

December 1, 2014

TO: Senate Energy, Environment, and Telecommunications Committee
Senate Natural Resources and Parks Committee
Senate Ways and Means Committee
House Agriculture and Natural Resources Committee
House Appropriations Committee
House Environment Committee

FROM: Sheida R. Sahandy, Executive Director
Marc Daily, Deputy Director

SUBJECT: Puget Sound Partnership Response to Operating Budget Watershed Proviso

During the 2014 Legislative Session, an Operating Budget proviso directed the Puget Sound Partnership (PSP) to “...*collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts.*” This memo briefly outlines the Partnership’s approach to the proviso and the priority recommendations that resulted from the evaluation.

Background

Since February of 2014, PSP has narrowed its strategic focus to playing six key roles, intended to ensure that the agency is using its limited resources in ways that bring the most value to the broader Puget Sound recovery system and maximize our ability to accelerate recovery. These six functions are:

- (1) Developing and managing, with our partners, *a shared roadmap for recovery* (known as the Puget Sound Action Agenda, RCW 90.71.300);
- (2) Managing *shared measurements* to understand the relative effectiveness of the actions being taken, course-correct as we learn, and enable accountability;
- (3) *Supporting our partners* in taking aligned actions;
- (4) *Mobilizing funding* for those actions;
- (5) Advancing and catalyzing *system and policy changes*; and
- (6) Helping *educate key parties and partners* about issues, solutions, and successes.

It is through the lens of these roles supporting the collective effort to recover Puget Sound that PSP undertook answering the budget proviso directive. In June of 2014, PSP received state funding and retained Ross Strategic (“Ross”) through a competitive selection process. The firm was asked to conduct an independent, data and evidence-based, third-party review and analysis of the existing watershed and salmon recovery structure, and to present recommendations to “streamline and strengthen Puget Sound recovery efforts.” The full Ross report, *Review of Local Watershed and Salmon Recovery Groups in Puget Sound*, is attached as “Exhibit A.”

Recommendations

The Ross report provides many observations and worthy recommendations for consideration. PSP reviewed that full spectrum of feedback and ideas and, through this submittal, is forwarding a short slate of recommendations for priority implementation. It should be noted that the Ross team found that, in addition to “streamlining and strengthening needs” at the watershed scale, there are opportunities for improvements at the regional level that would improve recovery efforts at both the watershed and regional scale. Thus, some of the recommendations included below are broader in scope than actions at the watershed level. The slate of recommendations below were derived based on the following criteria:

- (1) The value these changes will bring to accelerating outcomes;
- (2) Logical sequencing and alignment within the broader PSP recovery strategy; and
- (3) Implementation “readiness” (e.g., sufficient specificity to enable immediate action).

The Priority Recommendations are:

LEGISLATIVE PROPOSALS	
Recommendation One	Local Integrating Organizations (LIO)
What	Formally establish Local Integrating Organizations in statute and incentivize participation.
Why	Local Integrating Organizations (LIOs) were created by the Partnership to serve as the local body that helps to coordinate groups working on recovery at the local level. LIOs are a critical building block of the recovery infrastructure, providing an important link between local and regional priorities.
How	Limited legislative action to recognize and define the function, membership, and responsibilities of LIOs in statute as a venue to bring together groups working at the local level.

Recommendation Two	Ecosystem Coordination Board (ECB)
What	Provide a voting voice for LIOs and the Salmon Recovery Council (SRC) on the ECB.
Why	LIOs currently have a very high level of local engagement, including that of elected officials, whose voices should be heard at the regional ECB level. LIO and SRC participation would also improve information sharing between the regional level and the local level efforts. Having a seat for a designee from the Salmon Recovery Council will enable better communication and integration of salmon recovery and the broader watershed recovery interests into the overall Puget Sound recovery work.
How	Limited legislative action to replace the seats from the original statutory Action Areas (RCW 90.71.260) with one for each LIO and one for a representative from the SRC.
Recommendation Three	Process Efficiency and Alignment
What	Harmonize, align and streamline application, reporting, and permitting processes for funding requests, grant compliance and permit applications related to state agency programs supporting Puget Sound recovery.
Why	A pervasive complaint from local recovery project implementers is about the delay and waste surrounding the application and compliance requirements for grants and extended delays in getting permits. Streamlining these processes would reduce this waste and allow projects to be done faster, providing savings for investment in additional recovery efforts.
How	Legislative directive to key state agencies involved in funding and permitting recovery and restoration projects to align and streamline processes. The effort can be modeled after the U.S. Department of Transportation's "Every Day Counts" initiative because it works to

	find efficiencies while working across sectors and agencies (see http://www.fhwa.dot.gov/everydaycounts/).
BUDGETARY PROPOSALS	
Recommendation Four	Blue Ribbon Panel – Transportation and Land Use
What	Map a course forward to better understand the challenges to Puget Sound recovery posed by existing land use and transportation policies and practices and recommend solutions to create a land use and transportation framework supportive of Puget Sound recovery and sustainability.
Why	The intersection of Land Use and Transportation issues (policies, regulations, actions, interpretations and decisions, and how all these facets interplay across the various sectors) is arguably <i>the</i> key challenge for long term sustainable recovery, and also one of the most complex challenges facing the Puget Sound region. As such, framing out a path forward to face this challenge with some thought leaders across sectors is an important and necessary next step.
How	Create (and fund) a multi-sector (local government, tribal, state agency, LIO, and business) Blue Ribbon Panel to identify potential solutions and return to the legislature with specific proposals for a path forward.
Recommendation Five	Funding and a Water Revenue Package
What	Develop sustainable revenue mechanisms to address critical outstanding planning, operations, and capital project needs identified in the ECB Funding Report, “ <i>Funding Strategy for the Strategic Initiatives from the 2012-2013 Puget Sound Action Agenda</i> ,” attached here as “ <u>Exhibit B</u> .”

Why	The Ross report recognizes that historical funding levels have been a fraction of the amount identified as actually needed to achieve “recovery.” Recently, the ECB funding subcommittee, chaired by Fred Jarrett, Deputy King County Executive, led a process that identified funding gaps for the Action Agenda strategic initiatives and mapped out some long-term funding strategies. As a part of that report, it was pointed out that the Partnership should work hard to support any revenue package relating to water/flood infrastructure. It is critical for Puget Sound recovery that the structure of any such package be closely tied to the implementation of the Action Agenda.
How	Legislative action to pass a stormwater/floodplain protection-water availability infrastructure revenue package and ensure that funding for stormwater and floodplain projects in the twelve county Puget Sound basin are projects that implement the Action Agenda.
ADMINISTRATIVE PROPOSALS	
Recommendation Six	Align Recovery Planning Boundaries
What	Align the boundaries of the Puget Sound Salmon recovery Lead Entities and the Puget Sound Chinook watershed recovery chapters.
Why	The slight boundary variations among Lead Entities and recovery chapters in South Sound and the Olympic Peninsula can lead to confusion and inefficiency in recovery planning decisions. Aligning the boundaries will improve clarity and foster better coordination among watershed groups.
How	PSP and the Governor’s Salmon Recovery Office working with the Puget Sound Salmon Recovery Council and the State and Tribal co-managers undertake a collaborative effort to administratively align the recovery planning and Lead Entity boundaries.

Recommendation Seven	Expand the role of the ECB
What	Expand the role and functions of the ECB to reflect the broad range of issues and approaches currently being addressed and position the ECB to accommodate future system changes that may further integrate regional recovery efforts.
Why	This body of seasoned leaders is truly representative of Puget Sound interests. By statute, it is required to represent the spectrum of interests in Puget Sound recovery (see RCW 90.71.260 for the specifics on membership). To date, with limited exceptions, the ECB has served largely to review and comment upon matters before they go to the Leadership Council. Given the breadth of interests represented on the board, the ECB's role should be administratively broadened to include programmatic decisions and ongoing consideration about integration of salmon recovery and Puget Sound recovery priorities, with specific focus on identification of issues and recommended implementation approaches consistent with this notion.
How	PSP affects a broadening of the ECB roles and responsibilities working with the Leadership Council, the ECB Chair and others as appropriate.
Recommendation Eight	Examine How We Support the Watersheds and SRGs
What	Re-examine how technical assistance and capacity-building for local watershed and salmon recovery groups should be provided. The analysis will include evaluation of the efficacy of the current staff support provided by PSP as well as models through other entities.
Why	Interviewees raised questions about the best use of resources for providing technical assistance and capacity building. PSP considers it a part of on-going best-business practices to review whether the agency is providing the right support in the right way.

How	PSP will conduct an internal review of these questions and implement changes or refinements, as needed, to ensure appropriate support for local partners.
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We are available to work with legislative staff to provide more information on any of these priority recommendations, participate in work sessions, develop implementation ideas and paths, and discuss alternatives to achieving the same goals. In addition, staff is open to discussing other ideas raised in the report that were not included in this priority implementation list- in many cases because the timing and methodology of the report did not provide a sufficient framework to refine the ideas into readily implementable recommendations. PSP and its partners truly appreciate the Legislature's interest in supporting Puget Sound Recovery, a critical undertaking that is about our home, our jobs, our food, and so much more.

Exhibit A

**Review of Local Watershed and
Salmon Recovery Groups in Puget
Sound; Volumes 1 and 2**

REVIEW OF LOCAL WATERSHED AND SALMON RECOVERY GROUPS IN PUGET SOUND

November 2014

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EXECUTIVE SUMMARY

The 2014 State supplemental budget directed the Puget Sound Partnership (PSP or the Partnership) to “collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda, and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts.” The Legislature directed that the work must include coordination with the Hood Canal Coordinating Council, marine resources committees, including the Northwest straits initiative, regional fisheries enhancement groups, local integrating organizations, lead entities, and other county watershed councils, as well as representatives of federal, state, tribal, and local government agencies. This report is the product of the collaborative review requested by the Legislature.

The report makes five points described in a series of findings and recommendations, as follows.

1. Local watershed and salmon recovery groups and how they are working together on ecosystem recovery are described. (See background and findings 1-6.)
2. Options to condense, combine, and reorganize groups were explored and we concluded that, at this time, a top-down effort to immediately restructure, consolidate, or eliminate types of local watershed and salmon recovery groups is not likely to streamline or strengthen Puget Sound recovery, and, instead, is likely to distract significantly from the necessary work. Better alignment and integration is necessary and should start now. (See findings 7-11 and recommendation 3.)
3. There are fundamental issues related to a lack of reliable connections between recovery needs and priorities and land, water, and transportation planning and management decisions and decision makers; effectively and respectfully forging these connections is crucial to streamlining and strengthening Puget Sound recovery. (See finding 12 and recommendation 1.)
4. Recovery efforts are significantly underfunded. (See finding 13 and recommendation 2.)
5. We can and should do better at aligning and integrating watershed and Puget Sound scale coordination and collaboration efforts and groups, directing money efficiently to the highest priorities, and deliberating and making the difficult decisions that must be reached if we are to achieve the goals of a healthy, sustainable Puget Sound that supports environmental, social, and economic balance for current and future generations. This includes better integration of salmon and Puget Sound recovery efforts and groups. (See findings 7-11 and recommendation 3.)

The report lays out a deliberate, four-part process to move toward greater alignment and integration over time:

- Strengthen Puget Sound recovery backbone structures to serve as effective forums for integration of salmon and Puget Sound strategies and actions, identification of multi-benefit strategies and priorities, and as foundation for better alignment and integration of watershed groups. This involves significant work to strengthening both the Ecosystem Coordination Board and the LIOs.
- Implement targeted improvements to the boundaries between Chinook salmon recovery plan watershed and salmon recovery Lead Entities to support better alignment and integration over time, and targeted work to clarify roles of Chinook recovery watershed leads and lead entities.

- Call on and support each watershed in conducting a self-evaluation to identify opportunities for better integration and alignment between existing watershed-scale groups given the unique circumstances in each watershed.
- Reassess opportunities for integration (and consolidation) at the watershed and Puget Sound scales as the ECB and the LIOs mature to play more effective roles.

Many of the ideas raised in this review could represent a significant departure from how salmon and Puget Sound recovery are currently carried out. Full exploration of these ideas and creation of more specific sequenced paths forward that are respectful, build on the foundation of current capacities and success, and can be broadly supported, will take time. They also will require vetting and on the ground refinement in the watersheds and through the Puget Sound scale salmon and ecosystem recovery structures. This report identifies the issues to be resolved, lays out the first steps, and suggests that the Partnership, working with Leadership Council and the Governor's Salmon Recovery Office, and through the ECB and the Salmon Recovery Council, lead this effort.

Ross Strategic was retained by the Partnership to carry out this review. Information was gathered through a combination of literature and document review, interviews, and an electronic survey which was broadly distributed to participants in local watershed and salmon recovery groups. A group of 12 individuals with experience and expertise with the different types of groups helped to frame and direct the project and reviewed project documents including draft findings and recommendations. Any insight in these findings and recommendations is a direct result of the participation of numerous individuals who are working in the trenches on Puget Sound recovery, and are committed to its outcomes; errors and omissions are our own.

SUMMARY OF RECOMMENDATIONS

1. Increase connectivity between recovery needs and key land, water, and transportation management decisions and decision makers in local jurisdictions; and stand by the land and water use decisions we've made.
2. Increase funding for recovery efforts including monitoring, and provide stable and reliable capacity funding for watershed groups.
3. Better align and integrate groups at the watershed and Puget Sound scales, direct money more efficiently to the highest priorities, and improve our ability to deliberate and make difficult decisions.
 - 3A. Create a backbone structure for integration of salmon and Puget Sound recovery at the watershed and Puget Sound scales.
 - 3A1. Expand the membership of the ECB, and give it additional responsibility to serve as a consensus decision making body advising on the full range of issues related to how best to achieve Puget Sound recovery and implement the Puget Sound Action Agenda, and provide additional support to carry out this role.
 - 3A2. Establish LIOs in statute and work toward independent, fully integrated groups.
 - 3A3. The Puget Sound Leadership Council should convene a conversation about establishing a Puget Sound leadership academy, or other mechanism, to provide training and mentoring for service leadership in the watersheds.
 - 3B. Encourage greater alignment of groups within watersheds.
 - 3B1. The Partnership should work with Lead Entities and LIOs to create a roadmap of the individual groups operating in each watershed and what they are working on to support better alignment, cooperation, and integration.
 - 3B2. Align Lead Entity boundaries with Chinook recovery plan boundaries in the places where they do not already match, and develop best practices for coordination of the Lead Entity and Chinook Salmon recovery plan watershed lead roles.
 - 3C. Simplify administrative processes and increase availability of expert and technical support for watersheds to help recovery investments go farther.
 - 3C1. The ECB should make recommendations to simplify administrative processes related to funding and reporting, and for permitting of restoration projects.
 - 3C2. The ECB should make recommendations on how to increase the availability of technical and expert help to watersheds.
 - 3C3. The ECB should develop and recommend a mechanism to support watersheds in sharing lessons learned and developing common agendas.
 - 3C4. The ECB should reexamine the role of the Puget Sound Partnership Ecosystem Recovery Coordinators and make recommendations about how best to deploy these resources to best meet the needs of both the watersheds and the Partnership.
 - 3D. Tell a clearer story about how salmon and Puget Sound recovery are working together to aid in direction of money to the highest priorities.
 - 3D1. The Partnership should create a clear, integrated picture of regional goals, targets, and planning efforts.
 - 3D2. Support efforts that help entities involved in salmon and Puget Sound recovery identify and communicate shared interests.
 - 3D3. The Partnership should work with local and tribal jurisdictions and LIOs to create spatially explicit, specific, realistic, sequenced expectations about each geography's contributions to salmon and Puget Sound recovery.

INTRODUCTION AND PURPOSE OF THIS EFFORT

The 2014 State supplemental budget directed the PSP to “collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts.” The Legislature directed that the work must include coordination with the Hood Canal Coordinating Council, marine resources committees, including the Northwest straits initiative, regional fisheries enhancement groups, local integrating organizations, lead entities, and other county watershed councils, as well as representatives of federal, state, tribal, and local government agencies. The Partnership hired Ross Strategic to carry out this review.

Scope, Methodology, and Limitations

This effort was focused on collaborative review of the watershed and salmon recovery groups named in the Legislative proviso: the Hood Canal Coordinating Council, marine resources committees, including the Northwest straits initiative, regional fisheries enhancement groups, local integrating organizations, lead entities, and other county watershed councils, as well as representatives of federal, state, tribal, and local government agencies. It was oriented towards a higher-level review of groups’ purposes and structures; it did not seek to inventory or test the individual performance of individual groups, in the individual watersheds.

Information for the review was gathered through a combination of telephone and in-person interviews, an on-line survey, and literature/document review.

- 11 “project framers”—individuals with experience and expertise with the different types of groups—helped frame and direct the project; this included being interviewed for the project and review of draft findings and recommendations.
- Telephone interviews were carried out with 12 representatives of local watershed and salmon recovery groups.
- An online survey was broadly distributed to individuals involved with local watershed and salmon recovery groups. 186 responses were received.

Does Watershed-based Collaboration Work?

Literature on watershed-based approaches is rife with reviews of best practices for supporting and achieving successful collaboration, but lacking in studies that test whether watershed-based collaboration produces better, or faster, ecological outcomes, and studies which tease apart what elements of collaborative approaches are correlated with better ecological outcomes. However, this may be changing. A recent study examines the Oregon Watershed Enhancement Board and evaluates data on 2500 grants to local watershed management councils along with 20 years of monthly water quality data from 141 sampling sites. This finds that increased funding support for non-profit watershed council education and outreach actions are strongly linked to water quality improvements, and that support for administration of local watershed councils, and for scientific and technical activities, also are “associated with improved water quality over longer time periods.”*

* Scott, Tyler, *Is collaboration a good investment? Modeling the impact of government support for nonprofit collaborative watershed management councils*. Evans School of Public Affairs, November 2014.

Lists of interviewees and the interview guide are in Appendix E, survey questions in Appendix E, and a project bibliography are in Appendix H.

Information was coded and organized in an analytic software package called Dedoose. A draft report was provided to project framers for review and their comments were addressed. In addition, for quality control, the project team conducted a “desk audit” of the draft report, in which a senior evaluation practitioner independently reviewed the evidence, formed his own outline of major findings and points, and then reviewed the draft report for fidelity to the evidence. The desk audit found the report to be consistent with the data collected for the review and with review standards of practice.

During the review a question was raised about the effectiveness and performance of watershed groups. We did not conceive of this review as a formal performance evaluation of each individual watershed-scale and Puget Sound scale group. Looking only at the main groups named in the Legislative proviso there are more than forty. An effort to evaluate the performance of each of them would involve substantial additional investment and time, and require agreement on the evaluation criteria to be used. For some groups, such as salmon recovery lead entities, where the group’s purposes are clearly established in statute one can imagine an evaluation against the statutory criteria. For other groups, such as local integrating organizations, one would first have to distill the evaluation criteria. (We recommend hallmarks of a fully integrated, functioning LIO in recommendation 3A.) A comparative analysis of group performance likely would require controlling for factors that are uneven across groups, such as funding, and the numbers of jurisdictions groups are working to harmonize.

Many of the ideas raised in this review could represent a significant departure from how salmon and Puget Sound recovery are currently carried out. Full exploration of these ideas and creation of more specific sequenced paths forward that are respectful, build on the foundation of current capacities and success, and can be broadly supported, will take time. They also will require vetting and on the ground refinement in the watersheds and through the Puget Sound scale salmon and ecosystem recovery structures. This report identifies the issues to be resolved and lays out the first steps, and suggests that the Partnership, working with Leadership Council and the Governor’s Salmon Recovery Office, and through the ECB and the Salmon Recovery Council, lead this effort.

A Brief Note on Terminology – What Do We Mean by “Watershed”

This report uses the shorthand of “watershed” to describe the geographic area of interest of a variety groups that have organized themselves around the physical and biological structures of the ecosystem. Different types of groups in Puget Sound are organized using different watershed boundaries.

Oxford provides a definition of watershed as “the whole gathering ground of a river system.” EPA quotes John Wesley Powell in its discussion of watersheds: “[a watershed is] that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community.” Watersheds can be subdivided to create different geographic scales and reflect different geographic interests.

In the Puget Sound we have identified a variety of “watersheds.” The Puget Sound has an overarching watershed, often referred to as the Puget Sound Basin. This can be subdivided into smaller individual watersheds along major rivers and again along smaller streams and drainages. The geographies most people mean when they use the term

“watershed” are those identified by Washington State Department of Ecology in 1999 as Water Resource Inventory Areas (WRIA). There are twenty WRIA in the Puget Sound Basin.

These “gathering grounds” for river systems do not always match where people have chosen to organize themselves into governments: in fact, watershed and county boundaries often do not match.

Because the political and watershed boundaries don’t always match, local jurisdictions often must reach out to a number of groups for advice in different parts of the county that lie in different watersheds.. Similarly, watershed groups must attempt to reach and influence decision making in a number of political jurisdictions in order to cover the breadth of their area of geographic interest. Watershed-level groups have become adept at working within and across political jurisdictions, and Local Integrating Organizations (LIOs) hold the promise to create forums that more fully integrate and harmonize interests across watershed and political boundaries. City and county governments also have found nimble ways, such as inter-local agreements, to work and collaborate on ecological issues across jurisdictional boundaries.

Figure 1 shows county boundaries compared to WRIA boundaries.

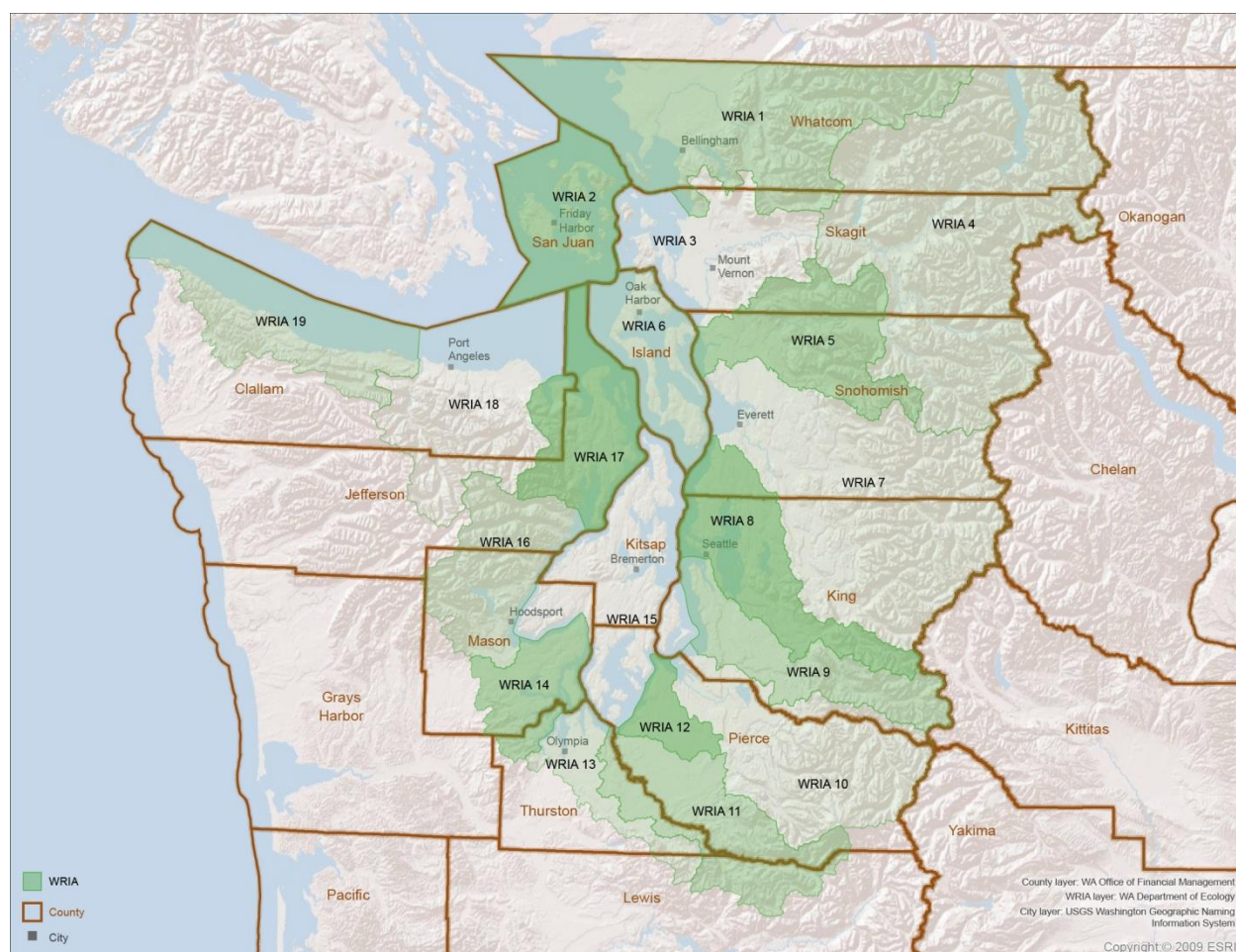


Figure 1: County Boundaries Compared to Water Resource Inventory Area Boundaries

Background – A Short History of “Watershed” Planning in Puget Sound

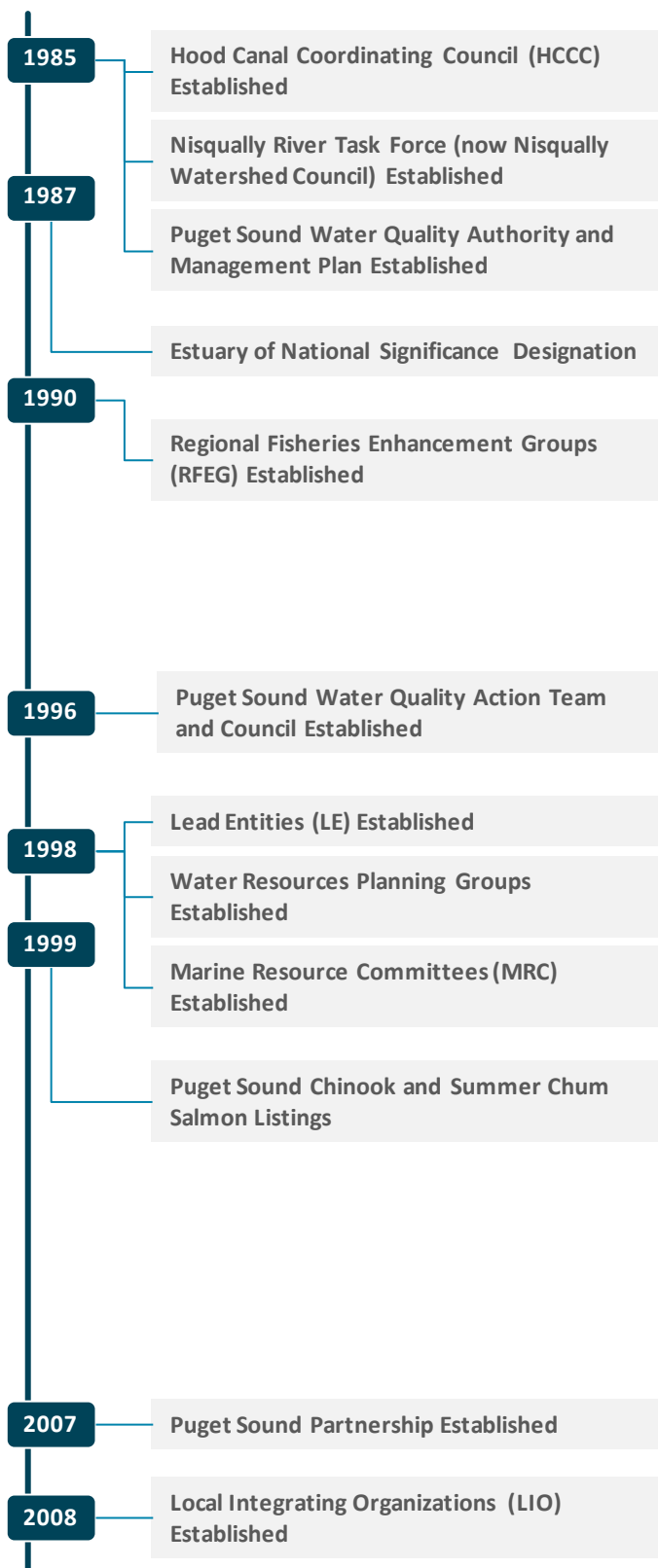
It is difficult to pinpoint the beginning of watershed planning in Puget Sound. The Hood Canal Coordinating Council (HCCC) was formed in 1985 under provisions of the Interlocal Cooperation Act, to “improve regulatory decision-making and policy review by providing a forum for discussion of regional water quality related issues affecting Hood Canal.” The Nisqually Watershed Council (then the Nisqually River Task Force) was formed in 1985 to provide technical assistance and policy guidance in the preparation of an overall management plan for Nisqually River stewardship. The Nisqually and Hood Canal councils are the oldest watershed councils west of the Mississippi River.

Since the formation of the HCCC and the Nisqually Watershed Council in the mid-1980s numerous watershed groups have been authorized into being in the Puget Sound Basin.

In the late 1980s the Legislature established the ***Puget Sound Water Quality Authority and Management Plan***. The Management Plan outlined eight areas for prevention and called for the formation of local watershed committees to prepare action agendas and prioritize pollution prevention projects within their watersheds. By 1989 a number of “early action” watersheds had established ***watershed councils*** for this purpose, and some of those groups remain active today.

In 1987 Puget Sound was designated an ***Estuary of National Significance*** under the National Estuary Program

In 1989 The Legislature established Regional Fisheries Enhancement Groups to enhance and expand salmon populations in support of recreational fishing via habitat restoration



projects, fish supplementation assistance, and community education. There are seven **Regional Fisheries Enhancement Groups (RFEGs)** in Puget Sound, organized along county lines.

In 1996 the authorizing legislation for the Puget Sound Water Quality Authority expired and the Legislature created the **Puget Sound Water Quality Action Team** and the **Puget Sound Council** as replacements.

In 1998 the Murray-Metcalf Commission, headed by two Washington State members of Congress, created the **Northwest Straits Marine Conservation Initiative** (NWSI) which established the framework for the **Northwest Straits Commission** and Marine Resources Committees. MRCs bring together scientists and community volunteers to address local threats to the marine and nearshore environment. There are seven **Marine Resources Committees (MRCs)** in the northern part of Puget Sound, organized along county lines.

In 1999 Puget Sound Chinook, Hood Canal Summer chum, and bull trout were listed under the Federal Endangered Species Act.

Also in 1999 in the Legislature established, under separate statutes, both (1) **water resource inventory planning processes and groups** (RCW 90.82) and (2) **salmon recovery planning processes and groups** (RCW 77.85) calling on the state to “coordinate and assist in the development of salmon recovery plans for evolutionarily significant units” Seven Puget Sound watersheds completed water resource plans, and **fifteen salmon Lead Entities** were established in the Puget Sound Basin. Each Lead Entity convenes a citizen and a technical advisory committee to develop and prioritize a watershed-scale list of salmon habitat restoration projects.

Shortly after Lead Entities were established, the Shared Strategy for Puget Sound emerged. **Shared Strategy** was a grassroots planning group consisting of local watershed stakeholders. The group was created in an effort to “. . . build a practical, cost-effective recovery plan endorsed by the people living and working in the watersheds of Puget Sound¹.” Shared Strategy worked with watersheds to create **fourteen watershed-specific salmon recovery chapters** which were combined into the Puget Sound Chinook Salmon Recovery Plan (SRP) adopted by NOAA in 2007.² At the same time the HCCC developed the recovery plan for Hood Canal and Eastern Strait of Juan de Fuca Summer Chum; the plan was completed in 2005 and was adopted by NOAA in 2007.

In December 2005 Governor Christine Gregoire appointed an advisory commission of 22 prominent leaders, called the Puget Sound Partnership, to re-examine our approaches to salmon and Puget Sound recovery. The advisory commission spent a year studying the scientific, geographical, political and funding issues behind the Sound’s environmental problems. In December 2006 they made recommendations including: increased accountability and a new governance structure, better integration of science, a long-term public education effort, and a renewed focus on how to pay for the large-scale actions necessary for Puget Sound recovery.

In 2007, acting on the advice of this group, the Legislature created the **Puget Sound Partnership** to “oversee the restoration of the environmental health of Puget Sound by 2020.” The Partnership replaced the Puget Sound Water Quality Action Team and became the new entity responsible for the Puget Sound Management Plan, which became the Puget Sound Action Agenda. In the same statute, the Legislature established the **Puget Sound Leadership Council**, the **Ecosystem Coordination Board**, and the **Puget Sound Science Panel**. It established **seven “action areas”** and directed the Partnership Executive Director to “[work] with the board representatives from

¹ Puget Sound Partnership website, status of salmon recovery: http://www.psp.wa.gov/SR_status.php

² Puget Sound Partnership website, status of salmon recovery: http://www.psp.wa.gov/SR_status.php

each action area . . . for the purpose of compiling the existing watershed programs relating or contributing to the health of Puget Sound.”

In late 2008 a task force of state agencies, tribal governments, counties and cities provided recommendations to enhance local implementation of the Action Agenda. This document coined the term “**Local Integrating Organization**” and called for “a local structure and process that facilitates integration of the efforts of all groups in each sub-area of Puget Sound.” Building on these recommendations the Puget Sound Leadership Council has recognized **nine LIOs**.

Also in 2011, the U.S. EPA selected five state agencies (the Departments of Ecology, Fish and Wildlife, Commerce, and Health, and the Puget Sound Partnership) and the Northwest Indian Fisheries Commission as **Lead Organizations** to implement six-year strategies to protect and restore Puget Sound.

Throughout Washington, implementation of salmon recovery plans is overseen by **regional recovery organizations**. In 2007 the PSP was established as the regional recovery organization for Puget Sound. It is the only regional salmon recovery organization that is also a state agency. PSP is advised by the **Puget Sound Salmon Recovery Council**, a basin-wide group that meets regularly to develop salmon recovery guidance and policy. The HCCC is the regional recovery organization for Hood Canal and Eastern Strait of Juan de Fuca summer chum salmon.

Finally, in addition to state-led watershed-based processes, over time, as local and regional needs became apparent, numerous locally-based watershed-based groups were created—for example, “friends” groups. Conservation Districts and special purpose districts (such as shellfish and lake improvement districts) play their own roles in ecosystem protection and recovery, and a separate coordinating structure (the EcoNETS) serves watershed and Puget Sound scale education and outreach groups. Appendix A provides a brief narrative history of watershed planning in the Puget Sound Basin. Appendix B contains more detailed descriptions of each type of watershed group named in the proviso and a map of where groups operate in Puget Sound.

FINDINGS

The Legislative proviso directed a collaborative review and development of recommendations to streamline and strengthen Puget Sound recovery. We gathered information and sought to collaborate with watershed and Puget Sound scale groups through interviews and an online survey.

In the interviews we asked a series of questions about roles and functions of groups, structure and maturity of groups, how groups work together, and interviewees' ideas about how to streamline and strengthen Puget Sound recovery. The interview guide is attached in Appendix D. The on-line survey was broadly distributed to leaders, coordinators, and participants in watershed scale and Puget Sound scale groups, as well as to state and federal agency staff. Survey questions are attached in Appendix E. Interviewees and survey respondents represented the full range of groups identified in the Legislative proviso.

Appendix F describes the results of the interviews and the survey. The interviews and survey are the primary evidence from which this report draws. We also carried out a literature review. The bibliography is in Appendix H.

This section, findings, describes our synthesis of this information obtained in interviews, the survey, and through the literature review. In places we have carried forward or reiterated information from the survey and interviews results to further illustrate or support a point. Quotes from interviews and survey responses also are used.

I. There is continued and widespread support for local, geographic-based “watershed” approaches

“The Lead Entity process and the process for capital project development and implementation may be the best in the country in terms of community involvement, science driving, links to a strategic recovery plan with independent science review. The system is really effective at finding and funding the best projects out there.”

“In northern Puget Sound we rejected a proposal to have a national marine sanctuary and became the first state in the nation to develop a home grown alternative with the NW Straits Initiative.”

The salmon recovery work in Puget Sound sometimes is credited with coining the phrase “the Washington Way.” The Washington Way describes a recognition that individual communities are best positioned to bring together people to solve problems in their geography, and a preference for solving complex issues from the grassroots up. Our review reinforced what others have observed before: there is continued support for solving complex environmental problems—such as salmon and Puget Sound recovery—through reliance on broadly-convened local and watershed-based groups to develop a robust understanding of local issues, bring together and harmonize local interests, and develop and implement effective and locally-supportable strategies and actions.

Interviewees and survey respondents from each type of group and from state and federal agencies emphasized to us that, in their view, while there are opportunities for improvement and efficiencies, overall, the process is not broken. Respondents also advised that care should be taken not to disrupt the work and relationships of groups that are creating the local understanding, good will, and authorizing environment for recovery investments. We were told that alternatives to watershed-based approaches likely would not make scientific or social sense.

2. Separate groups for Puget Sound and salmon recovery

There are separate groups for Puget Sound recovery coordination and collaboration and for salmon recovery coordination and collaboration at both the watershed and Puget Sound scales. In general, each Puget Sound watershed is represented by both (1) a salmon Lead Entity, which includes a technical and a citizens advisory committee, and is responsible for producing a watershed-based prioritized list of habitat restoration projects; and (2) a Puget Sound LIO, which usually includes a decision-making (or executive) committee and a citizen and/or technical advisory committee and is responsible for producing a list of local priority Puget Sound protection and restoration projects to include in the Action Agenda.

The fact of separate groups for Puget Sound and salmon recovery seems to be largely a result of timing—the salmon recovery groups were created first when the ESA listings occurred, and the Puget Sound groups came later, with the inauguration of the PSP. It also may be a result of the separate accountability structures between the two efforts. The salmon recovery effort is largely accountable to NOAA, which is the federal decision maker on the adequacy of recovery plans and efforts, makes decisions about ESA listings for Puget Sound salmon, and is responsible for administering Federal salmon recovery funding. The U.S. EPA (working with other Federal agencies including NOAA) is the federal decision maker on the adequacy of the National Estuary Program Comprehensive Conservation and Management Plan for Puget Sound (the Puget Sound Action Agenda) and is responsible for administering federal National Estuary Program funding.

The fact that the groups are separate does not automatically mean that they are uncoordinated or working at cross purposes. It does point to a need for individual watersheds to check their structures to ensure that they are efficiently and effectively producing salmon recovery and Puget Sound recovery strategies and decisions that are mutually reinforcing and consistent, and to identify opportunities for closer alignment and integration of groups. (See recommendation 3B.) It also points to an opportunity to create a structure to foster closer integration of Puget Sound scale groups over time (See recommendation 3A.)

