regulations and incentives.**

We must first stop the further loss of habitat; this is critical to salmon recovery efforts and protecting tribal treaty rights. There is no net benefit to repairing habitat damage through restoration if we allow the continued loss of habitat. Lack of public support for the regulatory changes needed to protect habitat and for enforcement of existing regulations is one challenge. Another is inadequate interest in and availability of voluntary incentive programs. These challenges have hindered previous attempts to strengthen protective regulations and to work with landowners on a voluntary basis. Regulations alone are not effective, just as incentives without regulations will not lead to sufficient habitat protection—regulations and incentives must go hand-in-hand for successful habitat protection. The Habitat Strategic Initiative brings forward strategies and actions to increase regulatory protections for habitat and provide greater incentives for landowners to protect valuable habitat.

**FIGURE 4-2.** SUB-STRATEGIES INCLUDED IN THE HABITAT STRATEGIC INITIATIVE



- **Remove barriers to habitat restoration.** Without restoring critical habitat, we will not be able to reverse the declines in salmon and other Puget Sound species. We must work to remove the following barriers to habitat restoration:
  - Lack of funding for the large-scale, more expensive projects that are necessary to restore the whole Puget Sound ecosystem.
  - Lack of local community support and landowner willingness.
  - Inadequate stream flows.

### WHAT ARE THE REGIONAL PRIORITIES AND ONGOING PROGRAMS FOR HABITAT?

The specific sub-strategies supporting the Habitat Strategic Initiative are summarized in Table 4-1. Regional priorities and ongoing programs are identified for each aligned sub-strategy and summarized. Table 4-1 is organized according to sub-strategy identification number; sub-strategies and ongoing programs have not been ranked or prioritized. The sub-strategies that support all three Strategic Initiatives are identified in [Appendix B, Cross-Cutting Sub-Strategies](#), and are not listed in the subsequent sections of this chapter. Additional information about ongoing programs, including funding status, will be available in the [Puget Sound Recovery Atlas](#).



**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>1.2</b>	Support local governments to adopt and implement plans, regulations, and policies consistent with protection and recovery targets, and incorporate climate change forecasts.	<ul style="list-style-type: none"> <li>Watershed Plan Implementation Grant Program—Department of Ecology</li> <li>Watershed and Flood Prevention Operations Program—Natural Resources Conservation Service</li> <li>Watershed Planning Program—Department of Ecology</li> <li>Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removal of invasive species, planting native vegetation, and restoring creeks and streams—Local governments</li> <li>Small Communities Initiative—Department of Commerce</li> <li>Growth Management Services—Department of Commerce</li> <li>Watershed Plan Implementation and Achievement Capital Grant Program—Department of Ecology</li> <li>Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> <li>Steelhead Recovery Planning coordination and support—Puget Sound Salmon Recovery Council</li> </ul>	<p><b>1.2-1:</b> Implementation of actions from existing strategic plans that address ecosystem pressures (sources and stressors) from land development, shoreline infrastructure, roads, and estuarine/freshwater structural barriers.</p> <p><b>1.2-2:</b> Focus on protection and restoration of areas in and surrounded by lower intensity land uses, including agriculture.</p> <p><b>1.2-3:</b> Address critical information gaps important for the current implementation of Comprehensive Plans, Critical Areas Ordinances, and Shoreline Master Programs, as well as their next round of updates.</p> <p><b>1.2-4:</b> Conduct climate change vulnerability analysis, including identifying areas resilient to climate change, as well as to integrate land use, protection, and restoration priorities.</p> <p><b>1.2-5:</b> Update plans, regulations, and policies for resiliency to climate change based on existing vulnerability analyses.</p> <p><b>1.2-6:</b> Protect and restore marine (estuary or nearshore) and freshwater riparian areas and floodplains, particularly large or contiguous areas.</p> <p><b>1.2-7:</b> Address local capacity to support large estuary restoration efforts.</p>



**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>I.3</b>	Improve, strengthen, and streamline implementation and enforcement of laws, plans, regulations, and permits consistent with protection and recovery targets.	<ul style="list-style-type: none"> <li>• Enforcement of interruptible water rights—Department of Ecology</li> <li>• Water right metering program—Department of Ecology</li> <li>• Water right permitting program—Department of Ecology</li> <li>• Enforcement against illegal water use—Department of Ecology</li> <li>• Implement Skagit Basin Instream Flow Rule—Department of Ecology</li> <li>• Watershed Plan Implementation and Flow Achievement Capital Grant Program—Department of Ecology</li> <li>• Chinook Salmon Recovery Plan Monitoring and Adaptive Management, updates and implementation—Puget Sound Recovery Council</li> <li>• Growth Management Services—Department of Commerce</li> </ul>	<p><b>I.3-1:</b> Protect and conserve ecologically important lands at risk of conversion to a more intensive use (such as transfer of development rights; land conservation and local improvement program).</p> <p><b>I.3-2:</b> Ensure fully functional, long-term, effective compensatory mitigation, including adequate maintenance and monitoring, for impacts that cannot be avoided. Example Near Term Actions might address science, monitoring, and capacity to implement programs.</p> <p><b>I.3-3:</b> Promote protection and restoration of marine/freshwater riparian corridors, especially priority areas identified in existing plans.</p> <p><b>I.3-4:</b> Improve compliance with water quality standards on state and privately owned forests and agricultural lands.</p> <p><b>I.3-5:</b> Improve programs to ensure that current and future culverts meet or exceed fish passage standards.</p> <p><b>I.3-6:</b> Improve compliance with existing environmental laws by ensuring adequate resources for the enforcement of existing laws and assessing implementation (permitting and enforcement) and outcome effectiveness of existing laws and regulatory programs.</p> <p><b>I.3-7:</b> Streamline permitting for habitat restoration projects to improve speed and reduce costs of the permitting process while maintaining regulatory standards.</p>

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>2.2</b>	Implement and maintain priority freshwater and terrestrial restoration projects.	<ul style="list-style-type: none"> <li>• Fish passage barrier removal/Forest and Fish Landscape Prioritization—I5 salmon recovery Lead Entities</li> <li>• Watershed Assessments—I5 salmon recovery Lead Entities</li> <li>• Salmon Recovery 3-year work plans—I5 salmon recovery Lead Entities</li> <li>• Family Forest Fish Passage Program—Department of Natural Resources</li> <li>• Community-based Restoration Program—National Oceanic and Atmospheric Administration</li> <li>• Flood hazard management plans—Department of Ecology(lead) and 12 Counties</li> <li>• Road decommissioning plans—Department of Natural Resources</li> <li>• Estuary and Salmon Restoration Program—Department of Fish and Wildlife (lead), Recreation and Conservation Office</li> <li>• Cooperative Endangered Species Conservation Fund—U.S. Fish and Wildlife Service</li> <li>• Puget Sound Acquisition and Restoration—Puget Sound Partnership, Recreation and Conservation Office</li> </ul>	<p><b>2.2-1:</b> Improve data and information to prioritize and accelerate riparian restoration and protection.</p> <p><b>2.2-2:</b> Implement restoration of riparian areas.</p> <p><b>2.2-3:</b> Improve data and information to prioritize and accelerate removal of structural barriers.</p> <p><b>2.2-4:</b> Implement prioritized structural barrier removals.</p>
<b>4.2</b>	Provide infrastructure and incentives to accommodate new and redevelopment within urban growth areas.	<ul style="list-style-type: none"> <li>• Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removal of invasive species, planting native vegetation, and restoring creeks and streams—Local governments</li> <li>• Small Communities Initiative—Department of Commerce</li> <li>• Growth Management Services—Department of Commerce</li> </ul>	No regional priorities for Sub-strategy 4.2 are identified at this time.

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>5.3</b>	Protect and maintain intact and functional floodplains.	<ul style="list-style-type: none"> <li>Regional levee-based vegetation standards—U.S. Army Corps of engineers (Seattle District-lead), Puget Sound Partnership, local levee owners</li> <li>Environmental Quality Incentives Program—Natural Resources Conservation Service</li> <li>Purchase of development rights from working forest and farm landowners for lands at risk of conversion in key Puget Sound watersheds—Department of Natural Resources, Department of Fish and Wildlife, and other state agencies, tribes, local governments, and non-governmental entities</li> <li>Federal Emergency Management Agency Flood Insurance Program, Flood Plain Management Biological Opinion Implementation—FEMA (lead), National Oceanic and Atmospheric Administration, local cities and counties</li> <li>Land and Water Conservation Fund—Recreation and Conservation Office</li> </ul>	<p><b>5.3-1:</b> Focus on rural and agricultural landscapes with opportunities to protect and provide access to priority habitat for threatened and endangered species such as Chinook salmon, steelhead, and summer chum salmon.</p> <p><b>5.3-2:</b> Improve data and information (such as floodplain mapping, inundation, channel migration zone, historic habitat analysis) to accelerate floodplain protection, restoration, and flood hazard management. Relates to land use activities and potential impacts on floodplain habitat processes.</p> <p><b>5.3-3:</b> Identify key areas for acquisitions, easements, or other similar actions.</p> <p><b>5.3-4:</b> Align policies, regulations, planning, and agency coordination to support multi-benefit floodplain management, incorporating climate change forecasts.</p> <p><b>5.3-5:</b> Investigate opportunities to acquire exceptional habitat at above-market value.</p>
<b>5.4</b>	Implement and maintain priority floodplain restoration projects.	<ul style="list-style-type: none"> <li>Agricultural Conservation Easement Program—Natural Resources Conservation Service</li> <li>Snohomish Sustainable Lands Strategy—Snohomish County</li> <li>Skagit Tidegate Initiative—Western Washington Agricultural Association (lead), Department of Fish and Wildlife</li> <li>Land and Water Conservation Fund—Recreation and Conservation Office</li> <li>Aquatic Lands Enhancement Account Program—Recreation and Conservation Office</li> </ul>	<p><b>5.4-1:</b> Focus on rural and agricultural landscapes with opportunities for priority habitat for threatened and endangered species such as Chinook salmon, steelhead, and summer chum salmon.</p> <p><b>5.4-2:</b> Improve data and information (such as floodplain mapping, inundation, channel migration zone, historic habitat analysis) to accelerate floodplain protection, restoration and flood hazard management.</p> <p><b>5.4-3:</b> Align policies, regulations, planning, and agency coordination to support multiple-benefit floodplain management, incorporating climate change forecasts.</p> <p><b>5.4-4:</b> Identify key areas for acquisitions, easements or other similar actions.</p>
<b>6.1</b>	Implement high-priority projects identified in each salmon recovery watershed's 4-year work plan.	<ul style="list-style-type: none"> <li>Salmon Recovery 3-year work plan—I5 salmon recovery Lead Entities</li> </ul>	Actions associated with this sub-strategy should implement one or more of the priorities identified in the other sub-strategies.