We note that discussions about integration and consolidation of groups can be troubling to people who are highly invested and committed to doing the work of recovery through the structure they operate in. Many of the ideas raised in this review could represent a significant departure from how salmon and Puget Sound recovery are currently carried out. A deliberate process, such as recommended here, gives time to for full exploration of these ideas and creation of specific, sequenced paths forward that are respectful, build on the foundation of current capacities and success, and are broadly supported.

3. Functions to support ecosystem recovery

Drawing from interviews and survey responses, we identified a number of functions that must be filled to support ecosystem recovery at both the watershed and Puget Sound scales. These are:

- Convening and harmonizing of interests
- Integrating of jurisdiction departments, responsibilities, and decision making (e.g., ensuring the “planning people” talk with the “salmon people” or the “stormwater people” talk with the “Puget Sound people”)
- Creating a shared, science-based, understanding of challenges and opportunities (e.g., what are the main pressures on ecosystem functions; what are the limiting factors for salmon recovery)
- Identifying potential recovery projects (e.g., habitat restoration, stormwater management, etc.)
- Prioritizing potential recovery projects and decision making

- Sponsorship and implementation of recovery projects (e.g., on-the-ground construction of restoration and other projects)
- Project implementation monitoring (e.g., is the project still there three years later? Is it still working?)
- Watershed and Puget Sound scale effectiveness monitoring and adaptive management (e.g., are the projects producing results)
- Education and outreach—building the authorizing environment and support for action
- Coordination and deployment of volunteers
- Empowering stewardship of resources
- Representing local interests to regional coordination, policy-setting, and decision-making bodies, and factoring regional priorities into local priorities and decisions

These functions are needed around the full suite of ecosystem and salmon recovery issues, and around integration of these issues with local decision making and responsibilities for growth management, floodplains, critical areas, transportation, storm and surface water management, community and economic development, and maintenance of natural resource based industries such as agriculture, shellfish, recreation, tourism, and timber production.

These functions also are needed at both the watershed scale to develop and implement local priorities, and at the Puget Sound scale to develop priorities at the scale of the full estuary. Collaboration and coordination between watershed-scale and Puget Sound-scale efforts is critical to ensure resources are focused on the highest priorities and efforts are effectively sequenced and mutually reinforcing.

Best Practices for Watershed-based Collaboration

In 2002 the National Policy Consensus Center conducted a process to “identify lessons learned from successful watershed initiatives and develop recommendations... on ways to enhance and use the effectiveness of watershed partnerships.” This report identifies twelve lessons learned for state officials involved in watershed partnerships, which should be kept in mind as the Partnership works with local groups to strengthen the backbone organizations in Puget Sound. They are:

- Conveners of collaborative groups are extremely important.
- A diverse, inclusive group of stakeholders is required to achieve success.
- Be wary of under-represented interests in watershed collaboration.
- Watershed groups usually need commitments from appropriate state and federal agencies.
- Leveraging funds and other resources for meeting critical watershed needs increases with collaboration.
- Modest investments of state funds in organizational capacity building have a big payoff.
- States play a key role in assisting with scientific information, including the development of new data, to provide the factual basis for agreements.
- Monitoring and measurement of results and systematic evaluation are critical to ultimate success.
- States can assist local groups in developing needed watershed assessments and plans so that projects and actions address priority watershed problems.
- States can be part of agreements reached by consensus.
- Written agreements are essential, including commitments for state and federal participants.]
- Partnership agreements complement and help implement regulatory requirements rather than supplant them.*

* National Policy Consensus Center, *Watershed Solutions Collaborative Problem Solving for States and Communities*, 2002.

4. Groups play different roles and fulfill different functions

“Maybe the biggest factor coming out of the report will be a roadmap of who each group is and what they do.”

Drawing from the interviews and survey responses, we created three broad categories for Puget Sound and salmon recovery groups: 1) **watershed-scale** coordination, collaboration and “backbone” functions; 2) **regional-scale** coordination, collaboration and backbone functions; and 3) project-scale coordination and implementation (or “**project sponsors**”). See Figure 2, below.

The main **watershed-scale** coordination and collaboration groups include the Lead Entities (for salmon recovery), and LIOs (for broader Puget Sound recovery issues), Water Resource Planning Groups, and watershed councils, where they exist also provide watershed-scale coordination and collaboration. At the **Puget Sound-scale**, coordination and collaboration groups include the Puget Sound Salmon Recovery Council and the Ecosystem Coordination Board. There also are state-wide and regional coordination and collaboration groups that focus on providing support for specific types of watershed scale groups. For example, RFEGs have a state-wide coalition to support transfer of lessons learned and development of a common RFEG agenda; watershed leads and LIO Coordinators meet at the regional level to share information and lessons learned; the NW Straits Commission supports MRCs and provides technical support and training on marine and nearshore issues.

The main **project sponsor** groups include RFEGs, MRCs, land trusts, conservation districts, special improvement districts (such as shellfish districts), watershed councils and “friends of” groups. Many project sponsor groups, particularly RFEGs, MRCs and conservation districts, also are actively engaged in providing watershed-based education and outreach for adults and children, and in organizing and deploying volunteers in service of restoration and other projects. Tribal governments and local jurisdictions also sponsor projects. Project sponsor groups also provide an important measure of watershed-level coordination and collaboration in their areas of interest. Project sponsor groups are on the front lines of restoration efforts and can be well recognized in communities through their work on individual projects, volunteer coordination, and watershed based education. As project sponsor groups tend to be less-closely affiliated with state or local government agencies, they often lead conversations with land owners that help to frame, scope, and bring forward the next generation of watershed protection and restoration projects.

In a few cases individual watershed-based groups are specifically identified and chartered by the Legislature for specific responsibilities. This is the case with the Nisqually River Council (RCW 90.82) and the HCCC (RCW 90.88.020). Legislative chartering confers additional autonomy to the groups, and may allow them to act more independently on behalf of harmonizing interests to meet recovery goals in their geography. The HCCC and Nisqually Watershed Council have incorporated as independent non-profit entities, allowing them to hire their own staff, act as their own fiscal agent, and develop diversified sources of funding.³ In most cases, watershed-scale coordination or collaboration groups are not individually identified and chartered by the Legislature, and they are staffed or coordinated by tribal, city, or county employees.

Figure 2 describes in general terms how Puget Sound watershed and salmon recovery groups are fulfilling the ecosystem restoration functions and operating at different scales.

³ Other groups also are also are incorporated as non-profit entities, this is the case with the Puyallup Watershed Council. Each RFEG is its own non-profit entity.

Project Sponsors	Watershed Scale Coordination, Collaboration, and Priority Setting	Puget Sound Scale Policy, Coordination, Collaboration, and Priority Setting
Regional Fisheries Enhancement Groups (RFEGs)* Enhance and expand salmon populations in support of recreational fishing via habitat restoration projects, fish supplementation assistance, and community education. One in each county.	LIOs Integrate local and tribal jurisdictions and interests to develop and implement Puget Sound recovery strategies.	Leadership Council and Ecosystem Coordination Board Policy setting and coordination and leadership bodies for Puget Sound recovery.
Marine Resources Committees* Bring together scientists and community volunteers to advise local government and address threats to the marine and nearshore environment. One in each county in northern Puget Sound.	Watershed Leads An individual responsible for implementation and adaptive management of the Chinook recovery plan chapter. Sometimes, but not always, the same as the watershed lead.	Salmon Recovery Funding Board** State wide policy setting and funding decision making board for salmon recovery.
Conservation Districts*** Work with landowners to conserve land, water, forests, wildlife, and related natural resources. One in each county.	Lead Entities Convene citizen and technical committees and submit a yearly list of prioritized habitat restoration projects.	Salmon Recovery Council Regional policy setting and coordination body for Puget Sound salmon recovery.
Land Trusts*** Work with landowners and local governments to protect and preserve land.	Watershed Councils Unevenly distributed, a term used to refer to a variety of groups. Some focus on water resource planning, others on water quality issues; others serve as salmon habitat citizen committees.	Northwest Straits Initiative Leads and coordinates Puget Sound marine resources committees.
		RFEG Coalition** Coordinates and supports RFEGs state wide.

* Also provides education and outreach, and coordinates volunteers.

** Statewide

*** These groups were not named in the legislative proviso but were frequently described as important project sponsor groups

Figure 2: Primary Role of Each Group by Group Type

Overall, the strengths of each group as identified by respondents echo the role the group plays at the watershed or Puget Sound scale.

Table 1: Main Strengths of Groups Reported by Survey Respondents

What do you see as the main strengths of the group? Please select all that apply.	Lead Entity (n=54)	LIO (n=23)	Water Resource Planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Implementing salmon and ecosystem recovery projects on your own	65.8%	11.1%	0.0%	47.4%	100.0%	47.8%	45.0%
Evaluating potential projects and establishing local salmon and ecosystem recovery priorities	97.4%	66.7%	22.2%	68.4%	57.1%	69.6%	55.0%
Directly funding other local watershed and salmon recovery groups	23.7%	11.1%	11.1%	26.3%	0.0%	4.3%	35.0%
Influencing legislators and other stakeholders involved in Puget Sound recovery to support recovery efforts	36.8%	44.4%	44.4%	36.8%	28.6%	52.2%	20.0%
Organizing volunteer efforts aimed at salmon and Puget Sound recovery	7.9%	5.6%	22.2%	21.1%	100.0%	82.6%	15.0%
Aligning efforts of different groups working towards salmon and Puget Sound recovery to help make local decisions	50.0%	88.9%	44.4%	63.2%	14.3%	30.4%	40.0%
Providing science-based technical assistance and relevant local data to watershed and salmon recovery groups	63.2%	22.2%	55.6%	63.2%	28.6%	69.6%	55.0%
Other	0.0%	5.6%	11.1%	0.0%	0.0%	4.3%	20.0%

In 2011 John Kania and Mark Kramer published a paper titled *Collective Impact* in Stanford Social Innovation Review. The paper described a framework for thinking about roles and functions needed to bring communities together to optimize results on complex social issues. Since then, increasing attention has been given to the theory and implementation of “Collective Impact” for complex social and environmental problems. Kania and Kramer identify five conditions for collective impact: a common agenda, shared measurement system, mutually reinforcing actions, continuous communication, and backbone function.

The roles and functions for ecosystem recovery discussed above also can be described in terms of the five conditions for collective action, operating at a nested set of scales.

Table 2: Mapping of Puget Sound Watershed and Salmon Recovery Groups to Collective Impact Conditions.

	Watershed Scale	Puget-Sound Scale
Common Agenda	Chinook Recovery Plan chapters Habitat 3-year work plans Local Priority Actions	Puget Sound Chinook Recovery Plan Action Agenda for Puget Sound
Shared Measurement System	Needed at both scales	Needed at both scales
Mutually Reinforcing Actions	Needed at both scales	Needed at both scales
Continuous Communication	Needed at both scales	Needed at both scales
Backbone Function	Lead Entities Local Integrating Organizations	Salmon Recovery Council Salmon Recovery Funding Board* Ecosystem Coordination Board Leadership Council

*Statewide

This notion of nested scales is critical. Backbone functions, for example, are just as important at the watershed scale as they are at the Puget Sound scale, if not more so. Work and investment is needed to realize the vision of LIOs as effective forums to integrate recovery needs and effectively bring forward priorities that serve multiple recovery benefits. (See recommendation 3A.)

5. Numbers of groups

In Puget Sound we have a multitude of watershed-based salmon and Puget Sound recovery groups. Considering just the main types of groups named in the Legislative proviso, at the watershed scale there are:

- Fourteen salmon recovery lead entities, each with a technical and citizens advisory committee.
- Fifteen Chinook salmon recovery watershed chapters, each served by a watershed lead. The watershed lead is often, but not always, the same person as the lead entity coordinator.
- Seven marine resources committees (in the northern part of Puget Sound).
- Nine local integrating organizations, each with an executive or decision committee and most with an advisory committee.
- Seven regional fisheries enhancement groups.

Oregon Plan for Salmon Recovery and Watershed Enhancement

In 1995 House Bill 3441 unanimously passed the Oregon Legislature and was promptly signed by Governor Kitzhaber. It provided guidance for local governments to establish watershed councils at their own discretion, i.e. without state agency approval. As a result of the 1995 process, the Oregon Legislature and the Governor created the Oregon Plan for Salmon Recovery and Watershed Enhancement in 1997. Some interpret the plan as an effort to dovetail compliance with the Endangered Species and Clean Water Acts, as it simultaneously tackled salmon habitat restoration and watershed recovery. The two key legislative guidelines for these groups were (1) that the watershed council be a voluntary, local group, and (2) that the council represent a balance of interested and affected persons within the watershed. The statute states that watershed councils should be “... designated by a local government group convened by a county governing body to address the goal of sustaining natural resource and watershed protection and enhancement within a watershed.”

Councils provide a forum in which a wide range of land management agencies from federal and local branches of government can convene with private land managers and owners to work for solutions to watershed challenges. Oregon watershed councils are coordinated by the Oregon Watershed Enhancement Board, a state agency with a mandate to provide grants for local work to improve the health of local streams, rivers, wetlands and natural areas. Members of the agency’s 17 member citizen board come from tribes, federal and state natural resource agency boards and commissions, and the general public. Watershed councils take projects through the development and implementation phases, and they identify and triage projects while using their experience to create new standards and goals for their watersheds. Since 1999 funding for implementation projects has come from Oregon Lottery and salmon license plates revenue, which is matched more than 1.5x by local, federal and private dollars. The 15 key state agencies that support Watershed Councils range from the Departments of Energy and Transportation to the Departments of Agriculture and Fish and Wildlife. In Oregon, there are currently 74 Watershed Councils that represent six state regions.*

* Network of Oregon Watershed Councils, “Oregon Watershed Councils,” Accessed November 3, 2014, <http://oregonwatersheds.org/councils>.

There also are numerous watershed councils, plus conservation districts, special purpose districts (such as shellfish and lake improvement districts), and local land trusts.

At the Puget Sound scale there is:

- The Puget Sound Leadership Council
- The Puget Sound salmon recovery council
- The Ecosystem Coordination Board
- The Puget Sound Science Panel
- The Regional Implementation Technical Team (for salmon recovery)
- The NW Straits Commission

The multitude of people and groups dedicated to restoring Puget Sound is one of the great strengths of ongoing recovery efforts, but its breadth and complexity can be confusing and rationalization is necessary.

Appendix B contains more detailed descriptions of each type of watershed group named in the proviso and a map of where groups operate in Puget Sound. It includes a table comparing the established roles and functions across groups.

6. Overlap in activities, roles, and participants

As described above there are multiple groups that provide watershed-scale coordination and collaboration, each focused on a different issue or set of issues. There is, however, some overlap of functions and activities across group types at both the watershed and Puget Sound scales.

Survey respondents were asked to identify the main activities their respective group does to contribute to salmon recovery and/or Puget Sound restoration. Lead Entities and watershed councils both overwhelmingly chose identifying and prioritizing salmon recovery efforts as their main activity, followed by providing a forum for local coordination and collaboration on salmon recovery issues. LIOs selected identifying and prioritizing Puget Sound restoration efforts (e.g., to populate the Puget Sound Action Agenda) as their main activity, followed by providing a forum for local coordination and collaboration on Puget Sound restoration issues. Water resources planning group and RFEG respondents did not identify a clear main activity, i.e., there was near equal distribution among the possible categories; however, for RFEGs, coordinating project implementation received a slightly higher score than the rest of the categories. MRCs selected coordinating project implementation as their main activity, followed closely by identifying and prioritizing Puget Sound restoration efforts (e.g., to populate the Puget Sound Action Agenda), applying for and administering project funding, and recruiting and coordinating volunteers to provide education and outreach.

Although there is some overlap in activities and functions, with a few exceptions, groups do not routinely fulfill multiple roles within a watershed. Table 3 describes survey respondents' identification of when watershed-scale groups fulfill multiple roles. Information gathered from interviewees was consistent with survey responses.

Table 3: Groups Fulfilling Multiple Roles Reported by Survey Respondents

Does the group also fulfill any other statutory, contractual, or administratively established roles? If yes, please select the other roles the group fills below. (4)	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Lead Entity		7.1%	0.0%	41.2%	0.0%	4.2%	0.0%
Water resources planning group	8.1%	14.3%		11.8%	0.0%	4.2%	5.9%
Watershed council	10.8%	0.0%	44.4%	47.1%	0.0%	0.0%	11.8%
Local Integrating Organization (LIO)	10.8%		0.0%	17.6%	0.0%	8.3%	17.6%
Marine Resources Committee (MRC)	2.7%	14.3%	0.0%	0.0%	0.0%		11.8%
Regional Fisheries Enhancement Group (RFEG)	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%
Other	8.1%	0.0%	0.0%	17.6%	0.0%	4.2%	58.8%
I don't know	16.2%	14.3%	33.3%	0.0%	0.0%	0.0%	17.6%

There are a few geographies in which an individual group does fulfill, or integrate, multiple roles. For example, in San Juan County, the Marine Resources Committee also serves as the salmon Lead Entity Citizen Advisory Committee. In the Nisqually, and a number of other watersheds, the salmon recovery Lead Entity citizens' advisory committee also identifies as a watershed council. The most fully realized-example of this type of integration is the HCCC which serves as the Lead Entity, watershed council, and LIO for the Hood Canal watershed, including the entire Skokomish watershed, and parts of the Quilcene-Snow, Kennedy-Goldsborough, and Kitsap watersheds, covering parts of Jefferson, Mason, Kitsap, and Pierce Counties as well as the Tribal jurisdictions of the Skokomish, Port Gamble S'Klallam, and Jamestown S'Klallam.

There also are multiple coordination and collaboration groups at the Puget Sound scale. The Salmon Recovery Council provides coordination and collaboration and advises the regional recovery organization (which is the Puget Sound Partnership) on salmon recovery issues, and the Ecosystem Coordination Board and Puget Sound Leadership Council provide forums for coordination and collaboration, deliberation, and (in the case of the Leadership Council) decision making on broader Puget Sound recovery issues. Table 4 summarizes the roles and representation on the Salmon Recovery Council and the Ecosystem Coordination Board.

Table 4: Regional Coordination and Collaboration Groups

PS-Scale Coordination Groups	Purpose	Membership	Standing or Ad Hoc Workgroups*	Meeting Frequency
Puget Sound Salmon Recovery Council	The Recovery Council advises the Leadership Council on salmon recovery issues. Recovery Council decisions accomplish the following: - Set policy direction for implementation of the Puget Sound Chinook Recovery Plan; - Develop and direct strategic approaches to near-term issues and actions; - Establish allocation policies for capital funding; and	41 members Agriculture (1) Business (3) Environmental (3) Federal government (5) Tribal governments (10; though all Puget Sound tribes are invited to participate) State government (5) Watersheds (14, one from each Lead Entity)	- Executive Committee - Monitoring and Adaptive Management Subcommittee - Regulatory Subcommittee	Every other month

PS-Scale Coordination Groups	Purpose	Membership	Standing or Ad Hoc Workgroups*	Meeting Frequency
	Hold others and itself accountable for the implementation of the Recovery Plan. <u>– PSSRC Operating Procedure</u>			
Ecosystem Coordination Board	The board shall advise and assist the [Puget Sound Leadership] council in carrying out its responsibilities in implementing this chapter, including development and implementation of the action agenda. <u>RCW 90.71.250</u>	27 members Action areas (7, one from each) Business (2) Cities (1) Counties (1) Port districts (1) Environmental (2) Legislative caucuses (4) Federal government (3) Tribal governments (3) State government (3)	- Funding Subcommittee - Regulatory Subcommittee	Quarterly

* Ad hoc workgroups are formed for specific tasks and may no longer be active.

Not surprisingly, there also is overlap among group participants. Under the current group structure and configuration, many individuals serve on multiple coordination and prioritization groups in their watershed. In our survey of watershed group leaders and participants 47% of the Lead Entity survey respondents also served on their LIO, 28% also serve on their local watershed council or planning group, and 30% serve on another local or watershed group. For the LIO respondents, 33% also served on the Lead Entity, 25% also served on their local watershed council and/or water resources inventory area planning group, and 42% served on another local or watershed group. Many Lead Entity and LIO respondents also serve on groups oriented towards project sponsorship or volunteer organization such as RFEGs and MRCs. Interview results were consistent with respect to individuals often serving on multiple groups at both the watershed and Puget Sound scales.

Table 5: Service on Multiple Groups Reported by Survey Respondents

Do you serve on any other local or regional watershed or salmon recovery groups? (8)	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Lead Entity	34.2%	33.3%	0.0%	21.4%	60.0%	11.1%	0.0%
Water resources planning group	5.3%	16.7%	33.3%	0.0%	0.0%	5.6%	10.0%
Watershed council	23.7%	8.3%	50.0%	14.3%	60.0%	5.6%	30.0%
Local Integrating Organization	47.4%	25.0%	16.7%	50.0%	20.0%	22.2%	50.0%
Marine Resources Committee	7.9%	25.0%	16.7%	0.0%	0.0%	11.1%	30.0%
Regional Fisheries Enhancement Group	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Salmon Recovery Council	21.1%	0.0%	0.0%	21.4%	0.0%	5.6%	10.0%
Salmon Recovery Funding Board	0.0%	0.0%	0.0%	7.1%	0.0%	0.0%	10.0%
Ecosystem Coordination Board	5.3%	0.0%	0.0%	7.1%	0.0%	5.6%	0.0%
Northwest Straits Commission	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%

Do you serve on any other local or regional watershed or salmon recovery groups? (8)	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Science Panel	10.5%	0.0%	0.0%	14.3%	0.0%	5.6%	0.0%
RITT	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	28.9%	41.7%	16.7%	35.7%	0.0%	44.4%	40.0%

At the same time, when we asked about challenges, except for watershed councils, few respondents identified “too many meetings” as a major concern. Respondents did list “not enough time because of other responsibilities” as a key barrier. We compared this to results about how much time respondents spend in group activities. Most respondents report that they spend fewer than 16 hours per month in meetings of their primary group. When asked to consider all their watershed group related activities (both for their primary group and any other groups they serve on) most respondents continue to report that they spend fewer than 16 hours per month in group activities. Of the 52 respondents who report they spend more than 16 hours per month in all group activities, 10 identified as group coordinators or leads, which one would expect to spend a significant amount of time on group activities. Taken together we believe these results signal that most respondents are carrying multiple responsibilities in addition to their roles in the watershed group, and having a difficult time meeting them all. This could be addressed by increasing capacity funding for watershed groups (see recommendation 2) and/or by improving the efficiency of the watershed scale coordination and collaboration functions so more could be accomplished in less time (see recommendations 3A and 3B).

More respondents still identified funding, conflicting interests and priorities, and the difficulty of the work itself as barriers. (See Finding 13.)

7. Numbers and configurations of groups in watersheds— one size does not fit all

As previous studies of watershed groups in Puget Sound have emphasized, each watershed has a unique set of recovery opportunities and priorities, physical and biological ecological systems and structures, social and economic conditions and relationships, and watershed interests, needs, and pressures. Because every watershed is different, each has a different constellation of groups and alignments between groups.⁴

Watershed groups have formed at different times and in response to different needs. In some places each new need seemed to create a new local/watershed group. This was in part in response to multiple state mandates that required or incentivized formation of different local/watershed groups in sequence, over time. In other places new responsibilities have been consolidated into existing groups either directly by the Legislature (e.g., the HCCC), or within the watersheds (e.g., San Juan County, where the marine resources committee is also the salmon recovery lead entity technical committee).

⁴ *Recreation and Conservation Office Statewide Assessment of Watershed Coordination*. 2009; *Puget Sound Local Integration Task Force: Final recommendations to the Puget Sound Partnership to Enhance Local Implementation of the Action Agenda*. January 20, 2009; *University of Washington Analysis of Organizations Engaged in Puget Sound Ecosystem Recovery: A Report for the Puget Sound Partnership*. August 1, 2013.

Most types of watershed-based groups exist throughout Puget Sound—this is the case with RFEGs and Conservation Districts, which are organized along county lines and exist in every county around Puget Sound. It also is the case with salmon recovery Lead Entities, which are organized along WRIA lines (for the most part) and exist in every WRIA around Puget Sound. Chinook watershed recovery chapters and salmon recovery Lead Entities and their technical and citizen advisory committees also cover the entirety of Puget Sound, although in some places their boundaries are not the same. LIOs exist throughout Puget Sound, with the exception of the Skagit watershed, where an LIO has not been formed.

Some types of watershed groups exist only in certain parts of Puget Sound. Marine Resources Committees exist in the northern parts of Puget Sound and are organized along county lines. Water resource planning groups exist only in a few WRIA where communities have chosen address the need for water quantity planning using that framework; where they don't exist watersheds have worked out other ways to coordinate and collaborate on water quantity. Watershed councils also are unevenly distributed and are inconsistently linked or aligned with other watershed-based planning and coordination efforts. In some cases a watershed council is also the citizens' advisory group for a salmon recovery lead entity which is the case in the Nisqually watershed. In other places, watershed councils are less clearly tied to salmon recovery groups and work on a range of water quality, water quantity and habitat issues. Some counties support numerous watershed councils with county funding, which is the case in Pierce County. The term "watershed council" seems to be used to describe a variety of local and watershed-scale groups, playing a variety of roles.

Appendix C includes tables that list the watershed-scale groups that were the subject of this review. Groups are listed by county and by WRIA.

New groups are forming around particular issues in particular places. These "place based" initiatives such as the Puget Sound Natural Resource Alliance (formed around bringing together interests in agricultural landscapes) and Flood Plains by Design (formed around simultaneously reducing flood risks and restoring floodplain ecosystem functions while maintaining or improving agricultural production, water quality, and open space/recreation) are next generation of efforts. They specifically convene and support local stakeholders to take a community-led approach to solving a targeted problem in a particular place in a way that provides multiple environmental and social-economic benefits.

8. Perceptions of existing coordination efforts

Nearly all interviewees and survey respondents described the need for coordination directly with other watershed groups, as well as regional groups like the ECB and Salmon Recovery Council. Survey respondents and interviewees also offered their perceptions on ongoing efforts to coordinate and collaborate across watershed-scale groups and between watershed-scale and Puget Sound scale groups.

LIO, Water resources planning group, watershed council, and RFEG respondents all reported Lead Entities as the group most important to coordinate with in their geography. LIOs reported MRCs and Land Trusts as their second and third most important group to coordinate with, while Lead Entity respondents reported RFEGs and Land Trusts (both project sponsors) as the groups most important to coordinate with, followed by LIOs. MRC respondents listed LIOs as the group most important to coordinate with, followed by Lead Entities and RFEGs.

Table 6: Survey Respondents Perceptions of Watershed Scale Coordination

	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)
Which other groups are most important for your group to coordinate with in your geography (please rate in order of importance, with 1 being most important and 8 being least important).						
Lead Entity	3	1	1	1	1	3
Water resources planning group	7	4	3	7	7	7
Watershed council	5	5	6	5	3	6
Local Integrating Organization	4	7	2	3	5	1
Marine Resources Committee	6	2	5	6	6	2
Regional Fisheries Enhancement Group	1	6	4	2	2	4
Land Trust	2	3	7	4	4	5
Other	8	8	8	8	8	8
Please rate how well you believe the group coordinates with other watershed and salmon recovery groups in your geography.						
Very effective	25.6%	11.8%	14.3%	26.3%	57.1%	16.7%
Effective	35.9%	58.8%	42.9%	26.3%	28.6%	58.3%
Somewhat effective	7.7%	23.5%	28.6%	31.6%	14.3%	20.8%
Some challenges	17.9%	5.9%	14.3%	15.8%	0.0%	4.2%
Very challenged in coordination	12.8%	0.0%	0.0%	0.0%	0.0%	0.0%

Watershed scale groups also reported how effective they believe ongoing coordination efforts are. LIOs, RFEGs, and MRCs have the most favorable perception of their coordination efforts, with at least 94% of respondents reporting coordination as somewhat effective, effective, or very effective. Over 70% of the LIO, RFEG, and MRC respondents said coordination is very effective or effective. Lead Entities reported the least effective coordination, with 30% of respondents saying coordination has some challenges or is very challenged in coordination.

Watershed scale groups also offered their perceptions on coordination with Puget Sound scale groups.

Lead Entities, water resources planning groups, and watershed councils reported the Salmon Recovery Council as the regional group most important to coordinate with, followed by the ECB and Northwest Straits Initiative. LIOs were the only group to report the ECB as the regional group most important to coordinate with, followed by the Salmon Recovery Council and Northwest Straits Initiative. Not surprisingly, MRCs reported the Northwest Straits Initiative as the regional group most important to coordinate with, followed by the Salmon Recovery Council and ECB.

In regards to how well groups believed effective coordination with regional groups is occurring, the responses were slightly less positive than responses regarding coordination with other watershed and salmon recovery groups. Less than 15% of the Lead Entity, LIO, water resources planning group, watershed council, and RFEG respondents reported coordination with regional groups as very effective. However, at least 70% of the LIO, water resources planning group, watershed council, RFEG, and MRC respondents reported coordination with regional groups as effective or somewhat effective. Lead Entities reported the least effective coordination with regional groups, with over 30% of respondents reporting either some challenges or very challenged in coordination.

Table 7: Survey Respondents Perceptions of Puget Sound Scale Coordination

	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)
Which regional groups are most important for you to coordinate with (please rate in order of importance, with 1 being most important and 4 being least important).						
Ecosystem Coordination Board	2	1	2	2	3	3
Northwest Straits Commission	3	3	3	3	2	1
Salmon Recovery Council	1	2	1	1	1	2
Other	4	4	4	4	4	4
Please rate how well you believe the group coordinates with regional groups.						
Very effective	14.3%	12.5%	0.0%	11.8%	0.0%	25.0%
Effective	31.4%	37.5%	42.9%	41.2%	66.7%	50.0%
Somewhat effective	22.9%	37.5%	28.6%	35.3%	16.7%	25.0%
Some challenges	22.9%	12.5%	0.0%	0.0%	0.0%	0.0%
Very challenged in coordination	8.6%	0.0%	28.6%	11.8%	16.7%	0.0%

9. Opportunities for closer alignment and integration

“Not sure why there are so many different groups. Seems like it should be streamlined so there aren't groups duplicating efforts and wasting money that could be spent on actual projects.”

“Be careful making decisions in which “streamlining” entails consolidation. Each group has different missions and different strengths. We are doing work that hinges on people and relationships and trust are key. Different groups have different relationships which open different doors and opportunities.”

It is tempting to look at the number of groups around Puget Sound at the watershed and regional scales and reach for immediate consolidation. As described above, there are numerous groups all working on particular aspects of salmon and/or Puget Sound recovery, participation across groups can be overlapping, and it is unusual for a single group to fulfill multiple roles at the watershed or Puget Sound scale.

In this review we experimented with a number of ideas about consolidating or otherwise changing the configuration of groups and geographies including a “strong watershed” approach modeled after the work in Oregon, a county-based approach, an approach that would rely on salmon recovery structures, and an approach that would consolidate salmon recovery and Puget Sound recovery coordinating groups.

Approaches that emphasized consolidation of groups were most appealing to funders, project sponsor groups, and those already involved with fully-integrated local groups (such as the HCCC). People interested in exploring group consolidation cited the ability to better manage watersheds based on a holistic view of physical and biological systems and processes and identify opportunities/projects to meet multiple recovery goals and provide multiple benefits. They also thought consolidation could increase efficiency, reduce time in multiple/overlapping meetings, and result in direction of more resources to on-the-ground projects or monitoring efforts. They cited groups such as the HCCC, which acts as both the Lead Entity and the LIO for the entire Hood Canal watershed, as an example of working consolidation.

Consolidation of groups generally was not supported by watershed or Puget Sound scale convening and collaboration group participants and leaders. People who did not support consolidation advised extreme care in any exploration of increased coordination and consolidation, and cautioned that any effort to move watershed groups toward a more consolidated framework was (1) destined to fail because one size will not fit all and (2) certain to disrupt and delay recovery efforts more than serve them. They reminded us that the HCCC pre-dated many of the subsequently-developed watershed groups and thus was uniquely equipped to take on new watershed coordination responsibilities as they were mandated. Respondents noted it takes a lot of time and effort to grow the relationships and trust that watershed groups need to be effective; many individuals and groups around Puget Sound, and the region as a whole, have made a significant investment in growing these relationships and trust. They advised that an attempt to consolidate or eliminate groups would reduce momentum and cause disruption very disproportionate to the efficiency or improvement it might create.

At the end, in the timeframe available for this review, no clear, single approach to consolidating group configurations or structures, or eliminating specific groups, that we felt would be worth the disruption it would cause has emerged.

It is clear, though, that there are opportunities for closer alignment and integration of groups at the watershed and Puget Sound scales and that those opportunities should be taken.

In the long run, the region may not be able to afford continued support of separate groups for salmon recovery and Puget Sound recovery. Federal funders are looking more towards coordinated investment strategies—where resources are directed based on regional priorities. State and other capacity money for watershed groups is under continual pressure. If greater alignment and integration cannot be achieved collaboratively, working with the existing structures, there may well be demands for consolidation or elimination of groups in the future.

Our recommendations outline a deliberate, four-part process towards greater alignment and integration.

- Strengthen Puget Sound recovery backbone structures to serve as effective forums for integration of salmon and Puget Sound recovery, identification of multi-benefit strategies and priorities, and as foundation for better alignment and integration of watershed groups over time. This involves significant work to strengthening both the Ecosystem Coordination Board and the LIOs.
- Implement targeted improvements to the boundaries between Chinook salmon recovery plan watershed and salmon recovery Lead Entities to support better alignment and integration over time, and targeted work to clarify roles of Chinook watershed leads and lead entities.
- Call on and support each watershed in conducting a self-evaluation to identify opportunities for better integration and alignment between existing watershed-scale groups given the unique circumstances in the watershed.
- Reassess opportunities for integration (or consolidation) at the watershed and Puget Sound scales as the ECB and the LIOs mature to play more effective roles

What is possible in any given watershed is fundamentally about their accepting shared perceptions of opportunities and threats, leadership, and readiness/willingness. Alignment and integration will take different forms – and grow at different paces – in each watershed. But we have to get started.

● Potential Alternative Models for More Consolidated Watershed Approaches

Strong watersheds model. People referenced the potential benefits of a “strong watershed” approach modeled after the Oregon Watershed Planning Act. Those holding this view suggested we encourage the individual watersheds at the WRIA or, at most, multiple adjacent WRIA level, to be the main convening and coordination body and forum for science-based local priorities for both salmon recovery and Puget Sound recovery. Each strong watershed group would serve all the functions for watershed convening, collaboration, and prioritization of work efforts including the functions currently served by LIOs, Lead Entities, and water resource planning groups. At its fullest expression, this model would replace, or combine, the existing watershed groups into a single coordination and collaboration body, one for each watershed; it would rely on these individual watershed groups to integrate all needs in the watershed.

Rely on existing salmon recovery structures and networks. People suggested that we use the salmon recovery structure and groups to recover Puget Sound. People who raised this approach noted that salmon recovery structures are very functional and have momentum, and suggest that if we really put effort and additional resources into recovering salmon, that salmon recovery alone will achieve, as a collateral benefit, the vast majority of what is needed to recover all of Puget Sound. Some people wondered what the Puget Sound recovery effort was all about, and why it needed its own structure independent of salmon recovery. Some suggested 1) giving Lead Entities and the Salmon Recovery Council additional responsibilities and resources so they could manage all of Puget Sound recovery and 2) eliminate the LIOs and the ECB. (Others suggested that the salmon recovery groups were already working hard to focus on recovering salmon, and needed to be able to maintain that focus.)

Use counties as integrators. Counties make decisions about land use, shoreline management, floodplains, critical areas, transportation, surface water and stormwater management for much of the land area that is not federally-managed around Puget Sound, and counties (with the rest of us) rely on ecosystem services for their economies and well-being. They coordinate and collaborate with the cities in their geography and with neighboring tribal nations. In many ways counties are the primary deliverers of “recovery services” for salmon and for Puget Sound in that they put in place the basic framework of land management and the programs that protect existing ecological structures and functions and support (or require) ecological restoration. Some people emphasized the critical role of counties in salmon and Puget Sound recovery and emphasized the need for high-level integration of recovery efforts within county departments and close connections between recovery needs and county decision making. People suggested something like a recovery “czar” or similar position, a senior-level official who could be housed in a County Executive’s office and be responsible for liaisons between watershed-based advisory groups (such as Lead Entities) and county decision makers and ensuring that recovery needs are fully considered in county decision making and in county programs. The critical role of counties is reinforced by a recent study of collaborative networks across Puget Sound recovery groups, which noted that “county governments (in particular, county health departments, public works divisions, and surface and stormwater management divisions) form the backbone of Puget Sound restoration and recovery efforts.”*

* University of Washington Analysis of Organizations Engaged in Puget Sound Ecosystem Recovery: A Report for the Puget Sound Partnership. August 1, 2013.

10. The vision for LIOs is strong but has not yet been achieved

“While I appreciate the intention behind the LIOs, I feel that they are not adding much that is new or beneficial to our area. While I have never been to a meeting, I hear that it is a lot of prioritizing; does not seem to be a lot of action.”

“[LIO] has been very valuable because it brings all the jurisdictions and other aspects of the issues to the table (e.g., pollution, water quality, water quantity, others) and brings different aspects to the table to have conversations that we wouldn’t [otherwise] be able to get done.”

“If [the] Legislature is serious about LIOs they need to be in statute and need a funding source. Concept is good as it covers broader issues of Puget Sound and land use, but it takes a lot of capacity and resources and leadership to make that happen.”

In late 2008 a task force of state agencies, tribal governments, counties, and cities provided recommendations to enhance local implementation of the Action Agenda. This document coined the term “Local Integrating Organization” and called for “a local structure and process that facilitates integration of the efforts of all groups in each sub-area of Puget Sound. . .create the overarching structure and direction for integrating efforts and ensuring public and private funds are well spent. . .[and] build on the working relationships that have been established through the watershed’s salmon recovery, stormwater control and water quality and quantity work, as well as the work of the Northwest Straits Commission, marine resource committees, many environmental and conservation organizations [and] between local governments for growth management and transportation.”

Since the 2008 report, local and tribal jurisdictions around Puget Sound have come together to form, and the Leadership Council has recognized, nine LIOs which cover the entire Puget Sound region except the Skagit watershed (WRIAs 3 and 4). Figure 3 shows Puget Sound LIOs

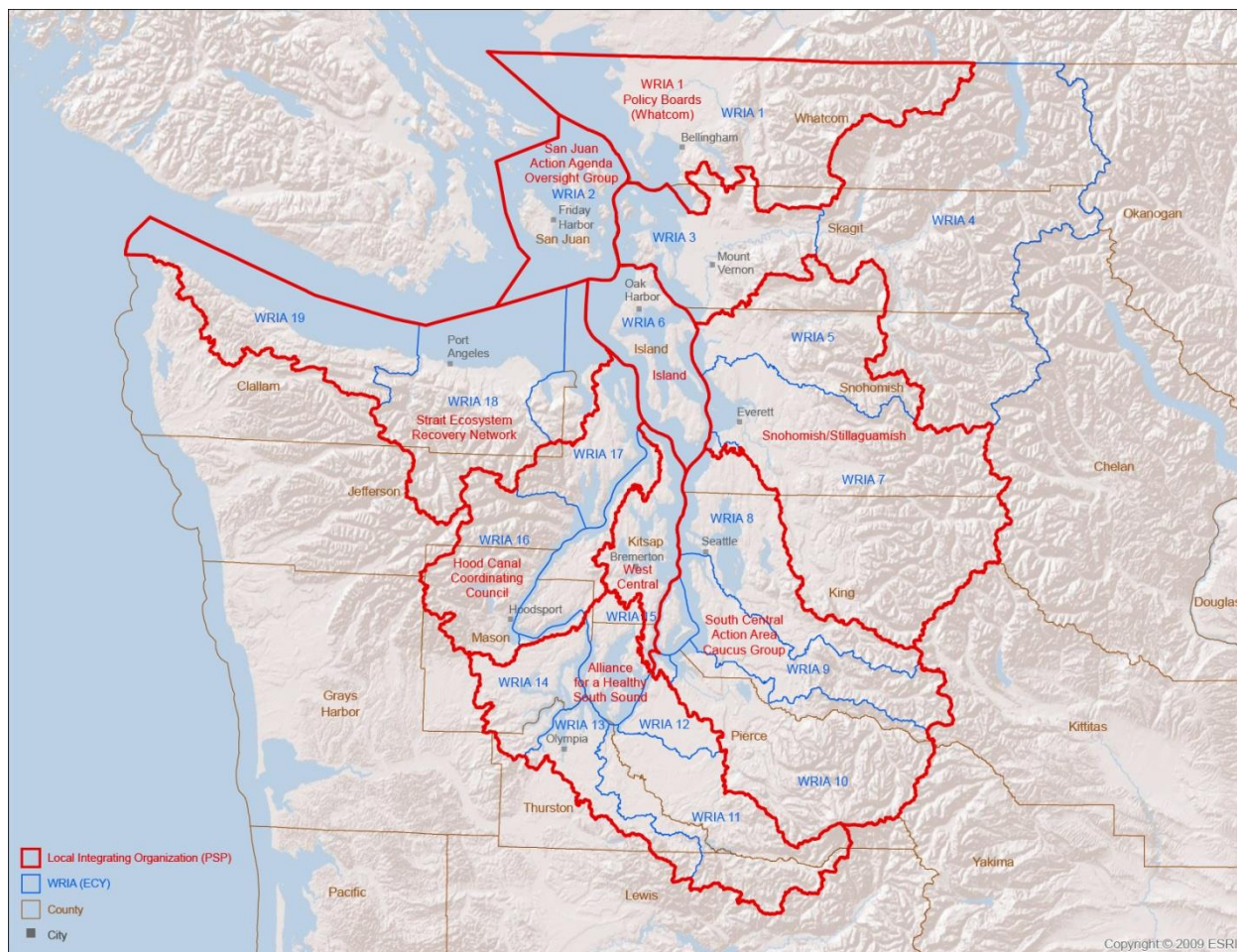


Figure 3: Map of LIOs/County Boundaries

The vision for LIOs is that they bolster consensus and momentum around local actions that contribute to overall Puget Sound recovery efforts and act as a coordinating body, helping to integrate and advance efforts from various entities (salmon recovery, stormwater, shellfish beds, etc.) and facilitate cooperation in each local area. Emphasis is placed on LIOs having clear connectivity to local political decision making structures and decision makers; LIO Executive and Decision Committees generally are made up of elected officials from the local and Tribal jurisdictions in each geography. (Appendix B includes a table showing the membership of each LIO executive and advisory committees.)

Our review indicates that the vision for LIOs generally has not been realized. Of the groups addressed in this review, LIOs were the most questioned. A significant number of respondents (some from LIOs themselves) expressed frustration with the group structure and confusion over what LIOs are supposed to do and what value they add; some questioned the wisdom and need for another watershed-based coordination and collaboration group.

Our approach, rather than suggest elimination of LIOs, is instead to suggest a recommitment to growing the LIOs as fully-integrated local groups. (See recommendation 3A.) Our belief is that effective streamlining of watershed coordination activities or consolidation of watershed groups will require confidence among watershed leaders in

shared understandings and priorities, and trust among parties. Strengthening the LIOs gives these conditions a chance to arise, and creates the climate for appropriate streamlining or consolidation to emerge more organically at the watershed scale.

II. Project sponsor groups are crucial to recovery efforts and can be overlooked in discussions of Puget Sound-scale planning and capacity needs

“The local salmon recovery project sponsors are challenged by capacity issues . . . the strength of the local sponsors has been the growth from small scale projects to the large scale projects commonly proposed now. These groups gained a lot of experience with the smaller projects and now have the ability to manage the larger projects. The capacity issue is a big challenge.”

“[The] more we can get capacity to [project sponsors] the better, and if you can give them the right priorities and help them with capacity to do the work it would be great; see if there’s way to give them more resources they’ll be more successful. It takes a lot of work. The RFEGs and conservation districts and land trusts are whom we work with most.”

In many watersheds, project sponsors, such as RFEGs, conservation districts, MRCs, land trusts, and others are the main groups that are (1) developing relationships with land owners to understand how projects can be framed and crafted to serve both land owner and ecosystem needs; (2) providing the administrative and financial capacity to contract and oversee large restoration projects; and (3) providing the on-the-ground project oversight for project implementation. It is critical to recognize that if the actual projects on the ground are not managed and implemented well this not only reduces ecological benefits, it reduces the likelihood that willing land owners will come forward for the next generation of projects. Cities, counties and Tribal governments also provide sponsorship for projects, and need similar recognition and support for this role.

Respondents from all types of other watershed and salmon recovery groups emphasized the key role project sponsors play in recovery efforts and agreed that it is crucial that they have reliable capacity support so they can maintain local relationships, participate in watershed-level coordination and planning groups, and put together the grant proposals that will enable projects to move forward on the ground. They also emphasized the importance of these groups understanding watershed and Puget Sound scale recovery strategies and priorities so that the projects they bring forward are consistent.

12. Clear, systematic connections between salmon and Puget Sound recovery needs and land, water, and transportation planning and management are critical

This is not a new observation, but it was strongly reiterated in our review. In the Puget Sound Region many of the key decisions that will affect whether or not—and how—we achieve Puget Sound and salmon recovery are made by local elected officials and organizations that are separate from the groups addressed in this analysis. These include decisions about growth management, critical areas, floodplains, transportation, shoreline management,

and stormwater and surface water programs which are made primarily by city and county governments; and, for Tribal lands, by Tribal jurisdictions.

As we asked interviewees and survey respondents about group structures and alignment many people told us: the real issues are not around group structures or configurations; they are around making and abiding with the critical decisions about land use, transportation, and water management that will enable or prevent recovery.

Survey respondents and interviews overwhelmingly identified local government decision makers as “key customers” of watershed-scale groups and listed advising on growth management decisions among the groups’ key functions. Respondents identified a number of different examples of how they inform, or offer advice on, county land and water management decisions:

- In some places the County Councils request comments and/or advice on land or water management plans and decisions from Lead Entities, Local Integrating Organizations, or Marine Resources Committees;
- In some places the local recovery group (such as a Lead Entity or a Marine Resources Committee) is part of the County Council structure, for example, as a standing workgroup;
- In some places a local recovery group coordinator who also is a county employee may offer informal advice or produce staff-reports or proposal for consideration by the planning department or commission;
- In some places an elected official who participates in a local recovery group (such as and LIO) will reach back to their Commission or Council to share information recovery priorities and needs, and those needs will be part of the package of information informs his or her individual decision about how to vote.
- In some places, counties have identified some salmon recovery planning documents as best available science for decisions like critical area determinations.

At the same time, respondents and interviewees also told us it is difficult for salmon and Puget Sound recovery groups to effectively influence land and water management planning decisions; some respondents said planning commissions were actively resistant to advice from recovery groups. Respondents told us:

- “Don’t have systematic connections between recovery needs and land use . . . take on land use and transportation. Those are the things you should champion.”
- “Land use is taboo for most of these watershed groups to even wade into.”
- “[Recovery planning] needs to be part of the formal process for the Critical Areas Ordinance (CAO) update and Shoreline Masters update. The County should be taking into consideration the listed species plans and action agenda, or PS recovery plans, etc. That’s the only way I think you should make it happen in a codified manner. Otherwise you just have someone like me going to all these meetings, trying to insert myself into the process and getting yelled at.”
- “But we lack the political will at the local, regional and state level to effectively use and enforce existing laws and regulations (SMA, HPA issuance). If this continues, we will always be playing catch up to fix things that were allowed, that probably should not have been allowed. Shoreline armoring rates are a good indication of this issue. If we provide adequate, functional habitat, and protect the ecosystem, Puget Sound will improve, but that means we will have to get to a place where the priority is to take those protective actions first, rather than coming in later to fix things. Yes, this is difficult to do, but will eventually be necessary.”

On balance, it is not clear how advice on recovery needs that makes its way to decision-making forums, is used; and the continued, documented loss of habitat in the Puget Sound Basin raises the concern that information on recovery needs is not given enough weight in decisions, or is not adequately informing implementation and

enforcement. Taken together, the two types of responses we heard from interviews and survey respondents both reinforce the importance of connecting recovery needs and priorities to land, water, and transportation management decisions, and point to an opportunity to work with local elected officials to determine how best to make these connections.

13. Additional barriers to Puget Sound recovery include funding, lack of shared priorities, and the difficulty of the work

As in previous efforts, respondents in this effort emphasized that one of the primary barriers or challenges to salmon and Puget Sound recovery is lack of reliable and sufficient funding. In our review the majority of respondents listed insufficient funding for projects as one of the main challenges to salmon and Puget Sound recovery, and many also noted funding for administration of watershed efforts and capacity was lacking.

Other barriers identified include the burden of obtaining funding, the difficulty of the work (smaller projects have been done), and conflicting priorities.

Table 8: Barriers to the Work of Watershed Groups Reported by Survey Respondents

What do you see as the main challenges or barriers facing the group? Select all that apply. (26)	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Participants do not have enough time to do the work because of other responsibilities	52.6%	58.8%	22.2%	63.2%	28.6%	30.0%	50.0%
Too many meetings	13.2%	11.8%	0.0%	31.6%	14.3%	5.0%	20.0%
Not enough funding for capacity/administration	50.0%	58.8%	44.4%	52.6%	85.7%	65.0%	45.0%
Not enough funding available to implement projects	63.2%	70.6%	55.6%	47.4%	57.1%	75.0%	45.0%
Too burdensome to obtain funding	23.7%	41.2%	22.2%	15.8%	14.3%	20.0%	15.0%
Smaller/easier projects have mostly been done and only larger, more difficult, more costly projects remain	34.2%	17.6%	22.2%	21.1%	14.3%	10.0%	15.0%
Not enough information to make decisions/recommendations	18.4%	11.8%	11.1%	10.5%	0.0%	0.0%	5.0%
Not the “right” participants at the table to take on the important issues in the geography	18.4%	5.9%	11.1%	10.5%	0.0%	0.0%	25.0%
Conflicting interests or priorities among group participants	31.6%	17.6%	33.3%	36.8%	14.3%	5.0%	15.0%
Unclear how the group fits into regional activities and priorities	10.5%	11.8%	22.2%	15.8%	0.0%	20.0%	15.0%
Unclear how the group fits into local activities and priorities	0.0%	11.8%	22.2%	10.5%	0.0%	10.0%	5.0%

What do you see as the main challenges or barriers facing the group? Select all that apply. (26)	Lead Entity (n=54)	LIO (n=23)	Water resources planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Lack of shared or clear local goals or priorities	18.4%	5.9%	22.2%	15.8%	0.0%	15.0%	15.0%
Lack of shared or clear regional goals or priorities	15.8%	0.0%	11.1%	26.3%	0.0%	15.0%	15.0%
Lack of local leadership/political will	31.6%	11.8%	11.1%	21.1%	0.0%	25.0%	25.0%
Conflicting priorities at the local level	28.9%	23.5%	33.3%	52.6%	0.0%	10.0%	30.0%
Conflicting priorities at the regional level	13.2%	17.6%	11.1%	15.8%	0.0%	10.0%	10.0%
Other	5.3%	5.9%	11.1%	10.5%	0.0%	0.0%	20.0%

RECOMMENDATIONS

This report is the result of a collaborative review with the watershed groups. In accordance with the Legislative proviso, recommendations identify actions to “streamline and strengthen” Puget Sound recovery. In synthesizing recommendations from the evidence and through collaboration with the watershed groups, the review team asked itself three questions:

- Is the action supported by the evidence?
- Is the action supported by the community?
- Is the action worth the opportunity cost?

Put another way, these questions boil down to our effort to distill activities that are worth working on, since any effort to change the framework and architecture of local salmon recovery and watershed groups will, necessarily, take time, attention, and resources away from other efforts including, potentially, the on-the-ground work of recovery.

We address three issues in the recommendations: (1) connectivity between recovery needs and land, water, and transportation planning and management decisions; (2) funding; and (3) improvements to group structures for watershed and Puget Sound scale management and implementation of recovery actions. In each area we make specific recommendations and provide additional information to further describes why we are suggesting these actions and how they could be accomplished. The most numerous, and specific, recommendations are made in the area of improvement to the group structures for watershed and Puget Sound management and implementation of recovery; these were the focus of this review. The first two issues, connectivity to land, water, and transportation planning and adequacy of funding, were not the specific focus of our review; however as we carried out the review interviewees and survey respondents raised them again and again as the main barriers to success.

It may come as a surprise that we are not recommending immediate, state-directed, restructuring, elimination, or consolidation of groups. In our conversations with framers and during interviews we explicitly explored various approaches to restructuring or consolidation such as combining Lead Entity and LIO work, combining the Salmon Recovery Council and the ECB, relying more on counties, etc. (See finding 9.) Our conclusion is that a unilateral effort to restructure or consolidate groups at this time *is not* likely to streamline or strengthen Puget Sound recovery, in fact we think it is likely to *distract* from the necessary work. We do believe that there should be increasing efforts to support closer alignment and integration of salmon recovery and Puget Sound recovery work and groups, and we have addressed this in the recommendations suggesting a deliberate, four-part process, as follows.

- Strengthen Puget Sound recovery backbone structures to create effective forums for integration of salmon and Puget Sound recovery, identification of multi-benefit strategies and priorities, and as foundation for better alignment and integration of watershed groups over time. This involves significant work to strengthening both the Ecosystem Coordination Board and the LIOs.
- Implement targeted improvements to the boundaries between Chinook salmon recovery plan watershed and salmon recovery Lead Entities to support better alignment and integration over time, and targeted work to clarify roles of Chinook watershed leads and lead entities.

- Call on and support each watershed in conducting a self-evaluation to identify opportunities for better integration and alignment between existing watershed-scale groups given the unique circumstances in the watershed.
- Reassess opportunities for integration (or consolidation) at the watershed and Puget Sound scales as the ECB and the LIOs mature to play more effective roles.

Finally, it cannot be stated strongly enough that, even those interviewees most interested in the idea of restructuring or consolidating groups, also thought that addressing fundamental issues related to forging better connections between recovery needs and priorities and land, water, and transportation decisions and decision makers was more important to streamlining and strengthening Puget Sound recovery.

The Legislative proviso directs administrative, legislative, and budgetary recommendations. The bulk of our recommendations are administrative. This is not meant to dissuade Legislative interest or action, the Legislature could productively take up any of these issues; however, we have identified as Legislative recommendations only those that seem to require Legislative action. For a number of recommendations we contemplate that preliminary administrative work might be followed by Legislative action. All recommendations have budgetary implications, since they would take time and attention to implement, and in the case of recommendation 2 call directly for increases in funding.

Table 9: Summary of Implementation Method for Recommendations

1. Increase connectivity between recovery needs and key land, water, and transportation management decisions and decision makers in local jurisdictions; and stand by the land and water use decisions we've made.	Administrative work to develop specific approaches likely followed by Legislative action.
2. Increase funding for recovery efforts including monitoring, and provide stable and reliable capacity funding for watershed groups.	Budgetary
3. Better align and integrate groups at the watershed and Puget Sound scales, direct money more efficiently to the highest priorities, and improve our ability to deliberate and make difficult decisions.	Administrative and Legislative
3A. Create a backbone structure for integration of salmon and Puget Sound recovery at the watershed and Puget Sound scales.	Administrative and Legislative
3B. Encourage greater alignment of groups within watersheds.	Administrative
3C. Simplify administrative processes and increase availability of expert and technical support for watersheds to help recovery investments go farther.	Administrative
3D. Tell a clearer story about how salmon and Puget Sound recovery are working together to aid in direction of money to the highest priorities.	Administrative

SUMMARY OF RECOMMENDATIONS

1. Increase connectivity between recovery needs and key land, water, and transportation management decisions and decision makers in local jurisdictions; and stand by the land and water use decisions we've made.
2. Increase funding for recovery efforts including monitoring, and provide stable and reliable capacity funding for watershed groups.
3. Better align and integrate groups at the watershed and Puget Sound scales, direct money more efficiently to the highest priorities, and improve our ability to deliberate and make difficult decisions.
 - 3A. Create a backbone structure for integration of salmon and Puget Sound recovery at the watershed and Puget Sound scales.
 - 3A1. Expand the membership of the ECB, and give it additional responsibility to serve as a consensus decision making body advising on the full range of issues related to how best to achieve Puget Sound recovery and implement the Puget Sound Action Agenda, and provide additional support to carry out this role.
 - 3A2. Establish LIOs in statute and work toward independent, fully integrated groups.
 - 3A3. The Puget Sound Leadership Council should convene a conversation about establishing a Puget Sound leadership academy, or other mechanism, to provide training and mentoring for service leadership in the watersheds.
 - 3B. Encourage greater alignment of groups within watersheds.
 - 3B1. The Partnership should work with Lead Entities and LIOs to create a roadmap of the individual groups operating in each watershed and what they are working on to support better alignment, cooperation, and integration.
 - 3B2. Align Lead Entity boundaries with Chinook recovery plan boundaries in the places where they do not already match, and develop best practices for coordination of the Lead Entity and Chinook Salmon recovery plan watershed lead roles.
 - 3C. Simplify administrative processes and increase availability of expert and technical support for watersheds to help recovery investments go farther.
 - 3C1. The ECB should make recommendations to simplify administrative processes related to funding and reporting, and for permitting of restoration projects.
 - 3C2. The ECB should make recommendations on how to increase the availability of technical and expert help to watersheds.
 - 3C3. The ECB should develop and recommend a mechanism to support watersheds in sharing lessons learned and developing common agendas.
 - 3C4. The ECB should reexamine the role of the Puget Sound Partnership Ecosystem Recovery Coordinators and make recommendations about how best to deploy these resources to best meet the needs of both the watersheds and the Partnership.
 - 3D. Tell a clearer story about how salmon and Puget Sound recovery are working together to aid in direction of money to the highest priorities.
 - 3D1. The Partnership should create a clear, integrated picture of regional goals, targets, and planning efforts.
 - 3D2. Support efforts that help entities involved in salmon and Puget Sound recovery identify and communicate shared interests.
 - 3D3. The Partnership should work with local and tribal jurisdictions and LIOs to create spatially explicit, specific, realistic, sequenced expectations about each geography's contributions to salmon and Puget Sound recovery.

I. Increase connectivity between recovery needs and key land, water, and transportation management decisions and decision makers in local jurisdictions; and stand by the land and water use decisions we've made.

In 1999 the State Joint Natural Resources Cabinet published *Extinction is Not an Option* a state-wide strategy to recover salmon, the goal of which is to “Restore salmon, steelhead, and trout populations to healthy and harvestable levels and improve habitats on which fish rely.” Among other things, it made recommendations related to forests and fish, managing urban stormwater to protect streams, ensuring adequate water supplies for salmon, integrating pollution prevention and management programs to provide clean water for fish, and linking land use decisions with salmon recovery.

In *Extinction is Not an Option*, the Natural Resources Cabinet observed that “the greatest challenge will be developing and implementing strategies in urban and rural areas to protect and restore habitat while accommodating population growth and addressing economic viability in light of restrictions anticipated for salmon recovery.” Evidence suggests this is a challenge we are still struggling to meet.

In 2011, the treaty tribes of Western Washington published *Treaty Rights At Risk*, which describes ongoing habitat loss and the continuing decline of salmon. It notes that since the listing of Puget Sound fall Chinook in 1999 loss of shoreline habitat and function through shoreline armoring has continued at a rate of 1.5 miles per year, about half of critical low gradient riparian forest habitat has insufficient forest cover to support salmon, and 83% of waters sampled under the Clean Water Act are polluted at levels that violate state water quality standards.⁵

The 2013 *State of the Sound* report is consistent. Of fifteen established vital signs (indicators of Puget Sound health) three were unchanged, three were worsening, and six were reported as mixed. The shoreline armoring target (reported as mixed) continued to show a net gain in armoring. The water quality index for streams and rivers was slightly worse than the baseline reference and there was a net decline in the biological condition of small streams as shown by the Benthic Index of Biotic Integrity. Non-federal Puget Sound basin forest was converted to developed cover at a rate of 2,176 acres per year for the period 2001-2006. Achievement of the 2020 Puget Sound recovery target rate of land conversion (1,000 acres converted per year) will require roughly a 50 percent reduction from the 2001-2006 annual conversion rate, or an 80 percent reduction from the 1991-2001 conversion rate of 5,048 acres per year.⁶ The recent Puget Sound Pressures Assessment identified land use conversion pressures as the most important to Puget Sound. The Puget Sound Action Agenda contains many recommended strategies and actions related just to land use; and many others related to water quantity, water quality, and stormwater management.

These are difficult decisions. Local land managers and elected officials are working to harmonize many needs and interests in the watershed, for population, for growth, for economic vitality, and for protection and restoration of natural resource systems that support salmon, shellfish, and other natural resource industries. They are faced with many, sometimes conflicting, priorities at the local scale, and for elected officials, their time horizons may be only

⁵ Treaty Rights at Risk, at p.10, and references cited therein.

⁶ State of the Sound, 2014, at p. 70-71 and p. 98-99

a few years, not decades. Building and retaining a local political constituency to advocate for recovery needs and priorities, and putting in the time to attend planning commission, city council, and county commissioner meetings to actively participate in land use policy discussions takes concerted efforts over time.

Our review was focused on local watershed and salmon recovery groups. It did not involve all the interests that should be at the table to determine how best to forge the reliable connections needed between recovery needs and land and water management decisions, but this work must be done. As a starting place, we recommend the following.

- The Partnership should work collaboratively with the Department of Commerce, tribal governments, the Washington Association of Counties Coastal Caucus, and Puget Sound cities to seek their advice on how best to make connections between recovery needs and land and water management decisions, and how best to support local elected officials who are weighing difficult choices and taking hard votes. This should include:
 - A concerted effort to review past and current recommendations on better connecting recovery needs to land and water management decisions and development of a clear plan to put these recommendations in place. This should include review of the Tribal Habitat Priorities included in the 2014-2015 Action Agenda update (see pp 2-13 and 2-14), which lay out a roadmap for addressing these issues from the perspective of habitat protection.
 - Comparison of existing land use ordinances and policies to explore what is already in common with recovery needs and interests, and comparison of build-out analyses to key habitats and ecological functions to determine where attention may be needed.
 - Consideration of approaches such as identifying recovery plans and needs as best available science for critical area decisions and using the idea of habitat concurrency (similar to transportation concurrency) which would create clearer and more consistent expectations for how recovery needs will influence comprehensive plan updates.
- The Partnership should work with the Legislature, state agencies, and the broader management conference to garner support and attention to the efforts of the ECB and Salmon Recovery Council Regulatory Subcommittees which have explored, or are still working to explore, issues of connectivity between recovery needs and resource planning, and ensure their recommendations are given full consideration.
- The Partnership, working through the ECB, the Salmon Recovery Council, and the broader management conference should encourage and support watershed scale recovery groups to build relationships with local elected officials and provide information on connections between land, water, and transportation management decisions and habitat needs in an informal way, through work sessions to see the maps and plans and site visits to walk the land. The work that Sound Salmon Solutions has undertaken to develop a customizable watershed education program for decision makers is a practical example of this type of outreach.
- The Partnership should work with the broader management conference to increase connectivity between recovery needs and transportation decisions at the state and Regional level; for example, examination of the Highway 101 impacts along the west side of Hood Canal, and development of a more collaborative and productive relationship with Burlington Northern Santa Fe to address their impacts on Puget Sound and salmon recovery.

Finally, putting the land and water management decisions on the books in city and county codes and ordinances is only the first step. Once those standards exist, state agencies and local governments need the capacity and funding to fully implement them and mutually-reinforcing agendas and support to enforce them.

2. Increase funding for recovery efforts including monitoring, and provide stable and reliable capacity funding for watershed groups.

Respondents emphasized that more funding is needed for the full range of recovery projects and efforts, and this need is borne out by other evidence.

The Partnership, working with a subcommittee of the ECB, recently completed an analysis for funding of just the three strategic initiatives included in the Action Agenda. These strategic initiatives encompass actions to restore habitat, address stormwater, and recover shellfish beds.

For habitat, the report estimates a “nearly \$300 million gap in annual funding.” It reports that the majority of the gap is in the funding needed for WSDOT culvert repair and replacement; however there also are “substantial shortfalls” in funding for floodplains restoration called for in the Floodplains by Design effort and in funding for salmon habitat restoration projects identified by Lead Entities and in habitat workplans.⁷

For stormwater, the report estimates an annual funding gap of between \$100M and \$250M in NPDES compliance and highway retrofits. This includes high-efficiency street sweeping and legacy load removal. The report notes that the highway retrofit program alone is projected to cost \$100M to \$200M and receives only \$6M in state funding and \$45M in funding from local governments.

For shellfish, the report estimates a funding gap of less than \$44M per year. At the same time, the report notes that “many local governments lack a dedicated local funding source for long-term monitoring, inspection, and enforcement for on-site septic systems and rely heavily on highly variable state and federal grant funding” to run these programs. The report also notes that the most significant gap for the shellfish strategic initiative is not simply financial, but has to do with the need to engage many individual landowners in voluntary efforts to control pollution and runoff.

Not surprisingly respondents also emphasized that watershed groups need reliable capacity and funding support so they can do their work and do it well – this means funding for convening and coordination support for groups within the watershed to come together and work together, and for groups across the region to come together and share information and lessons learned.

All groups indicated that the lack and instability of capacity funding was a barrier to them fully achieving their potential; however the group that came up most often as being capacity limited was the RFEGs.

We note that funding of salmon and Puget Sound restoration create direct economic benefits in Puget Sound communities in addition to sustaining and enhancing the capacity of the environment to provide ecosystem services over time. Looking just at salmon recovery investments, RCO estimates that a \$1 million investment in watershed restoration directly results in 15-33 new or sustained jobs and has been shown to create \$2.2-2.5

⁷ *Funding Strategy for the Strategic Initiatives from the 2012-2013 Puget Sound Action Agenda, Volume 1: Summary of Findings and recommendations.* Prepared for the Puget Sound Partnership. August 13, 2014

million in total economic activity. Using that formula, salmon restoration projects funded through the Salmon Recovery Funding Board and RCO are estimated to have resulted in more than 4,400 new or sustained jobs, and created nearly \$650 million in economic activity statewide since 1999.⁸ RCO estimates that 80 percent of grant money is spent in the county where a project is located, which has a positive impact on local families and businesses.

While it can be tired and unpopular to point out the need for more resources for a recovery effort that many already perceive as well funded, the numbers speak for themselves. We recognize that in an era of funding shortfalls for many state services, and in the context of the requirement to dramatically increase funding for basic education, there are no obvious solutions to the Puget Sound funding shortfall.

The scope of our review did not extend to development of specific recommendations on how best to increase funding. The Funding Strategy report referenced above makes eight specific recommendation on funding, which are reprinted in Appendix G for convenience. Two recommendations addressed there were reiterated by respondents in our review:

- The Partnership should work with the entire management conference to engage with parties who are working to develop a major water infrastructure funding package that would develop new revenue sources for funding stormwater management, flood management, water quality improvements, and irrigation supply, and should support this effort.
- The Partnership should work with the Coastal Caucus of Counties and other local jurisdictions to explore how best to support collection and distribution of funds across jurisdictional boundaries at watershed, multi-watershed, and Puget Sound scales. One option to address this need that has long been under discussion is the concept of Watershed Investment Districts, or Watershed Investment Entities. Part of this effort should be to fully explore this option and either move forward with it or set it to rest in favor of an alternative.

3. Better align and integrate groups at the watershed and Puget Sound scales, direct money more efficiently to the highest priorities, and improve our ability to deliberate and make difficult decisions.

3A. Create a backbone structure for closer integration of salmon and Puget Sound recovery efforts at the watershed and Puget Sound scales.

In 2011 John Kania and Mark Kramer published a paper titled *Collective Impact* in Stanford Social Innovation Review. The paper described a framework for thinking about roles and functions that are needed to bring communities together to optimize results on complex social issues. One of the roles described is that of a backbone organization, meaning an organization that supports the infrastructure of collective action. The backbone concept has been expanded and refined, most notably in a follow-up Stanford Social Innovation Review

⁸ http://www.rco.wa.gov/salmon_recovery/efforts.shtml (downloaded November, 2014)

article, *Understanding the Value of Backbone Organizations in Collective Impact*, which describes a number of hallmarks of quality backbone organization support, as follows:

Table 10: Hallmarks of Backbone Organization

Activity	Short-term Outcomes	Intermediate Outcomes
Guide vision and strategy	Partners share a common understanding of the need and desired result	Partners' individual work is increasingly aligned with the initiative's common agenda
Support aligned activities	Partners increasingly communicate and coordinate their activities toward common goals	Partners collaboratively develop new approaches to advance the initiative
Establish shared measurement practices	Partners understand the value of sharing data	Partners increasingly use data to adapt and refine their strategies
Build public will	Guide vision and strategy	More community members feel empowered to take action on the issues(s)
Advance policy	Partners increasingly communicate and coordinate their activities toward common goals	Policy changes increasingly occur in line with initiative goals
Mobilize funding	Funding is secured to support imitative activities	Philanthropic and funds are increasingly aligned with initiative goals

Source: Turner, Shiloh, et al., *Understanding the Value of Backbone Organizations in Collective Impact*. Stanford Social Innovation Review. (pp 5).

Increasing attention has been given to growing the PSP as the backbone organization for salmon and Puget Sound recovery, and we heard support for this effort. We also see a strong need for backbone functions at the watershed scale. Recommendations call for strengthening the LIOs so they can better serve as watershed scale backbone organizations as the first step toward greater alignment and potential future restructuring or consolidation, and/or through increased cooperation and greater reliance on mutually reinforcing efforts.

One might ask: why in a report that was commissioned as a review of local watershed and salmon recovery groups to develop recommendations to streamline and strengthen Puget Sound recovery, is there a recommendation for more investment in coordination and collaboration? One method of streamlining might be to immediately and unilaterally restructure, consolidate, or eliminate certain groups. As discussed above, our assessment is that this type of effort would not best serve Puget Sound recovery at this time. Another method of streamlining, and the approach recommended here, is to create clearly defined, formal, functional structures and governance that bring together all the interests needed to make decisions and make decisions stick, so the necessary work of cooperation and collaboration can be done more efficiently. We emphasize that we see the ECB as the forum for identification of multiple-benefit priorities and integration of salmon and Puget Sound recovery. As the ECB grows and matures into this role, we recommend re-assessment of opportunities to further streamline coordination and integration of salmon recovery and Puget Sound recovery advice and decisions. We see the LIOs as the forum for this type of integration at the watershed scale. Similarly, as they mature we recommend re-assessment of opportunities to further streamline watershed scale coordination and integration. Put another way: it is not that increased alignment and integration are un-needed or un-wise; we simply need the time to do them well and create an orderly transition.

3A1. Expand the membership of the ECB, and give it additional responsibility to serve as a consensus decision making body advising on the full range of issues related to how best to

achieve Puget Sound recovery and implement the Puget Sound Action Agenda, and provide additional support to carry out this role.

The Ecosystem Coordination Board (ECB) was established to advise the Puget Sound Leadership Council on carrying out its responsibilities including development and implementation of the Action Agenda. In our review the ECB was widely cited as lacking a clear sense of purpose and challenged by minimal staff support. In contrast to the Salmon Recovery Council, which has formal dedicated staff, facilitation, and administrative support that the ECB generally lacks.

We recommend giving the ECB additional responsibility to serve as a consensus decision making body advising the Leadership Council on the full range of issues related to how best to achieve Puget Sound recovery and implement the Puget Sound Action Agenda. They should be the place where difficult issues related to Puget Sound recovery can be well vetted, interests harmonized, and clear recommendations made. To achieve this outcome we recommend several specific steps:

- The Leadership Council should establish a standing expectation that the ECB should identify, deliberate on, and make recommendations about, policy and programmatic issues related to Puget Sound recovery. This should include closer coordination with the Salmon Recovery Council to ensure that salmon recovery needs are well-integrated with the broader Puget Sound agenda.
- ECB charting documents should establish the expectation that representatives on the Board will not only speak for their own organization's interests and experiences but also, when decisions must be made, pursue the best approach for overall Puget Sound recovery and achievement of recovery goals. This willingness to put aside some individual interests in favor of approaches that serve overall recovery goals was cited by a number of individuals as a hallmark of Salmon Recovery Council participants and as characteristic of a mature advisory organization.
- Staffing and support for the ECB should be dramatically increased so they have a capacity, similar to the Salmon Recovery Council capacity. This will help the ECB identify and "work" issues between meetings, develop options that reflect and bridge the full interests of the group, and ensure meetings are well run and well documented. This should include administrative and technical staff support, as well as facilitation support.

Should the Salmon Recovery Council and ECB be combined?

We believe in the long run, to facilitate integration of Puget Sound and salmon recovery strategies and decisions, there should be much closer integration, and perhaps even consolidation of the Salmon Recovery Council and the ECB. The first step should be to strengthen the ECB so it serves as a more effective forum for deliberation and decision making, and to add a Salmon Recovery Council member to the ECB. (Recommendation 3A.) Other steps to work towards closer integration could include establishing joint ECB and Salmon Recovery Council workgroups or having joint meetings on topics of mutual interest. Over time, as the ECB becomes more effective, the need for separate groups should be re-evaluated. Even in a more consolidated approach it seems likely that a dedicated forum for deliberation of salmon recovery issues is appropriate; this could be accomplished through a caucus or workgroup structure. Additional caucuses or workgroups could provide a dedicated forum for deliberation on other key Puget Sound recovery issues, such as toxics, nutrients and pathogen pollution prevention and stormwater management.

- Representation on the ECB should be expanded to include a representative from each Local Integrating Organization (instead of Action Area representatives), and, to support better alignment and integration of efforts over time, a representative from the Salmon Recovery Council and from the NW Straits Commission.

While the new responsibilities for the ECB certainly could be legislatively directed, we do not believe this is required. The roles of the ECB already defined in statute provide for them to be fully engaged as a regional advisory and decision-making body provided the Leadership Council requests them to act in such a way. Increasing the responsibilities of the ECB could be accomplished administratively through a standing request from the Leadership Council to the ECB for advice on policy and programmatic choices related to Puget Sound recovery and a commitment on the part of the Partnership to engage the ECB in these matters and support their deliberations. Legislative action is needed to expand participation in the ECB to include a representative from each LIO and a representative from the Salmon Recovery Council. This could be accomplished by amending 90.71.250(4). Short of a statutory amendment, additional representatives might be invited to participate in the ECB as ex-officio (non-voting) members. Budgetary support will be needed help the ECB effectively play this new role.

● Statutory responsibilities of the ECB

Advise and assist the council in carrying out its responsibilities in implementing [this chapter] including development and implementation of the action agenda. The board's duties include:

- (a) Assisting cities, counties, ports, tribes, watershed groups, and other governmental and private organizations in the compilation of local programs for consideration for inclusion in the action agenda
- (b) Upon request of the council, reviewing and making recommendations regarding activities, projects, and programs proposed for inclusion in the action agenda, including assessing existing ecosystem scale management, restoration and protection plan elements, activities, projects, and programs for inclusion in the action agenda;
- (c) Seeking public and private funding and the commitment of other resources for plan implementation;
- (d) Assisting the council in conducting public education activities regarding threats to Puget Sound and about local implementation strategies to support the action agenda; and
- (e) Recruiting the active involvement and encouraging the collaboration and communication among governmental and nongovernmental entities, the private sector, and citizens working to achieve the recovery of Puget Sound.

RCW 90.71.250(5).

The Local Integrating Organizations should be engaged in a similar effort. (See below.)

3A2. Establish LIOs in statute and work towards independent, fully integrated groups at the watershed scale.

We recommend a set of specific actions to strengthen LIOs. Our belief is that the most effective streamlining of watershed coordination activities, or consolidation of watershed groups, will take place on the initiative of the jurisdictions in the watershed. It will require confidence among watershed leaders in shared understandings and priorities, and trust among parties. Strengthening the LIOs gives these conditions a chance to arise, and creates the climate for appropriate streamlining or consolidation to emerge organically in each watershed.