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>7.1</b>	Update Puget Sound instream flow rules to encourage conservation.	<ul style="list-style-type: none"> <li>Watershed Planning Program—Department of Ecology</li> </ul>	No regional priorities for Sub-strategy 7.1 are identified at this time.
<b>8.2</b>	Support local governments to adopt and implement plans, regulations, and policies that protect the marine nearshore and estuaries, and incorporate climate change forecasts.	<ul style="list-style-type: none"> <li>State of Washington Aquatic Habitat Guidelines program—Department of Fish and Wildlife (lead), Department of Natural Resources</li> <li>Washington Sea Grant Competitive Research-Healthy Coastal Ecosystems—Washington Sea Grant</li> <li>Coastal Hazards Resilience Program—Washington Sea Grant</li> <li>King Tides—Washington Sea Grant, Department of Ecology</li> <li>Shoreline and Coastal Planners Group—Washington Sea Grant, Department of Ecology</li> <li>Steelhead Recovery Planning coordination and support—Puget Sound Salmon Recovery Council</li> <li>Marine Survival of Steelhead (and Chinook other species) Research Program—Puget Sound Salmon Recovery Council</li> </ul>	<p><b>8.2-1:</b> Implement actions from existing strategic plans that address ecosystem pressures (sources and stressors) from land development, shoreline infrastructure, roads, and estuarine/freshwater structural barriers.</p> <p><b>8.2-2:</b> Focus on protection and restoration of areas in and surrounded by lower-intensity land uses, including agriculture.</p> <p><b>8.2-3:</b> Address critical information gaps important for the current implementation of comprehensive plans, critical areas ordinances, and shoreline master programs as well as their next round of updates. Conduct an analysis of climate change vulnerability, including identifying areas resilient to climate change. Integrate land use, protection, and restoration priorities.</p> <p><b>8.2-4:</b> Conduct climate change vulnerability analysis, including identifying areas resilient to climate change, as well as to integrate land use, protection, and restoration priorities.</p> <p><b>8.2-5:</b> Update plans, regulations, and policies for resiliency to climate change based on existing vulnerability analyses.</p> <p><b>8.2-6:</b> Protect and restore marine (estuary or nearshore) and freshwater riparian areas and floodplains, particularly large or contiguous areas.</p> <p><b>8.2-7:</b> Address local capacity to support large estuary restoration efforts.</p>

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>8.3</b>	Improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect the marine and nearshore ecosystems and estuaries.	<ul style="list-style-type: none"> <li>Hydraulic Project Approval Program—Department of Fish and Wildlife</li> <li>Chinook Salmon Recovery Plan Monitoring and Adaptive Management, Updates and Implementation—Puget Sound Salmon Recovery Council</li> <li>Marine Resources Committees—Local Organizations</li> </ul>	<p><b>8.3-1:</b> Protect and conserve ecologically important lands at risk of conversion to a more intensive use (such as transfer of development rights; land conservation and local improvement program).</p> <p><b>8.3-2:</b> Ensure fully functional, long-term, effective compensatory mitigation, including adequate maintenance and monitoring, for impacts that cannot be avoided. Example Near Term Actions might address science, monitoring, and capacity to implement programs.</p> <p><b>8.3-3:</b> Promote protection and restoration of marine and freshwater riparian corridors, especially priority areas identified in existing plans.</p> <p><b>8.3-4:</b> Improve compliance with water quality standards on state and privately owned forests and agricultural lands.</p> <p><b>8.3-5:</b> Improve programs to ensure that current and future culverts meet or exceed fish passage standards.</p> <p><b>8.3-6:</b> Improve compliance with existing environmental laws by ensuring adequate resources for enforcing existing laws and assessing the implementation (permitting and enforcement) and outcome effectiveness of existing laws and regulatory programs.</p> <p><b>8.3-7:</b> Streamline permitting for habitat restoration projects to improve speed and reduce costs of the permitting process while maintaining regulatory standards.</p>
<b>15.3</b>	Prevent and rapidly respond to the introduction and spread of terrestrial and aquatic invasive species.	<ul style="list-style-type: none"> <li>Crab Team: Green Crab Monitoring Program—Washington Sea Grant</li> <li>Ballast Water Management programs—Department of Fish and Wildlife</li> <li>Basin-wide detection and rapid response efforts—Department of Agriculture (lead), Department of Fish and Wildlife</li> <li>Aquatic Invasive Species Prevention and Enforcement—Department of Fish and Wildlife</li> </ul>	Sub-strategy 15.3 is a regional priority only when supporting the implementation of another restoration or protection action.

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>16.1</b>	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.	<ul style="list-style-type: none"> <li>• Aquatic Leasing Program—Department of Natural Resources</li> <li>• Habitat and Recreation Lands Coordinating Group—Recreation and Conservation Office</li> <li>• Shoreline management programs—Local Governments</li> <li>• Small Communities Initiative—Department of Commerce</li> <li>• Dredged Material Management Program— Department of Natural Resources</li> <li>• Cooperative Endangered Species Conservation Fund—U.S. Fish and Wildlife Service</li> <li>• Puget Sound Acquisition and Restoration—Puget Sound Partnership, Recreation and Conservation Office</li> <li>• Aquatic Lands Enhancement Account Program—Recreation and Conservation Office</li> </ul>	<p><b>16.1-1:</b> Implement a landscape-level strategy (such as drift cell, watershed) that integrates protection, restoration, and enhancement opportunities.</p> <p><b>16.1-2:</b> Conserve relatively intact shorelines that currently provide high-value ecosystem services (such as large sites with low levels of degradation).</p> <p><b>16.1-3:</b> Improve data, planning, and stakeholder coordination important to inform landscape level (such as drift cell) strategy development and implementation.</p> <p><b>16.1-4:</b> Achieve multiple benefits, including resilience and adaptation to climate change.</p>

**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>16.2</b>	Implement prioritized nearshore and estuary restoration projects and accelerate projects on public lands.	<ul style="list-style-type: none"> <li>• Aquatic Resources Program—Department of Natural Resources</li> <li>• Creosote Removal Program—Department of Natural Resources</li> <li>• Dredged Material Management Program—Department of Natural Resources</li> <li>• Puget Sound Corps—Department of Natural Resources (lead), Department of Ecology, Department of Fish and Wildlife, Department of Veterans Affairs, State Parks Department</li> <li>• Northwest Straits Initiative—Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> <li>• Shoreline management programs—local governments</li> <li>• Cooperative Endangered Species Conservation Fund—U.S. Fish and Wildlife Service</li> <li>• Puget Sound Acquisition and Restoration—Puget Sound Partnership, Recreation and Conservation Office</li> <li>• Aquatic Lands Enhancement Account program—Recreation and Conservation Office</li> <li>• Marine Survival of Steelhead (and other Chinook species) Research Program—Puget Sound Salmon Recovery Council</li> <li>• Puget Sound Nearshore Ecosystem Restoration Project—U.S. Army Corps of Engineers &amp; Washington Department of Fish and Wildlife</li> <li>• Skokomish River Basin Ecosystem Restoration Project—U.S. Army Corps of Engineers</li> <li>• Continuing Authorities Program: Section 206 (Aquatic Ecosystem Restoration) and 1135 (Project Modifications for Improvement of the Environment)—U.S. Army Corps of Engineers</li> <li>• Puget Sound and Adjacent Waters Authority Program—U.S. Army Corps of Engineers</li> </ul>	<p><b>16.2-1:</b> Restore and enhance regionally lost (such as big river estuaries) or declining nearshore habitats (such as eelgrass) and provide for connectivity, as well as self-sustaining and resilient ecosystem services.</p> <p><b>16.2-2:</b> Implement a landscape-level strategy (such as drift cell, watershed) that integrates protection, restoration, and enhancement opportunities.</p> <p><b>16.2-3:</b> Undertake multiple-benefit actions that promote collaboration between diverse stakeholders (such as delta restoration and agricultural communities).</p> <p><b>16.2-4:</b> Enhance ecosystem resilience to climate change (such as sea level rise and ocean acidification).</p> <p><b>16.2-5:</b> Investigate opportunities to acquire exceptional habitat at above-market value.</p>



**TABLE 4-1.** SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE HABITAT STRATEGIC INITIATIVE, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)	ID NUMBER: REGIONAL PRIORITIES
<b>16.3</b>	Remove armoring and use soft armoring replacement or landward setbacks when armoring fails, needs repair, is nonprotective, and during redevelopment.	<ul style="list-style-type: none"> <li>• Puget Sound Watershed Management Assistance Program—U.S. Environmental Protection Agency</li> <li>• Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> <li>• Green Shores for Homes—San Juan County, City of Seattle (lead), Sea Grant</li> <li>• Shoreline management programs—Local governments</li> <li>• Small Communities Initiative—Department of Commerce</li> <li>• Marine Survival of Steelhead (and Chinook other species) Research Program—Puget Sound Salmon Recovery Council</li> </ul>	<p><b>16.3-1:</b> Build on or implement recommendations from previous studies, including the Marine Shoreline Design Guidelines, Puget Sound Nearshore Ecosystem Restoration Program, Social Marketing Strategy to Reduce Armoring Behavior on Puget Sound, and the Integrated Nearshore Priorities Tool.</p> <p><b>16.3-2:</b> Implement actions that reflect a landscape-level strategy (such as drift cell) that integrates protection, restoration, and enhancement opportunities to maximize ecological function.</p> <p><b>16.3-3:</b> Implement actions that focus on ecologically important feeder bluffs or private residential properties that will serve as regional examples to influence regional shoreline landowner behavior.</p> <p><b>16.3-4:</b> Target geographical areas where larger-scale restoration is feasible (either individually or cumulatively) and can yield measurable benefits to ecosystem process, structure, and function.</p> <p><b>16.3-5:</b> Use innovative approaches to incentivize armor avoidance and soft shore protection techniques that help expand regional implementation.</p>
<b>20.1</b>	Prevent and reduce the risk of oil spills.	<ul style="list-style-type: none"> <li>• Small Oil Spills Program—Washington Sea Grant</li> <li>• Regional Oil Spill Planning—Department of Ecology (lead), Puget Sound Partnership, U.S. Environmental Protection Agency, Pacific State/British Columbia Oil Spill Task Force, Puget Sound Harbor Safety Committee</li> </ul>	<b>20.1-1:</b> Promote and coordinate the proactive use of maritime risk assessments.
<b>20.3</b>	Respond to spills and seek restoration using the best available science and technology.	<ul style="list-style-type: none"> <li>• Spills Program—Department of Ecology</li> </ul>	No regional priorities for Sub-strategy 20.3 are identified at this time.

## WHAT ARE THE GAPS AND BARRIERS?

The Habitat Strategic Initiative Transition Team identified the following gaps and barriers for the Habitat Strategic Initiative. The following gaps and recommendations should be addressed during implementation of the 2016 *Action Agenda*.

### GAPS

- Science and research to support critical decisionmaking.
- Adequate tools and approaches to prioritize planning efforts.
- Geographically comprehensive planning efforts.
- Effective coordination across agencies and jurisdictions.
- Increased enforcement of and accountability for instream flow rules.
- Lack of widespread use of soft shoreline armoring techniques (not used by the U.S. Army Corps of Engineers).

### BARRIERS

- Sustainable funding for ongoing programs.
- Political resistance to restoring floodplain function.
- Political will to implement existing land use rules, take regulatory actions, and make regulatory changes.