3A2.1. Articulate a clear vision for a fully integrated LIO and provide incentives for local groups to move in that direction. Articulating this vision and identifying incentives should be a collaborative effort with the watershed groups. This could be led by the Legislature (e.g., in a task force or proviso format) or administratively by the PSP working through the ECB. As a starting place for this effort, our review indicated that some hallmarks of a fully integrated LIO include:

- All interests are at the table, including representation from business, large land owners, and environmental and non-profit groups.
- Active participation by elected officials from the relevant jurisdictions, including tribal governments.
- Active participation by other recovery groups in the watershed, including Lead Entities, MRCs, RFEGs, water quantity and quality planning groups, watershed councils, and others.
- Explicit integration of salmon recovery and Puget Sound recovery priorities.
- Active participation from program experts from the relevant jurisdictions (e.g., connections to planning and permitting departments, surface and stormwater departments, etc.).
- A science-based process for establishing and implementing local priorities.
- An organizational structure that ensures sub-geographies within the larger area are given autonomy as needed, for example, if more than one county or tribal jurisdiction is included in the LIO geography, or more than one salmon recovery Lead Entity.
- Clear linkage back to the regulatory and land-use management decision processes for participating jurisdictions through, for example, regular work or information sessions with local officials on recovery needs and priorities and a clearly defined advisory role to city and county decision-making bodies.

• The whole is greater than the sum of its parts

Many reports of this nature emphasize the need for effective collaboration between multiple interests and between government and private actors and decision makers at all levels. We support the idea of and the need for collaboration. We also have called for collaboration's sister: cooperation. Cooperation recognizes that we have – and will continue to have – many different individual interests who wish to work on their individual interests. Cooperation simultaneously encourages both individual organizations – doing their individual things well – and the larger effect that results from the combination of individual activities. It supports individual efforts while also creating the networks, relationships, and frameworks that allow greater group value to emerge. Backbone organizations marshal the power of cooperation (and encourage collaboration) to work towards shared or mutually reinforcing goals.

One respondent said: “With collaboration people tend to want to make everything one, but there is a role and a purpose for people to be focused just on salmon; or people who are really interested in flood to really know what flood needs. And then we need a forum where those people can come forward and put that on the table with capacity to find multiple interests.” We recommend that the LIOs should be that forum.

Potential incentives for fully integrated LIOs identified during this review include priority for funding and other support, increased autonomy or deference for priority setting, and individual Legislative recognition through a petitioning process, where a fully integrated LIO might request Legislative endorsement.

3A2.2. Establish LIOs in statute. LIOs should be formally established in statute as the groups responsible for developing and implementing local priorities and action plans that contribute to achieving Puget Sound scale recovery goals, and for working with watershed leads and lead entities to integrate salmon recovery and Puget Sound recovery work and priorities in their geographies.

3A2.3. Give LIOs more responsibility for decision making about funding for local priorities and more accountability over delivering recovery progress. The current description of LIO on the Partnership website indicates that they “enable communities to guide the implementation of Action Agenda priorities at an ecosystem scale, and to prioritize local actions for investment.” However, many respondents from LIOs in our review emphasized that a major frustration of these groups is that, unlike Lead Entities, they do not directly control any portion of Puget Sound investment funding and, unlike in the Salmon Recovery process, there is no amount of Puget Sound recovery funding that is specifically directed towards local priorities as identified by LIOs. A number of LIOs have suggested changes to the funding process for Federal National Estuary Program funding (administered by US EPA) that would use a model similar to the Salmon Recovery funding model to give LIOs the ability to direct some funding to local priorities.

3A2.4. Work toward establishing LIOs as independent entities. Consistent with “one size does not fit all,” our findings suggest that “independence” may look different for each LIO. For some LIOs this might mean working towards establishing themselves as a 501(c)(3) or similar organization with the ability to hire dedicated staff who work for the LIO as an independent entity, and the ability to act as its own fiscal agent to directly compete for and receive public and third-party (e.g., foundation) funding. (The Hood Canal Coordinating Council is an example of this approach.) For other LIOs it might mean ensuring that interlocal agreements between participating jurisdictions reflect that resources directed toward the LIO are working for the support of recovery planning in the entire affected geography.

3A2.5. Reassess opportunities for closer alignment, integration, and consolidation between LIOs and other watershed groups over time. Over time, there is ambition to use LIOs to provide a forum for participating jurisdictions to more efficiently cooperate, and ultimately collaborate, for their common benefit on a full range of environmental and economic interests. And, over time, as LIOs mature, watersheds should re-consider whether there are opportunities to streamline collaboration and coordination structures, or even consolidate and combine them, in ways that respect watershed needs and interests. The Hood Canal Coordinating Council provides an example of an LIO that effectively consolidates local watershed and salmon recovery groups.

3A3. The Puget Sound Leadership Council should convene a conversation about establishing a Puget Sound leadership academy, or other mechanism, to provide training and mentoring for service leadership in the watersheds.

The complex and high-stakes issues that will have to be solved to succeed at salmon and Puget Sound recovery will require strong, dedicated, talented leadership. Virtually every person we spoke with said some version of “A talented leader can get results in any structure; the perfect structure cannot guarantee results without leadership.”

Leadership is not something that springs naturally from structure. At the same time, structures can be inviting to talented leadership, and make it more likely that leadership will emerge. When we asked about what types of structures were attractive to talented leaders, we heard a number of themes. These are:

- Clear roles that give leaders some autonomy and a chance to build an organization.
- Relevant and productive roles so leaders have a clear opportunity to “make a difference.”
- Shared commitment to transparency and accountability in decision making at both the watershed and the regional scales.
- Stable funding that creates some confidence leadership roles will persist over time.

- Mutually reinforcing support at all levels of government for elected officials making difficult choices about land, water, and transportation management.
- Decision support systems that allow science-based prioritization of actions and strategies to address the biggest threats and pressures on the ecosystem.
- Forums that support deliberation on the difficult questions that need to be resolved to accomplish Puget Sound recovery and to integrate ecological, socio-economic, and human well-being goals.

We have attempted to address these hallmarks in our recommendations, throughout the report.

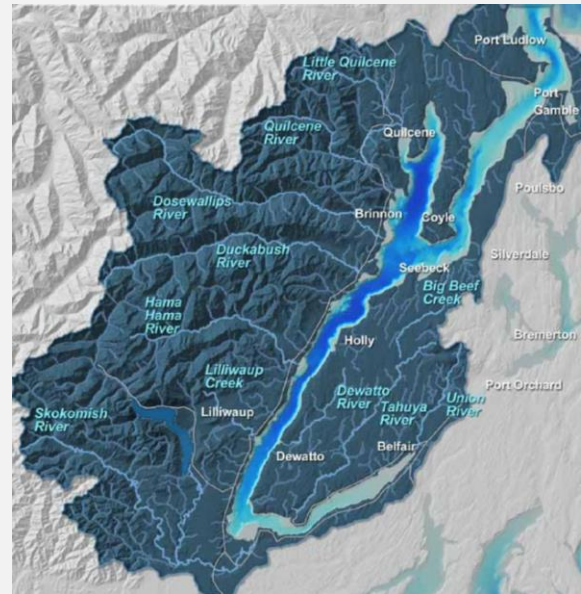
In our review we also heard a lot about the difficulty and intangibility of how best to support and grow talented leaders. From these conversations we have come to believe that the best way to support this type of leadership, beyond having a structure that invites and rewards it, is through a combination of training and, more importantly, individual mentoring and support. We suggest the concept of service leadership because we believe it is the style that is most appropriate to the role of watershed leaders as conveners, collaborators, and backbone organizations. The primary skills needed for effective leadership at the watershed scale in Puget Sound are those of the connector and cajoler, the networker/relationship builder, the visionary, and the practical, results-oriented task master: someone who can “focus on the growth and well-being of people and communities to which he or she belongs” rather than the accumulation and exercise of power. Articulating this vision for leadership is only part of the solution; individuals in the watersheds also need support and shoring up as they strive to accomplish the difficult things we ask of them.

● Hood Canal Coordinating Council

The Hood Canal Coordinating Council (HCCC) is an example of a highly integrated watershed scale group that functions in multiple authoritative capacities. Established in 1985 “in response to community concerns about water quality problems and related natural resource issues in the watershed,” the HCCC was the product of the Hood Canal Coordinating Council Interlocal Cooperation Agreement between Jefferson, Kitsap and Mason Counties and Port Gamble S’Klallam and Skokomish Tribes (“Member Organizations”).⁹ As described in the Agreement, the HCCC’s mission is “to advocate for and implement regionally and locally appropriate actions to protect and enhance Hood Canal’s environmental and economic health.”¹⁰ In 2000, the HCCC was incorporated as a 501(c)(3); it hires its own staff and maintains its own offices separate from the participating jurisdictions. The non-profit status allows HCCC to be its own fiduciary agent with the ability to apply for grants and assign contracts.

Since being formed the HCCC has adopted, or been assigned, a number of additional roles, including¹¹:

- *Management Board* for aquatic rehabilitation {RCW 90.88.030(1)}¹²
- *Lead Entity* and *Regional Recovery Organization* for salmon recovery {RCW 77.85 and RCW 90.88.030(1)(a)}¹³
- *Inter-WRIA Coordinator* for watershed planning {RCW 90.88.030(1)(b)}¹⁴
- The *Local Integrating Organization* (LIO) for Hood Canal¹⁵



The HCCC works with its member organizations and partners at various scales depending on the resource issues being addressed. The summer chum salmon recovery planning, salmon recovery lead entity habitat project planning, Hood Canal Action Area, and the Hood Canal Aquatic Rehabilitation Zone all have slightly different boundaries (see the [HCCC website](#) for activity maps). The HCCC’s Lead Entity and salmon recovery plan implementation areas also include the eastern portion of the Strait of Juan de Fuca.”¹⁶

In part because of its status as an independent organization, and due to its multiple responsibilities, the HCCC has multiple funding sources including: Member Organization dues, fees for services rendered (including a large Army Corp of Engineers program implementation fee), foundational grants, and both capacity and project-specific grants from the WA Departments of Ecology & Health, WA Recreation and Conservation Office, the Puget Sound Partnership and the Governor’s Office.¹⁷

Given the authorities and ability to access diverse and multiple funding sources HCCC is well positioned to behave as a regional coordinating body providing forums that invite individual jurisdictions to work together to address regionally significant issues.

⁹ Hood Canal Coordinating Council Interlocal Cooperation Agreement, adopted 1985, amended 2011, accessed November 2014: http://hccc.wa.gov/CEDocuments/Downloads_GetFile.aspx?id=412492&fd=0

¹⁰ *Ibid.*

¹¹ <http://hccc.wa.gov/About+Us/default.aspx>

¹² <http://app.leg.wa.gov/rcw/default.aspx?cite=90.88.030>

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ <http://www.psp.wa.gov/LIO.php>

¹⁶ http://hws.ekosystem.us/?p=Page_89901fef-078a-47c8-9c7b-f3c0c259700a&sid=170

¹⁷ HCCC Independent Auditor’s Report and Financial Statement, June 30th 2013, accessed November 2014: <https://hcccwagov.app.box.com/s/cnjbelsxlox3fw1f08k>

For example, HCCC's In Lieu Fee Mitigation Program was established in 2011 under Federal rule¹⁸ to provide an alternative to conventional permittee-responsible mitigation. It involves "the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non---profit natural resources management entity to satisfy compensatory mitigation requirements..." Under this Program, the HCCC sells compensatory mitigation "credits" to permit applicants and take on the permittee's obligation to provide compensatory mitigation. When impacts to Hood Canal habitats are unavoidable, this mitigation tool allows an opportunity to direct mitigation to those areas in Hood Canal that can contribute most to recovery, protection and restoration.

HCCC's Aquatic Rehabilitation Program is a result of legislation enacted in 2006 and authorized by RCW 90.88, Aquatic Rehabilitation Zones, where HCCC is designated as the local management Board for rehabilitation programs. HCCC has since developed and in the process of implementing a Hood Canal Regional Pollution, Identification, and Correction Program (PIC) which involves the active participation of all HCCC members. The regional PIC program is designed to address aspects of wastewater treatment and on-site septic systems in the Hood Canal watershed. HCCC has also developed a Hood Canal Regional Stormwater Retrofit Project. The project identified retrofit site opportunities and other actions that should be undertaken to reduce the impacts of stormwater runoff in the Hood Canal Action Area. The Aquatic Rehabilitation program also has convened a forum of scientists and practitioners in assessing the impacts from low dissolved oxygen events in Hood Canal and examines potential management that could be implemented to address those impacts.

HCCC is the regional recovery organization for Hood Canal and Eastern Strait of Juan de Fuca Summer Chum Salmon. As such, HCCC is responsible for the development and implementation of the recovery Plan developed by HCCC in 2005, adopted by the State of Washington in 2006, and by NOAA Fisheries in 2007. Implementing the Plan requires all HCCC member jurisdictions to work together and across boundaries to affect the recovery of summer chum salmon, listed as threatened under the Endangered Species Act (ESA). To ensure that limited resources are well spent and efforts are focused to affect recovery, HCCC is engaged in developing a salmon recovery prioritization process. HCCC members and the many salmon recovery partners are using the prioritization approach to design and implement actions and strategies that address the threats and pressures that impact salmon recovery.

Finally, HCCC has partnered with a diverse array of organizations, agencies, and individuals to develop the Hood Canal Integrated Watershed Plan (IWP). The IWP is intended to be a comprehensive strategic framework for advancing a common vision (*Humans benefit from and coexist sustainably with a healthy Hood Canal*) by integrating the full range of natural resource management efforts across all relevant jurisdictions. In May 2014 HCCC established five-year strategic priorities for the HCCC to implement and guide regional actions towards the Vision and established a framework for accountability of strategy implementation, identification of strategic gaps, and continuous evaluation and adaptive management.

¹⁸ (Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, see 33 CFR Part 332 and 40 CFR Part 230,

3B. Encourage greater alignment of groups within watersheds.

These recommendations encourage a watershed-led effort to identify watershed-scale alignment opportunities, and make specific suggestions about targeted improvements to alignment between the boundaries of Lead Entities and the Chinook recovery watersheds.

As previous studies of watershed groups in Puget Sound have emphasized, each Puget Sound watershed has its own set of: recovery opportunities and priorities; physical and biological ecological systems and structures; and unique social and economic conditions and relationships, watershed interests, needs, and pressures. The “watersheds” used for management have been, for the most part, self-identified. When Lead Entities were formed they chose to form around a WRIA, or group of WRIA, or a county. When LIOs were formed they formed around combinations of WRIA or parts of WRIA that drain to the same part of Puget Sound, or around individual WRIA or county boundaries.

At the political level, local jurisdictions also have formed or supported groups to give them the advice or guidance they need. Sometimes these are Lead Entity or LIO groups, and other times they are watershed councils or other groups chartered by the political jurisdiction. Because every watershed is different, each watershed has a unique set of groups and agreements between groups, and a specific set of relationships and structures for how input and advice from watershed groups is considered during city and county planning and decision making.

As described earlier in this report, we do not believe Puget Sound recovery would be streamlined or strengthened by a “one size fits all” effort to restructure, combine, or eliminate watershed groups. At the same time, better alignment and integration between watershed groups is possible, and necessary, to streamline and strengthen Puget Sound recovery.

3B1. The Partnership should work with Lead Entities and LIOs to create a roadmap the individual groups operating in each watershed and what they are working on to support better alignment, cooperation, and integration.

In this review we have worked to create an overall picture of the types of watershed and salmon recovery groups operating in Puget Sound, how those groups work together, and opportunities for improvement. We have identified the major groups operating in each watershed and tabulated them by Water Resources Inventory Area (WRIA) and by county (Appendix C). We have not created a detailed inventory or roadmap of all the groups in each watershed or the watershed-specific structures, relationships, and agreements that describe how they are coordinated or aligned. We believe such an exercise would be useful as a way to (1) help watersheds self-evaluate their structures to see if there are opportunities to improve alignment or streamline collaboration, particularly between groups who often are working on the same types of things or on the same issues; (2) help Puget Sound scale groups and funders better understand the coordinating networks in place in a watershed; (3) describe how groups interact with political decision makers in their jurisdictions. Some watersheds already have these kinds of roadmaps, which may just need to be updated and circulated. In watersheds where they do not exist, other, relatively recent, regional-scale reports provide a starting place for the effort.¹⁹

¹⁹ See: *Recreation and Conservation Office Statewide Assessment of Watershed Coordination*. 2009; *University of Washington Analysis of Organizations Engaged in Puget Sound Ecosystem Recovery: A Report for the Puget Sound Partnership*. August 1, 2013.; Recreation and Conservation Office Lead Entity Directory, available at: http://www.rco.wa.gov/documents/salmon/lead_entities/LeadEntityDirectory.pdf

Watersheds have a variety of groups in addition to those named in the Legislative proviso including: shellfish and lake improvement districts, land trusts, conservation districts, “friends of” groups, and others. We suggest that the inventory and alignment assessment consider all the groups working on salmon and Puget Sound recovery issues in the watershed. The potential opportunity for better integration, or even consolidation, which was mentioned most often by survey respondents is between watershed councils and salmon recovery lead entity citizen committees. As discussed earlier in this report, in some cases a watershed council also the citizens’ advisory group for a salmon recovery lead entity. In other places, watershed councils are less clearly tied to salmon recovery groups and work on a range of water quality, water quantity and habitat issues. The term “watershed council” seems to be used to describe a variety of local and watershed-scale groups, playing a variety of roles.

3B2. Align Lead Entity boundaries with Chinook recovery plan boundaries in the places where they do not already match and develop best practices for coordination of the lead entity and Chinook salmon recovery plan watershed lead roles.

The Puget Sound Chinook Salmon recovery plan contains fourteen local watershed-based chapters. Each local chapter covers a specific geographic area and includes strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management. Each has a “watershed lead” an employ of a tribe, county, conservation district, or non-profit, who is responsible for maintaining and implementing the recovery chapter and successfully advancing salmon recovery in the chapter’s geographic area.

Salmon Lead Entities are local, watershed-based groups responsible for developing habitat restoration and protection strategies and capital projects to meet those strategies. Each year, each salmon Lead Entity develops a prioritized (ranked) list of salmon recovery capital projects for their geographic area and submits the list to the Salmon Recovery Funding board for consideration. There are fifteen salmon Lead Entities in Puget Sound and each has a Lead Entity coordinator.

The geographies between the Lead Entities and the Chinook Recovery Plan watershed chapters/groups often, but not always, match; and the same person often, but not always, is both the watershed lead and the Lead Entity coordinator for a geography.

Figure 4 shows a map of the Lead Entity and Chinook Salmon recovery plan chapter boundaries.

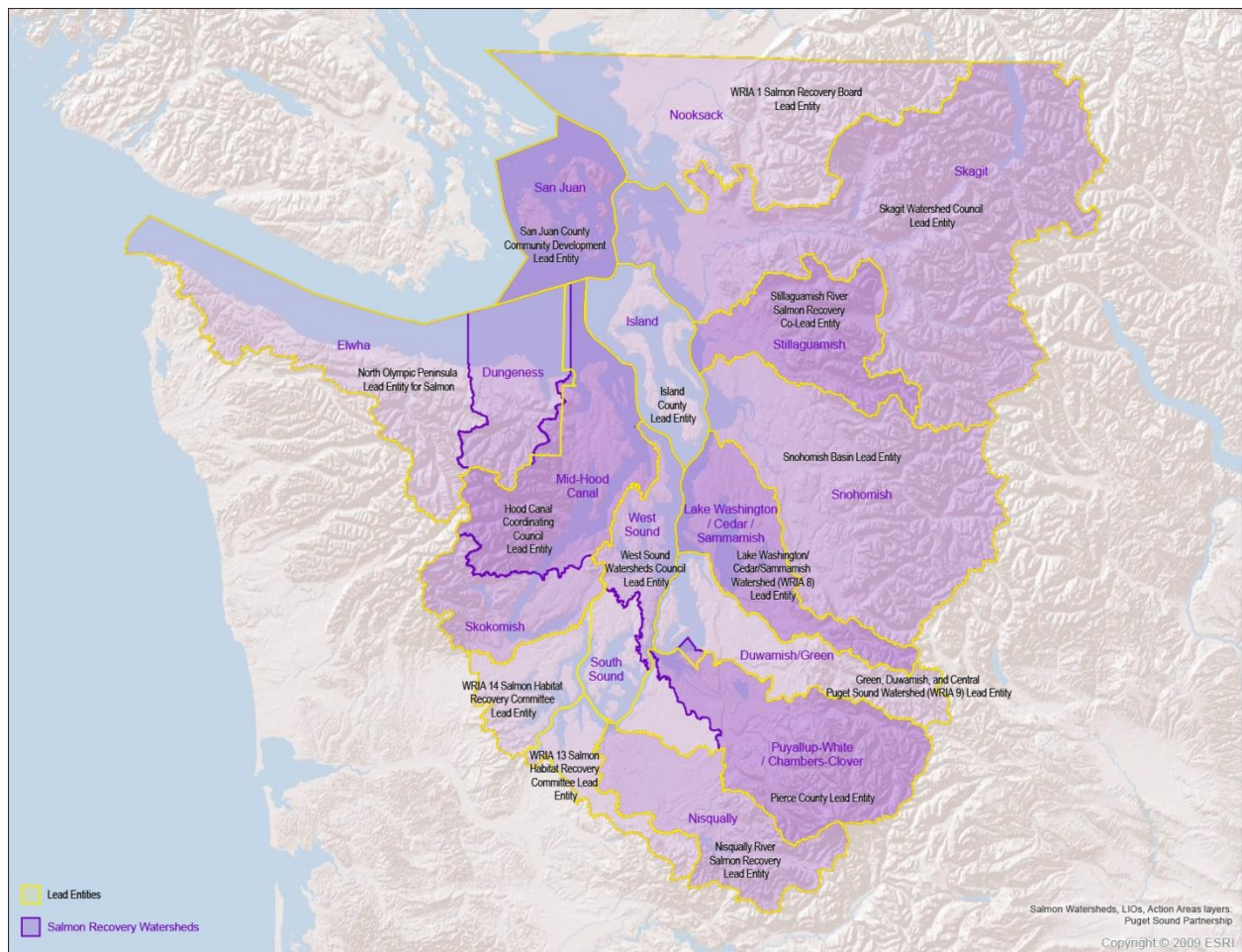


Figure 4: Map of Chinook Recovery Watersheds and Salmon Recovery Lead Entities

3B2.1. PSP and GSRO working with the Puget Sound Salmon Recovery Council and the State and Tribal co-managers should undertake a deliberate and collaborative effort to better align the boundaries of Lead Entities with the Chinook recovery plan chapter boundaries. Aligning the Lead Entity boundaries with the Chinook recovery plan boundaries will involve slight changes to the boundaries and consolidation for a number of Lead Entities in Southern Puget Sound and on the Kitsap Peninsula. A grass-roots effort to better align South Sound Lead Entities with the recovery plan chapter already is under way, and particular care is being taken to work with local interests in these areas.

3B2.2. The Partnership and GSRO should work with the Executive Committee of the Salmon Recovery Council to articulate a set of best practices for watershed scale coordination between the Chinook recovery plan watershed lead and the Lead Entity roles. Watershed leads are individuals, usually an employee of a county or tribal government, who are responsible for coordinating implementation of the Chinook salmon recovery plan chapters. In that capacity they work closely with salmon recovery Lead Entity coordinators (also individuals) who are responsible for working with the Lead Entity citizen and technical groups to produce a prioritized list of salmon habitat protection and restoration projects in each lead entity geography. Often, but not always, and particularly when the salmon recovery chapter boundaries are the same as the lead entity boundaries, the watershed lead and the lead entity coordinator are the same person in an individual geography.

To implement the recovery plan chapters well, watershed leads need a policy setting forum to bring together interests in their recovery chapter geography and provide advice and direction. In some watersheds, watershed leads rely on lead entity citizen or technical committees to fulfill these roles. In other watersheds these roles are less developed. To develop a set of projects that are consistent with the broader recovery chapter strategies in the watershed, lead entities need to be connected to these strategies and invested in their development.

We recommend collaborative work with watershed leads and lead entities to articulate a set of best practices for salmon recovery chapter implementation in each watershed. At a minimum this should address: how the policy setting function will be fulfilled for recovery plan implementation and how best to leverage (or expand) existing lead entity advisory groups to fulfill this policy setting role. If existing lead entity groups are used, care should be taken to ensure that the full range of watershed interests with a stake in recovery plan implementation are at the table. It also should address how the salmon recovery work is coordinated, and integrated, with broader Puget Sound recovery work administered by the LIOs in the geography.

• Do we have too many Lead Entities in Puget Sound?

We considered recommendations to begin a process of deliberate consolidation of Lead Entities around Puget Sound. In other Washington State salmon recovery regions the Lead Entity generally is at the same scale as the regional recovery organization. Put another way, the regional recovery organization often serves as the lead entity and develops a list of prioritized salmon habitat restoration projects at the scale of the recovery region. The Puget Sound is different from other regional recovery regions in at least two ways: (1) the Puget Sound has many more individual jurisdictions, including multiple autonomous tribal nations and governments, and a larger population than other salmon recovery regions; (2) the Puget Sound Chinook salmon recovery plan was developed in the watersheds as a community-based plan and it is largely implemented at the watershed scale so it needs a watershed scale structure to support that implementation and adaptive management.

The question of what is the right number of salmon recovery lead entities for Puget Sound was not resolved as part of this review, but it is clearly an issue worthy of further consideration.

The watershed leads should be fully responsible for bringing together local interests to develop science-based strategies for all aspects of recovery plan implementation in the watershed, consistent with the overall strategy and guidance for Puget Sound salmon recovery. That is, the co-managers should continue to be responsible for hatchery and harvest policies, strategies, and management, but the watershed groups should be responsible for aligning their habitat priorities with hatchery and harvest strategies in each geography. They also should take a leadership role in ensuring adequate monitoring of salmon recovery efforts and adaptive management of the recovery plan strategies over time. Lead entity habitat project priorities should be explicitly informed by and consistent with the recovery strategies and priorities described in each recovery plan chapter. This would include identifying and implementing non-capital actions for protection of habitat such as working with local jurisdictions to strengthen land use policies for habitat protection. Best practices should describe how to most efficiently achieve these functions.

3C. Simplify administrative processes and increase availability of expert and technical support for watersheds to help recovery investments go farther.

Funding wasn't the only thing watershed groups emphasized; we also heard numerous ideas about how salmon and Puget Sound recovery work could be streamlined and strengthened through other types of support. We also heard that one-size-will-not-fit all and it will be critical to work with and understand the needs and interests of both the watershed-focused leaders and staff and the political decision makers in the local and tribal jurisdictions.

Working with watershed groups to understand and provide the most relevant and helpful support and expertise, and streamlining administrative processes whenever possible, will streamline and strengthen Puget Sound recovery by allowing more focus on the difficult work of determining how to get recovery needs addressed in local land use, water, and transportation planning and management, and how to get recovery actions implemented on-the-ground.

In each of these recommendations we suggest that the ECB be used as a forum for further deliberation on these ideas and as a coordinating body with agencies and others who would be engaged in implementation. Deliberations by the ECB also could be used to generate new ideas along these lines.

3C1. The ECB should make recommendations to simplify administrative processes related to funding and reporting, and for permitting of restoration projects.

3C1.1. The ECB should guide and oversee efforts to simplify administrative processes related to grant making and reporting. This effort should be focused on the grant application process for Puget Sound recovery programs and the reporting requirements related to Action Agenda implementation and LIOs. With respect to grant application processes, the process should be revised and simplified so that grants opportunities come out simultaneously and grant applications can serve (as much as possible) multiple grant programs. The Salmon Recovery Funding Board process and the RCO grant making and management process were cited as good models. This will require cooperation of all the state agencies currently involved in Puget Sound grant making: the Departments of Ecology, Fish and Wildlife, Natural Resources, Health, Commerce and the PSP, but could be led by the Partnership as the agency tasked with Puget Sound recovery. Ideally, this would move towards a single grant administrator for Puget Sound funding. With respect to reporting, there should be clear and durable guidance on what reports, information, and products and results are needed from watershed groups, particularly LIOs, to account for their activities and to feed development of Puget Sound scale actions and strategies. Many people expressed frustration at what they perceive as an ever changing landscape of Puget Sound scale reporting outputs and planning efforts (this also is addressed in recommendation 2). This will require cooperation between the PSP and LIO leadership.

3C1.2. A joint committee of the ECB and the SRC should make recommendations on efforts to simplify permitting of restoration projects. The joint committee should initiate a focused process to improve the predictability and timeliness of decisions on permitting for restoration projects and to identify opportunities to streamline permitting for restoration activities. This has been a longstanding issue in the salmon and Puget Sound recovery community. It has been included in multiple iterations of the Action Agenda, and is now emphasized in the Tribal Habitat Priorities included in the 2014-2015 Action Agenda update (see pp 2-13 and 2-14), which lay out a variety of ways to move forward with this idea.

3C2. The ECB should make recommendations on how to increase the availability of technical and expert help to watersheds.

Watershed groups have developed their own technical expertise and draw on technical experts from the large local governments and tribal jurisdictions that participate in watershed management. At the same time, many of these local technical experts are juggling multiple responsibilities and duties. Creating additional “centralized” technical expertise and resources that could be shared among watersheds is a way to provide this needed service more efficiently. It would free up resources at the watershed scale that are currently spent developing potentially duplicative skill sets and/or conducting duplicative research on technical and regulatory issues.

Two clear ideas emerged for how to better support watersheds with additional technical and expertise.

- Provide additional technical and subject-matter experts and support participation by state experts in watershed-based processes. Watershed groups told us that they used to rely on state habitat biologists, water resource managers, and other state experts to help them at the watershed level and to give them confidence that their watershed-level strategies and efforts were scientifically and regulatorily sound. The recent state budget cuts have dramatically reduced state agency's abilities to work with and provide technical expertise to watershed groups; implementing this idea would require reprioritization of state resources and/or development of new resources. We suggest one opportunity for reprioritization of resources below in the discussion of the Partnership Ecosystem Recovery Coordinators.
- Provide support for difficult discussions and conversations at the watershed level – this might come in the form of reinforcing watershed groups' articulation of recovery needs or it might come in the form of support from leaders at the Puget Sound scale who could work with watershed leaders to help shift the conversation on difficult issues. This idea is much less clearly defined in our review; it seems related to the idea of working with watersheds leaders and tribal, county, and city governments to make closer connections between recovery needs and land, water, and transportation planning and management decisions. We address this issue further in recommendation 1; the issue of support for watershed-based leadership is addressed in recommendation 3A.

3C3. The ECB should develop and recommend a mechanism to support watersheds in sharing lessons learned and developing common agendas.

Productive, implementation focused, coordination and collaboration meetings to help groups forge relationships across geographies, provide information they can really use, and support them in sharing lessons learned. We suggest development of Puget Sound scale opportunities for collaboration – this might take the form of a yearly Puget Sound recovery summit, to bring the watersheds together in service of one another and development of Puget Sound scale priorities. It should be a forum for groups to:

- Share information, resources, and lessons learned;
- Coordinate on what scientific evaluation and monitoring are showing about how recovery strategies are working and where more work is needed;
- Discuss how watershed-level work rolls up to Puget Sound scale recovery priorities; and
- Develop common visions and agendas for how work in individual watersheds can be mutually reinforcing and supportive of Puget Sound scale needs.

We encourage an approach that is both celebratory of the progress made and good work done and working, so as much as possible actual progress on issues and decisions can be made during the meetings. Northwest Straits Initiative meetings organized by and for marine resources committees was cited as a good model for this type of work at the Puget Sound scale, and the South Sound Science and Summer Chum symposiums as good examples of this type of work at the watershed scale.

3C4. The ECB should reexamine the role of the Puget Sound Partnership Ecosystem Recovery Coordinators and make recommendations about how to best deploy these resources to best meet the needs of both the watersheds and the Partnership.

The PSP provides coordination to Lead Entities, watershed leads, and Local Integrating Organizations with ecosystem recovery coordinators (ERC). The ERC are universally well-liked; however respondents also expressed

confusion, or sometimes skepticism, of their role and suggested that their talents could be better deployed. We recommend that Partnership leadership work collaboratively with the ECB to consider the optimal skill set and role for Partnership staff tasked with supporting these groups. Suggestions made during this review include:

- Experienced, senior conflict resolution and consensus/coalition building support which could be dedicated to specific issues within a watershed or between watersheds.
- Deep and robust technical expertise around key issues to assist in developing policy and implementation strategies and resolving issues within local areas and with state agencies.
- Convening and facilitating cross committee workgroups between the SRC and ECB.
- Providing more substantive staff-level support for watershed groups by, for example, developing drafts or doing more staff-level reviews and synthesis of draft plans and other products for consideration by the watershed group.
- Shifting ERC positions or capacity funding to more directly staff fully integrated local groups, for example by placing ERC as direct employees of a local group (instead of the Partnership) through an intergovernmental agreement or via grant funding.

3D. Tell a clearer story about how salmon and Puget Sound recovery are working together to aid in direction of money to the highest priorities.

A more collectively shared, specific understanding of how salmon and Puget Sound recovery efforts and actions are mutually-reinforcing is needed to help groups at both the watershed and Puget Sound scales to focus and streamline their cooperative and collaborative activities and prioritize their efforts.

The recommendations in this section can be administratively implemented and most likely fall to the PSP to lead as both the regional recovery organization for Puget Sound Chinook and the agency tasked with leading Puget Sound recovery. Budgetary support will be needed for these efforts, particularly development of clearer expectations about each geography's contributions to salmon and Puget Sound recovery.

3D1. The Partnership should create a clear, integrated picture of regional goals, targets, and planning efforts.

Local watershed and salmon recovery groups want to see how the work they are doing fits in with the overall architecture for recovery. One of the challenges described by leadership and participants in both watershed and Puget Sound scale groups, and in both state and Federal agencies, is lack of a clear and commonly held overall picture of salmon and Puget Sound recovery working together. At a minimum this should describe:

- Specific Puget Sound recovery goals and targets, including those developed for salmon, and how they nest/relate to one another.
- Plans and planning processes oriented to meeting these recovery goals and targets, such as the Chinook recovery plan, the Hood canal and Eastern Strait of Juan de Fuca summer chum salmon recovery plan, the Puget Sound Action Agenda, the salmon habitat work plans, and how those processes nest/relate to one another.
- Actions to support plan development, implementation, and adaptation, such as the monitoring and adaptive management effort, the pressure assessment effort, strategic initiatives, and implementation strategies.
- Monitoring efforts.

Ideally this should be collaboratively developed in partnership with local groups and graphically displayed and communicated in one page. The key is to show how the salmon recovery and Puget Sound recovery efforts are related, and to illustrate how the various regional science and planning process contribute to recovery outcomes; this context will help watershed groups in turn better align and coordinate their processes at the watershed scale. We emphasize that, as banal as this may seem, a lack of clear understanding about the purpose of all the “mandates” and “assignments” coming down to local groups from regional planning organizations, as well as state agencies, and how the various work efforts will come together into a clear picture for recovery was cited as a barrier to success by a large majority of survey respondents and in every interview.

3D2. Support efforts that help entities involved in salmon and Puget Sound identify and communicate shared interests.

The GSRO and WDFW have recently convened a group of leaders from the various groups involved in salmon recovery to bring them together around a common vision, mission, and goals. While this particular group is just forming and is as yet unproven, this type of effort is helpful in streamlining and strengthening Puget Sound recovery in at least two ways. First, by coming together to identify their common interests groups will increase trust, engender cooperation, and may identify opportunities to streamline their functions. Second, by jointly communicating their shared needs and interests, these groups make it easier for funders and decision makers in state and local government (including the Legislature) to see and understand what is important for salmon and Puget Sound recovery. We recommend support for these types of efforts by the relevant state agencies (including the Partnership) and all the participating watershed groups.

3D3. The Partnership should work with local and tribal jurisdictions and LIOs to create spatially explicit, specific, realistic, sequenced expectations about each geography’s contributions to salmon and Puget Sound recovery.

Each watershed geography in Puget Sound can contribute a different mix of progress towards recovery. City and county governments, tribal governments, and their various respective administrative departments are experts in their geographies, capacities, local interests, and potential. They are experts in what works for on-the-ground delivery of services in their jurisdictions and are oriented towards these sorts of on the ground efforts. They want to contribute meaningfully to salmon and Puget Sound recovery and they need a clear path and specific commitments to define this contribution. They want clear local goals and realistic targets for what they should do to focus their efforts; and they want to be included in development of these local goals and targets and to see how their local work “rolls up” into Puget Sound scale efforts.

This does not mean another large-scale regional planning exercise or an abandonment of the huge amount of work that has already gone into development of the Puget Sound recovery targets and the Action Agenda. Emphasis of this point is critical – local and watershed groups expressed no small measure of frustration with what they see as disconnected and disjointed start-and-stop planning efforts for Puget Sound; there is little patience, support, or even openness to anything that would be perceived as another, new run at a big regional plan. Establishing specific, sequenced expectations about each geography’s contributions to recovery means taking the planning and recovery goals in place and working with tribal and local jurisdictions to create geographically explicit, specific, sequenced targets that realistically reflect what each jurisdiction will deliver for each relevant recovery goal. We suggest that this does not demand a new large regional-scale planning exercise, nor nine or ten separate watershed-scale planning exercises. It could be accomplished by working with the ECB to determine which geographies had the most to contribute to each individual recovery goal and creating small groups to bring together experts from each of those geographies with regional experts to complete the work.

An effort to develop spatially explicit, specific, realistic, sequenced expectations should acknowledge that different geographies can contribute different things to recovery. For example, the ability to preserve/restore habitat is more in some places than others; urban stormwater more relevant in some places than others; geographies have different potentials for shellfish, estuary, eelgrass, and other recovery efforts depending on both the level of intactness in the physical and biological structures in the watershed and the degree of local readiness and support for action.

Fundamentally, these efforts should accomplish five things:

- Recognize that each geography has the potential to contribute differently to Puget Sound recovery.
- Map the Puget Sound recovery targets to geographic potential and working with local and tribal experts to develop science-based, specific, sequenced activities and outputs to contribute towards recovery.
- Focus resources towards actions that are most needed, in sequence so successes build over time.
- Collaborate with local experts and groups to monitor results and adapt over time.
- Foster a Puget Sound-scale view of recovery among the many watershed groups and local jurisdictions working to support that recovery.

The PSP is currently exploring the concept of five implementation strategies in support of an initial set of recovery targets relevant to the Puget Sound strategic initiatives: shellfish, B-IBI, estuaries, floodplains, and eelgrass. This recommendation should inform the implementation strategies effort.

Over time, efforts to better understand, describe, and sequence what each geography will contribute to salmon and Puget Sound recovery should support the ability of jurisdictions to collaborate on resource sequencing and resource-share regionally. This type of prioritization and resource-sharing will be vital if we are going to focus resources where they can best advance recovery goals. Concepts like the Coordinated Investment Strategies under consideration by federal funders, where funding would be prioritized for particular geographies based on their potential to contribute to Puget Sound scale recovery goals, and the multi-jurisdictional watershed funding districts, which would enable cooperative decision-making among state, local, and tribal governments to determine and fund implementation of projects which improve watershed health, could further these goals. The Salmon Recovery Funding process for large capital projects can provide an example of regional decisions sequencing resources that are built from watershed-level priorities up using science as a guide, and are then mutually supported by watersheds, even those whose projects are not first in sequence.

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■ APPENDICES

Appendix A: Short History of Watershed Planning in Puget Sound

In the late 1980s, the Legislature established the Puget Sound Water Quality Authority and Management Plan (RCW 90.70, since replaced by the Puget Sound Partnership legislation). The Management Plan outlined eight pollution prevention areas and plans and established the formation of local watershed committees to prepare action agendas and prioritize projects within their watersheds. By 1989 twelve “Early Action” watersheds had established **Watershed Councils** for this purpose; some of these groups remain active today.

In 1985, the Legislature established the **Puget Sound Water Quality Authority** to coordinate water quality-related efforts and protect and restore Puget Sound. The first Puget Sound management plan was adopted in 1987. In 1988, Puget Sound was designated an “Estuary of National Significance,” by the U.S. EPA under the National Estuary Program (NEP). The NEP is “a network of voluntary community-based programs that safeguards the health of important coastal ecosystems across the country.”²⁰ Updates to the Puget Sound management Plan occurred 1989, 1991, 1994, and 1996.

In 1989 the Legislature established Regional Fisheries Enhancement Groups (RCW 77.95.060) to enhance and expand salmon populations in support of recreational fishing via habitat restoration projects, fish supplementation assistance, and community education. There are seven **Regional Fisheries Enhancement Groups (RFEGs)** in Puget Sound. Each is a separate, private, nonprofit organization led by its own board of directors and supported by its members. Capacity funding is primarily from the Washington Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, with some additional money from membership and private and foundation donations.

In 1996 the authorizing legislation for the Puget Sound Water Quality Authority expired and the Legislature created the **Puget Sound Water Quality Action Team** and the **Puget Sound Council** as replacements. The Puget Sound Water Quality Action Team was made up of representatives of state, federal, and tribal governments. The Puget Sound Council was made up of elected officials from the state Legislature and local governments, and tribal governments. The Action Team and Council became responsible for reviewing and updating the Puget Sound Management Plan.

In 1998 the Murray-Metcalf Commission, headed by two Washington State members of Congress, created the **Northwest Straits Marine Conservation Initiative (NWSI)** which established the framework for the **Northwest Straits Commission** and Marine Resources Committees via Public Law 105-384. There are seven **Marine Resources Committees (MRCs)** in the northern part of Puget Sound, organized along county lines. MRCs bring together scientists and community volunteers to address local threats to the marine and nearshore environment.²¹ MRC members are appointed by county commissions and are mostly comprised of local citizen volunteers. A priority objective of the MRCs is to advise county officials on local marine resource issues and concerns. MRCs also carry out projects focused on restoration and protection of local marine resources. Volunteers generally design and carry out projects and help promote local stewardship. Capacity funding for MRCs and the Northwest Straits Commission is primarily provided by U.S. EPA and administered through the PSP, with additional funding provided by the National Oceanic and Atmospheric Administration (NOAA).

²⁰ US EPA, <http://water.epa.gov/type/oceb/nep/>

²¹ NW Straits Initiative; <http://www.nwstraits.org/get-involved/mrcs/>

In 1999 In response to these listings the Legislature established, under separate statutes, both (1) **water resource inventory planning processes and groups** (RCW 90.82) and (2) **salmon recovery planning processes and groups** (RCW 77.85) calling on the state to “coordinate and assist in the development of salmon recovery plans for evolutionarily significant units.”

Under RCW 90.82, **seven Puget Sound watersheds completed water resource plans**: Nooksack (WRIA 1), San Juan (WRIA 2), Island (WRIA 6), Nisqually (WRIA 11), Skokomish-Dosewallips (WRIA 16), Quilcene-Snow (WRIA 17), and Elwha-Dungeness (WRIA 18). The other 11 Puget Sound watersheds²² declined to participate in water resource planning under RCW 90.82 or halted efforts before plans were completed often because of lack of concurrence from tribal governments in the watershed. Capacity funding for watersheds actively engaged in the planning process was provided by the Department of Ecology; however, this support is now essentially concluded. The water resources planning effort also established the watershed boundaries commonly in use in Puget Sound today, the Water Resource Inventory Areas (WRIA).

Under RCW 77.85, **fifteen salmon Lead Entity groups** were established in the Puget Sound Basin. The Lead Entities are local, watershed-based organizations that identify and prioritize local salmon habitat restoration strategies and build local capacity to implement projects. Each Lead Entity has a citizens advisory committee and a technical advisory committee. Capacity funding for Lead Entities is provided by the Recreation and Conservation Office and the federal Pacific Coastal Salmon Recovery Fund (PCSRF); additional capacity funding for capital project-related work by Puget Sound Lead Entities is provided by the Puget Sound Acquisition and Restoration Program which is jointly managed by PSP and the Governor’s Salmon Recovery Office (GSRO) ²³

Also in 1998, twelve Washington State agencies signed a Memorandum of Understanding, otherwise known as **“The State Will Speak with One Voice,”** which coordinates the Watershed Planning Act (ESHB 2514) and Salmon Recovery Act (ESHB 2496 – Chapter 246) efforts. The signers committed to cooperating and coordinating in support of local planning groups from technical assistance to policy review.²⁴ Participating agencies include the Washington State Departments of: Agriculture; Community, Trade and Economic Development; Ecology; Fish and Wildlife; Health; Natural Resources; and Transportation. The Conservation Commission, Interagency Committee for Outdoor Recreation, Puget Sound Water Quality Action Team, Governor’s Salmon Recovery Office, and State Parks and Recreation Commission also signed the memorandum.

Shortly after Lead Entities were established, the Shared Strategy for Puget Sound was created to “. . . build a practical, cost-effective recovery plan endorsed by the people living and working in the watersheds of Puget Sound²⁵.” Shared Strategy worked with watersheds to create **fourteen watershed-specific salmon recovery chapters** which were combined into the Puget Sound Chinook Salmon Recovery Plan (SRP) adopted by NOAA in 2007.²⁶ At the same time the HCCC developed the recovery plan for Hood Canal and Eastern Strait of Juan de Fuca Summer Chum; the plan was completed in 2005 and was adopted by NOAA in 2007. They were the first locally-developed regional salmon recovery plans completed in Washington. **Fourteen watershed leads** now coordinate implementation and adaptive management of the Chinook watershed salmon recovery plan chapters. (Other

²² The remaining 12 Puget Sound watersheds are: Lower Skagit – Samish (WRIA 3), Stillaguamish (WRIA 5), Snohomish (WRIA 7), Cedar – Sammamish (WRIA 8), Duwamish – Green (WRIA 9), Puyallup – White (WRIA 10), Chambers – Clover (WRIA 12), Deschutes (WRIA 13), Kennedy – Goldsborough (WRIA 14), Kitsap (WRIA 15), Lyre – Hoko (WRIA 19)

²³ Coordination of water resource planning groups and lead entities is addressed in a Memorandum of Understanding between state agencies **The State Will Speak with One Voice.**”

²⁴ <http://www.ecy.wa.gov/watershed/misc/mou.html>

²⁵ Puget Sound Partnership website, status of salmon recovery: http://www.psp.wa.gov/SR_status.php

²⁶ Puget Sound Partnership website, status of salmon recovery: http://www.psp.wa.gov/SR_status.php

recovery chapters address nearshore habitat and overall recovery planning and coordination). The HCCC continues to coordinate implementation of the Summer chum recovery plan.

Despite these efforts, concern persisted about the ability to recovery Puget Sound salmon and the overall health of Puget Sound.

In December 2005 Governor Christine Gregoire appointed an advisory commission of 22 prominent leaders, called the Puget Sound Partnership, to look for answers. The advisory commission spent a year studying the scientific, geographical, political and funding issues behind the Sound's environmental problems. In December 2006 they made recommendations including: increased accountability and a new governance structure, better integration of science, a long-term public education effort, and a renewed focus on how to pay for the large-scale actions necessary for Puget Sound recovery.

In 2007, acting on the advice of this group, the Legislature created the **Puget Sound Partnership** to “oversee the restoration of the environmental health of Puget Sound by 2020.” The Partnership replaced the Puget Sound Water Quality Action Team and became the new entity responsible for the Puget Sound Management Plan, which became the Puget Sound Action Agenda. In the same statute, the Legislature established the **Puget Sound Leadership Council** and gave it the power and duty to, among other things, “support, engage, and foster collaboration among watershed groups to assist in the recovery of Puget Sound.” It also established the **Ecosystem Coordination Board** to, among other things, “[assist] cities, counties, ports, tribes, watershed groups, and other governmental and private organizations in the compilation of local programs for consideration for inclusion in the Action Agenda.”²⁷ Finally, RCW 90.71 directed development of the Action Agenda based (in part) on the foundation of existing watershed programs that address or contribute to the health of Puget Sound. To facilitate this, it established **seven “action areas”** and directed the Partnership Executive Director to “[work] with the board representatives from each action area . . . invite appropriate tribes, local governments, and watershed groups to convene for the purpose of compiling the existing watershed programs relating or contributing to the health of Puget Sound.” The participating groups were to “identify the applicable local plan elements, projects, and programs, together with estimated budget, timelines, and proposed funding sources, that are suitable for adoption into the action agenda.”

²⁷ The Puget Sound Science Panel also was established at this time to “provide independent, nonrepresentational scientific advice to the [leadership] council and expertise in identifying environmental indicators and benchmarks for incorporation into the Action Agenda.” We have not reviewed the science groups and structure in this effort. The Puget Sound salmon recovery effort also has a science body, the Regional Implementation Technical Team (RITT).

1985

Puget Sound Water Quality Authority and Management Plan

The Management Plan outlined eight pollution prevention areas, and established the formation of local watershed committees to prepare action agendas and prioritize projects within their watersheds.

Hood Canal Coordinating Council (HCCC)

A watershed-based council of governments. Established in response to community concerns about water quality problems and related natural resource issues in the watershed. Now serves as the salmon recovery lead entity, LIO, regional recovery organization for summer chum, and other roles.

Nisqually Watershed Council

Established to provide technical assistance and policy guidance for an overall management plan for stewardship of the Nisqually River; now leads an effort to create sustainability in the Nisqually Watershed and serves as the salmon recovery lead entity.

1990

Regional Fisheries Enhancement Group (RFEG)

RFEGs enhance and expand salmon populations in support of recreational fishing via habitat restoration projects, fish supplementation assistance, and community education. Each of the Puget Sound RFEGs is a separate, private nonprofit organization led by its own board of directors and supported by its members.

Water Resources Planning

Water Resources planning groups provide local citizens and organizations with the opportunity to collaborate in the management and assessment of water quantity issues. Seven watersheds established water quantity management plans; the planning process in Puget Sound is largely complete.

1998

Marine Resource Committees (MRC)

MRCs bring together scientists and community volunteers to address local threats to the marine and nearshore environment. MRC members are appointed by county. The NW Straits Commission provides policy direction and supports MRCs.

Lead Entity (LE)

Lead entities are local, watershed-based organizations that identify and prioritize local salmon habitat recovery strategies and build local capacity to implement projects. Each LE has a citizen and a technical advisory committee. They are responsible for assembling a ranked list of projects from each area and submitting the projects to the Salmon Recovery Funding Board.

2008

Local Integrating Organization (LIO)

LIOS are intended to bring together (“integrate”) local jurisdictions and interests to establish and further implementation of local priorities for Puget Sound protection and recovery and to advise and influence the Partnership on regional priorities and strategies. LIOS enable communities to guide the implementation of Action Agenda priorities at an ecosystem scale, and to prioritize local actions for investment.

In late 2008 a task force of state agencies, tribal governments, counties and cities provided recommendations to enhance local implementation of the Action Agenda. This document coined the term “**Local Integrating Organization**” and called for “a local structure and process that facilitates integration of the efforts of all groups in each sub-area of Puget Sound. . . create[s] the overarching structure and direction for integrating efforts and ensuring public and private funds are well spent . . . [and] build[s] on the working relationships that have been established through the watershed’s salmon recovery, stormwater control and water quality and quantity work, as well as the work of the Northwest Straits Commission, marine resource committees, many environmental and conservation organizations [and] between local governments for growth management and transportation.” Building on these recommendations the Puget Sound Leadership Council has recognized **nine LIOs**. The Leadership Council first officially recognized five LIOs in 2010 (HCCC, San Juan Agenda Oversight Group, South Central Puget Sound Caucus Group, Strait Ecosystem Recovery Network, and Consolidated WRIA 1 Policy Boards). Two more LIOs were recognized in 2011: the Island County Watershed and Alliance for a Healthy South Sound. Another two were recognized in 2012: Snohomish Stillaguamish and West Central. The Skagit-Samish watershed does not have an LIO.

Also in 2011, the U.S. EPA selected five state agencies and the Northwest Indian Fisheries Commission as **Lead Organizations** to implement six-year strategies to protect and restore Puget Sound. The Departments of Ecology, Fish and Wildlife, Commerce, and Health were awarded responsibilities for administration of programs focused on watershed-scale protection and restoration strategies, marine and nearshore strategies, toxics and nutrients prevention and reduction strategies, and pathogen prevention and reduction strategies. The PSP was selected as responsible for managing implementation of the Action Agenda; the Northwest Indian Fisheries Commission was selected as responsible for managing tribal implementation projects.

Throughout Washington, implementation of salmon recovery plans is overseen by **regional recovery organizations**. Shared Strategy was the initial regional recovery organization for Puget Sound Chinook. In 2007 the PSP was established as the regional recovery organization, replacing Shared Strategy. It is the only regional salmon recovery organization that is also a state agency. PSP is advised by the **Puget Sound Salmon Recovery Council**, a basin-wide group that meets regularly to develop salmon recovery guidance and policy. SRP implementation is supported by a combination of federal and state funds, allocated via three grant programs awarded by the **Salmon Recovery Funding Board**,²⁸ a state-wide committee that prioritizes, vets (via an appointed technical review panel), and funds community-drafted salmon restoration project proposals.²⁹ The HCCC is the regional recovery organization for Hood Canal and Eastern Strait of Juan de Fuca summer chum salmon.

²⁸ Salmon Recovery Funding Board grant programs include Salmon Recovery Grants, Family Forest Fish Passage Program, and Estuary and Salmon Restoration Program.

²⁹ RCW 77.85.130 – Allocation of Funds: <http://app.leg.wa.gov/RCW/default.aspx?cite=77.85.130>; and Salmon Recovery Funding Board fact sheet: http://www.rco.wa.gov/documents/fact_sheets/SRFB_fact_sheet.pdf

Appendix B: Descriptions and Comparisons of Groups

The table below lists the RCWs that formed or led to the formation of the Puget Sound watershed recovery groups. Key excerpts from each RCW are included in the table to present a contextual view of the formation of each group.

Group	RCW	Year	RCW Purpose	Group Purpose	Geography	Group Structure	Funding	RCW URL
Puget Sound Water Quality Authority, and first iteration of the Watershed Planning Groups (Committees)	90.70	1985	"The legislature finds that Puget Sound and related inland marine waterways of Washington state represent a unique and unparalleled resource." ... "The legislature further finds that the consequences of careless husbanding of this resource have been dramatically illustrated in inland waterways associated with older and more extensively developed areas of the nation. Recent reports concerning degradation of water quality within this region's urban embayments raise alarming possibilities of similar despoliation of Puget Sound and other state waterways." ... "The legislature declares that the utilization of the Puget Sound resource carries a custodial obligation of preserving it."	Puget Sound Water Quality Authority: "... the large number of governmental entities that now affect the water quality of Puget Sound have diverse interests and limited jurisdictions which cannot adequately address the cumulative, wide-ranging impacts which contribute to the degradation of Puget Sound." Watershed Planning Committees: "... watersheds are identified and ranked in order of importance by multi-agency committees convened by each county." ... "The [watershed management action] plans are prepared and carried out by local watershed management committees consisting of all affected jurisdictions, tribes, special purpose districts, and others."	Puget Sound Water Quality Authority: "It is therefore the policy of the state of Washington to create a single entity [the Puget Sound Water Quality Authority] with adequate resources to develop a comprehensive plan for water quality protection in Puget Sound to be implemented by existing state and local governments." Watershed Planning Committees: "Counties, cities, and other entities sharing watersheds coordinate plan development and implementation through watershed management committees."	Puget Sound Water Quality Authority: "... the Puget Sound water quality authority composed of seven members who are appointed by the governor and confirmed by the senate." Watershed Planning Committees: "The committee shall consist of all affected local governments, special purpose districts, tribes, interested state agencies, and others."	"While the 1987 state legislative session will provide guidance on the use of the cigarette tax revenue, it is anticipated that local governments will use some combination of the state water quality account and other locally received revenue to undertake plan activities." (The watershed planning committees, watershed prioritization and watershed management action plans were primarily funded by the Centennial Clean Water Funds administered via WA Department of Ecology).	http://app.leg.wa.gov/RCW/di_spo.aspx?cite=90.70 <i>The original RCW was repealed and is no longer available online; the above language was sourced from the Puget Sound Water Quality Management Plan 1987: Appendix C. Puget Sound Water Quality Act (RCW 90.70), and Nonpoint Source Pollution Action Plan: http://www.gpo.gov/fdsys/pkg/CZIC-td225-p97-w37-1988/html/CZIC-td225-p97-w37-1988.htm</i>
Regional Fish Enhancement Groups (RFEGs)	77.95	1989	"The legislature finds that it is in the best interest of the salmon resource of the state to encourage the development of regional fisheries enhancement groups ..." (similar to the highly effective Grays Harbor fisheries enhancement task force). "The legislature authorizes the formation of [RFEGs]."	"[RFEGs] ... shall seek to: (1) Enhance the salmon and steelhead resources of the state; (2) Maximize volunteer efforts and private donations to improve the salmon and steelhead resources for all citizens; (3) Assist the department in achieving the goal to double the statewide salmon and steelhead catch by the year 2000; and (4) Develop projects designed to supplement the fishery enhancement capability of the department."	"Any interested person or group shall be permitted to join [the RFEG]. It is desirable for the group to have representation from all categories of fishers and other parties that have interest in salmon within the region, as well as the general public."	Statewide; in Puget Sound organized largely along county lines	"The regional groups shall be operated on a strictly nonprofit basis, and shall seek to maximize the efforts of volunteer and private donations to improve the salmon resource for all citizens of the state." ... "These groups shall be eligible for state financial support and shall be actively supported by the commission and the department."	http://app.leg.wa.gov/rcw/default.aspx?cite=77.95

Group	RCW	Year	RCW Purpose	Group Purpose	Geography	Group Structure	Funding	RCW URL
Lead Entities	77.85	1998	"... it is the intent of the legislature to specifically address salmon habitat restoration in a coordinated manner and to develop a structure that allows for the coordinated delivery of federal, state, and local assistance to communities for habitat projects that will assist in the recovery and enhancement of salmon stocks." "... the state [is] to retain primary responsibility for managing the natural resources of the state, rather than abdicate those responsibilities to the federal government, and that the state may best accomplish this objective by integrating local and regional recovery activities into a statewide strategy." "... a statewide salmon recovery strategy must be developed and implemented through an active public involvement process..."	"The purpose of the committee is to provide a citizen-based evaluation of the projects proposed to promote salmon habitat." ... "The committee shall compile a list of habitat projects, establish priorities for individual projects, define the sequence for project implementation, and submit these activities as the habitat project list."	"A strong watershed-based locally implemented plan is essential for local, regional, and statewide salmon recovery..." "The area covered by the habitat project list must be based, at a minimum, on a WRIA, combination of WRIAs, or any other area as agreed to by the counties, cities, and tribes..."	"Counties, cities, and tribal governments must jointly designate, by resolution or by letters of support, the area for which a habitat project list is to be developed and the lead entity that is to be responsible for submitting the habitat project list" ... "The lead entity may be a county, city, conservation district, special district, tribal government, regional recovery organization, or other entity." ... "The lead entity shall establish a committee that consists of representative interests of counties, cities, conservation districts, tribes, environmental groups, business interests, landowners, citizens, volunteer groups, regional fish enhancement groups, and other habitat interests."	"The committee shall also identify potential federal, state, local, and private funding sources."	http://app.leg.wa.gov/rcw/default.aspx?cite=77.85.050

Group	RCW	Year	RCW Purpose	Group Purpose	Geography	Group Structure	Funding	RCW URL
Second iteration of Watershed Planning Groups (Units)	90.82	1998	“The purpose of this chapter is to develop a more thorough and cooperative method of determining what the current water resource situation is in each water resource inventory area of the state and to provide local citizens with the maximum possible input concerning their goals and objectives for water resource management and development.”	“The legislature finds that the local development of watershed plans for managing water resources and for protecting existing water rights is vital to both state and local interests. The local development of these plans serves vital local interests by placing it in the hands of people: Who have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long-term management of the resources.” ... “Therefore, the legislature believes it necessary for units of local government throughout the state to engage in the orderly development of these watershed plans.”	WRIA or multi-WRIA areas; see Group Structure.	“Watershed planning under this chapter may be initiated for a WRIA only with the concurrence of: (i) All counties within the WRIA; (ii) the largest city or town within the WRIA unless the WRIA does not contain a city or town; and (iii) the water supply utility obtaining the largest quantity of water from the WRIA...” ... “To apply for a grant for organizing the planning unit ... these entities shall designate the entity that will serve as the lead agency for the planning effort and indicate how the planning unit will be staffed.” ... “[the] ‘lead agency’ means the entity that coordinates staff support of its own or of other local governments and receives grants for developing a watershed plan.”	“Once a WRIA planning unit has been initiated under RCW 90.82.060 and a lead agency has been designated, it shall notify the department and may apply to the department for funding assistance for conducting the planning and implementation. Funds shall be provided from and to the extent of appropriations made by the legislature to the department expressly for this purpose.”	http://app.leg.wa.gov/rcw/default.aspx?cite=90.82&full=true#90.82
Puget Sound Partnership authority and Local Integrating Organizations (LIOs)	90.71	2007	“Puget Sound, including Hood Canal, and the waters that flow to it are a national treasure and a unique resource.” ... “Puget Sound is in serious decline, and Hood Canal is in a serious crisis.” ... “Puget Sound must be restored and protected in a more coherent and effective manner. The current system is highly fragmented. Immediate and concerted action is necessary by all levels of government working with the public, nongovernmental organizations, and the private sector to ensure a thriving natural system that exists in harmony with a vibrant economy.” ... “The legislature therefore creates a new Puget Sound partnership to coordinate and lead the effort to restore and protect Puget Sound, and intends that all governmental entities,	“The partnership shall develop the action agenda in part upon the foundation of existing watershed programs that address or contribute to the health of Puget Sound.” ... “... the partnership shall rely largely upon local watershed groups, tribes, cities, counties, special purpose districts, and the private sector, who are engaged in developing and implementing these programs.” ... “The participating groups should work to identify the applicable local plan elements, projects, and programs, together with estimated budget, timelines, and proposed funding sources, that are suitable for adoption into the action agenda.”	“The partnership shall organize this work by working with these groups in the following geographic action areas of Puget Sound ... : (a) Strait of Juan de Fuca; (b) The San Juan Islands; (c) Whidbey Island; (d) North central Puget Sound; (e) South central Puget Sound; (f) South Puget Sound; and (g) Hood Canal.”	“The [Puget Sound Partnership] executive director, working with the board representatives from each action area, shall invite appropriate tribes, local governments, and watershed groups to convene for the purpose of compiling the existing watershed programs relating or contributing to the health of Puget Sound.”	“The partnership may provide assistance to watershed groups in those action areas that are developing and implementing programs included within the action agenda, and to improve coordination among the groups to improve and accelerate the implementation of the action agenda.”	http://app.leg.wa.gov/rcw/default.aspx?cite=90.71.260

Group	RCW	Year	RCW Purpose	Group Purpose	Geography	Group Structure	Funding	RCW URL
			including federal and state agencies, tribes, cities, counties, ports, and special purpose districts, support and help implement the partnership's restoration efforts." ... "It is the goal of the state that the health of Puget Sound be restored by 2020."					

The following are profiles of the local groups working towards restoration and conservation in the Puget Sound watershed. The profiles are listed in chronological order of establishment and provide background on the context of formation, purpose, geography and current status. The groups include: Regional Fisheries Enhancement Groups (RFEs), Marine Resource Committees (MRCs), Watershed Planning Units, Lead Entities and Local Integrating Organizations (LIOs).

Regional Fisheries Enhancement Groups (RFEs)

Regional Fisheries Enhancement Groups (RFEs) engage communities in restoring salmon habitat and other salmon recovery projects and work to educate and enhance local support for salmon recovery.

RFEs were created by the Legislature 1989 to enhance and expand salmon populations to support recreational fishing. (RCW 77.95.060.) The formation of the groups was inspired by the success of the Grays Harbor fisheries enhancement task force. The Legislature created the RFEs with the hopes that similar work could be carried out in fisheries across the state.³⁰ The Legislature directed RFEs to seek to:

1. Enhance the salmon and steelhead resources of the state;
2. Maximize volunteer efforts and private donations to improve the salmon and steelhead resources for all citizens;
3. Assist WDFW in achieving the goal to double the statewide salmon and steelhead catch by the year 2000; and
4. Develop projects designed to supplement the fishery enhancement capability of WDFW.

RFEs do this work by carrying out habitat restoration projects, assisting with fish supplementation, and providing education in communities. For example, volunteers at the Skagit RFE donated 8,281 hours and succeeded in planting more than 35,000 native plants and opening more than 5.5 miles of stream to fish in 2013 alone.³¹

Each RFE is a separate, private nonprofit organization led by its own board of directors and supported by its members. The seven Puget Sound RFEs include: (1) Nooksack Salmon Enhancement Association, (2) Skagit Fisheries Enhancement Group, (3) Sound Salmon Solutions, (4) Mid-Sound Fisheries Enhancement Group, (5) South Puget Sound Salmon Enhancement Group, (6) Hood Canal Salmon Enhancement Group, and (7) North Olympic Salmon Coalition. Group numbers correspond to the adjacent map.³²

RFE capacity funding comes from the Washington State Department of Fish and Wildlife and US Fish and Wildlife Service. Some groups also receive donations from corporate, foundation and private entities, and from members. Project funding comes from a variety of public and private sources. In Puget Sound, RFEs sponsor (implement) 20-25% of projects funded by the Salmon Recovery Funding Board.

In 2003, the RFEs formed a Coalition whose purpose is “to serve and represent the RFEs by supporting and advocating for their mission , . . . speak with one voice to represent accomplishments and interface with other groups, agencies and legislators on salmon recovery issues.”³³ The coalition is comprised of one representative from each RFE, and they meet quarterly to discuss progress and coordinate regional efforts.

³⁰ RCW

³¹ <http://www.skagitfisheries.org/wp-content/uploads/2010/09/2013-SFEG-Annual-Report-small.pdf>

³² <http://wdfw.wa.gov/about/volunteer/rfeg/>

³³ [RFE Annual Report 2011-12](#)

The map displays the boundaries of 14 Regional Fisheries Enhancement Groups across Washington State. The regions are numbered 1 through 14. Key geographical features include the Strait of Juan de Fuca to the northwest, Grays Harbor to the west, and the Pacific Ocean to the southwest. Major counties labeled include Whatcom, Skagit, Snohomish, King, Pierce, Lewis, Clark, Cowlitz, Skamania, Kitchitat, Benton, Franklin, Columbia, Walla Walla, Asotin, Garfield, Whitman, Adams, Lincoln, Spokane, Ferry, Stevens, Pend Oreille, Okanagon, Chelan, Douglas, Grant, and Yakima. The Washington Department of Fish and Wildlife logo is located in the bottom left corner.

Marine Resource Committees (MRCs)

There are seven Marine Resources Committees (MRCs) in northern Puget Sound that bring together scientists and community volunteers to address local threats to the marine and nearshore environment.³⁴

In 1998 the Murray-Metcalf commission, headed by two Washington State members of Congress, created the Northwest Straits Marine Conservation Initiative (NWSI) which established the framework for the Northwest Straits Commission and Marine Resources Committees (Public Law 105-384.) The purpose of MRCs is to:

1. Identify priorities and implement projects for local marine resources protection.
2. Advise their county governments on marine resources issues and policies.
3. Conduct projects driven by sound science to inform local marine resources management.
4. Engage their community and build greater stewardship of the local marine environment.

MRC members are appointed by county commissions and are drawn from tribal governments, business representatives, the scientific community, and natural resource and environmental organizations. The Northwest Straits Commission, which acts as a board of directors, has a staff and Executive Director, coordinates the MRCs, and provides regional perspective to ensure that MRCs have the tools and scientific information to make decisions. The non-profit Northwest Straits Foundation works to identify and pursue additional funding opportunities for MRC priority projects. The MRCs are located in the following counties: Clallam, Island, Jefferson, San Juan, Skagit, Snohomish and Whatcom.

Capacity funding for MRCs is generally provided by US EPA and NOAA.³⁵ MRCs may be best known for work on derelict gear removal; however they carry out numerous other restoration and education projects such as Olympia oyster restoration, shoreline restoration, landowner workshops and identification/mapping of forage fish spawning sites. The Northwest Straits Commission describes the benefits of MRCs as the following:

*MRCs provide a forum to mobilize citizen support for marine conservation. Working in harmony with the Puget Sound Action Agenda, MRCs generate and implement practical, on-the-ground projects that benefit the ecosystem and the economy of the Northwest Straits region. The Northwest Straits Commission provides regional perspective and ensures that MRCs have the tools and scientific information to make decisions.*³⁶

³⁴ <http://www.nwstraits.org/get-involved/mrcs/>

³⁵ [Ginny Broadhurst Interview](#) (internal)

³⁶ <http://www.nwstraits.org/get-involved/mrcs/>

Marine Resource Committees



Watershed Resources Planning Groups

Watershed Resources Planning Groups, often referred to as “2514 groups,” were authorized by the Washington State Legislature to develop local watershed plans for managing “water resources and for protecting existing water rights.”³⁷ The Legislature passed the Watershed Planning Act (RCW 90.82, ESHB 2514) in 1998, sanctioning watershed planning units with the expressed goal of sourcing local knowledge in the watershed planning process. While the Legislature also created the salmon recovery Lead Entities and the framework for the Marine Resources Committees the same year, a Water Resources Planning Group’s unique mandate was to incorporate “aspirations of those who live and work in the watershed” and “serve the state’s vital interests by ensuring that the state’s water resources are used wisely, by protecting existing water rights, [and] by protecting in-stream flows for fish and by providing for the economic well-being of the state’s citizenry and communities.”

The legislation did not explicitly call for the formation of new watershed groups, but authorized and funded watershed-based community groups to partake in their local water resource management plan development and implementation. Several pre-existing watershed community entities, formed as a result of the 1987 Puget Sound Water Quality Management Plan (RCW 90.70), assumed the new role and received WA Department of Ecology funds to replenish support for their watershed efforts (e.g. the Nisqually River Council assumed the role of the Nisqually Watershed Planning Unit³⁸). Each Watershed Planning Unit, along with local government agencies, is tasked with the development of a watershed plan, a local assessment of water supply in a long-term context, and is given the option of also addressing riparian and nearshore habitat health and water quality.³⁹

Watershed planning groups are organized by the WRIAs in which they operate. With the help of the aforementioned state agencies they provide local citizens and organizations with the opportunity to collaborate in the management and assessment of their local watersheds. *Seven Puget Sound watersheds completed water resource plans:* Nooksack (WRIA 1), San Juan (WRIA 2), Island (WRIA 6), Nisqually (WRIA 11), Skokomish-Dosewallips (WRIA 16), Quilcene-Snow (WRIA 17), and Elwha-Dungeness (WRIA 18). The other 11 Puget Sound watersheds⁴⁰ declined to participate in water resource planning under RCW 90.82 or halted efforts before plans were completed often because of lack of concurrence from tribal governments in the watershed. Capacity funding for watersheds actively engaged in the planning process was provided by the Department of Ecology; however, this support is now essentially concluded.

The water resources planning effort also established the watershed boundaries commonly in use in Puget Sound today, the Water Resource Inventory Areas (WRIA).

³⁷ WA Dept of Ecology “Watershed Planning Act”

³⁸ Nisqually River Publication, “Sustainable Funding for Nisqually Watershed Planning (2009): <http://nisquallyriver.org/wp-content/uploads/2010/03/Sustainable-Funding-for-NisquallyWatershed-Planning.pdf>

³⁹ WA Dept of Ecology “Watershed Planning Act”

⁴⁰ The remaining 12 Puget Sound watersheds are: Lower Skagit – Samish (WRIA 3), Stillaguamish (WRIA 5), Snohomish (WRIA 7), Cedar – Sammamish (WRIA 8), Duwamish – Green (WRIA 9), Puyallup – White (WRIA 10), Chambers – Clover (WRIA 12), Deschutes (WRIA 13), Kennedy – Goldsborough (WRIA 14), Kitsap (WRIA 15), Lyre – Hoko (WRIA 19)

Salmon Recovery Lead Entities

Salmon Recovery Lead Entities are local, watershed-based organizations that identify and prioritize local salmon habitat recovery strategies and build local capacity to implement projects.

Lead Entities were created by the Washington State Legislature in 1998 in response to listings of salmon and bull trout under the Federal endangered species act. (RCW 77.85.090.) Each Lead Entity is made up of a coordinator from the county, conservation district, or a tribe; a technical committee; a citizens committee; and a lead entity grant administrator, usually a county, conservation district, tribal, or regional organization.⁴¹ They are responsible for assembling a ranked list of projects from each area and submitting the projects to the Salmon Recovery Funding Board for consideration. Fundamentally Lead Entities convene and coordinate local groups and governments to identify the best science-based habitat protection and restoration projects for salmon recovery and to build community support and capacity for these projects.⁴²

Lead Entity geographic boundaries can be based on a Watershed Resource Inventory Area (WRIA) or an area that's mutually agreed upon by the leadership in that geography. In the Puget Sound Basin there are *seventeen Lead Entities*: WRIA 1 Salmon Recovery Board, San Juan Lead Entity, Skagit Lead Entity, Island Lead Entity, Stillaguamish Co-Lead Entity, Stillaguamish Watershed Council, Snohomish Lead Entity, WRIA 8 Lead Entity, WRIA 9 Lead Entity, WRIA 10/12 (Puyallup-Clover/Chambers), WRIA 11 (Nisqually), WRIA 13 (Deschutes), WRIA 14 (Kennedy-Goldsborough), WRIA 15 (West Sound-Watersheds), Hood Canal Coordinating Council, Snoqualmie Watershed Forum, and the North Olympic Lead Entity.⁴³ These Lead Entities cross-walk with the *fourteen salmon recovery watersheds*.

Lead Entities are coordinated through regional recovery organizations. The Puget Sound Partnership is the regional recovery organization for Puget Sound Lead Entities. (RCW 77.85.090(3).) The Puget Sound Salmon Recovery Council, which includes representatives from each of the 14 watershed areas in the Puget Sound Chinook recovery plan, tribal governments, business and environmental communities, and state and federal agencies, meets regularly to develop guidance for implementation of the Puget Sound Chinook Salmon Recovery Plan and advises the Puget Sound Leadership council on salmon recovery decisions.⁴⁴ Science and technical coordination and guidance is provided by a NOAA-appointed Regional Implementation Technical Team (RITT) which works with the regional and local groups.

Capacity funding for Lead Entities is provided by the Recreation and Conservation Office and the federal Pacific Coastal Salmon Recovery Fund (PCSFR); additional capacity funding for capital project-related work by Puget Sound Lead Entities is provided by the Puget Sound Acquisition and Restoration Program which is jointly managed by PSP and the Governor's Salmon Recovery Office (GSRO).

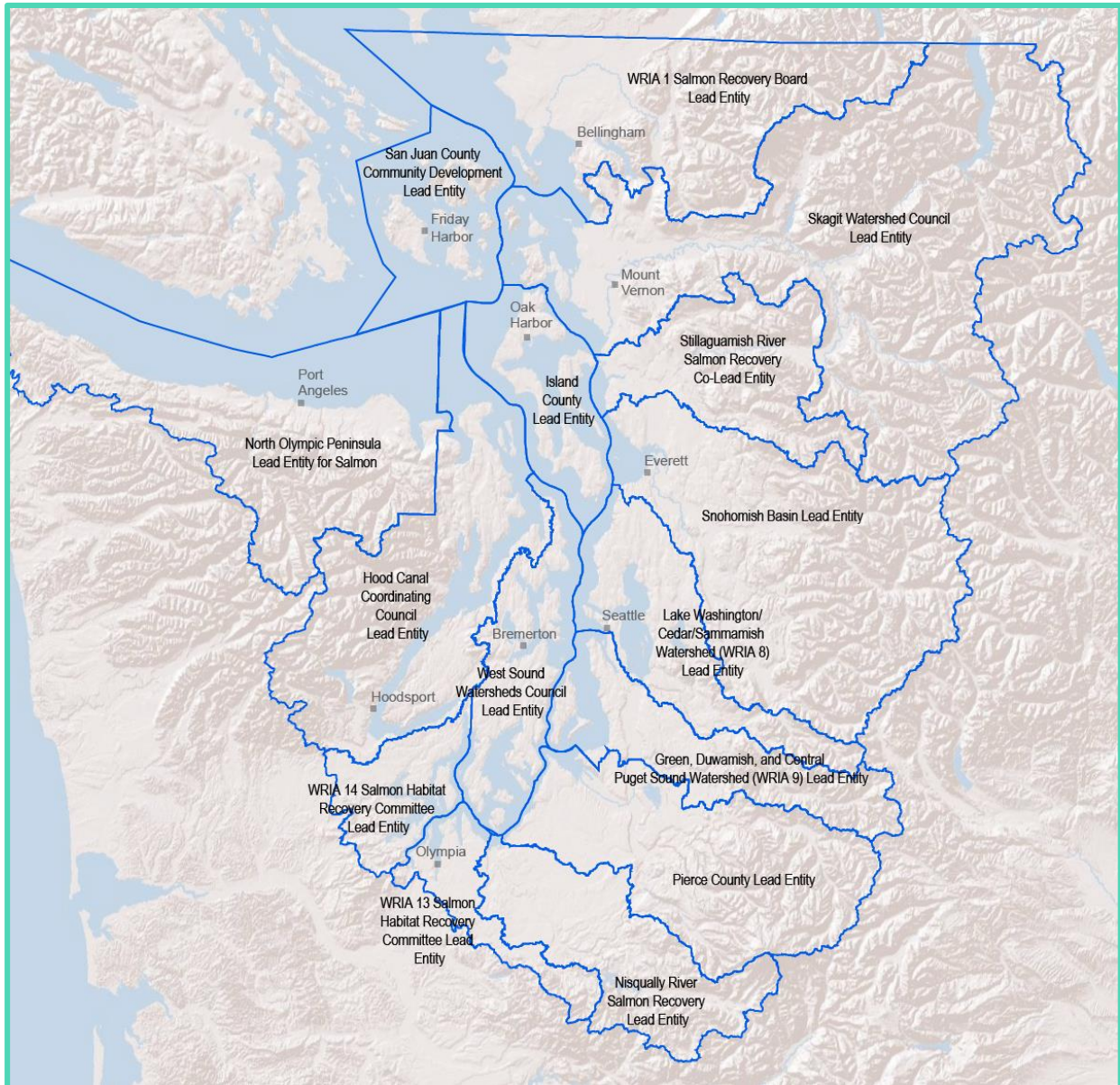
⁴¹ http://wwwtest2.rco.wa.gov/salmon_recovery/lead_entities.shtml

⁴² http://wwwtest2.rco.wa.gov/salmon_recovery/lead_entities.shtml

⁴³ S:\Projects\1121 PSP Eval Watersheds and Salmon Orgs\Watershed Proviso\Watershed Efficiency Analysis Tracking Summary.xlsx (internal)

⁴⁴ http://www.psp.wa.gov/SR_status.php

Lead Entities



Local Integrating Organizations (LIOs)

Local Integrating Organizations (LIOs) were created by the Puget Sound Partnership (PSP) with the intention to bring together (“integrate”) local jurisdictions and interests, to establish and further implementation of local priorities for Puget Sound protection and recovery, and to advise and influence the Partnership on regional priorities and strategies.