**PROTECT AND  
RECOVER  
SHELLFISH BEDS**

STRATEGIC INITIATIVE

**CHAPTER 5****SHELLFISH STRATEGIC INITIATIVE: PROTECT  
AND RECOVER SHELLFISH BEDS**

This chapter presents the Shellfish Strategic Initiative. It describes the Vital Signs related to the challenges facing shellfish and the aligned sub-strategies. It then presents the regional priorities, ongoing programs, gaps, and recommendations for the Shellfish Strategic Initiative. The Strategic Initiative Lead for this Shellfish Strategic Initiative is the Washington State Department of Health. The Washington State Departments of Agriculture and Ecology are partner agencies.

Throughout this chapter, the tables show links and associations that reflect primary relationships. Many of the Near Term Actions included in this Strategic Initiative contribute to achieving objectives of multiple sub-strategies, in addition to the primary sub-strategy provided.

## WHAT VITAL SIGNS ARE LINKED TO SHELLFISH?

The Shellfish Strategic Initiative contributes to achieving the recovery targets for the Vital Signs listed below and shown in Figure 5-1.

- Onsite sewage
- Shellfish beds
- Swimming beaches (Outdoor Activities)
- Chinook salmon
- Orcas
- Pacific herring
- Birds
- Land development and cover
- Marine water quality
- Freshwater quality
- Marine sediment quality
- Toxics in fish

Note: Updated Human Quality of Life and many Healthy Human Population Vital Signs have not been aligned to the Strategic Initiatives.

**FIGURE 5-1.** VITAL SIGNS RELATED TO THE SHELLFISH STRATEGIC INITIATIVE



## WHAT SUB-STRATEGIES ARE ALIGNED TO THE SHELLFISH STRATEGIC INITIATIVE?

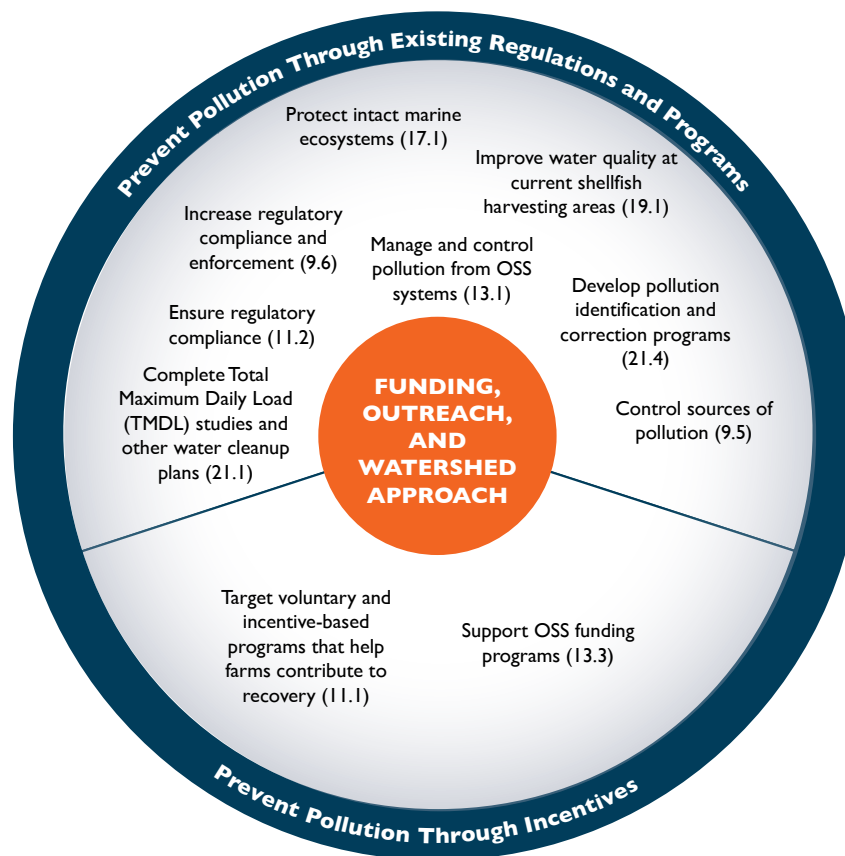
The sub-strategies and actions for this Strategic Initiative are organized into two themes: prevent pollution through existing regulations and programs, and prevent pollution through incentives (Figure 5-2).

- **Prevent pollution through existing regulations and programs.** Many existing regulations and programs are in place to prevent pollution. These sub-strategies focus on increasing enforcement of and compliance with regulations and programs and furthering their implementation.
- **Prevent pollution through incentives.** Regulations alone are not effective, just as incentives without regulations will not lead to shellfish restoration—regulations and incentives must go hand-in-hand to be successful. Incentives are intended to encourage and assist homeowners and agricultural users to prevent pollution on and from their properties.

The Shellfish Strategic Initiative Workgroup recommended that the sub-strategies associated with the updated Shellfish Strategic Initiative be divided into two tiers. The Tier 1 water quality sub-strategies correspond with Goal 1 of the Washington Shellfish Initiative and Tier 2 sub-strategies correspond with Goals 2 through 7 of the Washington Shellfish Initiative.<sup>3</sup> Funding will be directed mainly to Tier 1 sub-strategies. The Shellfish Strategic Initiative will focus on priority fecal pollution sources such as onsite sewage systems, farm animal wastes, and boater discharges.

<sup>3</sup>The Washington Shellfish Initiative is a partnership between state and federal governments, Tribes, the shellfish aquaculture industry, and non-government entities to promote critical clean-water commerce, elevate the role that shellfish play in keeping our marine waters healthy, and create family wage jobs.

**FIGURE 5-2.** SUB-STRATEGIES INCLUDED IN THE SHELLFISH STRATEGIC INITIATIVE



Washington Shellfish Initiative. [Available here](#)

Washington Governor Jay Inslee. 2016

## WHAT ARE THE REGIONAL PRIORITIES AND ONGOING PROGRAMS FOR SHELLFISH?

The specific sub-strategies supporting the Shellfish Strategic Initiative are summarized in Table 5-1 (Tier 1) and Table 5-2 (Tier 2). Tables 5-1 and 5-2 are organized according to sub-strategy identification number; sub-strategies and ongoing programs have not been ranked or prioritized. Regional priorities and ongoing programs are identified for each aligned sub-strategy and summarized. The sub-strategies that support all three Strategic Initiatives are identified in [Appendix B, Cross-Cutting Sub-Strategies](#), and are not listed in the subsequent sections of this chapter. Additional information about ongoing programs, including funding status, will be available in the [Puget Sound Recovery Atlas](#).

The Shellfish Strategic Initiative Transition Team, which provides technical leadership for implementation and status updates on the Shellfish Strategic Initiative, identified several broad regional priorities that apply equally to all sub-strategies.

- Upgrade Samish Bay and Portage Bay shellfish growing areas.
- Reopen or upgrade previously downgraded shellfish growing areas.
- Reverse declining water quality trends and protect water quality in shellfish growing areas classified as threatened or concerned.
- Maintain the status of open shellfish beds classified as approved or conditionally approved.
- Prevent and control fecal pollution from humans (from onsite sewage systems) and animals (livestock).

In addition to the list above that applies to all of the sub-strategies, the regional priority for Sub-strategy 21.1 is to implement existing plans, such as total maximum daily loads (TMDLs) or local pollution control plans to reduce fecal coliform bacteria in watersheds and shellfish growing areas (Regional Priority 21.1-1).



## TIER 1

**TABLE 5-1.** TIER 1 SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE SHELLFISH STRATEGIC INITIATIVE: 2016 ACTION AGENDA

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)
<b>9.5</b>	Control wastewater and other sources of pollution such as oil and toxics from boats and vessels.	<ul style="list-style-type: none"> <li>• Small Oil Spills program—Washington Sea Grant</li> <li>• Clean Vessel Program—Washington State Parks</li> <li>• Pumpout Washington—Washington Sea Grant, Washington State Parks and Recreation</li> </ul>
<b>9.6</b>	Increase compliance with and enforcement of environmental laws, regulations, and permits.	<ul style="list-style-type: none"> <li>• Hazardous Waste and Toxic Reduction Program, Local Source Control Program, Dangerous Waste and Pollution Prevention Plan—Department of Ecology (lead), 25 other local jurisdictions</li> <li>• Dairy Nutrient Management Act RCW 90.64 and WAC 16.611—Department of Agriculture</li> </ul>
<b>11.1</b>	Target voluntary and incentive-based programs that help working farms contribute to Puget Sound recovery.	<ul style="list-style-type: none"> <li>• Voluntary Stewardship Program—Washington State Conservation Commission</li> <li>• Washington State Conservation Commission Shellfish Funding—Washington State Conservation Commission</li> <li>• Nutrient Management Plans, technical assistance—Department of Agriculture, Washington State Conservation Commission, local conservation districts</li> <li>• Puget Sound Conservation Districts—Washington State Conservation Commission and conservation districts (12)</li> </ul>
<b>11.2</b>	Ensure compliance with regulatory programs designed to reduce, control, or eliminate pollution from working farms.	<ul style="list-style-type: none"> <li>• Washington State Conservation Commission Shellfish Funding—Washington State Conservation Commission</li> <li>• Concentrated Animal Feeding Operation Permit—Department of Agriculture, Department of Ecology</li> </ul>
<b>13.1</b>	Effectively manage and control pollution from small onsite sewage systems.	<ul style="list-style-type: none"> <li>• Septic Sense-Septic Socials and Septic System Landscaping—Washington Sea Grant</li> <li>• State of the Oyster Study—Washington Sea Grant</li> <li>• Onsite Sewage System Program—Department of Health</li> </ul>



**TABLE 5-1.** TIER 1 SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE SHELLFISH STRATEGIC INITIATIVE: 2016 ACTION AGENDA, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)
<b>13.3</b>	Improve and expand funding for small onsite sewage systems and local onsite sewage systems.	<ul style="list-style-type: none"> <li>• Septic Systems improvement Loan Program—Department of Ecology</li> <li>• Onsite Sewage Financial Assistance—Department of Ecology</li> <li>• Regional Onsite Sewage System Loan Program—Department of Ecology, Department of Health, Local Health Jurisdictions</li> </ul>
<b>17.1</b>	Protect intact marine ecosystems particularly in sensitive areas and for sensitive species.	<ul style="list-style-type: none"> <li>• Derelict Vessel Removal Program—Department of Natural Resources (lead), U.S. Coast Guard</li> <li>• Shoreline management programs—Local governments</li> <li>• Eelgrass Protection Zone at Port Townsend—Jefferson Marine Resources Committee</li> <li>• Shellfish Protection Zone at Mystery Bay—Jefferson Marine Resources Committee</li> <li>• Marine Stewardship Area—San Juan Marine Resource Committee</li> <li>• Port Susan Marine Stewardship Area—Snohomish and Island Marine Resources Committees</li> </ul>
<b>19.1</b>	Improve water quality to prevent downgrade and achieve upgrades of important current tribal, commercial, and recreational shellfish harvesting areas.	<ul style="list-style-type: none"> <li>• Water Quality Monitoring Program—Department of Health (lead), Department of Ecology, tribes, Department of Agriculture, Puget Sound Partnership, conservation districts</li> <li>• Bivalves for Clean Water—Washington Sea Grant</li> <li>• Shellfish Restoration Program—Department of Health (lead), local health jurisdictions</li> <li>• Technical Assistance and Homeowner Support to Local Water Quality—Washington Sea Grant</li> </ul>
<b>21.1</b>	Complete total maximum daily load (TMDL) studies and other necessary water cleanup plans for Puget Sound to set pollution discharge limits and determine response strategies to address water quality impairments. Note: this sub-strategy is also included in the Stormwater Strategic Initiative.	<ul style="list-style-type: none"> <li>• Water Quality Programs, Water Quality Assessment and Water Quality Improvement Program—Department of Ecology (lead), U.S. Environmental Protection Agency</li> </ul>
<b>21.4</b>	Develop and implement local and tribal pollution identification and correction programs.	<ul style="list-style-type: none"> <li>• Pollution Identification and Correction programs—Department of Health (lead), Department of Ecology, local governments, tribes</li> <li>• Shellfish Restoration Program—Department of Health (lead), local health jurisdictions</li> </ul>

**TIER 2**

The following sub-strategies are not identified as regional priorities at this time. These sub-strategies are included in the Shellfish Strategic Initiative, but Near Term Actions related to these sub-strategies must also support Tier 1 sub-strategies. No Near Term

Actions relate only to these sub-strategies. Ongoing programs are identified for each aligned Tier 2 sub-strategy.