In late 2008 a task force made up of representatives from local and regional watershed groups and state, tribal and local governments met to consider ways to enhance the capacity of local organizations and to integrate their implementation efforts supporting the recently published Puget Sound Action Agenda. The task force’s core recommendation was to use the advent of the first Action Agenda as a catalyst to harness local efforts and create an “overarching structure and direction for integrating [local] efforts and ensuring public and private funds are well spent.”

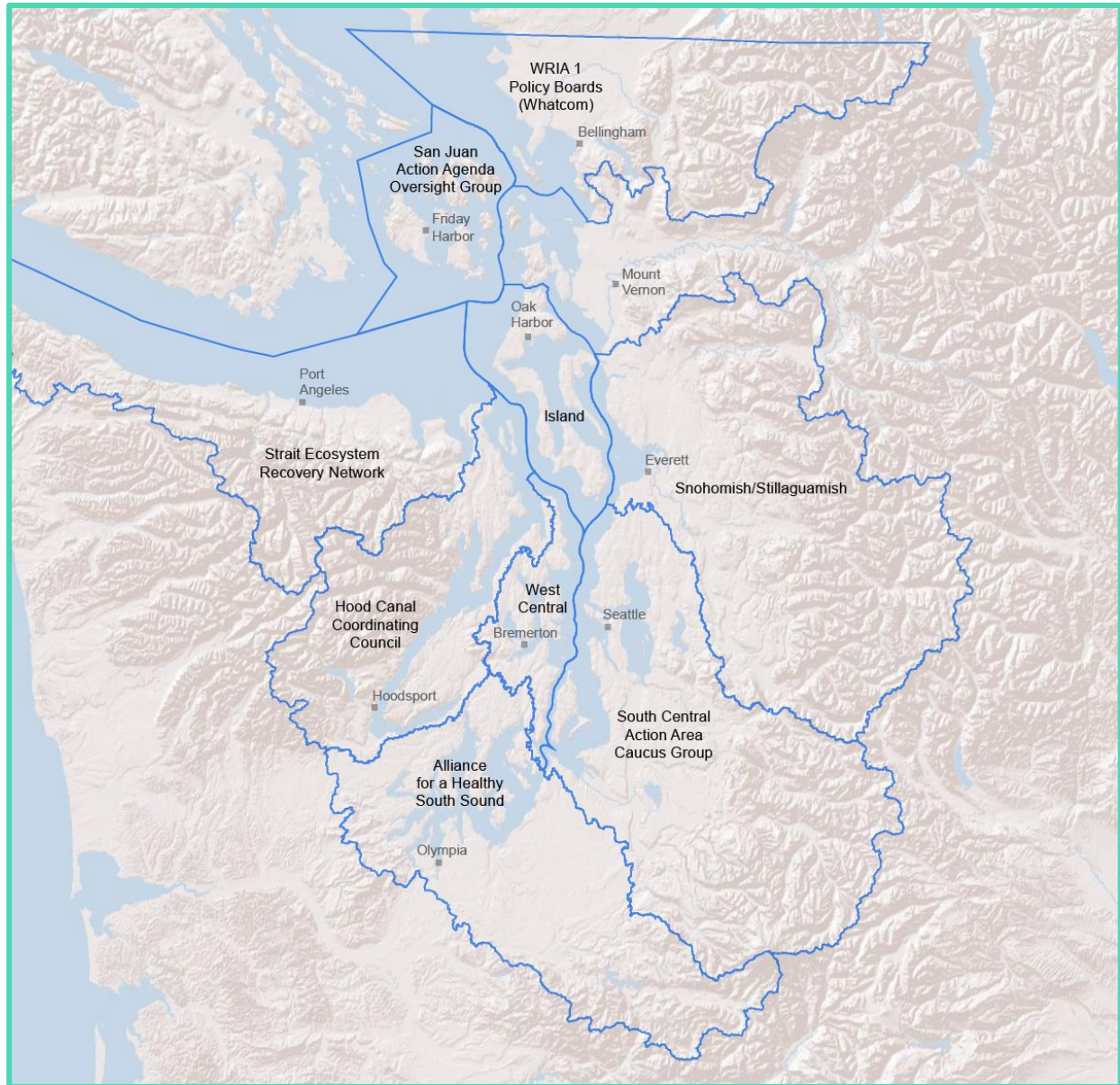
The task force recommended that PSP foster a local process in each sub-region of Puget Sound to clearly designate a group to bring together all the groups/ jurisdictions involved in protecting and restoring Puget Sound, and made a number of specific recommendations about how these “local integrating” organizations should be defined, what they should do, and how they should be supported. The task force specifically recognized and discussed the “multitude” of individual local groups involved in salmon and Puget Sound recovery and described them as “one of the greatest strengths of ongoing recovery efforts” but also as having the potential to create confusion about “who is responsible for specific actions and results.”⁴⁵ It did not contemplate replacing these groups. Rather it emphasized the need to build on existing groups and relationships and to have flexibility for each sub-region to find the path that could best serve its particular situation. In some areas, it contemplated that an existing group might take on the responsibilities of an LIO in addition to its present responsibilities; in other areas it acknowledged that a new group might be needed, or multiple groups might come together to become the LIO.

Since then, the PSP Leadership Council has recognized nine LIOs: San Juan Action Agenda Oversight Group, Strait Ecosystem Recovery Network, South Central Action Area Caucus Group, Alliance for a Healthy South Sound, Hood Canal Coordinating Council, West Central LIO, Whatcom LIO, Island LIO, and Snohomish/Stillaguamish LIO. The Skagit watershed does not have an LIO. ⁴⁶ As the original task force recommendation contemplated, each is a little different in its form and governance. PSP requires LIOs to meet regularly and provide local profiles and priority actions to include in the Action Agenda, and that they track and report on action implementation progress. LIOs also are requested to provide local input and technical and scientific expertise to numerous regional planning and recovery efforts. Regional coordination for LIO is supported by the Partnership through quarterly meetings of LIO coordinators.

⁴⁵ LIO Task Force Final Recommendations to PSP

⁴⁶ <http://wa-geoservices.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=063476d1e8e342b383ed1655b106c055>

Local Integrating Organizations



LIO Governance and Participation Table (adapted from Section 4: Local Recovery Actions in the 2014/2015 Action Agenda; available at: http://www.psp.wa.gov/downloads/2014_action_agenda/Final%202014%20action%20agenda%20update/Section4_LocalAreas.pdf)

LIO Name	Governance Model	Decision Group	Advisory/Implementation Group
Hood Canal Coordinating Council (HCCC) <i>Recognized as LIO in 2010.</i>	Watershed-based council of governments. The HCCC has an Executive Director, board of directors and two steering committees. The Board Steering Committee engages Hood Canal communities in work supporting and improving environmental and economic well-being of the action area. The Integrated Watershed Plan (IWP) Steering Committee is developing an integrated strategic plan for Hood Canal.	Board of Directors comprised of Jefferson County Commissioners, Kitsap County Commissioners, Mason County Commissioners, Port Gamble S'Klallam Tribe, Skokomish Tribal Nation.	Board Steering Committee comprised of governmental members and non-governmental organizations includes representatives from Skokomish Tribe, Port Gamble S'Klallam Tribe, Mason County, and HCCC staff Integrated Watershed Plan Steering Committee comprised of governmental members and non-governmental organizations, includes representatives from Skokomish Tribe, Jefferson County, Mason County, Puget Sound Partnership, Washington Sea Grant Long Live the Kings, and other community partners.
Island County Watershed LIO <i>Recognized as LIO in 2011.</i>	Executive Committee makes LIO decisions, sets strategic policy direction, and establishes priorities and funding concepts. Technical Committee provides recommendations on strategic direction, priority setting, funding concepts, and other issues of interest to the Executive Committee.	Executive committee comprised of: (1) Island Council of Governments including: Island County Commissioner District 1, District 2, District 3, City of Langley Mayor, Town of Coupeville Mayor, City of Oak Harbor Mayor, Port Commissioner from the Port District of Coupeville, Port Commissioner from the Port District of South Whidbey; (2) participating tribal governments: the Tulalip Tribe, the Swinomish Tribe	Technical committee comprised of representatives from Island County Public Health, Island County Public Works, Island County Planning and Community Development, City of Oak Harbor, City of Langley, Town of Coupeville, Tulalip Tribes, Swinomish Tribe (via Skagit River System Cooperative), Island County MRC, Island County Water Resource Advisory Committee WRIA 6, Salmon Recovery Lead Entity, Business/Ports, Whidbey EcoNet
San Juan Agenda Oversight Group (or San Juan LIO) <i>Recognized as LIO in 2010.</i>	Accountability oversight committee serves as the executive body for the LIO; implementation committee provides recommendations to the Accountability Oversight Committee.	Accountability oversight committee comprised of: Lummi Nation, Swinomish Tribe, Tulalip Tribes, PSP Leadership Council (ex-officio)	Implementation committee comprised of San Juan Marine Resources Committee, WRIA 6 Salmon Recovery Lead Entity, San Juan County Director of Community Development and Planning, San Juan County Director of Public Works, San Juan County Environmental Health Manager, San Juan County Water Resources Committee (community representative), San Juan Conservation District, University of Washington Friday Harbor Labs, San Juan Stewardship Network/ECO Net, Town of Friday Harbor.
Snohomish-Stillaguamish LIO <i>Recognized as LIO in 2012.</i>	Executive Committee is the primary decision-making body. Implementation committee supports the Executive Committee.	Executive committee comprised of: City of Everett, City of North Bend, City of Snohomish, City of Arlington, City of Stanwood, King County, Port of Everett, Snohomish County, Stillaguamish Tribe, Tulalip Tribes	Implementation committee comprised of representatives from City of Lake Stevens Planning Department, City of Snohomish ECO Net Snohomish Camano, Futurewise, King County, King Conservation District, Port of Everett, Snohomish Conservation District, Snohomish County, Snohomish County Agricultural Advisory Board, Snohomish Marine Resources Advisory Committee, Snohomish Basin Salmon Recovery Forum, Snohomish County Health Department, Snoqualmie Watershed Forum, Snoqualmie Tribe, Sound Salmon Solutions, Stillaguamish Clean Water District, Stillaguamish Tribe Natural Resources Department, Stillaguamish Watershed Council, Tulalip Tribes Natural Resources Department, Tulalip Tribes Planning Department

LIO Name	Governance Model	Decision Group	Advisory/Implementation Group
South Central Puget Sound Caucus Group <i>Recognized as LIO in 2010.</i>	Caucus group is the decision making body and responsible for integrating efforts to advance the Action Agenda. A working group committee identifies the highest priority actions and setting clear priorities to recommend to the Caucus Group.	Caucus group comprised of: King and Pierce Counties, Cities of Seattle, Tacoma, and Bellevue, Sound Cities Association, Pierce County Cities and Towns Association, Muckleshoot Indian Tribe, Puyallup Tribe of Indians, Puget Sound Regional Council of Government, PSP, Seattle—King County Public Health, Tacoma—Pierce County Public Health Department, Ports of Seattle and Tacoma, Lake Washington/Cedar/Sammamish Watershed (WRIA 8), Green/Duwamish and Central Puget Sound Watershed (WRIA 9), Puyallup/White and Chambers/Clover Watershed (WRIA 10/12), Pierce County Salmon Recovery Lead Entity (WRIA 10), King Conservation District, Pierce Conservation District, Washington State University, King County Extension, ECO Net, Forterra, Citizens for a Healthy Bay, Tacoma Chamber of Commerce, Boeing	Working group committee comprised of representatives from City of Seattle, King County, Pierce County, King Conservation District, Pierce Conservation District, Lake Washington/Cedar/Sammamish Watershed (WRIA 8), Green/Duwamish Watershed (WRIA 9), Pierce County Salmon Recovery Lead Entity (WRIA 10), and ECO Net
Alliance for a Healthy South Sound <i>Recognized as LIO in 2011.</i>	Executive committee serves as the executive body for the LIO; a council of stakeholders supports the executive committee.	Executive committee comprised of elected officials from: Thurston, Mason, Pierce, and Kitsap Counties; Nisqually, Squaxin Island, and Puyallup Tribes.	The council of stakeholders consists of approximately 35 members representing broad community interests and includes a number of sub-committees that provide technical guidance to the executive committee. Members and alternates are appointed to the council by the executive committee.
Strait Ecosystem Recovery Network <i>Recognized as LIO in 2010.</i>	The Strait ERN LIO is guided by a steering group.	Steering group comprised of: 24th District, State Representative (co-chair), Jefferson County, Commissioner (co-chair), and representatives from Clallam County, Jamestown S’Klallam Tribe, North Olympic Timber Action Committee, Olympic Environmental Council, Washington Department of Fish and Wildlife, and PSP (ex-officio)	As needed, the Strait ERN LIO forms task force groups, made up of volunteers from the membership, to focus on implementing local strategies and near-term actions.
West Central LIO <i>Recognized as LIO in 2012.</i>	Executive committee is the decision-making body; a working group provides support for the Executive Committee.	Executive committee includes elected representatives from: Kitsap and Pierce Counties, Cities of Bainbridge Island, Bremerton, Gig Harbor, Poulsbo, and Port Orchard, Port Gamble S’Klallam and Suquamish Tribes.	Working group includes staff from the nine jurisdictions represented on the executive committee as well as from the following entities: Great Peninsula Conservancy, Kitsap Conservation District, Kitsap County Parks and Recreation, Kitsap Public Health District, Kitsap Public Utility District, Kitsap Regional Coordinating Council, Kitsap/Pierce Home Builders’ Association, Naval Base Kitsap, Ports of Poulsbo, Kingston, and Bremerton, Puget Sound Restoration Fund, Stillwaters Environmental Center/ Kitsap Eco-Net, Washington State Department of Health, West Sound Watersheds Council, Washington State University Extension Kitsap
Consolidated WRIA 1 Policy Boards (Whatcom LIO) <i>Recognized as LIO in 2010.</i>	Whatcom LIO is a function of the existing integrated governance structure for WRIA 1 program management. The LIO operates with the WRIA 1 Policy Boards and Management Team and staff teams. The WRIA 1 Policy Boards provide policy direction and guidance. The WRIA 1 Management Team provides program oversight and administers the policies and directions of the WRIA 1 Policy Boards.	WRIA 1 Watershed Joint Board comprised of: Whatcom County, Cities of Bellingham, Lummi Nation, Nooksack Indian Tribe, Public Utility District No. 1 WRIA 1 Salmon Recovery Board comprised of: City of Bellingham, City of Blaine, City of Everson, City of Ferndale, City of Lynden, City of Nooksack, City of Sumas, Whatcom County, Washington Department of Fish and Wildlife, Lummi Nation, Nooksack Indian Tribe	WRIA 1 management team consists of representatives from the same entities as the policy boards.

Appendix C: Groups by County and WRIA

Table 1 lists the number of watersheds (WRIA) in a county and the groups engaged in Puget Sound and salmon recovery. The number of each type of group within the county is noted in the small blue boxes at the bottom of the cells. A number of groups that were not specifically named in the Legislative proviso are included because they were frequently described as playing important roles in watershed-scale project identification, prioritization, and implementation. These are: conservation districts, land trusts, and shellfish protection districts. The table is intended to aid in the interpretation of the interplay between political boundaries (counties) and watershed recovery groups.

Table 1: Groups by County

County	WRIA (# in County)	MRC (# in County)	Lead Entity (# in County)	LIO (# in County)	RFEG (# in County)	Conservation District (# in County)	Land Trust (# in County)	Shellfish Protection Districts (# in County)
Whatcom	• Nooksack (WRIA1), <i>W side</i> • Lower Skagit-Samish (WRIA 3), <i>SW side</i> • Upper Skagit (WRIA 4), <i>W Side</i> 3	Whatcom MRC 1	• Salmon Recovery Council Lead Entity • Skagit Watershed Council Lead Entity 2	WRIA 1 Policy Boards 1	•Nooksack Salmon Enhancement Association •Skagit Fisheries Enhancement Group 2	Whatcom Conservation District 1	Whatcom Land Trust 1	•Birch Bay •Portage Bay 2
San Juan	San Juan (WRIA 2) 1	San Juan MRC 1	San Juan County Community Development Lead Entity (San Juan MRC is the citizens' committee) 1	San Juan Action Agenda Oversight Group 1	Skagit Fisheries Enhancement Group 1	• San Juan County Land Bank • San Juan Conservation District 2	San Juan Preservation Trust 1	N/A 1

County	WRIA (# in County)	MRC (# in County)	Lead Entity (# in County)	LIO (# in County)	RFEG (# in County)	Conservation District (# in County)	Land Trust (# in County)	Shellfish Protection Districts (# in County)
Skagit	- Nooksack (WRIA1), <i>N central</i> - Lower Skagit-Samish (WRIA 3), <i>W side</i> - Upper Skagit (WRIA 4), <i>W Side</i> - Stillaguamish (WRIA 5), <i>S central</i> 4	Skagit MRC 1	- Skagit Watershed Council Lead Entity - Stillaguamish River Salmon Recovery Co-Lead Entity 2	Snohomish/ Stillaguamish LIO 1	- Nooksack Salmon Enhancement Association - Skagit Fisheries Enhancement Group - Sound Salmon Solutions 3	Skagit Conservation District 1	Cascade Land Conservancy 1	Skagit 1
Island	Island (WRIA 6) 1	Island MRC 1	Island County Lead Entity 1	Island LIO 1	- Skagit Fisheries Enhancement Group - Sound Salmon Solutions 2	- Whidbey Island Conservation District - Snohomish Conservation District 2	Whidbey Camano Land Trust 1	Holmes Harbor 1
Snohomish	- Lower Skagit Samish (WRIA 3), <i>NW corner</i> - Upper Skagit (WRIA 4), <i>NW corner</i> - Stillaguamish (WRIA 5), <i>NW side</i> - Snohomish (WRIA 7), <i>S central</i> - Cedar Sammamish (WRIA 8), <i>SW corner</i> 5	Snohomish MRC 1	- Skagit Watershed Council Lead Entity - Stillaguamish River Salmon Recovery Co-Lead Entity - Skagit Watershed Council Lead Entity - Snohomish Basin Lead Entity 4	- Snohomish/Stillaguamish LIO - South Central Action Area Caucus Group 2	- Skagit Fisheries Enhancement Group - Sound Salmon Solutions 2	Snohomish Conservation District 1	Cascade Land Conservancy 1	Stillaguamish 1

County	WRIA (# in County)	MRC (# in County)	Lead Entity (# in County)	LIO (# in County)	RFEG (# in County)	Conservation District (# in County)	Land Trust (# in County)	Shellfish Protection Districts (# in County)
King	• Snohomish (WRIA 7), <i>N central</i> • Cedar Sammamish (WRIA 8), <i>NW and central</i> • Duwamish- Green (WRIA 9), <i>S central</i> • Puyallup – White (WRIA 10), <i>S border</i> • Kitsap (WRIA 15), <i>SW corner</i>	N/A	• Lake Washington/ Cedar/Sammamish Watershed (WRIA 8) Lead Entity • Snohomish Basin Lead Entity • Green, Duwamish, and Central Puget Sound Watershed (WRIA 9) Lead Entity • Pierce County Lead Entity	• Snohomish/ Stillaguamish LIO • South Central Action Area Caucus Group	• Sound Salmon Solutions • Mid-Sound Fisheries Enhancement Group • South Puget Sound Salmon Enhancement Group	King Conservation District	• Forterra • Vashon-Maury Island Land Trust	N/A
	5	0	4	2	3	1	2	0
Pierce	• Puyallup – White (WRIA 10), <i>N central</i> • Nisqually (WRIA 11), <i>S central</i> • Chambers-Clover (WRIA 12), <i>NW side</i> • Kitsap (WRIA 15), <i>NW Side</i>	N/A	• Pierce County Lead Entity • Nisqually River Salmon Recovery Lead Entity • West Sound Watershed Council	• South Central Action Area Caucus Group • Alliance for a Healthy South Sound • West Central LIO	South Puget Sound Salmon Enhancement Group	Pierce Conservation District	• Nisqually Land Trust • Forterra • Great Peninsula Conservancy	• Filucy Bay • Nisqually-Henderson
	4	0	3	3	1	1	3	2
Lewis	• Nisqually (WRIA 11), <i>N central border</i> • Deschutes (WRIA 13), <i>N central</i>	N/A	• Nisqually River Salmon Recovery Lead Entity • WRIA 13 Salmon Habitat Recovery Committee Lead Entity	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group	Lewis Conservation District	• Nisqually Land Trust • Capitol Land Trust	N/A
	2	0	2	1	1	1	2	0

County	WRIA (# in County)	MRC (# in County)	Lead Entity (# in County)	LIO (# in County)	RFEG (# in County)	Conservation District (# in County)	Land Trust (# in County)	Shellfish Protection Districts (# in County)
Thurston	- Nisqually (WRIA 11), <i>E side</i> - Deschutes (WRIA 13), <i>central</i> - Kennedy Goldsborough (WRIA 14), <i>NW corner</i>	N/A	- WRIA 13 Salmon Habitat Recovery Committee Lead Entity - Nisqually River Salmon Recovery Lead Entity - WRIA 14 Salmon Habitat Recovery Committee Lead Entity	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group	Thurston Conservation District	- Nisqually Land Trust - Capitol Land Trust	N/A
	3	0	3	1	1	1	2	0
Mason	- Kennedy Goldsborough (WRIA 14), <i>S side</i> - Kitsap (WRIA 15), <i>NE corner</i> - Skokomish-Dosewallips (WRIA 16), <i>NW side</i>	N/A	- West Sound Watersheds Council Lead Entity - WRIA 14 Salmon Habitat Recovery Committee Lead Entity - Hood Canal Coordinating Council Lead Entity	- Hood Canal Coordinating Council - Alliance for a Healthy South Sound - West Central LIO	- South Puget Sound Salmon Enhancement Group - Hood Canal Salmon Enhancement Group	Mason Conservation District	- Great Peninsula Conservancy - Capitol Land Trust	- Annas Bay - Oakland Bay
	3	0	3	3	2	1	2	2
Kitsap	Kitsap (WRIA 15)	N/A	- Hood Canal Coordinating Council Lead Entity - West Sound Watersheds Council Lead Entity	- Alliance for a Healthy South Sound - West Central LIO - Hood Canal Coordinating Council	- Mid-Sound Fisheries Enhancement Group - Hood Canal Salmon Enhancement Group	Kitsap Conservation District	- Great Peninsula Conservancy - Bainbridge Island Land Trust	- Rocky Bay - Burley Lagoon
	1	0	2	3	2	1	2	2

County	WRIA (# in County)	MRC (# in County)	Lead Entity (# in County)	LIO (# in County)	RFEG (# in County)	Conservation District (# in County)	Land Trust (# in County)	Shellfish Protection Districts (# in County)
Jefferson	• Skokomish-Dosewallips (WRIA 16), <i>E side</i> • Quilcene-Snow (WRIA 17), <i>NE side</i> • Elwha-Dungeness (WRIA 18), <i>N central border</i>	Jefferson MRC	• Hood Canal Coordinating Council Lead Entity • North Olympic Peninsula Lead Entity for Salmon	• Hood Canal Coordinating Council • Strait Ecosystem Recovery Network	• Hood Canal Salmon Enhancement Group • North Olympic Salmon Coalition	Jefferson Conservation District	Jefferson Land Trust	East Jefferson
	3	1	2	2	2	1	1	1
Clallam	• Quilcene-Snow (WRIA 17), <i>E border</i> • Elwha-Dungeness (WRIA 18), <i>E central</i> • Lyre-Hoko (WRIA 19), <i>NE Corner</i>	Clallam MRC	North Olympic Peninsula Lead Entity for Salmon	• Hood Canal Coordinating Council • Strait Ecosystem Recovery Network	North Olympic Salmon Coalition	Clallam Conservation District	North Olympic Land Trust	Dungeness
	2	1	1	2	1	1	1	1

Table 2: Groups by Watershed Resource Inventory Area (WRIA)

The table below lists groups engaged in watershed recovery sorted by WRIA. The number of each group type within the WRIA is noted in the small blue boxes at the bottom of the cells. A number of groups that were not specifically named in the Legislative proviso are included because they were frequently described as playing important roles in watershed-scale project identification, prioritization, and implementation. These are: conservation districts, land trusts, and shellfish protection districts. This table is intended to aid in the interpretation of the relationship between WRIA boundaries and areas where salmon and Puget Sound recovery groups work.

WRIA	Marine Resource Committees (MRC) (# in WRIA)	Lead Entity (LE) (# in WRIA)	Local Integrating Organization (LIO)	Regional Fisheries Enhancement Group (RFEG) (# in WRIA)	Conservation Districts (# in WRIA)	Land Trust (# in WRIA)	Shellfish Protection Districts (# in WRIA)
Nooksack (1)	Whatcom County MRC 1	WRIA 1 Salmon Recovery Council Lead Entity 1	WRIA 1 Policy Boards (Whatcom)	Nooksack Salmon Enhancement Association 1	Whatcom County Conservation District 1	Whatcom Land Trust & Lummi Island Heritage Trust 2	Birch Bay & Portage Bay Shellfish Protection Districts 2
San Juan (2)	San Juan County MRC 1	San Juan County Community Development Lead Entity 1	San Juan Action Agenda Oversight Group	Skagit Fisheries Enhancement Group 1	San Juan County Conservation District 1	San Juan Preservation Trust 1	N/A 0
Lower Skagit/Samish (3)	Whatcom & Skagit & Snohomish County MRCs 3	Skagit Watershed Council Lead Entity 1	None	Sound Salmon Solutions 1	Whatcom & Skagit & Snohomish County Conservation Districts 3	Skagit Land Trust & Cascade Land Conservancy 2	Skagit & Stillaguamish Shellfish Protection Districts 2
Upper Skagit (4)	Whatcom & Skagit & Snohomish MRCs 3	WRIA 1 Salmon Recovery Board & Skagit Watershed Council Lead Entity 2	N/A	Skagit Fisheries Enhancement Group 1	Whatcom & Skagit & Snohomish Conservation Districts 3	Whatcom Land Trust & Skagit Land Trust & Forterra 3	Skagit Shellfish Protection District 1
Stillaguamish (5)	Snohomish & Skagit MRCs	Stillaguamish River Salmon Recovery Co-Lead Entity	Snohomish/ Stillaguamish LIO	Sound Salmon Solutions	Snohomish & Skagit Conservation Districts	Forterra	Skagit & Stillaguamish Shellfish Protection Districts

WRIA	Marine Resource Committees (MRC) (# in WRIA)	Lead Entity (LE) (# in WRIA)	Local Integrating Organization (LIO)	Regional Fisheries Enhancement Group (RFEG) (# in WRIA)	Conservation Districts (# in WRIA)	Land Trust (# in WRIA)	Shellfish Protection Districts (# in WRIA)
	2	1		1	2	1	2
Island (6)	Island MRC 1	Island County Lead Entity 1	Island LIO	Sound Salmon Solutions & Skagit Fisheries Enhancement Group 2	Whidbey Island Conservation District & Snohomish County Conservation District 2	Whidbey Camano Land Trust 1	Holmes Harbor Shellfish Protection District 1
Snohomish (7)	Snohomish MRC 1	Snohomish County Lead Entity 1	Snohomish/Stillaguamish LIO	Sound Salmon Solution 1	Snohomish Conservation District 1	Forterra 1	N/A 0
Cedar/ Sammamish (8)	Snohomish MRC 1	Lake Washington/Cedar/Sammamish (WRIA 8) Lead Entity 2	South Central Action Area Caucus Group	Mid-Sound Fisheries Enhancement Group & Sound Salmon Solutions 2	Snohomish Conservation District & King Conservation District 2	Forterra Vashon-Maury Island Land Trust 1	N/A 0
Duwamish/Green (9)	N/A 0	Green, Duwamish, and Central Puget Sound Watershed (WRIA 9) Lead Entity 3	South Central Action Area Caucus Group	Mid-Sound Fisheries Enhancement Group 1	King County Conservation District 1	Forterra Vashon-Maury Island Land Trust 1	N/A 0
Puyallup/White (10)	N/A 0	Green, Duwamish, and Central Puget Sound Watershed (WRIA 9) Lead Entity 3	South Central Action Area Caucus Group	South Puget Sound Salmon Enhancement Group 1	Pierce & King County Conservation Districts 2	Forterra 1	N/A 0
Nisqually (11)	N/A 0	Nisqually River Salmon Recovery Lead Entity 1	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group 1	Pierce & Thurston & Lewis County Conservation Districts 3	Nisqually River Land Trust 1	Nisqually/Henderson Shellfish Protection District 1

WRIA	Marine Resource Committees (MRC) (# in WRIA)	Lead Entity (LE) (# in WRIA)	Local Integrating Organization (LIO)	Regional Fisheries Enhancement Group (RFEG) (# in WRIA)	Conservation Districts (# in WRIA)	Land Trust (# in WRIA)	Shellfish Protection Districts (# in WRIA)
Chambers/Clover (12)	N/A 0	Pierce County Lead Entity 1	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group 1	Pierce County Conservation District 1	Forterra 1	N/A 0
Deschutes (13)	N/A 0	WRIA 13 Salmon Recovery Committee Lead Entity 1	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group 1	Thurston & Lewis County Conservation Districts 2	Capitol Land Trust 1	N/A 0
Kennedy/Goldsborough (14)	N/A 0	WRIA 14 Lead Entity 1	Alliance for a Healthy South Sound	South Puget Sound Salmon Enhancement Group 1	Mason & Thurston County Conservation Districts 2	Capitol Land Trust Great Peninsula Conservancy 1	Oakland Bay Shellfish Protection District 1
Kitsap (15)	N/A 0	Green, Duwamish, and Central Puget Sound Watershed (WRIA 9) Lead Entity & Hood Canal Coordinating Council & West Sound Watersheds Council Lead Entity 3	West Central LIO & Hood Canal Coordinating Council & Alliance for a Healthy South Sound	Hood Canal Salmon Enhancement Group & Mid Sound Fisheries Enhancement Group 2	Mason & Kitsap & Pierce & King County Conservation Districts 4	Great Peninsula Conservancy & Vashon-Maury Island Land Trust & Bainbridge Island Land Trust 3	Rocky Bay & Filucy Bay & Burley Lagoon Shellfish Protection Districts 3
Skokomish/Dosewallips (16)	Jefferson MRC 1	Hood Canal Coordinating Council 1	Hood Canal Coordinating Council	Hood Canal Salmon Enhancement Group 1	Jefferson County Conservation District & Mason County Conservation District 2	Jefferson Land Trust & Great Peninsula Conservancy 2	Annas Bay and East Jefferson Shellfish Protection District 1

WRIA	Marine Resource Committees (MRC) (# in WRIA)	Lead Entity (LE) (# in WRIA)	Local Integrating Organization (LIO)	Regional Fisheries Enhancement Group (RFEG) (# in WRIA)	Conservation Districts (# in WRIA)	Land Trust (# in WRIA)	Shellfish Protection Districts (# in WRIA)
Quilcene/Snow (17)	Jefferson MRC & Clallam MRC 2	Hood Canal Coordinating Council & North Olympic Peninsula Lead Entity for Salmon 2	Strait Ecosystem Recovery Network & Hood Canal Coordinating Council	Hood Canal Salmon Enhancement Group & North Olympic Salmon Coalition 2	Jefferson County Conservation District & Clallam County Conservation District 2	Jefferson Land Trust & North Olympic Land Trust 2	East Jefferson Shellfish Protection District 1
Elwha/ Dungeness (18)	Jefferson MRC & Clallam MRC 2	North Olympic Peninsula Lead Entity for Salmon 1	Strait Ecosystem Recovery Network	North Olympic Salmon Coalition 1	Jefferson County Conservation District & Clallam County Conservation District 2	Jefferson Land Trust & North Olympic Land Trust 2	Dungeness Shellfish Protection District 1
Lyre/Hoko (19)	Clallam MRC 1	North Olympic Lead Entity for Salmon 1	Strait Ecosystem Recovery Network	North Olympic Salmon Coalition 1	Clallam County Conservation District 1	Jefferson Land Trust & North Olympic Land Trust 2	N/A 1

Appendix D: Framers and Interviews

Framers

Name	Affiliation
Brian Abbott	RCO
Rebecca Benjamin	North Olympic Salmon Coalition
Scott Brewer	HCCC
Ginny Broadhurst	NW Straits
David Herrera	Skokomish Tribe
Ryan Mello	Pierce Conservation District (also Tacoma City Council)
Doug Osterman	Green/Duwamish & Central Puget Sound Watershed (WRIA 9)
Barbara Rosenkotter	San Juan Lead Entity Coordinator
David Troutt	Nisqually Tribe (also Salmon Recovery Council and Salmon Recovery Funding Board)
Jennifer Quan	WDFW
Helen Price Johnson	Island County Commissioner

Other Interviewees

Name	Affiliation
Laura Blackmore	Cascadia Consulting
Jim Kramer	Kramer Consulting
Dan Wrye	Pierce County
Kathy Peters	Kitsap County
Phil Johnson	Jefferson County Commissioner
Lance Winecka	South Puget Sound Salmon Enhancement Group
Jim Skalski and Tom Clingman	Washington State Ecology
Alan Chapman	Lummi Natural Resources ESA Technical Coordinator
Lori Clark	Island LIO
Lisa Chang and Carrie Byron	EPA Puget Sound
Michael Rylko	EPA Puget Sound

We also had the opportunity to discuss the review process and emerging findings and recommendations with Martha Kongsgaard (Puget Sound Leadership Council), Jay Manning (Puget Sound Leadership Council), and Bill Ruckelshaus.

Review of Local Watershed and Salmon Recovery Groups

Information and Interview Discussion Topics for Framers—8/15/2014

Thank you for being willing to help with the review of local watershed and salmon recovery groups to develop recommendations to strengthen and streamline Puget Sound recovery. This document provides some background and process information and includes the questions / topics we would like to discuss during your interview.

Background

Ross Strategic has been engaged by the Puget Sound Partnership to carry out an independent review of local watershed and salmon recovery organizations involved in Puget Sound recovery. The review is to implement a legislative directive which called on the Puget Sound Partnership to “Collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts.” This is intended to be an objective, third party review, which is why the Partnership contracted with Ross Strategic to lead the work.

The legislative proviso directs, at a minimum, coordination with the following interested parties: the Hood Canal Coordination Council, marine resources committees, including the Northwest Straits Initiative, regional fisheries enhancement groups, local integrating organizations, lead entities, and other county watershed councils, as well as representatives of federal, state, tribal, and local government agencies. We will provide findings and recommendations from the review to the Partnership by November 21, 2014. The Partnership will analyze our report and make their recommendations to the Legislature by December 1, 2014. The full language of the Legislative proviso is attached.

Role of a Framer and Planned Review Process

The role of a “framer” is to help us frame and direct the review of local watershed and salmon recovery groups. We hope that you will represent the interests, perspectives, and contexts of the groups relevant to your experience as you advise us on how best to implement this effort, but we are not seeking formal “spokespersons” for each group. Rather, we are trying to assemble an advisory team that has deep experience with Puget Sound recovery efforts at the local and regional scale and that can help us be thoughtful and smart in our approach to this effort and in the development of findings and recommendations.

We anticipate the framer role will take about 5-6 hours of your time over the next 4 months (although we would welcome more involvement, if you have the time). We will ask for your input on review questions and research, design of an online survey, on who we should talk with in the individual local groups, and on emerging and draft findings and recommendations. We also will interview you, in a structured way, to gather your perspectives and ideas about the local watershed and salmon recovery groups and how to streamline and strengthen Puget Sound recovery.

The planned review process includes:

- Approximately 12 project framers will help frame and direct the project. (You!)
- Telephone interviews will be carried out with approximately 20 representatives of local watershed and salmon recovery groups and/or the “clients” of these groups. Interviews will occur in September. We will seek your input on interview questions and interviewees.
- An online survey will be broadly available to individuals involved with local watershed and salmon recovery groups. This will occur in September, and we will seek your input on survey design and questions.
- The project team will review reference materials (e.g., convening authorities, strategic plans, etc.) on the groups. This is in progress. We will see your feedback on additional materials to review/research.

We would like to be able to talk with you as findings and recommendations begin to emerge; we anticipate that formal draft findings and recommendations will be available for review and input around October 31, 2014. For more information please contact Elizabeth McManus (Ross Strategic) at 360-570-0899 or emcmanus@rossstrategic.com

Framer Interview Questions and Discussion Topics

One of the first steps in the review process will be structured interviews with each framer. We will be in touch to schedule a ninety-minute telephone or in-person interview to discuss the following topics:

1. How do you participate in salmon and ecosystem recovery implementation efforts at the local level? At the regional level?
2. Which local salmon recovery or watershed groups do you serve on? Are there other groups you work with? Do you serve on any regional groups (e.g., Ecosystem Coordination Board)? How long have you served/worked with each group?