**TABLE 5-2.** TIER 2 SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE SHELLFISH STRATEGIC INITIATIVE AND RELATED VITAL SIGNS: 2016 ACTION AGENDA

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)
<b>13.2</b>	Effectively manage and control pollution from large onsite sewage systems.	<ul style="list-style-type: none"> <li>Large Onsite Sewage System Program—Department of Health</li> </ul>
<b>19.2</b>	Restore and enhance native shellfish populations.	<ul style="list-style-type: none"> <li>Native Oyster Rebuilding Program—National Oceanic and Atmospheric Administration (lead), Puget Sound Restoration Fund, Department of Fish and Wildlife, Department of Health, Northwest Straits Commission</li> <li>Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>
<b>19.3</b>	Ensure environmentally responsible shellfish aquaculture is based on sound science.	<ul style="list-style-type: none"> <li>Ongoing programs to support shellfish production—Pacific Coast Shellfish Growers Association (lead), Pacific Shellfish</li> <li>Shellfish Aquaculture Technical Assistance—Washington Sea Grant</li> <li>Washington Sea Grant Competitive Research-Sustainable Fisheries and Aquaculture—Washington Sea Grant</li> </ul>
<b>25.1</b>	Oversee strategic planning for Puget Sound recovery science.	<ul style="list-style-type: none"> <li>Science Program—Puget Sound Partnership</li> </ul>
<b>25.2</b>	Implement a coordinated, integrated ecosystem monitoring program.	<ul style="list-style-type: none"> <li>SoundToxins—National Oceanic and Atmospheric Administration Northwest Fisheries Science Center, Washington Sea Grant</li> </ul>
<b>26.2</b>	Collaboratively develop and promote science-based targeted communications and behavior change strategies across the region.	<ul style="list-style-type: none"> <li>Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>

**TABLE 5-2.** TIER 2 SUB-STRATEGIES AND ONGOING PROGRAMS INCLUDED IN THE SHELLFISH STRATEGIC INITIATIVE AND RELATED VITAL SIGNS: 2016 ACTION AGENDA, CONTINUED

ID	SUB-STRATEGY	ONGOING PROGRAMS (PROGRAM NAME—ORGANIZATION)
<b>27.1</b>	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.	<ul style="list-style-type: none"> <li>• Puget Sound Starts Here—Puget Sound Starts Here Steering Committee (lead), federal, state and local governments, nongovernmental organizations, Puget Sound Partnership, Department of Ecology, STORM coalition</li> <li>• Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>
<b>27.2</b>	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.	<ul style="list-style-type: none"> <li>• Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>
<b>27.3</b>	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.	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>28.4</b>	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.	<ul style="list-style-type: none"> <li>• Northwest Straits Initiative—Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation</li> </ul>

## WHAT ARE THE GAPS AND BARRIERS?

The Strategic Initiative Transition Team identified the followings gaps and barriers for the Shellfish Strategic Initiative. The following gaps and recommendations should be addressed during implementation of the 2016 *Action Agenda*.

### GAPS

- Local projects aligned with opportunities identified in the Department of Health's shellfish restoration projections.
- Geographically focused projects addressing shellfish growing areas (compared to broader program work).
- Regional proposals with specificity on how they would address issues on the ground, including acres upgraded.
- Projects addressing recreational shellfish beds.
- Projects addressing onsite sewage system management programs in key counties and shellfish growing areas.
- Effective partner engagement in developing and implementing proposals.
- Geographically comprehensive planning efforts.

### BARRIERS

- Sustainable funding for ongoing programs.
- Political will for regulatory actions and change.

## APPENDIX A | STRATEGIES AND SUB-STRATEGIES NUMBERING

The 2014/2015 Action Agenda used a numbering system for strategies and sub-strategies that was based on the organization of the document by the following categories: freshwater & terrestrial, marine & nearshore, pollution, strategic leadership & collaboration, and funding strategy. The 2016 Action Agenda simplifies the organization into two categories: ecosystem strategies and institutional strategies. As a result, the numbering in the 2016 Action Agenda differs from the numbers associated with strategies and sub-strategies in the 2014/2015 Action Agenda. Table A-1 shows how the new numbers correlate with the old numbers.

*Table A-1. Crosswalk of 2014/2015 Action Agenda Numbering System and the 2016 Action Agenda Numbering for Strategies and Sub-strategies*

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
<b>Focus land development away from ecologically important and sensitive areas</b>	<b>A1</b>	<b>1</b>
Identify and prioritize areas for protection, restoration, and best suitable for (low-impact) development	A1.1	1.1
Support local governments to adopt and implement plans, regulations, and policies consistent with protection and recovery targets, and incorporate climate change forecasts	A1.2	1.2
Improve, strengthen, and streamline implementation and enforcement of laws, plans, regulations, and permits consistent with protection and recovery targets	A1.3	1.3
Ensure full, effective compensatory mitigation for impacts that cannot be avoided	A1.4	1.4
<b>Protect and restore upland, freshwater, and riparian ecosystems</b>	<b>A2</b>	<b>2</b>
Protect and conserve ecologically important lands at risk of conversion	A2.1	2.1
Implement and maintain priority freshwater and terrestrial restoration projects	A2.2	2.2
Implement restoration projects in urban and developed areas while accommodating growth, density, and infill development	A2.3	2.3
<b>Protect and steward ecologically sensitive rural and resource lands</b>	<b>A3</b>	<b>3</b>
Use integrated market-based programs, incentives, and ecosystem markets to steward and conserve private forest and agricultural lands	A3.1	3.1
Retain economically viable working forests and farms	A3.2	3.2

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
<b>Encourage compact regional growth patterns and create dense, attractive, mixed-use, and transit-oriented communities</b>	<b>A4</b>	<b>4</b>
Integrate growth, infrastructure, transportation, and conservation planning at subregional levels and across jurisdictions	A4.1	4.1
Provide infrastructure and incentives to accommodate new and redevelopment in urban growth areas	A4.2	4.2
Enhance and expand the benefits of living in compact communities	A4.3	4.3
<b>Protect and restore floodplain function</b>	<b>A5</b>	<b>5</b>
Improve data and information to accelerate floodplain protection, restoration, and flood hazard management	A5.1	5.1
Align policies, regulations, planning, and agency coordination to support multi-benefit floodplain management, incorporating climate change forecasts	A5.2	5.2
Protect and maintain intact and functional floodplains	A5.3	5.3
Implement and maintain priority floodplain restoration projects	A5.4	5.4
<b>Protect and recover salmon</b>	<b>A6</b>	<b>6</b>
Implement high-priority projects identified in each salmon recovery watershed's three-year work plan	A6.1	6.1
Implement high-priority salmon recovery actions identified in other parts of the Action Agenda and the <i>Biennial Science Work Plan</i>	A6.2	6.2
Implement harvest, hatchery, and adaptive management elements of salmon recovery	A6.3	6.3
Protect and recover steelhead and other imperiled salmonid species	A6.4	6.4
Maintain and enhance the community infrastructure that supports salmon recovery	A6.5	6.5
<b>Protect and conserve freshwater resources to increase and sustain water availability for instream flows</b>	<b>A7</b>	<b>7</b>
Update Puget Sound instream flow rules to encourage conservation	A7.1	7.1
Decrease the amount of water withdrawn or diverted and per capita water use	A7.2	7.2
Implement effective management programs for groundwater	A7.3	7.3
<b>Focus development away from ecologically important and sensitive nearshore areas and estuaries</b>	<b>B1</b>	<b>8</b>
Use complete, accurate and recent information in shoreline planning and decision-making at the site-specific and regional levels	B1.1	8.1
Support local governments to adopt and implement plans, regulations, and policies that protect the marine nearshore and estuaries, and incorporate climate change forecasts	B1.2	8.2

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
Improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect the marine and nearshore ecosystems and estuaries	B1.3	8.3
<b>Prevent, reduce, and control the sources of contaminants entering Puget Sound</b>	<b>C1</b>	<b>9</b>
Implement and strengthen authorities and programs to prevent toxic chemicals from entering the Puget Sound ecosystem	C1.1	9.1
Promote the development and use of safer alternatives to toxic chemicals	C1.2	9.2
Adopt and implement plans and control strategies to reduce pollutant releases into Puget Sound from air emissions	C1.3	9.3
Provide education and technical assistance to prevent and reduce releases of pollution	C1.4	9.4
Control wastewater and other sources of pollution such as oil and toxics from boats and vessels	C1.5	9.5
Increase compliance with and enforcement of environmental laws, regulations, and permits	C1.6	9.6
<b>Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales</b>	<b>C2</b>	<b>10</b>
Manage urban runoff at the basin and watershed scale	C2.1	10.1
Prevent problems from new development at the site and subdivision scale	C2.2	10.2
Fix problems caused by existing development	C2.3	10.3
Control sources of pollutants	C2.4	10.4
Provide focused stormwater-related education, training, and assistance	C2.5	10.5
<b>Prevent, reduce, and control agricultural runoff</b>	<b>C3</b>	<b>11</b>
Target voluntary and incentive-based programs that help working farms contribute to Puget Sound recovery	C3.1	11.1
Ensure compliance with regulatory programs designed to reduce, control or eliminate pollution from working farms	C3.2	11.2
<b>Prevent, reduce, and control surface runoff from forest lands</b>	<b>C4</b>	<b>12</b>
Achieve water quality standards on state and privately owned working forests through implementation of the <i>Forest and Fish Report</i>	C4.1	12.1
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	C4.2	12.2



STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
<b>Prevent, reduce, and/or eliminate pollution from decentralized wastewater treatment systems</b>	<b>C5</b>	<b>13</b>
Effectively manage and control pollution from small onsite sewage systems	C5.1	13.1
Effectively manage and control pollution from large onsite sewage systems	C5.2	13.2
Improve and expand funding for small and local onsite sewage systems	C5.3	13.3
<b>Prevent, reduce, and/or eliminate pollution from centralized wastewater systems</b>	<b>C6</b>	<b>14</b>
Reduce the concentrations of contaminant sources of pollution conveyed to wastewater treatment plants through education and appropriate regulations, including improving pretreatment requirements	C6.1	14.1
Reduce pollution loading by preventing and reducing combined sewer overflows	C6.2	14.2
Implement priority upgrades of municipal and industrial wastewater facilities in urban and urbanizing areas and address outfalls	C6.3	14.3
Ensure all centralized wastewater treatment plants meet discharge permit limits through compliance monitoring, technical assistance, and enforcement, where needed	C6.4	14.4
Promote appropriate reclaimed water projects to reduce pollutant loading to Puget Sound	C6.5	14.5
<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>	<b>B5</b>	<b>15</b>
Implement species recovery plans in a coordinated way	B5.1	15.1
Create a more integrated planning approach to protect and enhance biodiversity in the Puget Sound ecosystem	B5.2	15.2
Prevent and rapidly respond to the introduction and spread of terrestrial and aquatic invasive species	B5.3	15.3
Answer key invasive species research questions and fill information gaps	B5.4	15.4
<b>Protect and restore nearshore and estuary ecosystems</b>	<b>B2</b>	<b>16</b>
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	B2.1	16.1
Implement prioritized nearshore and estuary restoration projects and accelerate projects on public lands	B2.2	16.2
Remove armoring, and use soft armoring replacement or landward setbacks when armoring fails, needs repair, is non protective, and during redevelopment	B2.3	16.3
Implement a coordinated strategy to achieve the 2020 eelgrass recovery target	B2.4	16.4

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
<b>Protect and restore marine ecosystems</b>	<b>B3</b>	<b>17</b>
Protect intact marine ecosystems particularly in sensitive areas and for sensitive species	B3.1	17.1
Implement and maintain priority marine restoration projects	B3.2	17.2
<b>Protect and steward working waterfronts and improve public access to Puget Sound</b>	<b>B4</b>	<b>18</b>
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	B4.1	18.1
Increase access to and knowledge of publicly owned Puget Sound shorelines and the marine ecosystem	B4.2	18.2
<b>Ensure abundant, healthy shellfish for ecosystem health and for commercial, subsistence, and recreational harvest consistent with ecosystem protection</b>	<b>C7</b>	<b>19</b>
Improve water quality to prevent downgrade and achieve upgrades of important current tribal, commercial and recreational shellfish harvesting areas	C7.1	19.1
Restore and enhance native shellfish populations	C7.2	19.2
Ensure environmentally responsible shellfish aquaculture based on sound science	C7.3	19.3
Enhance the public's connection to shellfish and increase recreational harvest opportunities	C7.4	19.4
Answer key shellfish safety research questions and fill information gaps	C7.5	19.5
<b>Effectively prevent, plan for, and respond to oil spills</b>	<b>C8</b>	<b>20</b>
Prevent and reduce the risk of oil spills	C8.1	20.1
Strengthen and integrate spill response readiness of the state, tribes and local governments	C8.2	20.2
Respond to spills and seek restoration using the best available science and technology	C8.3	20.3
<b>Address and clean up cumulative water pollution impacts in Puget Sound</b>	<b>C9</b>	<b>21</b>
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	C9.1	21.1
Clean up contaminated sites within and near Puget Sound	C9.2	21.2
Protect and restore water quality at swimming beaches and recreational areas	C9.3	21.3
Develop and implement local and tribal pollution identification and correction programs	C9.4	21.4

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
<b>Provide the leadership framework to guide the Puget Sound recovery effort and set action and funding priorities</b>	<b>D1</b>	<b>22</b>
Provide backbone support for the recovery effort and Management Conference	D1.1	22.1
Maintain and update the Action Agenda as the shared recovery plan	D1.2	22.2
<b>Support and build strategic, collaborative partnerships</b>	<b>D2</b>	<b>23</b>
Advance the coordination of local recovery actions through Local Integrating Organizations	D2.1	23.1
Build and maintain collaborative partnerships with tribes to identify and advance recovery actions	D2.2	23.2
<b>Implement performance management</b>	<b>D3</b>	<b>24</b>
Work collaboratively to track and report on implementation performance	D3.1	24.1
Work collaboratively to report on recovery progress	D3.2	24.2
<b>Coordinate and advance science and monitoring</b>	<b>D4</b>	<b>25</b>
Oversee strategic planning for Puget Sound recovery science	D4.1	25.1
Implement a coordinated, integrated ecosystem monitoring program	D4.2	25.2
<b>Cultivate broad-scale stewardship practices and behaviors among Puget Sound residents that benefit Puget Sound</b>	<b>D5</b>	<b>26</b>
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	D5.1	26.1
Develop and promote science-based targeted communications and behavior change strategies across the region	D5.2	26.2
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	D5.3	26.3
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	D5.4	26.4
Enhance resources to sustain and expand effective behavior change and volunteer programs that support Action Agenda priorities and that have demonstrated, measurable outcomes	D5.5	26.5
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	D5.6	26.6

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
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	D5.7	26.7
<b>Build issue awareness and understanding to increase public support and engagement in recovery actions</b>	<b>D6</b>	<b>27</b>
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	D6.1	27.1
Incorporate and expand Puget Sound-related content in diverse delivery settings (e.g., recreation, education institutions, local government, neighborhood and community groups, nonprofit organizations, businesses). Connect residents with public engagement and volunteer programs	D6.2	27.2
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	D6.3	27.3
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	D6.4	27.4
Build awareness of stewardship-building efforts among elected officials, executive staff, funders, resource managers, and others with resource allocation ability. Emphasize program roles, needs, relationship with other Action Agenda strategies and program outcomes	D6.5	27.5
<b>Build social and institutional infrastructure that supports stewardship behaviors and removes barriers</b>	<b>D7</b>	<b>28</b>
Apply appropriate social science to Puget Sound recovery to increase clarity and effectiveness of targeted actions, audiences, opportunities, strategies, and evaluation metrics	D7.1	28.1
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	D7.2	28.2
Maintain centralized capacity to sustain and enhance the regional Puget Sound Starts Here campaign	D7.3	28.3
Provide public information conduits connecting individuals to local activities, resources and decision-making processes—including cost-share programs, technical assistance, volunteer experiences and ways to engage in civic structures and processes	D7.4	28.4

STRATEGIES & SUB-STRATEGIES	2014/2015 ACTION AGENDA NUMBER	2016 ACTION AGENDA NUMBER
Enhance strategic networks and tools that support stewardship partners and outcomes; including ECO-Net, STORM, The Northwest Straits Initiative and Marine Resource Committees, tribes, municipalities not covered by stormwater permits, public agencies, funders, universities, nongovernmental organizations, and others.	D7.5	28.5
Work regionally and locally to remove implementation barriers (e.g., physical, economic, regulatory, enforcement, policy), and enable and incentivize adoption of stewardship actions	D7.6	28.6
<b>Funding Strategy</b>	<b>E1</b>	<b>29</b>
Maintain and enhance federal funding for implementation of Action Agenda priorities	E1.1	29.1
Focus federal agency budgets and national programs on Action Agenda priorities	E1.2	29.2
Maintain, enhance, and focus state funding for implementation of Action Agenda priorities	E1.3	29.3
Maintain and enhance local funding for implementation of Action Agenda priorities	E1.4	29.4
Develop opportunities for private sector and philanthropic funding for implementation of Action Agenda priorities	E1.5	29.5
Develop and implement market-based mechanisms for implementation of priorities in the Action Agenda	E1.6	29.6

## APPENDIX B | CROSS-CUTTING SUB-STRATEGIES

Some sub-strategies cut across all three Strategic Initiatives. These cross-cutting sub-strategies include essential components that support actions advancing multiple Strategic Initiatives. Actions that support one or more of these sub-strategies may provide opportunities to coordinate in a more efficient and synergistic way across multiple Strategic Initiatives. The sub-strategies described below apply equally to each of the Strategic Initiatives.

### CLIMATE CHANGE IMPACTS

An important component in addressing recovery is to consider and address the impacts of climate change in all implementing actions proposed for the Action Agenda. Sea level rise, increased frequency, and severity of flooding, erosion, and temperature changes—all will increase risks to vulnerable communities, infrastructure, and ecosystems.

### RIPARIAN CORRIDOR MANAGEMENT

Protection and restoration of riparian corridors is an important cross-cutting strategy that protects freshwater streams from increased water temperatures, protects water quality, and retains or enhances habitat.

**Strategy 2. Protect and restore upland, freshwater, and riparian ecosystems.** This strategy addresses restoration in general but does not have a more specific sub-strategy that addresses riparian corridor management.

### REGULATION AND ENFORCEMENT

The Ecosystem Coordination Board proposed that increasing regulatory compliance is also a cross-cutting sub-strategy that supports each of the three Strategic Initiatives.

**Sub-strategy 9.6. Increase compliance with and enforcement of environmental laws, regulations, and permits.** This sub-strategy promotes compliance of environmental laws across each of the three topics.

### SCIENCE

Sound science provides the continued basis for decisions of partners and policy-makers on how best to protect and restore Puget Sound. Although the Puget Sound Partnership is charged with assessing the region's overall progress toward recovery targets and describing the status of recovery efforts, science and monitoring are shared efforts and resources.

**Sub-strategy 25.1. Oversee strategic planning for Puget Sound recovery science.** This sub-strategy supports extended efforts to build on scientific knowledge, coordinate the need to fill scientific gaps, and provide policy-relevant information for decision-makers. It supports the Partnership's role, guided by the Science Panel, in 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 (technical steps identified in the Open Standards); building scientific knowledge and policy-relevant information for decision-makers; and maintaining and expanding a network of scientific expertise for informing decision-makers.

## MONITORING

The Action Agenda includes strategies and sub-strategies that coordinate and integrate science assessments and monitoring to help determine the status and trends of the health of Puget Sound. There may be opportunities to coordinate implementation across the three Strategic Initiatives.

**Sub-strategy 25.2. Implement a coordinated, integrated Ecosystem Monitoring Program.** This sub-strategy speaks to an integrated monitoring approach that would support monitoring actions that cut across the three Strategic Initiatives. The monitoring program could be considered by the Science Panel for inclusion in the Puget Sound Integrated Monitoring Program. The sub-strategy supports the Partnership's role in implementing the Puget Sound Ecosystem Monitoring Program, which coordinates and integrates existing and future monitoring efforts to determine the status and trends of key components and indicators of Puget Sound health. It also supports monitoring data used to inform decision-makers about whether recovery actions have been effective and helps identify where improvements (adaptations) might be needed at both local and regional scales.

## BEHAVIOR CHANGE

Behavior change is considered important to many of the sub-strategies as a means to incentivize human actions that are beneficial to recovery or to deter human actions that are harmful or further degrade Puget Sound. Sub-strategies that include communication and behavior change strategies would support programs and actions that cut across the three Strategic Initiatives.

**Sub-strategy 26.2. Collaboratively develop and promote science-based targeted communications and behavior change strategies across the region.** This sub-strategy focuses on coordinated and effective social marketing, incentive programs, and education and outreach efforts based

in social science that can lead to public awareness and behavior changes, and that can be used throughout the Puget Sound region.

**Sub-strategy 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.**

## AWARENESS AND EDUCATION

Awareness and education, along with behavior change, cut across all three Strategic Initiatives. This includes increasing awareness and understanding of Puget Sound's health, status, and threats, as well as engaging the public in educational and technical training efforts. These cross-cutting sub-strategies address many of these communication components.

**Sub-strategy 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.** This sub-strategy conducts regionally scaled communications to provide a foundation for local communications. It also supports locally scaled communications to engage residents in local issues and recovery efforts

**Sub-strategy 27. Incorporate and expand Puget Sound-related content in diverse delivery settings (e.g., recreation, education institutions, local government, neighborhood and community groups, nonprofit organizations, businesses).** This sub-strategy connects residents with public engagement and volunteer programs

**Sub-strategy 27.3. Incorporate Puget Sound place-based content into K-12 curricula throughout the Puget Sound region.** This sub-strategy connects schools with technical assistance, inquiry-based learning opportunities, and community resources. It implements student service



projects connected to ecosystem recovery and links schools to organizations with structured volunteer opportunities

**Sub-strategy 28.4. Provide public information conduits connecting individuals to local activities, resources, and decision-making processes.**

This sub-strategy includes cost-share programs, technical assistance, and volunteer experiences.

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## APPENDIX C | ONGOING PROGRAMS

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
<b>Strategy 1: Focus land development away from ecologically important and sensitive areas</b>		
1.1	Department of Natural Resources	Natural Heritage Program for Priority Species and Ecosystems
1.1	Department of Ecology (lead), Department of Fish and Wildlife, Puget Sound Partnership	Puget Sound Watershed Characterization Assessment
1.1	National Marine Fisheries Service	Puget Sound Salmon Recovery Plan
1.1	Department of Ecology	Watershed Plan Implementation and Flow Achievement Capital Grant Program
1.1	Natural Resources Conservation Service	Watershed Survey and Planning
1.1	Local governments	Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removing invasive species, planting native vegetation, and restoring creeks and streams
1.1	Department of Commerce	Small Communities Initiative
1.1	Department of Commerce	Growth Management Services
1.1	Department of Natural Resources	Ongoing stream typing
1.1	Department of Natural Resources	Priority Habitats and Species database
1.2	Department of Ecology	Watershed Plan Implementation Grant Program
1.2	Natural Resources Conservation Service	Watershed and Flood Prevention Operations Program
1.2	Department of Ecology	Watershed Planning Program
1.2	Local Governments	Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removing invasive species, planting native vegetation, and restoring creeks and streams
1.2	Department of Commerce	Small Communities Initiative
1.2	Department of Commerce	Growth Management Services
1.2	Department of Ecology	Watershed Plan Implementation and Flow Achievement Capital Grant Program

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
1.2	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
1.2	Puget Sound Salmon Recovery Council	Steelhead Recovery Planning coordination and support
1.3	Department of Ecology	Enforcement of interruptible water rights
1.3	Department of Ecology	Water right metering program
1.3	Department of Ecology	Water right permitting program
1.3	Department of Ecology	Enforcement against illegal water use
1.3	Department of Ecology	Implement Skagit Basin Instream Flow Rule
1.3	Department of Ecology	Watershed Plan Implementation and Flow Achievement Capital Grant Program
1.3	Puget Sound Salmon Recovery Council	Chinook Salmon Recovery Plan Monitoring and Adaptive Management: Updates and Implementation
1.4	Department of Ecology	Mitigation that Works
<b>Strategy 2: Protect and restore upland, freshwater, and riparian ecosystems</b>		
2.1	Washington State Recreation and Conservation Office (lead)	Salmon Recovery Funding Board
2.1	Department of Natural Resources (lead)	Natural Area Preserves and Natural Resources Conservation Areas
2.1	Recreation and Conservation Office	Habitat and Recreation Lands Coordinating Group
2.1	Department of Fish and Wildlife (lead)	Marine Protected Areas
2.1	Department of Ecology	Watershed Plan Implementation and Flow Achievement Capital Grant Program
2.1	U.S. Fish and Wildlife Service	Cooperative Endangered Species Conservation Fund
2.1	Puget Sound Partnership, Recreation and Conservation Office	Puget Sound Acquisition and Restoration
2.1	Department of Natural Resources	Rivers and Habitat Open Space Program
2.2	15 salmon recovery lead entities	Fish passage barrier removal/forest and fish landscape prioritization
2.2	15 salmon recovery lead entities	Watershed Assessments
2.2	15 salmon recovery lead entities	Salmon Recovery 3-year work plans
2.2	Department of Natural Resources	Family Forest Fish Passage Program
2.2	National Oceanic and Atmospheric Administration	Community-Based Restoration Program
2.2	Department of Ecology (lead) and 12 counties	Flood hazard management plans

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
2.2	Department of Natural Resources	Road decommissioning plans
2.2	Department of Fish and Wildlife (lead), Recreation and Conservation Office	Estuary and Salmon Restoration Program
2.2	U.S. Fish and Wildlife Service	Cooperative Endangered Species Conservation Fund
2.2	Puget Sound Partnership, Recreation and Conservation Office	Puget Sound Acquisition and Restoration
2.3	Local governments	Critical area programs
2.3	Local governments	Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removing invasive species, planting native vegetation, and restoring creeks and streams
2.3	Local governments	Shoreline management programs
2.3	Puget Sound Partnership, Recreation and Conservation Office	Puget Sound Acquisition and Restoration
<b>Strategy 3: Protect and steward ecologically sensitive rural and resource lands</b>		
3.1	Department of Natural Resources	Family Forest Fish Passage Program
3.1	Department of Natural Resources	Forest Riparian Easement Program
3.1	Department of Natural Resources	Riparian Open Space Program
3.1	Farm Services Agency (lead), Washington State Conservation Commission, Natural Resources Conservation Service	Conservation Reserve Enhancement Program
3.1	Natural Resources Conservation Service	Environmental Quality Incentives Program
3.1	Natural Resources Conservation Service	Wildlife Habitat Incentive Program (WHIP)
3.1	Natural Resources Conservation Service	Agricultural Management Assistance
3.1	Natural Resources Conservation Service	Conservation Stewardship Program
3.1	U.S. Forest Service	Forest Stewardship Program
3.1	U.S. Fish and Wildlife Service	Landowner Incentive Program
3.1	Department of Revenue	Designated Forest Land and Open Space Tax Program
3.1	Washington State Conservation Commission	Voluntary Stewardship Program
3.1	Department of Fish and Wildlife	Landowner Incentive Program

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
3.1	Department of Natural Resources, Department of Fish and Wildlife, and other state agencies, tribes, local governments, and non-governmental entities	Purchase of development rights from working forest and farm landowners for lands at risk of conversion in key Puget Sound watersheds
3.1	Puget Sound Partnership, Puget Sound Regional Council, Commerce groups, Local governments	Incentive programs to conserve working natural resource lands such as transfer of development right and ecosystem services.
3.2	Department of Revenue	Designated Forest Land and Open Space Tax Program
<b>Strategy 4: Encourage compact regional growth patterns and create dense, attractive, mixed-use, and transit-oriented communities</b>		
4.1	Department of Commerce	Small Communities Initiative
4.1	Department of Commerce	Growth Management Services
4.1	Puget Sound Partnership, Puget Sound Regional Council, Commerce groups, Local governments	Incentive programs to conserve working natural resource lands such as transfer of development right and ecosystem services.
4.2	Local governments	Various programs or ordinances to encourage maintaining and increasing urban tree canopies, removing invasive species, planting native vegetation, and restoring creeks and streams
4.2	Local governments	Planning for compact development in urban centers linked by fast and frequent transit.
4.2	Department of Commerce	Small Communities Initiative
4.2	Department of Commerce	Growth Management Services
4.3	Department of Commerce	Small Communities Initiative
4.3	Department of Commerce	Growth Management Services
<b>Strategy 5: Protect and restore floodplain function</b>		
5.1	Natural Resources Conservation Service	Watershed Survey and Planning
5.2	U.S. Army Corps of Engineers (Seattle District - lead), Puget Sound Partnership, local levee owners	Regional levee-based vegetation standards
5.3	Natural Resources Conservation Service	Environmental Quality Incentives Program
5.3	U.S. Army Corps of Engineers (Seattle District - lead), Puget Sound Partnership, local levee owners	Regional levee-based vegetation standards

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
5.3	Department of Natural Resources, Department of Fish and Wildlife, and other state agencies, tribes, local governments, and non-governmental entities	Purchase of development rights from working forest and farm landowners for lands at risk of conversion in key Puget Sound watersheds
5.3	Federal Emergency Management Agency (lead), National Oceanic and Atmospheric Administration, local cities and counties	Flood Insurance Program, Flood Plain Management Biological Opinion Implementation
5.3	Recreation and Conservation Office	Land and Water Conservation Fund
5.4	Natural Resources Conservation Service	Agricultural Conservation Easement Program
5.4	Snohomish County	Snohomish Sustainable Lands Strategy
5.4	Western Washington Agricultural Association National Oceanic and Atmospheric Administration (lead), Department of Fish and Wildlife	Skagit Tidegate Initiative
5.4	Recreation and Conservation Office	Land and Water Conservation Fund
5.4	Recreation and Conservation Office	Aquatic Lands Enhancement Account Program
<b>Strategy 6: Protect and recover salmon</b>		
6.1	15 salmon recovery lead entities	Salmon Recovery 3-year work plans
6.2	Puget Sound Partnership	Biennial Science Work Plan
6.3	Washington State, treaty tribes, National Marine Fisheries Service	Salmon and Steelhead Fishery: Harvest Management Program
6.3	National Marine Fisheries Service	Hatchery Action Implementation Plans
6.3	National Marine Fisheries Service	Hatchery Genetic Management Plan
6.3	Tribes	Recovery Implementation Technical Team
6.3	Puget Sound Salmon Recovery Council	Chinook Salmon Recovery Plan Monitoring and Adaptive Management: Updates and Implementation
6.4	National Marine Fisheries Service (lead), Governor's Salmon Recovery Office, Puget Sound Partnership, and Puget Sound watersheds	Puget Sound Steelhead Recovery Plan
6.4	Puget Sound Salmon Recovery Council	Steelhead Recovery Planning coordination and support
6.4	Puget Sound Salmon Recovery Council	Marine Survival of Steelhead (and Chinook and other species) Research Program



SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
6.5	15 salmon recovery lead entities	Salmon Recovery 3-year work plans
6.5	U.S. Environmental Protection Agency	Ongoing programs
6.5	Federal Emergency Management Agency	Ongoing programs
6.5	Lead entities	Lead entities, ongoing programs
6.5	Local jurisdictions	Local jurisdictions, ongoing programs
6.5	National Oceanic and Atmospheric Administration	Ongoing programs
6.5	Other state agencies	Ongoing programs
6.5	Puget Sound Partnership	Regional Salmon Recovery Program
6.5	U.S. Fish and Wildlife Service	Ongoing programs
6.5	Puget Sound Salmon Recovery Council	Chinook Salmon Recovery Plan Monitoring and Adaptive Management: Updates and Implementation
<b>Strategy 7: Protect and conserve freshwater resources to increase and sustain water availability for instream flows</b>		
7.1	Department of Ecology	Watershed Planning Program
7.2	Department of Ecology (state lead), U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System Permit Program
<b>Strategy 8: Focus development away from ecologically important and sensitive nearshore areas and estuaries</b>		
8.1	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
8.1	Department of Natural Resources	Aquatic Reserves network-wide comprehensive inventory and monitoring program
8.1	National Oceanic and Atmospheric Administration	Chinook Salmon Recovery Plan
8.2	Department of Fish and Wildlife (lead), Department of Natural Resources	State of Washington Aquatic Habitat Guidelines program
8.2	Washington Sea Grant	Competitive Research: Healthy Coastal Ecosystems
8.2	Washington Sea Grant	Coastal Hazards Resilience Program
8.2	Washington Sea Grant, Department of Ecology	King Tides
8.2	Washington Sea Grant, Department of Ecology	Shoreline and Coastal Planners Group
8.2	Puget Sound Salmon Recovery Council	Steelhead Recovery Planning coordination and support

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
8.2	Puget Sound Salmon Recovery Council	Marine Survival of Steelhead (and Chinook and other species) Research Program
8.3	Department of Fish and Wildlife	Hydraulic Project Approval Program
8.3	Puget Sound Salmon Recovery Council	Chinook Salmon Recovery Plan Monitoring and Adaptive Management: Updates and Implementation
<b>Strategy 9: Prevent, reduce, and control the sources of contaminants entering Puget Sound</b>		
9.1	Department of Ecology (lead), 25 local jurisdictions	Hazardous Waste and Toxic Reduction Program, Local Source Control Program, Dangerous Waste and Pollution Prevention Plan (Pollution Prevention)
9.1	Department of Ecology	Stormwater Financial Assistance Program
9.2	U.S. Environmental Protection Agency	Design for Environment Program
9.3	Department of Ecology	Air Quality Program
9.4	Department of Ecology	Reducing Toxic Threats Initiative
9.4	U.S. Environmental Protection Agency (lead), 25 local jurisdictions	Hazardous Waste and Toxic Reduction Program, Local Source Control Program, Dangerous Waste and Pollution Prevention Plan (Pollution Prevention)
9.4	King, Jefferson, Kitsap, Pierce, Skagit, Whatcom Counties	EnviroStars Program
9.4	Department of Ecology (lead), U.S. Environmental Protection Agency, 21 local agencies	Local Source Control Partnership in Puget Sound
9.4	Puget Sound Starts Here Steering Committee (lead); federal, state, and local governments; nongovernmental organizations; Puget Sound Partnership; Department of Ecology; STORM	Puget Sound Starts Here
9.4	Municipal stormwater discharge permit holders: cities and counties	(STORM) Stormwater Outreach for Regional Municipalities
9.5	Washington Sea Grant	Small Oil Spills program
9.5	Washington State Parks	Clean Vessel Program
9.5	Washington Sea Grant, Washington State Parks and Recreation Commission	Pumpout Washington
9.6	Department of Ecology (lead), 25 local jurisdictions	Hazardous Waste and Toxic Reduction Program, Local Source Control Program, Dangerous Waste and Pollution Prevention Plan (Pollution Prevention)
9.6	Department of Agriculture	<a href="#">Dairy Nutrient Management Act (RCW 90.64 and WAC 16.611)</a>
<b>Strategy 10: Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales</b>		

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
10.1	Department of Ecology (lead), Department of Fish and Wildlife, Puget Sound Partnership	Puget Sound Watershed Characterization Assessment
10.1	Department of Ecology	Stormwater Financial Assistance Program
10.2	Department of Ecology	National Pollutant Discharge Elimination System Permit Program (Phase II Municipal)
10.2	Department of Ecology (state lead), U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System Permit Program
10.2	Washington State University Extension	Low-Impact Development Program
10.3	Municipal stormwater discharge permit holders - Cities and Counties	Stormwater Programs (including National Pollutant Discharge Elimination System Phase I and II implementation)
10.3	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
10.4	Washington Sea Grant	Small Oil Spills program
10.4	Washington Sea Grant, Washington State Parks and Recreation Commission	Pumpout Washington
10.5	Department of Ecology (lead), Puget Sound Partnership, Washington State University Extension, nongovernmental organizations	Stormwater Education Programs
10.5	Department of Ecology	Stormwater Financial Assistance Program
10.5	WSU Extension, Washington Sea Grant	Whatcom Watershed Information Network
10.5	Washington Sea Grant	Technical Assistance and Homeowner Support to Improve Local Water Quality
<b>Strategy 11: Prevent, reduce, and control agricultural runoff</b>		
11.1	Washington State Conservation Commission	Voluntary Stewardship Program
11.1	Washington State Conservation Commission	Shellfish Funding
11.1	Department of Agriculture, Washington State Conservation Commission, local conservation districts	Nutrient Management Plans, technical assistance
11.1	Washington State Conservation Commission, conservation districts (12)	Puget Sound Conservation Districts

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
11.2	Washington State Conservation Commission	Shellfish Funding
11.2	Department of Agriculture, Department of Ecology	Concentrated Animal Feeding Operation Permit
<b>Strategy 12: Prevent, reduce, and control surface runoff from forest lands</b>		
12.1	Department of Natural Resources	Forest Practices Program
12.1	Department of Natural Resources (lead), Forest and Fish Cooperators	Forest Practices Adaptive Management Program
12.2	Department of Natural Resources	Family Forest Fish Passage Program
12.2	Federal government	Northwest Forest Plan
12.2	Department of Natural Resources	Road Maintenance Abandonment Plan (RMAP)
12.2	U.S Forest Service	Access and Travel Management (ATM)
12.2	U.S. Fish and Wildlife Service	Integrated Resource Restoration Program
12.2	U.S. Fish and Wildlife Service	Legacy Roads and Trails Program
<b>Strategy 13: Prevent, reduce, and/or eliminate pollution from decentralized wastewater treatment systems</b>		
13.1	Washington Sea Grant	Septic Sense: Septic Socials and Septic System Landscaping
13.1	Washington Sea Grant	State of the Oyster Study
13.1	Department of Health	Onsite Sewage Storage Programs
13.1	Local health organizations	Government Management Accountability and Performance (GMAP) performance measures
13.2	Department of Health	Large Onsite Sewage Systems Programs
13.3	Department of Ecology	Septic Systems improvement Loan Program
13.3	Department of Ecology	Onsite Sewage Financial Assistance
<b>Strategy 14: Prevent, reduce, and/or eliminate pollution from centralized wastewater systems</b>		
14.1	Department of Ecology (State lead), U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System Permit Program
14.2	Department of Ecology	Water Quality National Pollutant Discharge Elimination System Program
14.3	Department of Ecology	Water Quality Program, 303d and Total Maximum Daily Load Plans

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
14.4	Department of Ecology (State lead), U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System Permit Program
14.4	Department of Ecology	Water Quality Program, Wastewater Treatment
14.5	Department of Ecology	Water Quality Program, Wastewater Treatment
<b>Strategy 15: 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	U.S. Fish and Wildlife Service	U.S. North American Bird Conservation Initiative
15.1	Department of Fish and Wildlife	<a href="#">Comprehensive Wildlife Conservation Strategy</a>
15.1	Department of Fish and Wildlife	Wildlife Action Plans
15.2	Department of Natural Resources	Natural Heritage Program for Priority Species and Ecosystems
15.2	Department of Natural Resources	Aquaculture Habitat Conservation Plan
15.2	Department of Natural Resources	<a href="#">Forest Practices Habitat Conservation Plan</a>
15.2	Department of Natural Resources	Incentive-based landowner conservation programs
15.2	Department of Ecology (lead), Department of Fish and Wildlife, Puget Sound Partnership	Puget Sound Watershed Characterization Assessment
15.2	Farm Services Agency (lead), Washington State Conservation Commission, Natural Resources Conservation Service	Conservation Reserve Enhancement Program
15.2	Natural Resources Conservation Service	Environmental Quality Incentives Program
15.2	Washington Invasive Species Council	<a href="#">2015 Washington Invasive Species Council Strategic Plan</a>
15.2	Washington State Recreation and Conservation Office	Washington Wildlife and Recreation Program,
15.2	Department of Fish and Wildlife	Private Landowner Assistance Program
15.3	Washington Sea Grant	Crab Team: Green Crab Monitoring Program
15.3	Department of Fish and Wildlife	Ballast water management programs
15.3	Department of Agriculture (lead), Department of Fish and Wildlife	Basin-wide detection and rapid response efforts
15.3	Department of Fish and Wildlife	Aquatic Invasive Species Prevention and Enforcement
15.4	Department of Fish and Wildlife	Aquatic Invasive Species Prevention and Enforcement
15.4	Puget Sound Institute	Puget Sound Ecosystem Research Initiative

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
<b>Strategy 16: Protect and restore nearshore and estuary ecosystems</b>		
16.1	Department of Natural Resources	Aquatic Leasing Program
16.1	Washington State Recreation and Conservation Office	Habitat and Recreation Lands Coordinating Group
16.1	Local Governments	Shoreline management programs
16.1	Department of Commerce	Small Communities Initiative
16.1	Department of Natural Resources	Dredged Material Management Program
16.1	U.S. Fish and Wildlife Service	Cooperative Endangered Species Conservation Fund
16.1	Puget Sound Partnership, Recreation and Conservation Office	Puget Sound Acquisition and Restoration
16.1	Washington State Recreation and Conservation Office	Aquatic Lands Enhancement Account program
16.2	Department of Natural Resources	Aquatic Resources Program
16.2	Department of Natural Resources	Creosote Removal Program
16.2	Department of Natural Resources	Dredged Material Management Program
16.2	Department of Natural Resources (lead), Department of Ecology, Department of Fish and Wildlife, Department of Veterans Affairs, State Parks	Puget Sound Corps
16.2	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
16.2	Local governments	Shoreline management programs
16.2	U.S. Fish and Wildlife Service	Cooperative Endangered Species Conservation Fund
16.2	Puget Sound Partnership, Recreation and Conservation Office	Puget Sound Acquisition and Restoration
16.2	Recreation and Conservation Office	Aquatic Lands Enhancement Account program
16.2	Puget Sound Salmon Recovery Council	Marine Survival of Steelhead (and Chinook and other species) Research Program
16.2	U.S. Army Corp of Engineers, Washington Department of Fish and Wildlife	Puget Sound Nearshore Ecosystem Restoration Project
16.2	U.S. Army Corp of Engineers	Skokomish River Basin Ecosystem Restoration Project
16.2	U.S. Army Corp of Engineers	Continuing Authorities Program: Sections 206 (Aquatic Ecosystem Restoration) and 1135 (Project Modifications for Improvement of the Environment)
16.2	U.S. Army Corp of Engineers	Puget Sound and Adjacent Waters Authority Program