For the groups you serve on:

3. How would you describe their role in Puget Sound recovery? What do you see as the group’s main tasks? What are the outcomes of their work? Who are the customers?
4. What is the group governance and decision making process? Who presides over final decisions? How is the work communicated outside the group?
5. How do the groups fit with other local watershed and salmon recovery groups? (Coordinate, collaborate, “staff”, direct, other?) How do they fit with regional bodies and state and Federal agencies engaged in Puget Sound recovery?
6. What do you see as the group’s main strengths? What are the main challenges or barriers they face?

To the extent you wish to comment, for other local watershed and salmon recovery groups:

7. How would you describe their role in Puget Sound recovery? What do you see as the group’s main tasks? What are the outcomes of their work? Who are the customers?
8. What is the group governance and decision making process? Who presides over final decisions? How is the work communicated outside the group?

9. How do the groups fit with other local watershed and salmon recovery groups? (Coordinate, collaborate, “staff”, direct, other?) How do they fit with regional bodies and state and Federal agencies engaged in Puget Sound recovery?
10. What do you see as the group’s main strengths? What are the main challenges or barriers they face?

Considering Puget Sound recovery overall:

11. Are there particular groups that are working very well? What can we learn from these groups? Conversely, are there groups that participants and/or customers find particularly frustrating or challenging? What can we learn from that?
12. Are there particular geographies (e.g., watersheds) where the institutional (group) configuration works particularly well? What can we learn from these areas? Conversely, are there areas where the institutional configuration is particularly frustrating or challenging? What can we learn from that?
13. Are there gaps? Gaps are Puget Sound recovery needs or functions that are un- or under addressed by the current groups / group structure. Please consider:
 - Legislative gaps, such as un- or under-met needs that flow from the framework of laws and regulations for Puget Sound recovery.
 - Administrative gaps, such as un- or under-met needs that flow from the way that Puget Sound recovery is led and administered by PSP and the state agencies, and between local groups.
 - Financial gaps, such as un- or under-met needs that flow from how Puget Sound recovery is funded and how funds are dispersed or prioritized.
14. What are your ideas for actions that could streamline and strengthen Puget Sound recovery?

Legislative Proviso

“[money is provided]...for the Puget Sound Partnership to collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts. In conducting this work the partnership must coordinate with the following interested parties: the Hood Canal coordination council, marine resources committees, including the Northwest straits initiative, regional fisheries enhancement groups, local integrating organizations, lead entities, and other county watershed councils, as well as representatives of federal, state, tribal, and local government agencies. Recommendations must be provided to the appropriate legislative committees by December 1, 2014.”

Appendix E: Survey Questions

Review of Local Watershed and Salmon Recovery Groups – Draft Survey Questions

Background: In their 2014 budget, the Legislature included a proviso directing the Puget Sound Partnership to “collaborate with interested parties to review the roles of local watershed and salmon recovery organizations implementing the action agenda and provide legislative, budgetary, and administrative recommendations to streamline and strengthen Puget Sound recovery efforts.” Ross Strategic has been retained by the Partnership to carry out this review. The review is being developed independently, following best practices for efforts of this type. Information is being gathered through a combination of literature and document review, interviews, and this survey.

This survey is being broadly distributed to participants in local watershed and salmon recovery groups. Your answers will directly inform the findings and recommendations that are provided to the Legislature from this effort. Findings and recommendations from this effort will be provided to the Legislature by December 1, 2014. If you would like to receive a copy of the findings and recommendations, please check the box at the end of the survey.

Instructions: Please fill out all the questions to the best of your availability. We anticipate it will take about 20 minutes to fill out the survey.

We are using a survey format because it will help us fully compile and analyze responses in the short time frame available for this effort and because we think it will be efficient for respondents (You!). We have tried to capture the full range of potential responses in the multiple-choice lists below; however, we also have provided space for respondents to write in their own answers. Please do not hesitate to offer narrative responses where that is a more efficient or comfortable way for you to offer information. Thank you!

Your responses will be aggregated with all other responses and will not be attributed to you individually. We will not release your identity to others unless you give us permission to do so.

Basic information:

1. Please tell us who you are.

We are asking for your name and information in case we have any follow up questions. Your responses will be aggregated with all other responses and will not be attributed to you individually. We will not release your identity to others unless you give us permission to do so.

- Your name
- Organization (e.g., your “day job” or the interest you represent on the group, such as “community representative”)
- Email
- Phone

2. Please tell us what group are you thinking about as you fill out this survey.

Please pick a single group, the group you are most involved with, e.g., a single LIO or RFEG or Lead Entity. We recognize that many people serve on multiple groups. There will be questions at the end of the survey which allow you to describe other groups you serve on and to provide information for additional groups if you wish to do so.

Group name: _____

Group type

- Lead Entity
- WRIA 2514 planning group
- Watershed Council
- Regional Fisheries Enhancement Group (RFEG)
- Local Integrating Organization (LIO)
- Marine Resources Committee (MRC)
- Other (please specify)
- I don't know.

3. Does the group also fulfill any other statutory, contractual, or administratively established roles?

- Yes, for this area, it is also the:
 - Lead Entity
 - WRIA 2514 planning group
 - Watershed Council
 - Local Integrating Organization
 - Marine Resources Committee
 - Regional Fisheries Enhancement Group
 - Other (please specify):
- No
- I don't know

4. How long have you served on this group?

- 1-6 months
- 6-12 months
- 1-3 years
- 3-10 years
- 10+ years

5. About how much time to you spend every month on meetings of the group

- 1-4 hours
- 5-8 hours
- 9-16 hours
- More than 16 hours
- Other (please specify):

6. About how much time to you spend every month on group work / activities outside of meetings:

- 1-4 hours
- 5-8 hours
- 9-16 hours
- More than 16 hours
- Other (please specify):

7. Do you serve on any other local or regional watershed or salmon recovery groups?

- Yes I also serve on the:
 - Lead Entity (Name: optional)
 - WRIA 2514 planning group (Name: optional)
 - Watershed Council (Name: optional)
 - Local Integrating Organization (Name: optional)
 - Marine Resources Committee (Name: optional)
 - Regional Fisheries Enhancement Group (Name: optional)

- Salmon Recovery Council
- Salmon Recovery Funding Board
- Ecosystem Coordination Board
- Northwest Straits Commission
- Science Panel
- RITT
- Other (please specify):

Part 2: These questions are about understanding what the group does

8. Please describe the parts of the ecosystem that the group focuses on:

- Freshwater systems including floodplains
- Terrestrial systems (e.g., forests, upland habitat)
- Marine nearshore
- Marine waters
- Human dominated systems (e.g., pollution abatement, stormwater)
- Other (please specify)

9. What is the main thing the group does to contribute to salmon recovery and/or Puget Sound restoration? What is the group's role?

Please use the pull down menu to allocate the percentage of time your group works on each of these activities. If it's easier for you to just write a few sentences about what the group does, there is space for that at the end.

- Identify and prioritize salmon recovery efforts such as for the 3 year work plan. Add pull down menu:
- Identify and prioritize Puget Sound restoration efforts (e.g., to feed the Puget Sound Action Agenda). Add pull down menu:
- Apply for and administer project and operational capacity funding
- Oversee project implementation
- Monitor and maintain projects
- Provide a forum for local coordination and collaboration on salmon recovery issues
- Provide a forum for local coordination and collaboration on Puget Sound restoration issues
- Establish local priorities for salmon recovery
- Establish local priorities for Puget Sound restoration
- Convene and build local coalitions around salmon recovery
- Convene and build local coalitions around Puget Sound restoration
- Provide education on salmon recovery.
- Provide education on Puget Sound restoration.
- Recruit and coordinate volunteers to implement and maintain habitat projects
- Recruit and coordinate volunteers to provide education and outreach
- Advocate for salmon recovery and Puget Sound restoration locally
- Advocate for salmon recovery and Puget Sound restoration at the regional level
- Advocate for salmon recovery and Puget Sound restoration Federally
- Other (please specify)

10. On a scale of 1 to 5 please rate how effectively the group fulfills its role:

- very effective
- effective
- somewhat effective
- some challenges
- very challenged to fulfill role

10A: Please describe any recommendations you have for improving effectiveness:

11. Who are the primary “customers” for the group’s work (i.e., who uses the group’s outcomes / work)? Please select all that apply.

- Local elected officials and jurisdictions
- Federal agencies (e.g., NOAA or EPA), please specify:
- Tribal governments, please specify:
- Other local watershed or salmon recovery groups:
- Regional salmon recovery groups
- State agencies (e.g., Recreation and Conservation Office or the Puget Sound Partnership), please specify:
- Other (please specify):

12. Do you provide advice, counsel, or recommendations to government jurisdictions in your geography on any of the following?

- Growth management planning
- Shoreline master programs
- Critical areas identification or planning
- Land acquisition
- Stormwater management
- Other (please specify):

13. Does the group (select all that apply):

- Have a charter and/or bylaws?
- Hire its own dedicated staff?
- Act as its own fiscal agent (i.e., apply for and receive and administer grant funds)?
- Have interlocal agreements between participating jurisdictions?
- Have a strategic plan or other written set of priorities or workplan?
- Have a written method for setting priorities?

Part 3: These questions relate to how the group works with other groups:

14. Which other groups are most important for your group to coordinate with in your geography (please rate in order of importance):

- Lead Entity
- WRIA 2514 planning group
- Watershed Council
- Local Integrating Organization
- Marine Resources Committee
- Regional Fisheries Enhancement Group
- Land Trust
- Other (please specify)

14A. Please tell us a little bit about how coordination with local groups happens.

14B. On a scale of 1 to 5 please rate how well you believe the group coordinates with other groups in your geography:

- Very effective
- Effective
- Somewhat effective
- Some challenges
- Very challenged in coordination

14C. Please describe any recommendations you have for improving the substance and/ or efficiency coordination and/or collaboration between groups:

15. Which regional groups are most important for you to coordinate with (please rate in order of importance):

- Salmon Recovery Council
- Ecosystem Coordination Board
- Northwest Straits Commission
- Other (please specify)

15A. Please tell us a little bit about how coordination with local groups happens.

15B. On a scale of 1 to 5 please rate how well you believe the group coordinates with other groups in your geography:

- Very effective
- Effective
- Somewhat effective
- Some challenges
- Very challenged in coordination

15C. Please describe any recommendations you have for improving the substance and/ or efficiency coordination and/or collaboration between groups:

16. What do you see as the main strengths of the group? (Please select all that apply)

- Implementing salmon and ecosystem recovery projects on your own
- Directly funding other local watershed and salmon recovery groups
- Influencing legislators and other stakeholders involved in Puget Sound recovery
- Organizing volunteer efforts aimed at Puget Sound recovery
- Aligning efforts of different groups and agencies working towards Puget Sound recovery to help make local decisions
- Providing science-based technical assistance and relevant local data to watershed and salmon recovery groups
- Other (Please specify)

17. What do you see as the main challenges or barriers facing the group? (Please select all that apply.)

- Participants do not have enough time to do the work because of other responsibilities
- Too many meetings
- Not enough funding for capacity / administration
- Not enough funding available to implement projects
- Too burdensome to obtain funding
- Smaller / easier projects have mostly been done and only larger, more difficult, more costly projects remain
- Not enough information to make decisions / recommendations
- Not the “right” participants at the table to take on the important issues in the geography (please list what interests are missing):
- Conflicting interests or priorities among group participants
- Unclear how my group fits into regional activities and priorities
- Unclear how my group fits into local activities and priorities
- Lack of shared or clear local goals or priorities
- Lack of shared or clear regional goals or priorities
- Lack of local leadership / political will
- Conflicting priorities at the local level (it would be very helpful to have an example):

- Conflicting priorities at the regional level (it would be very helpful to have an example):
- Other (please specify):

18. On a scale of 1-5, with 1 being “very satisfied” and 5 being “not at all satisfied” how would you rate your personal level of satisfaction with the group’s function?

- 1 = very satisfied, I feel the group is a worthwhile use of my time
- 2 = somewhat satisfied
- 3 = neutral
- 4 = somewhat unsatisfied / frustrated
- 5 = very unsatisfied / frustrated

18A: What would improve your satisfaction with the group’s function?

18B: How likely are you to continue serving on this group?

- Very likely
- Somewhat likely
- Neutral
- Somewhat unlikely
- Very unlikely

18C: What would make you more likely to continue serving?

19. This effort will result in a report to the Legislature. Do you have additional suggestions for specific actions that the Legislature could take or direct a state agency to take that would streamline and strengthen Puget Sound recovery?

Appendix F: Interview and Survey Summary

This appendix provides a summary of the major findings and themes from the interviews with “project framers” and other representatives of local watershed and salmon recovery groups and results from the online survey distributed to individuals involved with local watershed and salmon recovery groups. Eleven “project framers” — individuals with experience and expertise with the different types of groups—were interviewed for the project and telephone interviews were carried out with twelve representatives of local watershed and salmon recovery groups. An online survey was broadly distributed to individuals involved with local watershed and salmon recovery groups. 186 responses were received. Table 1 describes the general makeup of the survey respondents:

Table 1: Survey Respondent Summary

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
In what capacity do you serve on this group? Please select all that apply.							
Coordinator/Watershed Lead	19.2%	13.0%	9.1%	9.1%	0.0%	9.4%	4.0%
Decision-making Board	13.5%	8.7%	18.2%	31.8%	50.0%	15.6%	12.0%
Citizen Committee	11.5%	0.0%	9.1%	13.6%	16.7%	65.6%	8.0%
Executive/Legislative Committee	1.9%	4.3%	9.1%	13.6%	0.0%	6.3%	12.0%
Technical Committee	50.0%	21.7%	45.5%	27.3%	0.0%	12.5%	24.0%
Federal Government	3.8%	0.0%	0.0%	9.1%	0.0%	0.0%	12.0%
State Government	1.9%	4.3%	9.1%	4.5%	0.0%	0.0%	0.0%
Tribal Government	11.5%	4.3%	0.0%	9.1%	0.0%	3.1%	4.0%
City or County Government	19.2%	47.8%	45.5%	13.6%	0.0%	12.5%	12.0%
Other (Please specify)	5.8%	21.7%	9.1%	18.2%	50.0%	9.4%	36.0%
How long have you served on this group?							
1-6 months	5.8%	8.7%	0.0%	4.5%	14.3%	10.0%	12.0%
6-12 months	5.8%	21.7%	18.2%	0.0%	0.0%	6.7%	4.0%
1-3 years	11.5%	34.8%	0.0%	22.7%	28.6%	43.3%	20.0%
3-10 years	36.5%	26.1%	54.5%	40.9%	42.9%	33.3%	56.0%
10+ years	40.4%	8.7%	27.3%	31.8%	14.3%	6.7%	8.0%

Quotes included in this appendix from interviewees and survey respondents are not meant to be exhaustive, but rather representative of the range of comments received. Beyond summary statistics from multiple-choice or categorized survey questions, formal quantification of findings was not always possible; where appropriate findings are split into categories such as: universally (90%-100% of respondents); nearly all (75%-90% of respondents); majority (50%-75% of respondents); less than half (25-50% of respondents); some (10%-25% of respondents); a few (up to 10% of respondents).

Roles of Groups and Key Customers

With respect to roles of groups, interviewees and survey respondents universally described groups working over the full range of the Puget Sound ecosystem and over a broad range of responsibilities, from identifying and

prioritizing projects, to education and coordination of volunteers, to project implementation. Table 2 describes the parts of the ecosystem survey respondents report they focus on.

Table 2: Parts of the Ecosystem Groups Focus on Reported by Survey Respondents

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Please tell us what parts of the ecosystem that the group focuses on (select all that apply).							
Freshwater systems including floodplains	93.5%	80.0%	88.9%	100.0%	100.0%	19.2%	72.7%
Terrestrial systems (e.g., forests, upland habitat)	50.0%	50.0%	33.3%	45.5%	0.0%	7.7%	54.5%
Marine nearshore	87.0%	90.0%	44.4%	54.5%	71.4%	88.5%	68.2%
Marine waters	37.0%	60.0%	33.3%	31.8%	14.3%	76.9%	45.5%
Human dominated systems (e.g., pollution abatement, stormwater)	34.8%	90.0%	55.6%	59.1%	14.3%	42.3%	45.5%
Other (please specify)	2.2%	15.0%	33.3%	0.0%	0.0%	7.7%	13.6%

Survey respondents and interviewees also were asked to identify the main role their respective group plays to contribute to salmon recovery and/or Puget Sound restoration. In the survey, Lead Entities and Watershed Councils both overwhelmingly chose identifying and prioritizing salmon recovery efforts as their main activity, followed by providing a forum for local coordination and collaboration on salmon recovery issues. LIOs selected identifying and prioritizing Puget Sound restoration efforts (e.g., to feed the Puget Sound Action Agenda) as their main activity, followed by providing a forum for local coordination and collaboration on Puget Sound restoration issues. Water resource planning and RFEG respondents did not identify a clear main activity, i.e., there was near equal distribution among the possible categories; however, for RFEGs, coordinating project implementation received a slightly higher score than the rest of the categories. MRCs selected coordinating project implementation as their main activity, followed closely by identifying and prioritizing Puget Sound restoration efforts (e.g., to feed the Puget Sound Action Agenda), applying for and administering project funding, and recruiting and coordinating volunteers to provide education and outreach.

We also asked interviewees and survey respondents to identify the “key customers” of their group efforts. The majority of watershed-scale groups identify local elected officials and jurisdictions as among their key customers and indicated that they provided advice on growth management and other planning (see tables 3 and 4).

Table 3: Primary “Customers” for Groups Reported by Survey Respondents

Who are the primary “customers” for the group’s work (i.e., who uses the group’s outcomes/work)?	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Local elected officials and jurisdictions	70.5%	88.9%	77.8%	81.8%	40.0%	80.8%	71.4%
Federal agencies (e.g., NOAA or EPA)	38.6%	27.8%	22.2%	36.4%	40.0%	23.1%	23.8%
Tribal governments	63.6%	50.0%	55.6%	68.2%	80.0%	11.5%	28.6%
Other local watershed or salmon recovery groups	65.9%	44.4%	55.6%	50.0%	60.0%	46.2%	33.3%
Regional salmon recovery groups	59.1%	27.8%	33.3%	40.9%	40.0%	19.2%	33.3%
Other regional groups (e.g., the NW Straits Commission, or the Ecosystem Coordination Board)	25.0%	33.3%	0.0%	9.1%	60.0%	84.6%	9.5%
State agencies (e.g., Recreation and Conservation Office or the Puget Sound Partnership)	54.5%	61.1%	55.6%	40.9%	60.0%	23.1%	42.9%
Other (please specify)	15.9%	11.1%	11.1%	22.7%	40.0%	15.4%	23.8%

Table 4: Advice, Counsel, or Recommendations to Government Jurisdictions Reported by Survey Respondents

Do you provide advice, counsel, or recommendations to government jurisdictions in your geography on any of the following?	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Growth management planning	61.3%	52.9%	75.0%	29.4%	50.0%	40.0%	52.9%
Shoreline master programs	80.6%	76.5%	50.0%	41.2%	50.0%	100.0%	58.8%
Critical areas identification or planning	80.6%	70.6%	37.5%	52.9%	100.0%	90.0%	70.6%
Land acquisition	71.0%	35.3%	37.5%	41.2%	50.0%	20.0%	64.7%
Stormwater management	61.3%	82.4%	50.0%	52.9%	50.0%	60.0%	35.3%
Other (please specify)	19.4%	17.6%	62.5%	35.3%	0.0%	15.0%	5.9%

Survey and interview respondents identified a number of different examples of how they inform, or offer advice on, county land and water management decisions:

- In some places the County Council requests comments on land or water management plans and decisions from Lead Entities or Local Integrating Organizations;
- In some places the local recovery group (such as a Lead Entity) is part of the County Council structure, for example, as a standing workgroup;
- In some places a local recovery group coordinator who also is a county employee may offer informal advice or produce staff-reports or proposals for consideration by the planning department or commission;
- In some places an elected official who participates in a local recovery group (such as and LIO) will reach back to their Commission or Council to share information recovery priorities and needs, and those needs will be part of the package of information that informs his or her individual decision about how to vote;
- In some places counties have identified some salmon recovery planning documents as best available science for decisions like critical area determinations.

However, despite viewing local elected officials as customers and considering their role to be providing advice, nearly all respondents and interviewees reported that it is difficult for salmon and Puget Sound recovery groups to effectively influence land and water management planning decisions; and some respondents said planning commissions were actively resistant to advice from recovery groups.

For example respondents told us:

- “Don’t have systematic connections between recovery needs and land use connections . . .take on land use and transportation. Those are the things you should champion.”
- “Land use is taboo for most of these watershed groups to even wade into.”
- “[recovery planning] needs to be part of the formal process for the Critical Areas Ordinance (CAO) update and Shoreline Masters update. The County should be taking into consideration the listed species plans and action agenda, or PS recovery plans, etc. That’s the only way I think you should make it happen in a codified manner. Otherwise you just have someone like me going to all these meetings, trying to insert myself into the process and getting yelled at.”
- “But we lack the political will at the local, regional and state level to effectively use and enforce existing laws and regulations (SMA, HPA issuance). If this continues, we will always be playing catch up to fix things that were allowed, that probably should not have been allowed. Shoreline armoring rates are a good indication of this issue. If we provide adequate, function habitat, and protect the ecosystem, Puget Sound will improve, but that means we will have to get to a place where the priority is to take those protective actions first, rather than coming in later to fix things. Yes, this is difficult to do, but will eventually be necessary.”
- “Worked hard (months and months of effort) to incorporate salmon recovery data and salmon recovery needs in the recent CAO update. . .but . . .much of that work was removed in the final regulations.”

Structure of Groups and Consolidation

Interviews and open-ended responses from survey questions provided a significant amount of information on the structure of groups, as well as suggestions and concerns over the potential restructuring or consolidation of groups. Less than half of interviewees and survey respondents expressed concern with the number of groups in the region; some of these individuals provided specific recommendations for restructuring or consolidation, while many simply communicated their frustration without any specific suggestions. Responses included:

- “Lot of same people are on different multiple groups – worn down by being overworked or doubling down.”
- “Mind boggling array of different groups.”
- “Not sure why there are so many different groups. Seems like it should be streamlined so there aren’t groups duplicating efforts and wasting money that could be spent on actual projects.”
- “Reduce the number of entities involved in salmon recovery, watershed management and ecosystem protection.”
- “There is no easy answer, but the streamlining must take place to be effective. Whatever action you recommend will have consequences but the current multiple organizations is unworkable. Good luck.”

As noted, some of the comments on restructuring were specific:

- “Additional groups--like the LIO--are they really necessary? Should try to streamline where possible. LIO could have glommed onto existing efforts/ groups (Lead Entities).”

- “Consolidate the salmon recovery planning legislation with the other pertinent RCWs.”
- “Seems like the Lead Entity effort and the LIO are duplicating efforts. Not sure of need for LIO.”
- “The single biggest improvement would be to require Lead Entities to be run by the governments with jurisdiction for all aspects of salmon recovery.”
- “Maybe consolidating things higher up the triangle like ECB and SRC would work better.”
- “Preference is that Watershed Councils and Lead Entity should be the same. Collapse them . . . basically turn the watershed council into the citizen advisory committee for the Lead Entity.”

While there were strong opinions on the need for restructuring and consolidation, the majority of interview and survey respondents acknowledged the importance and value of the existing structure, and noted major attempts at consolidation may be more detrimental than effective.

- “Good not to change everything to mix up good work already happening - many are just getting traction.”
- “If you consolidate things too much, people won't be able to get their work done - careful there.”
- “Credibility comes to mind - staying the course for things that we've worked hard on establishing - keeping that in place - so integral to our work.”
- “I think it is really important to use existing organizational infrastructure.”
- “This organizational structure, which involves local elected officials directly in the decision-making of the group and relies on scientifically-sound recommendations from a technical advisory committee of local experts, is a model upon which other collaborative efforts should be based.”
- “Support the existing infrastructure created to implement salmon recovery. Generally, it is a very effective way to channel state and federal resources to implement salmon recovery and Puget Sound recovery priorities. These groups and structures need to be strengthened with adequate resources.”
- “Be careful making decisions in which “streamlining” entails consolidation. Each group has different missions and different strengths. We are doing work that hinges on people- and relationships and trust are key. Different groups have different relationships which open different doors and opportunities.”

In regards to the organizational structure of the groups, more than 75% of the Lead Entity, Water resource planning, Watershed Council, RFEG, and MRC groups reported that they have a charter and/or bylaws. At least 75% of the Lead Entity, RFEG, and MRC respondents said they hire their own dedicated staff. Over 75% of all groups reported having a strategic plan or other workplan, and more than 50% of Lead Entity, Water resource planning, Watershed Council, RFEG, and MRC respondents have a written method for setting priorities (see table 5).

Table 5: Organizational Structure Reported by Survey Respondents

Does the group (select all that apply).	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Have a charter and/or bylaws?	75.6%	55.6%	77.8%	81.8%	100.0%	92.0%	52.4%
Hire its own dedicated staff?	75.6%	66.7%	55.6%	45.5%	100.0%	84.0%	52.4%
Act as its own fiscal agent (i.e., apply for and receive and administer grant funds)?	48.8%	27.8%	44.4%	31.8%	100.0%	40.0%	38.1%
Have interlocal agreements between participating jurisdictions?	51.2%	16.7%	66.7%	45.5%	28.6%	36.0%	47.6%

Does the group (select all that apply).	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Have a strategic plan or other written set of priorities or workplan?	90.2%	77.8%	88.9%	95.5%	100.0%	96.0%	71.4%
Have a written method for setting priorities?	75.6%	33.3%	55.6%	50.0%	85.7%	56.0%	38.1%

Regarding survey participants' participation in other salmon and watershed recovery groups, nearly half of the Lead Entity survey respondents also served on their LIO, and over 20% served on the Salmon Recovery Council and their local Watershed Council. For the LIOs, more than 25% of respondents also served on the Lead Entity or their local MRC (see table 6).

Table 6: Participation in other Watershed and Salmon Recovery Groups Reported by Survey Respondents

Do you serve on any other local or regional watershed or salmon recovery groups?	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Lead Entity	34.2%	33.3%	0.0%	21.4%	60.0%	11.1%	0.0%
Water resource planning group	5.3%	16.7%	33.3%	0.0%	0.0%	5.6%	10.0%
Watershed Council	23.7%	8.3%	50.0%	14.3%	60.0%	5.6%	30.0%
Local Integrating Organization	47.4%	25.0%	16.7%	50.0%	20.0%	22.2%	50.0%
Marine Resources Committee	7.9%	25.0%	16.7%	0.0%	0.0%	11.1%	30.0%
Regional Fisheries Enhancement Group	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Salmon Recovery Council	21.1%	0.0%	0.0%	21.4%	0.0%	5.6%	10.0%
Salmon Recovery Funding Board	0.0%	0.0%	0.0%	7.1%	0.0%	0.0%	10.0%
Ecosystem Coordination Board	5.3%	0.0%	0.0%	7.1%	0.0%	5.6%	0.0%
Northwest Straits Commission	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%
Science Panel	10.5%	0.0%	0.0%	14.3%	0.0%	5.6%	0.0%
RITT	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other (please specify)	28.9%	41.7%	16.7%	35.7%	0.0%	44.4%	40.0%

Regarding how much time survey participants spent inside meetings and on overall work related to watershed and salmon recovery groups, at least 80% of all groups reported spending less than 16 hours a month in meetings. This percentage reduced slightly, to at least 60% of all groups reporting spending less than 16 hours spending time every month on group work/activities outside of meetings. When considering all the watershed and salmon recovery groups survey respondents serve on, over 50% of all groups reported spending at least 9-16 hours each month on activities. Over 20% of all Lead Entity, LIO, Watershed Council, and MRC respondents reported spending more than 16 hours a month on activities (see table 7).

Table 7: Time Spent in Meetings and Overall Reported by Survey Respondents

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
About how much time do you spend every month in meetings of the group?							
1-4 hours	47.1%	68.2%	30.0%	57.1%	14.3%	54.8%	52.0%
5-8 hours	17.6%	18.2%	40.0%	9.5%	71.4%	35.5%	24.0%
9-16 hours	13.7%	0.0%	0.0%	23.8%	0.0%	0.0%	0.0%
More than 16 hours	17.6%	0.0%	0.0%	4.8%	0.0%	6.5%	4.0%
Other (please specify)	3.9%	13.6%	30.0%	4.8%	14.3%	3.2%	20.0%
About how much time do you spend every month on group work / activities outside of meetings?							
1-4 hours	35.8%	52.2%	37.5%	45.5%	14.3%	36.7%	28.0%
5-8 hours	7.5%	21.7%	37.5%	18.2%	28.6%	16.7%	20.0%
9-16 hours	11.3%	8.7%	12.5%	0.0%	28.6%	33.3%	16.0%
More than 16 hours	41.5%	13.0%	0.0%	36.4%	14.3%	13.3%	24.0%
Other (please specify)	3.8%	4.3%	12.5%	0.0%	14.3%	0.0%	12.0%
Considering all the watershed and salmon recovery groups you serve on, about how much time do you spend each month on group activities?							
1-4 hours	16.7%	40.0%	33.3%	22.7%	0.0%	21.4%	36.0%
5-8 hours	16.7%	20.0%	11.1%	27.3%	28.6%	14.3%	8.0%
9-16 hours	10.4%	10.0%	33.3%	18.2%	57.1%	28.6%	32.0%
More than 16 hours	52.1%	30.0%	11.1%	22.7%	14.3%	32.1%	20.0%
Other (please specify)	4.2%	0.0%	11.1%	9.1%	0.0%	3.6%	4.0%

How Groups Work Together

With respect to how groups work together, nearly all interviewees and survey respondents described the need for coordination directly with other watershed groups, as well as regional groups like the ECB and Salmon Recovery Council. Interviewees representing project sponsor groups like RFEGs and MRCs did not place quite as high of an emphasis on coordination with other watershed or regional groups, and reports of effectiveness in coordination with regional groups was slightly lower than between watershed based groups.

Table 8 describes survey respondents' identification of when watershed scale groups are fulfilling multiple roles. Lead Entities, LIOs, and Watershed Councils had the most variety in other roles fulfilled. For example, at least 8% of the Lead Entity respondents reported that their group also fulfilled the role of Water resource planning, Watershed Council, or LIO. For LIOs, over 14% of respondents reported that their group also fulfills the role of Water resource planning or MRC. Note that in answering this question respondents tended to identify the role of the group they were responding for (for example, LIO representatives said their group served as an LIO). Also of note, at least 15% of the Lead Entity, LIO, and Water resource planning groups selected "I don't know" to the question. Information gathered from interviewees was consistent with survey responses.

Table 8: Groups Fulfilling Multiple Roles Reported by Survey Respondents

Does the group also fulfill any other statutory, contractual, or administratively established roles? If yes, please select the other roles the group fills below.	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Lead Entity	64.9%	7.1%	0.0%	41.2%	0.0%	4.2%	0.0%
Water resource planning group	8.1%	14.3%	44.4%	11.8%	0.0%	4.2%	5.9%
Watershed Council	10.8%	0.0%	44.4%	47.1%	0.0%	0.0%	11.8%
Local Integrating Organization (LIO)	10.8%	85.7%	0.0%	17.6%	0.0%	8.3%	17.6%
Marine Resources Committee (MRC)	2.7%	14.3%	0.0%	0.0%	0.0%	91.7%	11.8%
Regional Fisheries Enhancement Group (RFEG)	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Other (please specify)	8.1%	0.0%	0.0%	17.6%	0.0%	4.2%	58.8%
I don't know	16.2%	14.3%	33.3%	0.0%	0.0%	0.0%	17.6%

With respect to coordination between groups, all interviews identified a need for close coordination and collaboration between groups, and an ongoing need to integrate Puget Sound and salmon recovery priorities and actions. In the survey, LIO, Water resource planning, Watershed Council, and RFEG respondents all reported Lead Entities as the group most important to coordinate with in their geography. LIOs reported MRCs and Land Trusts as their second and third most important group to coordinate with, while Lead Entity respondents reported RFEGs and Land Trusts (both project sponsors) as the groups most important to coordinate with, followed by LIOs. MRC respondents listed LIOs as the group most important to coordinate with, followed by Lead Entities and RFEGs. (See Table 9) Interview discussions tended to focus less on which specific groups were most important for other groups to coordinate with, but the need for coordination and collaboration was universally regarded.

In regards to how well groups believed effective coordination with other watershed and salmon recovery groups is occurring, LIOs, RFEGs, and MRCs reported the most effective coordination, with at least 94% of respondents reporting coordination as somewhat effective, effective, or very effective. Over 70% of the LIO, RFEG, and MRC respondents said coordination is very effective or effective. Lead Entities reported the least effective coordination, with 30% of respondents saying coordination has some challenges or is very challenged in coordination. The majority of interview results were consistent with the survey findings, however some interviewees questioned the efficacy of LIO and Lead Entity coordination with other groups.

Table 9: Groups Important to Coordinate with and Effectiveness of Coordination Reported by Survey Respondents

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)
Which other groups are most important for your group to coordinate with in your geography (please rate in order of importance, with 1 being most important and 8 being least important).						
Lead Entity	3	1	1	1	1	3
Water resource planning group	7	4	3	7	7	7
Watershed Council	5	5	6	5	3	6
Local Integrating Organization	4	7	2	3	5	1
Marine Resources Committee	6	2	5	6	6	2

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)
Regional Fisheries Enhancement Group	1	6	4	2	2	4
Land Trust	2	3	7	4	4	5
Other (please specify)	8	8	8	8	8	8
Please rate how well you believe the group coordinates with other watershed and salmon recovery groups in your geography.						
Very effective	25.6%	11.8%	14.3%	26.3%	57.1%	16.7%
Effective	35.9%	58.8%	42.9%	26.3%	28.6%	58.3%
Somewhat effective	7.7%	23.5%	28.6%	31.6%	14.3%	20.8%
Some challenges	17.9%	5.9%	14.3%	15.8%	0.0%	4.2%
Very challenged in coordination	12.8%	0.0%	0.0%	0.0%	0.0%	0.0%

Nearly all interviewees and survey respondents highlighted the importance of coordination with regional groups, but some questioned the effectiveness of working with these groups. We heard, for example:

- “Regional group needs to better understand their role and how they can help. Regional (and state groups) seem to be more interested in adding process rather than in addressing the truly regional issues that we cannot address at the local level.”
- “From my experience regional groups, except the NW Straights Commission, do not make much effort to coordinate with efforts in [our WRIA]. The regional groups need to do a better job of coordination.”
- “Groups like ECB don’t really make decisions; they talk things to death and cease to object to objectionable things when they’re too tired to talk more about it.”

In the survey, Lead Entities, Water resource planning groups, and Watershed Councils reported the Salmon Recovery Council as the regional group most important to coordinate with, followed by the ECB and Northwest Straits Initiative. LIOs were the only group to report the ECB as the regional group most important to coordinate with, followed by the Salmon Recovery Council and Northwest Straits Initiative. Not surprisingly, MRCs reported the Northwest Straits Initiative as the regional group most important to coordinate with, followed by the Salmon Recovery Council and ECB (see table 10).

In regards to how well groups believed effective coordination with regional groups is occurring, the responses were slightly less positive than responses regarding coordination with other watershed and salmon recovery groups. Less than 15% of the Lead Entity, LIO, Water resource planning, Watershed Council, and RFEG respondents reported coordination with regional groups as very effective. However, at least 70% of the LIO, Water resource planning, Watershed Council, RFEG, and MRC respondents reported coordination with regional groups as effective or somewhat effective. Lead Entities reported the least effective coordination with regional groups, with over 30% of respondents reporting some challenges or very challenged in coordination.

Table 10: Regional Groups Important to Coordinate with and Effectiveness of Coordination Reported by Survey Respondents

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)
Which regional groups are most important for you to coordinate with (please rate in order of importance, with 1 being most important and 4 being least important).						
Ecosystem Coordination Board	2	1	2	2	3	3
Northwest Straits Commission	3	3	3	3	2	1
Salmon Recovery Council	1	2	1	1	1	2
Other (please specify)	4	4	4	4	4	4
Please rate how well you believe the group coordinates with regional groups.						
Very effective	14.3%	12.5%	0.0%	11.8%	0.0%	25.0%
Effective	31.4%	37.5%	42.9%	41.2%	66.7%	50.0%
Somewhat effective	22.9%	37.5%	28.6%	35.3%	16.7%	25.0%
Some challenges	22.9%	12.5%	0.0%	0.0%	0.0%	0.0%
Very challenged in coordination	8.6%	0.0%	28.6%	11.8%	16.7%	0.0%

With respect to strengths of groups, survey respondents and interviewees reported different strengths depending on the focus of the watershed scale group they were most involved with (see table 11). In general, the Lead Entities and LIOs reported evaluating potential projects and establishing local salmon and ecosystem recovery priorities as a key strength. This is not surprising, given that these are the roles assigned to those groups. MRCs also list this as a key strength. RFEGs reported implementing salmon and ecosystem recovery projects and organizing volunteer efforts as their main strengths.

Table 11: Main Strengths of Groups Reported by Survey Respondents

What do you see as the main strengths of the group? Please select all that apply.	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Implementing salmon and ecosystem recovery projects on your own	65.8%	11.1%	0.0%	47.4%	100.0%	47.8%	45.0%
Evaluating potential projects and establishing local salmon and ecosystem recovery priorities	97.4%	66.7%	22.2%	68.4%	57.1%	69.6%	55.0%
Directly funding other local watershed and salmon recovery groups	23.7%	11.1%	11.1%	26.3%	0.0%	4.3%	35.0%
Influencing legislators and other stakeholders involved in Puget Sound recovery to support recovery efforts	36.8%	44.4%	44.4%	36.8%	28.6%	52.2%	20.0%
Organizing volunteer efforts aimed at salmon and Puget Sound recovery	7.9%	5.6%	22.2%	21.1%	100.0%	82.6%	15.0%
Aligning efforts of different groups working towards salmon and Puget Sound recovery to help make local decisions	50.0%	88.9%	44.4%	63.2%	14.3%	30.4%	40.0%

What do you see as the main strengths of the group? Please select all that apply.	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Providing science-based technical assistance and relevant local data to watershed and salmon recovery groups	63.2%	22.2%	55.6%	63.2%	28.6%	69.6%	55.0%
Other	0.0%	5.6%	11.1%	0.0%	0.0%	4.3%	20.0%

Examples of how respondents described the main strengths of groups included:

- “[MRCs] do a lot of the work that might otherwise not get done, because they have people working locally who see things from a local perspective that might not rise to a regional level. Takes a combination of local projects and big regional projects.”
- “[RFEGs] are community based and greatest [strength] is that they have 25 years experience implementing projects in the communities, a lot of power in that “proven experience.”
- “[Lead Entities] are ultimately responsible for a project list every year and seeking ways to get the project list funded through SRF board or other mechanisms. They create a forum for local support and buy in for the projects – and that helps to get the best most ambitious projects possible.”
- “[LIO] has been very valuable because it brings all the jurisdictions and other aspects of the issues to the table (e.g., pollution, water quality, water quantity, others) and brings different aspects to the table to have conversations that we wouldn’t be able to get done.”