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
16.3	U.S. Environmental Protection Agency	Puget Sound Watershed Management Assistance Program
16.3	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
16.3	Local governments	Shoreline management programs
16.3	Department of Commerce	Small Communities Initiative
16.3	Puget Sound Salmon Recovery Council	Marine Survival of Steelhead (and Chinook other species) Research Program
16.4	Department of Natural Resources	Department of Natural Resources Eelgrass protection programs
<b>Strategy 17: Protect and restore marine ecosystems</b>		
17.1	Department of Natural Resources (lead), U.S. Coast Guard	Derelict Vessel Removal Program
17.1	Department of Natural Resources	Mooring Buoy Bay-Wide Planning
17.1	Local governments	Shoreline management programs
17.2	Department of Fish and Wildlife (lead)	Marine Protected Areas
<b>Strategy 18: Protect and steward working waterfronts and improve public access to Puget Sound</b>		
18.1	Department of Ecology	Ecology Puget Sound Initiative
18.1	EnviroStars	Clean Marina Washington Program
18.1	Department of Ecology	National Pollutant Discharge Elimination System Program
18.2	Local jurisdictions	Shoreline Master Program updates
<b>Strategy 19: Ensure abundant, healthy shellfish for ecosystem health and for commercial, subsistence, and recreational harvest consistent with ecosystem protection</b>		
19.1	Department of Health (lead), Department of Ecology, tribes, Department of Agriculture, Puget Sound Partnership, conservation districts	Water quality monitoring programs
19.1	Washington Sea Grant	Bivalves for Clean Water
19.1	Department of Health (lead), local health jurisdictions	Shellfish Protection Districts Program
19.1	Washington Sea Grant	Technical Assistance and Homeowner Support to Improve Local Water Quality
19.2	Multiple: Department of Fish and Wildlife, Department of Health, Northwest Straits Commission, National Oceanic and Atmospheric Administration (lead), Puget Sound Restoration Fund	Native Oyster Rebuilding Program



SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
19.2	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
19.3	Pacific Coast Shellfish Growers Association (lead), Pacific Shellfish Institute	Ongoing programs to support shellfish production
19.3	Washington Sea Grant	Shellfish Aquaculture Technical Assistance
19.3	Washington Sea Grant	Competitive Research: Sustainable Fisheries and Aquaculture
19.4	Governor's Office	Washington Shellfish Initiative
19.5	Puget Sound Partnership	<a href="#">Biennial Science Work Plan</a>
<b>Strategy 20: Effectively prevent, plan for, and respond to oil spills</b>		
20.1	Washington Sea Grant	Small Oil Spills Program
20.1	Department of Ecology (lead), Puget Sound Partnership, U.S. Environmental Protection Agency, Pacific State/British Columbia Oil Spill task Force, Puget Sound Harbor Safety Committee	Regional Oil Spill Planning
20.2	Department of Ecology (lead), Puget Sound Partnership, U.S. Environmental Protection Agency, Pacific State/British Columbia Oil Spill task Force, Puget Sound Harbor Safety Committee	Regional Oil Spill Planning
20.3	Department of Ecology	Spills Program
<b>Strategy 21: Address and clean up cumulative water pollution impacts in Puget Sound</b>		
21.1	Department of Ecology (lead), U.S. Environmental Protection Agency	Water Quality Programs, Water Quality Assessment, and Water Quality Improvement Program
21.2	Department of Revenue and Department of Ecology	Local Toxics Control Accounts and Toxics Cleanup Program
21.2	Department of Ecology	Contaminated sites hazard rankings and prioritization
21.2	Department of Ecology	Toxics Cleanup Program
21.2	U.S. Environmental Protection Agency	<a href="#">Superfund National Priority List</a>
21.2	U.S. Environmental Protection Agency	Superfund Program

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
21.2	National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, Tribal Governments, Department of Ecology (resource-specific leads)	Natural Resource Damage Assessment Program
21.3	U.S. Environmental Protection Agency	Beach Environmental Assessment, Communication, and Health (BEACH)
21.3	Department of Ecology (lead), U.S. Environmental Protection Agency	Water Quality Programs, Water Quality Assessment and Water Quality Improvement Program
21.4	Department of Health (lead), Department of Ecology, Local Governments, Tribes	Pollution Identification and Correction (PIC) programs
21.4	Department of Health (lead), local health jurisdictions	Shellfish Protection Districts Program
<b>Strategy 22: Provide the leadership framework to guide the Puget Sound recovery effort and set action and funding priorities</b>		
22.1	Governor's office	Washington Shellfish Initiative
22.2	None	None
<b>Strategy 23: Support and build strategic, collaborative partnerships</b>		
23.1	Puget Sound Partnership	Local Integrating Organizations
23.2	Puget Sound Partnership, Tribes	Partnership Tribal Co-Management Council
<b>Strategy 24: Implement performance management</b>		
24.1	Puget Sound Partnership	Near Term Action Development
24.1	Puget Sound Partnership	Leadership Council
24.1	Governor's office	Results Washington Initiative
24.2	Puget Sound Partnership	Financial and Ecosystem Accounting Tracking System (FEATS)
24.2	Puget Sound Partnership	National Estuary Program Online Tool (NEPORT)
24.2	Puget Sound Partnership	Puget Sound vital signs
<b>Strategy 25: Coordinate and advance science and monitoring</b>		
25.1	Puget Sound Partnership	Science Program
25.1	Puget Sound Institute	Puget Sound Ecosystem Research Initiative
25.2	National Oceanic and Atmospheric Administration Northwest Fisheries Science Center, Washington Sea Grant	SoundToxins
25.2	Puget Sound Partnership	Puget Sound Ecosystem Monitoring Program

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
<b>Strategy 26: Cultivate broad-scale stewardship practices and behaviors among Puget Sound residents that benefit Puget Sound</b>		
26.1	Puget Sound Partnership	Ensuring science-based and measurably effective stewardship programs
26.2	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
26.3	None	None
26.4	None	None
26.5	None	None
26.6	None	None
26.7	None	None
<b>Strategy 27: Build issue awareness and understanding to increase public support and engagement in recovery actions</b>		
27.1	Puget Sound Starts Here Steering Committee (lead); federal, state and local governments; nongovernmental organizations; Puget Sound Partnership; Department of Ecology; STORM	Puget Sound Starts Here
27.1	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
27.2	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
27.3	None	None
27.4	None	None
27.5	None	None
<b>Strategy 28: Build social and institutional infrastructure that supports stewardship behaviors and removes barriers</b>		
28.1	Puget Sound Partnership	Training for partners and behavior change programs
28.2	None	None
28.3	None	None
28.4	Northwest Straits Commission (lead), Marine Resources Committees (seven counties), Northwest Straits Foundation	Northwest Straits Initiative
28.5	None	None
28.6	None	None

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
<b>Strategy 29: Funding Strategy</b>		
29.1	U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Coast Guard, U.S. Geological Survey, National Park Services, U.S. Department of Defense, Federal Emergency Management Agency, Federal Housing Administration, Federal Transit Administration, and other federal agencies	Ongoing Puget Sound-related programs
29.1	U.S. Environmental Protection Agency	Geographic Programs for Puget Sound
29.1	U.S. Environmental Protection Agency	National Estuary Program Base Grants
29.1	National Oceanic and Atmospheric Administration	Restoration Center
29.1	National Oceanic and Atmospheric Administration	Pacific Coast Salmon Recovery Fund grant program
29.1	Natural Resources Conservation Service	Agriculture Conservation Easements Program
29.1	Natural Resources Conservation Service	Healthy Forest Reserve Program
29.1	U.S. Army Corp of Engineers, Washington Department of Fish and Wildlife	Puget Sound Nearshore Ecosystem Restoration Project
29.1	U.S. Army Corp of Engineers	Skokomish River Basin Ecosystem Restoration Project
29.1	U.S. Army Corp of Engineers	Continuing Authorities Program: Sections 206 (Aquatic Ecosystem Restoration) and 1135 (Project Modifications for Improvement of the Environment)
29.1	U.S. Army Corp of Engineers	Puget Sound and Adjacent Waters Authority Program
29.1	Washington State, U.S. Forest Service, National Oceanic and Atmospheric Administration	Estuarine and Salmon Restoration Program
29.1	Department of Commerce	Small Communities Initiative
29.1	Department of Commerce	Growth Management Planning Grants
29.2	Natural Resources Conservation Service	Agricultural Conservation Easement Program
29.2	Natural Resources Conservation Service	Environmental Quality Incentives Program
29.2	Natural Resources Conservation Service	Wildlife Habitat Incentive Program (WHIP)
29.2	Natural Resources Conservation Service	Agricultural Management Assistance
29.2	Natural Resources Conservation Service	Conservation Stewardship Program
29.2	National Oceanic and Atmospheric Administration	Pacific Salmon Recovery Funding

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
29.2	U.S. Army Corp of Engineers, Washington Department of Fish and Wildlife	Puget Sound Nearshore Ecosystem Restoration Project
29.2	U.S. Army Corp of Engineers	Skokomish River Basin Ecosystem Restoration Project
29.2	U.S. Army Corp of Engineers	Continuing Authorities Program: Sections 206 (Aquatic Ecosystem Restoration) and 1135 (Project Modifications for Improvement of the Environment)
29.2	U.S. Army Corp of Engineers	Puget Sound and Adjacent Waters Authority Program
29.2	Puget Sound Partnership	Annual federal funding prioritization process with state agencies
29.2	Puget Sound Partnership	Recommendations to federal agencies for priority actions to include in federal agency budget requests focusing on U.S. Environmental Protection Agency, Department of Interior agencies, National Marine Fisheries Service, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and U.S. Department of Defense
29.2	Puget Sound Partnership	Use results from the collaborations with Local Integrating Organizations and stakeholders to cultivate high priority projects that can achieve multiple benefits for recovery and are successful in garnering funds from national programs
29.3	Department of Ecology	Watershed Plan Implementation Grant Program
29.3	Department of Ecology	Stormwater Financial Assistance Program
29.3	Puget Sound Partnership	Implementation of statutory requirements by the Partnership including the following. Aligning and prioritizing state agency budget requests and proposed cuts with priorities in the Action Agenda for use by the Office of Financial Management and the Legislature. Alignment of grant criteria and project selection with priorities in the Action Agenda.
29.3	Puget Sound Partnership	Work with state agencies to develop natural resource agency budget proposals, based on priorities in the Action Agenda.
29.3	Recreation and Conservation Office	Land and Water Conservation Fund
29.3	Recreation and Conservation Office	Aquatic Lands Enhancement Account Program
29.4	Puget Sound Partnership	Implementation of pollution prevention, habitat protection and restoration, and other recovery-related activities by local governments using locally generated funds from utility rates, fees, assessments, and other funding mechanisms available to local governments.

SUB-STRATEGY ID	ORGANIZATION	PROGRAM NAME
29.5	None	None
29.6	Puget Sound Partnership, Hood Canal, Pierce County, King County, Thurston County	In-lieu-fee compensatory mitigation projects
29.6	Puget Sound Partnership, Puget Sound Regional Council, Commerce groups, Local governments	Incentive programs to conserve working natural resource lands such as transfer of development right and ecosystem services.
29.6	Puget Sound Regional Council, Commerce, local governments, and Puget Sound Partnership	Transfer of development rights program in the central Puget Sound area.
29.6	Hood Canal, and Pierce, King, and Thurston Counties	In-lieu-fee compensatory mitigation programs.
29.6	Department of Natural Resources	Rivers and Habitat Open Space Program
29.6	Department of Fish and Wildlife	Landowner Incentive Program