With respect to challenges or barriers facing groups, in the survey 50% or more of the Lead Entity, LIO, Watershed Council, RFEG and MRC respondents listed not enough funding for capacity/administration *and* not enough funding available to implement projects as a main challenge (see table 12). Over half of the Lead Entity, LIO, and Watershed Council respondents said participants do not have enough time to do the work because of other responsibilities.

Table 12: Main Challenges or Barriers Reported by Survey Respondents

What do you see as the main challenges or barriers facing the group? Select all that apply.	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Participants do not have enough time to do the work because of other responsibilities	52.6%	58.8%	22.2%	63.2%	28.6%	30.0%	50.0%
Too many meetings	13.2%	11.8%	0.0%	31.6%	14.3%	5.0%	20.0%
Not enough funding for capacity / administration	50.0%	58.8%	44.4%	52.6%	85.7%	65.0%	45.0%
Not enough funding available to implement projects	63.2%	70.6%	55.6%	47.4%	57.1%	75.0%	45.0%
Too burdensome to obtain funding	23.7%	41.2%	22.2%	15.8%	14.3%	20.0%	15.0%
Smaller / easier projects have mostly been done and only larger, more difficult, more costly projects remain	34.2%	17.6%	22.2%	21.1%	14.3%	10.0%	15.0%
Not enough information to make decisions / recommendations	18.4%	11.8%	11.1%	10.5%	0.0%	0.0%	5.0%

What do you see as the main challenges or barriers facing the group? Select all that apply.	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Not the “right” participants at the table to take on the important issues in the geography (please list what interests are missing in the comments section below)	18.4%	5.9%	11.1%	10.5%	0.0%	0.0%	25.0%
Conflicting interests or priorities among group participants	31.6%	17.6%	33.3%	36.8%	14.3%	5.0%	15.0%
Unclear how the group fits into regional activities and priorities	10.5%	11.8%	22.2%	15.8%	0.0%	20.0%	15.0%
Unclear how the group fits into local activities and priorities	0.0%	11.8%	22.2%	10.5%	0.0%	10.0%	5.0%
Lack of shared or clear local goals or priorities	18.4%	5.9%	22.2%	15.8%	0.0%	15.0%	15.0%
Lack of shared or clear regional goals or priorities	15.8%	0.0%	11.1%	26.3%	0.0%	15.0%	15.0%
Lack of local leadership / political will	31.6%	11.8%	11.1%	21.1%	0.0%	25.0%	25.0%
Conflicting priorities at the local level (it would be very helpful to have an example in the comments section below)	28.9%	23.5%	33.3%	52.6%	0.0%	10.0%	30.0%
Conflicting priorities at the regional level (it would be very helpful to have an example in the comments section below)	13.2%	17.6%	11.1%	15.8%	0.0%	10.0%	10.0%
Other (please specify)	5.3%	5.9%	11.1%	10.5%	0.0%	0.0%	20.0%

Interviews and written survey responses reiterated these concerns, especially in regards to funding, which was universally regarded as a major challenge:

- “There appears to be a feeding frenzy of non-profits after the same grant monies, which gives the perception of dysfunction.”
- “The local salmon recovery project sponsors are challenged by capacity issues. Just hiring more staff may not be an easy fix – the strength of the local sponsors has been the growth from small scale projects to the large scale projects commonly proposed now. These groups gained a lot of experience with the smaller projects and now have the ability to manage the larger projects. New staff may not be as experienced. The rush to implement more and more big projects has at times affected the quality of these project proposals.”
- “Lack of funding is a serious limitation; so is lack of support to foster coordination regionally.”

Over 60% of respondents from each group type thought their group fulfills their role either very effectively or effectively (see table 13). All RFEG respondents thought their group was very effective or effective at fulfilling their role. It is not necessarily surprising to see such positive self-reflected responses, but given the anonymity of the survey, respondents could have safely expressed concern with the effectiveness of their group.

Table 13: Group Effectiveness Reported by Survey Respondents

Please rate how effectively the group fulfills its role	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
Very effective	29.5%	10.5%	44.4%	9.1%	57.1%	38.5%	27.3%
Effective	34.1%	57.9%	22.2%	59.1%	42.9%	46.2%	31.8%
Somewhat effective	20.5%	26.3%	11.1%	18.2%	0.0%	11.5%	36.4%
Some challenges	11.4%	5.3%	0.0%	13.6%	0.0%	3.8%	0.0%
Very challenged to fulfill role	4.5%	0.0%	22.2%	0.0%	0.0%	0.0%	4.5%

Survey respondents also reported a high level of personal satisfaction with their group's process and function, with at over 60% of all respondents reporting very satisfied or somewhat satisfied. Similarly, over 80% of all respondents report being very likely or somewhat likely to continue serving on their group (see table 14).

Table 14: Personal Satisfaction and Likelihood to Continue Serving Reported by Survey Respondents

	Lead Entity (n=54)	LIO (n=23)	Water resource planning (n=11)	Watershed Council (n=23)	RFEG (n=8)	MRC (n=32)	Other (n=25)
How would you rate your personal level of satisfaction with the group's process and function?							
Very satisfied, I feel the group is a worthwhile use of my time	44.7%	41.2%	55.6%	42.1%	42.9%	69.6%	35.0%
Somewhat satisfied	18.4%	47.1%	22.2%	26.3%	57.1%	17.4%	50.0%
Neutral	23.7%	5.9%	11.1%	15.8%	0.0%	4.3%	5.0%
Somewhat unsatisfied / frustrated	13.2%	5.9%	11.1%	10.5%	0.0%	8.7%	10.0%
Very unsatisfied / frustrated	0.0%	0.0%	0.0%	5.3%	0.0%	0.0%	0.0%
How likely are you to continue serving on this group?							
Very likely	67.6%	76.5%	88.9%	84.2%	85.7%	73.9%	73.7%
Somewhat likely	21.6%	17.6%	0.0%	10.5%	14.3%	8.7%	15.8%
Neutral	2.7%	5.9%	11.1%	5.3%	0.0%	4.3%	10.5%
Somewhat unlikely	5.4%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%
Very unlikely	2.7%	0.0%	0.0%	0.0%	0.0%	8.7%	0.0%

Appendix G: Funding Strategy Recommendations

The following guiding principles have been used to develop the funding strategy:

- Strive for accuracy, not precision;
- Stay focused on actions that are most important to achieve desired outcomes;
- Don't shy away from the tough policy choices that arise out of the gap analysis and funding strategy;
- Ground the analysis in the Action Agenda, but make necessary assumptions about priorities and rate of investment; and
- Do not create new silos –aim for an integrated funding strategy

The following actions are recommended to accomplish these goals, based on information collected through the funding strategy development process, and presented in this report.

1. The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the integrated water infrastructure package or similar alternative mechanisms that may arise, while ensuring that the package advances funding needs identified in this analysis.
2. The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the Department of Health's septic loan and septic management program funding initiatives.
3. The Puget Sound Partnership and partners should advocate for additional state funding for stormwater projects and support funding for high-efficiency street sweeping, removal of legacy sediment loads, and selective highway retrofits as immediate priorities, while continuing work on a long-term strategy for stormwater investments in the Puget Sound basin.
4. The Puget Sound Partnership and partners should consider options for collection and distribution of funds across jurisdictional boundaries at a watershed, multi-watershed, or Sound-wide scale in order to address differences in funding capacity among local governments in the region.
5. The Puget Sound Partnership and partners should support the continuation of federal and state funding sources that currently fund the implementation of the three Strategic Initiatives and the Action Agenda, with a particular emphasis on funding needed to implement the Habitat Initiative.
6. The Puget Sound Partnership and partners should seek increased funding for stormwater and other environmental improvements related to the state highway system in further negotiations on a state transportation package, as well as further alignment between environmental spending for highways and watershed and regional priorities for cleanup and restoration.
7. The Puget Sound Partnership and partners should advocate for the strategic prioritization of federal and state infrastructure funding based on economies of scale, advancement of the science, equity and social justice, agriculture and resource land protection, and workforce development.
8. The Puget Sound Partnership and partners should review and revise this funding strategy during the biannual updates of the Action Agenda

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Exhibit B

Funding Strategy for the Strategic Initiatives from the 2012-2013 Puget Sound Action Agenda; Volumes 1 and 2

Funding Strategy for the Strategic Initiatives from the 2012-2013 Puget Sound Action Agenda

Volume 1: Summary of Findings and Recommendations

Final Report
Volume One: Summary of Findings and Recommendations
August 13, 2014

With corrections to shellfish funding information of September 9, 2014

Prepared for:
Puget Sound Partnership
Ecosystem Coordination Board Finance Subcommittee



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Introduction and Summary of Findings

As part of the 2012-2013 Action Agenda, the Puget Sound Partnership prioritized three Strategic Initiatives:

- **Protect and restore habitat (Habitat Initiative);**
- **Prevent pollution from urban stormwater runoff (Stormwater Initiative); and**
- **Restore and re-open shellfish beds (Shellfish Initiative).¹**

The Puget Sound Partnership's Ecosystem Coordination Board (ECB), which represents the range of partner institutions to the recovery of Puget Sound, created a Finance Subcommittee to develop a strategy for long-term funding of the Strategic Initiatives. From January to July 2014, the ECB Finance Subcommittee (Subcommittee) worked with support staff combined with outreach to agency and topical experts to develop a funding strategy for the three Strategic Initiatives. This document (Volume 1: Summary of Findings and Recommendations) presents the summary findings and full descriptions of recommendations for a funding strategy for the three Strategic Initiatives in the 2012-2013 Action Agenda. Detailed data sources and analyses used to derive the cost, spending, and gap information in this report can be found in Volume 2: Technical Report, published under separate cover.

One of the most significant challenges faced in developing a funding strategy for the Strategic Initiatives has been the different levels of detail among the Initiatives. The Habitat Initiative is the most explicit and refined, having been the result of more than ten years of watershed-based salmon recovery planning. The Shellfish Initiative is also reasonably detailed. The Stormwater Initiative has been assumed to be very large in scope and, until very recently, has had little refinement beyond initial reconnaissance studies. Much of the work involved in developing this funding strategy has gone into clarifying actions associated with the Initiatives, particularly in the Stormwater Initiative.

Scope, Responsibilities, and Priorities for the Strategic Initiatives

Through the funding strategy development process, the Subcommittee has attempted to clarify three items for each Initiative: the **scope** of the proposed projects and programs (including likely costs), assumptions about **responsibilities for funding**, and **priorities** for immediate and long-term funding. Below are summary findings for each Strategic Initiative (see Volume 2: Technical Report for detailed information regarding these findings).

¹ For further information about the Strategic Initiatives, see the Puget Sound Partnership's report *Highlights of the 2012/2013 Action Agenda for Puget Sound*.

Findings on the Habitat Initiative

- Scope: With its nucleus in the watershed-level salmon recovery plans, the Habitat Initiative is explicit and refined, with a well-sorted \$196 million per year program that is likely to be accurate in the scale of costs, existing funding, and potential funding sources.² In the course of this project, emerging proposals for a \$50 to 70 million per year floodplain program (identified through the Floodplains by Design program funded in the 2013 state legislative session) and a culvert retrofit program of at least \$150 million per year have been added by the Subcommittee to the scope of the Initiative. Further refinement will be needed to fully integrate these programs into the Initiative.
- Funding Responsibilities: Most actions are assumed to be funded primarily by federal and state sources with local and tribal matching. Private responsibilities are less defined.
- Priorities: In its original scope (outlined in the 2012-2013 Action Agenda), funding sources sufficed to fund thirty to forty percent of needs with prioritization already completed at the Water Resource Inventory Area (WRIA) scale as part of salmon recovery plans and three-year action plans. However, as total costs have climbed to as much as \$400 million per year with the inclusion of more comprehensive floodplain and culvert retrofit programs, the majority of Subcommittee members now support prioritization of habitat needs to ensure that the most urgent and beneficial projects are funded first. Prioritization criteria have yet to be discussed and established. Recommendation Seven outlined later in this document discusses prioritization in greater detail.

Findings on the Stormwater Initiative

- Scope: In its original formulation in the Action Agenda, the Stormwater Initiative consisted of a very large (\$5 billion+) but not very detailed program focused principally on retrofits of older stormwater facilities and National Pollutant Discharge Elimination System (NPDES) compliance. The Subcommittee currently favors an early action program with a narrower scope, as discussed in “priorities” below.
- Funding Responsibilities: Historically, actions are assumed to be largely the responsibility of local stormwater utilities and private developers, with some state funding for road retrofits, NPDES administration, and (increasingly in recent years) grants to local governments. The Subcommittee recommends a continued strong investment by local governments through stormwater fees and private spending through the redevelopment of urban and suburban areas for stormwater funding, an increased focus on stormwater retrofits as part of transportation upgrades, and

² It should be noted that the Habitat Initiative is predominantly focused on habitat restoration needs and not other habitat requirements such as instream flow restoration and shoreline land use regulation.

additional state and federal funding for more pressing and higher priority stormwater needs.

- Priorities: The Subcommittee supports immediate action on high-efficiency street sweeping for pollutant and sediment removal, legacy loads,³ and high-priority retrofits—all thought to be highly cost-effective—with longer-term priorities subject to additional study and results of early action work.

Findings on the Shellfish Initiative

- Scope: Various actions make up the \$40 to \$55 million per year program. This program includes considerable detail on septic repair and replacement in shellfish basins due to years of studies and program development, but less detail in terms of addressing pollution from agricultural, wastewater treatment, and marina sources.
- Funding Responsibilities: Capital costs are assumed to be private with some state and federal assistance for below-market loans and limited grants. Counties and the state are responsible for nonpoint source characterization and management programs with support from some state grants.
- Priorities: There is strong programmatic emphasis on public health, septic systems, and Pollution Identification and Correction (PIC) programs, and there is likely no need for prioritization based on the current modest scope.

Current Spending on the Strategic Initiatives

Current spending on the Strategic Initiatives comes from a wide variety of funding sources, including local stormwater and wastewater utilities, federal and state grants and loans, dedicated revenue from state taxes and fees, dedicated revenues from special purpose districts, tribal sources, philanthropy, private spending, and general fund appropriations at every level of government. Common funding sources are listed in Table 1 later in this report, which categorizes twelve funding sources as principal, secondary, or tertiary sources based on their current contribution to funding needs in each Initiative. The following section summarizes current spending on each of the Initiatives. A caveat is necessary: a detailed estimate of total spending levels would require the analysis of budget information from dozens of governmental and private sources. In addition, spending information is categorized in many ways and it can be difficult to ascribe accounts to the Initiatives. Spending information is provided for the largest sources only and levels should be viewed as approximations. For detailed information regarding current spending on the Initiatives, see Volume 2: Technical Report.

³ Legacy loads are sediments deposited in stormwater pipes and facilities, which often contain pollutants.

Spending on the Habitat Initiative

The majority of spending on actions within the scope of the Initiative comes from federal and state sources. Major federal sources include the National Oceanic and Atmospheric Administration (NOAA) Pacific Coastal Salmon Recovery Fund (SRFB) and the Environmental Protection Agency (EPA) National Estuary and Geographic Programs. State spending comes via the Puget Sound Acquisition and Restoration (PSAR), SRFB, and numerous other grant and loan programs. State funding was augmented in 2013 with a new \$48 million Department of Ecology (Ecology) program focused on floodplain restoration. Local funding, assumed to be a smaller share than state and federal sources, has come principally from surface water utilities and general funds. A 2011 study, *Funding for Salmon Recovery in Washington State* (Evergreen Funding Consultants, 2011), estimated that total spending levels at that time were \$48 million per year in capital programs and \$5 million per year in non-capital, although this predated the more recent floodplains and EPA spending. An analysis of state funding conducted for this project (Sterling Associates, 2014) estimated state spending at approximately \$40 million per year for salmon-related programs but includes actions beyond the scope of the Initiative. For purposes of this analysis, total spending on actions within the Habitat Initiative is assumed to be in the range of \$50 to \$60 million per year in average spending over the last decade. For the 2013-2015 period, funding has increased to approximately \$75 to \$85 million per year due to the 2013 floodplains funding.

Spending on the Stormwater Initiative

Stormwater spending is dominated by funding raised and spent by local surface water management utilities around Puget Sound. An analysis conducted by ECONorthwest as part of this project identifies utility revenues at \$306 million per year among jurisdictions in the basin. Their analysis estimates Washington State Department of Transportation (WSDOT) spending at \$22 million for the 2011-2013 biennium, and Ecology spending at \$16 million for the 2013-2015 biennium, in addition to a new \$100 million program of state-funded stormwater grants to local governments through Ecology. Federal funding is estimated at approximately \$1 million via EPA. The analysis discussed at length in Volume 2: Technical Report identifies total stormwater spending at \$425 to \$575 million versus total costs of \$490 to \$690 million. The difference of \$100 to \$250 million per year has been identified as the gap needed to undertake the early actions – high-efficiency street sweeping for pollutant and sediment removal, legacy load removal, and high-priority road retrofits – proposed by the Subcommittee for the Stormwater Initiative.

Spending on the Shellfish Initiative

Spending levels are also difficult to estimate for the Shellfish Initiative, but for a different reason: most spending is by private landowners and not by governments. This Initiative is heavily focused on actions on private land, including repair and replacement of under-performing septic systems and control of nonpoint source pollution from farms in the region. Governmental responsibilities include detection of water quality issues through the PIC programs, administration of county health programs, enforcement of regulations, and cost-

sharing of private actions either through below-market loans (the tool of choice for septic systems), or cost-share grants and contracts with farmers for agricultural sources. Current spending includes \$4.5 million in EPA funding allocated through the Departments of Health and Ecology for PIC program implementation, septic management plans, and improvement in manure management; \$1.9 million per biennium for shellfish food safety; \$1.4 million per biennium in the Department of Natural Resource's shellfish program; and \$6.5 million annually in county spending on management of shellfish-related public health programs. In addition, there are a variety of federal programs focused on conservation practices on farms – collectively known as the Farm Bill incentives programs – that are contributing an as-yet-undetermined amount of federal spending to agricultural Best Management Practices (BMPs) with shellfish benefits.

Table 1. Current Principal Strategic Initiative Funding Sources

Source	Habitat		Stormwater			Shellfish		
	3-Yr Habitat Plans	Floodplains	Retrofits	O & M	NPDES Compliance	Septic Repair/Replacement	PIC Funding	Agricultural BMPs
Federal Appropriations	P	P				P	P	
Federal Grants	T							P
Tribal	S							
State Appropriations	P				P		P	
State Grants		P	P	P	S	P		S
Local Appropriations	S						S	
Local Utility	S		P	P	P	S	S	S
Other Special Purpose District	T (CDs)	P (FCZDs)				S (LHDs)	P (LHDs)	P (CDs)
Private Redevelopment			P			P		
Private Permitting	T		S			P		
Private Philanthropic	T	T						T
Private Markets and Trading	T	T						T

Source: Evergreen Funding Consultants 2014

P = Principal funding source for program (provides majority of total program funding)

S = Secondary funding source for program (provides substantial additional funding for program)

T = Tertiary funding source for program (provides additional funding for program)

CDs= Conservation Districts

FCZDs= Flood Control Zone Districts

LHDs= Local Health Districts

Funding Gaps

The following section discusses the funding gaps for each Strategic Initiative that the funding strategy will attempt to address.

Funding Gaps in the Habitat Initiative

Based on costs and the level of current spending, there is a nearly \$300 million gap in annual funding for the habitat program. The majority of this gap is in the funding needed for culvert repair and replacement under a federal court injunction issued in March 2013 that requires WSDOT to address 1,014 fish passage barriers on state roads and highways by 2030. Although, there are substantial shortfalls in the salmon habitat projects that form the nucleus of the Action Agenda program and in funding needed for the floodplains restoration identified in the current Floodplains by Design effort (authorized to identify and fund alternative strategies for flood hazard reduction and habitat restoration in the 2013 state legislative session). The salmon habitat gap is of concern because funding commitments are built into the federally approved 2005 Puget Sound Chinook salmon recovery plan.

It appears that the state and local governments in the region have been operating at a level significantly below funding levels proposed in the Chinook recovery plan. A 2011 review of the implementation of the salmon recovery plan concluded that “funding levels are also inadequate to fully implement short term actions proposed to address high priority restoration actions specified in the NMFS-approved recovery plan.”⁴

This is partially due to the other significant issue with the Habitat Initiative gap: the dependability of the funding strategy. While the consistency of federal and state funding in the first ten years of the salmon recovery effort has been laudable, this funding approach has depended on extraordinary political leadership in Olympia and Washington D.C. to ensure that salmon needs are included in annual federal and biannual state budgets. Building what is understood to be a 50- or 100-year commitment to salmon recovery on annual and biannual funding is a very vulnerable strategy. Greater dependability will also be needed in culvert funding to satisfy the 2013 court injunction.

The final gap in the Habitat Initiative is related to the local sources used to match state and federal funding for habitat projects and programs. One of the issues raised in the development of the 2005 Chinook recovery plan was that some of the most robust salmon populations are located in areas such as the Skagit watershed that have small human populations and limited urban development. Unfortunately, this also equates to low tax bases and very limited funding for local match for state and federal sources. This led to a recommendation in the 2008 Action Agenda to create a new, Sound-wide local jurisdiction with authority to raise revenue

⁴ National Marine Fisheries Service (NMFS); 2011 Implementation Status Assessment – Final Report.

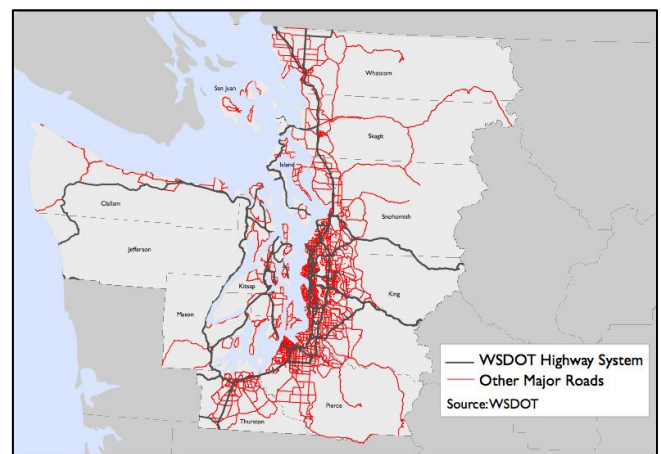
earmarked for use in cleanup, restoration, and protection actions recommended in the Action Agenda.

Funding Gaps in the Stormwater Initiative

As with the Habitat Initiative, there is a significant funding gap for meeting stormwater needs. The analysis completed for this project suggests that there is an annual gap of between \$100 and \$250 million in NPDES permit compliance (including high-efficiency street sweeping and legacy load removal) and highway retrofits. The highway retrofit program alone is projected to cost \$100 to \$120 million but only receives \$6 million in state funding and \$45 million in funding by local governments.

The second significant gap in the Stormwater Initiative is the regional variability of stormwater rates and revenue collections across jurisdictions. As indicated previously, stormwater efforts have relied very heavily on local government stormwater utilities and, to a lesser extent, on private funding associated with urban infill and redevelopment. Stormwater utility rates in Seattle and its suburbs are among the highest in the United States (Western Kentucky University, 2013). However, across the region rates vary from \$18 to \$214 per household per year. While rates tend to be higher in the more urban areas, there are many rapidly growing parts of the Puget Sound region, including SeaTac, Fife, Mill Creek, and Kitsap County, which have rates less than half of those in Seattle and Tacoma.

Figure 1. WSDOT Highways in Puget Sound Basin



Source: WSDOT

Funding Gaps in the Shellfish Initiative

The Shellfish Initiative is unlike the others in that there is a relatively small gap in the magnitude of funding needed – less than \$40 million per year - as befits a program that has a total public sector cost of less than \$55 million per year. However, many local governments lack a dedicated local funding source for long-term monitoring, inspection, and enforcement for on-site septic systems and rely heavily on highly variable state and federal grants. Alternatives for sustainable, reliable funding for this work is being studied in two Department of Health studies that are currently underway (on dedicated loan funding for septic improvements and funding for county health programs) that focus on more dependable revenues for these needs.

The most significant gap for the Shellfish Initiative is not purely financial and has to do with a heavy reliance on individual landowners to follow through on necessary improvements. Experience with septic loan and agricultural BMP programs suggests that many eligible

landowners will opt out of cost-share programs. However, there does not seem to be a simple way to address this without spending a great deal of money on private sector problems, a solution that the Subcommittee does not wish to pursue at this time.

Funding Gaps Across the Strategic Initiatives

Looking across the Initiatives, one of the critical gaps is the limited flexibility in current funding sources at all levels of government. This is an outgrowth of an approach to environmental regulation that treats every resource issue – loss of salmon habitat, deterioration in water quality, contamination of shellfish beds – as a unique problem with a unique set of solutions. One of the most encouraging concepts in funding is the idea of coordinated investment that is currently being pursued in the Floodplains by Design program. The concept is to seek solutions that solve multiple environmental problems in a more efficient way than would be possible through a focus on one resource or issue at a time.

Through the analysis completed for this project, a number of circumstances have been identified where actions related to one Initiative could also benefit others, such as:

- Floodplain restoration for habitat purposes that would benefit water quality in downstream shellfish beds;
- Low impact development techniques to reduce stormwater discharges that also restore streamside habitat and improve water quality; and
- Increased maintenance of septic systems in shellfish bays that results in lower nutrient levels and higher dissolved oxygen levels in salmon-bearing bays and inlets.

One of the lessons of this project is that more scrutiny is needed regarding the eligible activities under each of the major federal, state, and local funding sources used in the funding strategy to determine if they can be broadened to realize some of the synergies identified through this analysis.

Funding Strategy Recommendations

The following guiding principles have been used to develop the funding strategy:

- Strive for accuracy, not precision;
- Stay focused on actions that are most important to achieve desired outcomes;
- Don't shy away from the tough policy choices that arise out of the gap analysis and funding strategy;
- Ground the analysis in the Action Agenda, but make necessary assumptions about priorities and rate of investment; and
- Do not create new silos – aim for an integrated funding strategy.

The following actions are recommended to accomplish these goals, based on information collected through the funding strategy development process, and presented in this report.

1. The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the integrated water infrastructure package or similar alternative mechanisms that may arise, while ensuring that the package advances funding needs identified in this analysis.
2. The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the Department of Health's septic loan and septic management program funding initiatives.
3. The Puget Sound Partnership and partners should advocate for additional state funding for stormwater projects and support funding for high-efficiency street sweeping, removal of legacy sediment loads, and selective highway retrofits as immediate priorities, while continuing work on a long-term strategy for stormwater investments in the Puget Sound basin.
4. The Puget Sound Partnership and partners should consider options for collection and distribution of funds across jurisdictional boundaries at a watershed, multi-watershed, or Sound-wide scale in order to address differences in funding capacity among local governments in the region.
5. The Puget Sound Partnership and partners should support the continuation of federal and state funding sources that currently fund the implementation of the three Strategic Initiatives and the Action Agenda, with a particular emphasis on funding needed to implement the Habitat Initiative.
6. The Puget Sound Partnership and partners should seek increased funding for stormwater and other environmental improvements related to the state highway system in further negotiations on a state transportation package, as well as further alignment between environmental spending for highways and watershed and regional priorities for cleanup and restoration.

7. The Puget Sound Partnership and partners should advocate for the strategic prioritization of federal and state infrastructure funding based on economies of scale, advancement of the science, equity and social justice, agriculture and resource land protection, and workforce development.
8. The Puget Sound Partnership and partners should review and revise this funding strategy during the biannual updates of the Action Agenda.

Recommendation One: The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the integrated water infrastructure package or similar alternative mechanisms that may arise, while ensuring that the package advances funding needs identified in this analysis.

An integrated water infrastructure funding package currently under consideration by the state legislature could significantly advance the Subcommittee's strategy for filling funding gaps, and should be supported energetically. The package being considered by the House Capital Budget Committee and a coalition of water interests focuses on establishment of a large dedicated funding source for a mix of stormwater, water supply, and floodplain management needs. This integrated water package is developing considerable momentum and a growing list of supporters. The most likely strategy for implementing this appears to be the consideration of funding needs and options in the next legislative session followed by a referendum to the voters in the fall of 2015 to enact a funding source or set of sources.

The options under consideration in this effort focus entirely on developing additional state funding capacity for water infrastructure, including stormwater management, flood management, water quality improvement, and irrigation supply. The options include:

- Establishment of a statewide stormwater fee;
- Establishment of a real estate excise tax on all real estate transactions;
- Repealing the sales tax exemption for bottled water;
- Redirection of existing public utility tax revenues; and
- Added utility fees on natural gas or electric utility customers.

Several of these options could raise at least \$250 million per year in statewide funding under assumptions made by legislative staff. It appears likely that several of the sources would be packaged together in the ultimate proposal. In doing so, it will be important for the Puget Sound Partnership and supporting organizations and agencies to advocate for flexibility in use of the funds for projects with multiple benefits.

Bipartisan support for substantial new natural resource funding is a rarity and it is important that the Subcommittee and the Puget Sound Partnership take advantage of the opportunity by actively engaging in discussions about the proposal, seeking a prominent focus on funding needs from the three Strategic Initiatives and the Action Agenda, and participating in the drafting and vetting processes as the proposal is further defined. If this approach is successful, the infrastructure package has the potential to fill substantial gaps in the funding strategy for the Habitat and Stormwater Strategic Initiatives by providing a dependable funding source for floodplain management capital projects and stormwater retrofits, activities that will be challenging to fund otherwise.

In addition, related to the water infrastructure package, the Puget Sound Partnership and partners should also seek the adoption of a watershed approach similar to what has been used to great success in the salmon recovery efforts, in which watershed knowledge and capacity is applied within a framework of regional cleanup and recovery planning.

Recommendation Two: The Puget Sound Partnership and partners should actively support the legislative approval of funding sources from the Department of Health's septic loan and septic management program funding initiatives.

The Department of Health (DOH) is leading two priority projects of the Puget Sound Action Agenda to (1) assess the viability of establishing a unified, self-sustaining septic loan program in the Puget Sound region, and (2) identify ways to support the development and implementation of septic management programs by local health jurisdictions.

The loan program is intended to help property owners repair and replace failed or malfunctioning septic or on-site sewage systems (OSS) and better protect public health and water quality for shellfish harvesting and other important uses. The project is being conducted under the guidance of the Puget Sound Septic Financing Advisory Committee. The septic management program focuses on ensuring that local health jurisdictions have the funding necessary to implement septic management plans and comply with state requirements and targets related to septic systems.

Septic system repair and replacement is a priority in the Shellfish Initiative because malfunctioning systems can discharge pathogenic bacteria that contaminate downstream shellfish beds. Contaminated shellfish are a significant public health hazard and shellfish beds may be closed due to the presence of pathogens. There are more than 600,000 septic systems in Puget Sound. Private landowners are individually responsible for the performance of their systems, but local governments bear responsibility for permitting, monitoring, and enforcement activities. Funding of the loan program and the septic management program would address all of the funding needs in the Shellfish Initiative as it is currently scoped.

It is expected that the DOH will seek the approval of the state legislature for funding to support both programs. Given their importance to the success of the Shellfish Initiative, it is recommended that the Puget Sound Partnership and partner agencies and organizations strongly support the funding recommendations.

Recommendation Three: The Puget Sound Partnership and partners should advocate for additional state funding for stormwater projects and support funding for high-efficiency street sweeping, removal of legacy sediment loads, and selective highway retrofits as immediate priorities, while continuing work on a long-term strategy for stormwater investments in the Puget Sound basin.

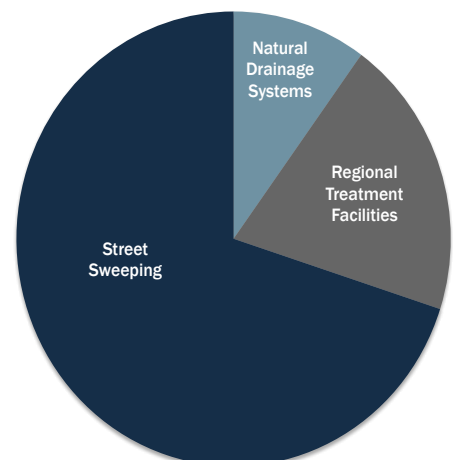
One of the priorities of this project has been the development of a justifiable short-term program for investments in stormwater needs in the Puget Sound region. Regional planning is not as advanced in stormwater management as it is in salmonid recovery or shellfish protection and restoration. The principal regional study, *Urban Stormwater Runoff Preliminary Needs Assessment Technical Memorandum* (Bissonnette Environmental Solutions and Parametrix, 2010), identifies a very large (\$5 billion+) but quite general assessment of stormwater needs in the region. The study advanced the understanding of needs a great deal but was not intended to serve as a blueprint for stormwater investment.

Since the 2010 study, several Puget Sound jurisdictions have continued to work on prioritization of stormwater management investments. A 2012 study in the Juanita Creek basin of King County (King County, 2012), and a 2014 study in the Green/Duwamish watershed (King County, 2014) evaluated the costs of a variety of stormwater treatments, including increased operations and maintenance, removal of legacy sediment loads from conveyance systems, and retrofits of urban areas and highways. Simultaneous studies in other cities in the region, particularly Seattle and Tacoma, have evaluated stormwater options in water quality planning and field-tested programs such as the City of Tacoma’s project, which cleaned 15 miles of stormwater pipeline and removed pollutants at an estimated cost of \$0.72 per pound (based on ECONorthwest calculations, see Volume 2 for more information).

These analyses suggest that high-efficiency street sweeping, removal of legacy loads, and retrofitting of older roads and highways are fairly straightforward but highly cost-effective activities in a stormwater management program.

The Puget Sound Partnership and partners should support funding for these activities in the 2015 budget proposal, with a focus on maintaining a dedicated funding source for stormwater grants of at least \$100 million per biennium for grants and specifically identified projects, maintaining flexibility in the types of project funding, and supporting stormwater needs in the development of the water infrastructure package cited previously (and in other funding initiatives).

Figure 2. Portion of Total Annual Pollutant Load Removed by Treatment Type, City of Seattle, 2013



Source: Seattle Public Utilities 2014

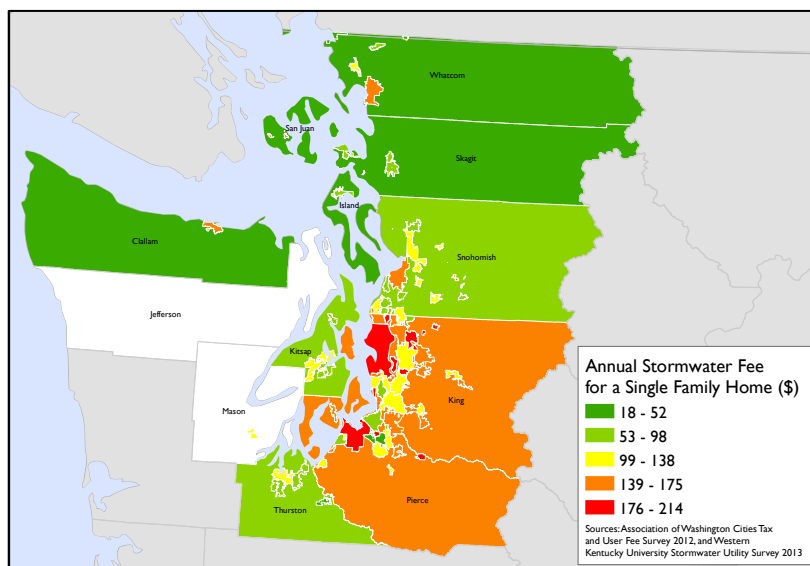
The Puget Sound Partnership and partners should also pursue state funding for a study that would enable the agency to continue working with local jurisdictions to identify a long-term strategy for stormwater improvements in the region, and particularly for retrofitting of older developments and infrastructure. The Juanita Creek and Green/Duwamish watershed studies previously referenced provide a useful template for evaluating options for stormwater retrofits in a developed landscape. This work should be scaled up to include urban and suburban areas throughout Puget Sound to identify priority areas for retrofitting of urban development, suburban subdivisions, and older highways and roads; assess costs and potential funding sources; and build political consensus on solutions. This would take the very useful Bissonnette/Parametrix study to the next level of refinement. This is particularly important because the scale of the retrofit problem is large and current funding sources are insufficient and concentrated in a few areas that have robust surface water management utilities. This concentration of resources is also addressed in Recommendation Four.

Recommendation Four: The Puget Sound Partnership and partners should consider options for collection and distribution of funds across jurisdictional boundaries at a watershed, multi-watershed, or Sound-wide scale in order to address differences in funding capacity among local governments in the region.

As indicated in the previous discussions of costs and funding sources, local stormwater funding has been the dominant source for the Stormwater Initiative and a very substantial source for the Habitat and Shellfish Initiatives. The \$306 million in local stormwater revenues cited in the current funding section of this report is far and away the largest source of funding for Puget Sound cleanup and restoration.

However, earlier sections also identify two limitations in the reliance on local stormwater funding: the variability in revenues across the region and the low levels of funding available in some areas where cleanup and restoration actions are most needed. Utility revenues track development patterns, with the greatest revenues in urban areas of the Puget Sound basin and far less funding available in urbanizing and rural areas. The concern about the adequacy of local funding is most acute in rapidly growing areas with lower stormwater rates and in rural areas that are priorities for investments in salmon recovery and nonpoint source control.

Figure 3. Annual Stormwater Fees per Household in Puget Sound Jurisdictions



Sources: Association of Washington Cities Tax and User Fee Survey 2012, and Western Kentucky University Stormwater Utility Survey 2013

The Puget Sound Partnership and partners should consider reviving the concept of a regional funding district that was advanced by Bill Ruckelshaus in the first Puget Sound Partnership funding strategy developed in 2008. The concept is to seek authority in the state legislature to establish multi-jurisdictional and multi-county districts with wide-ranging revenue options to address water and habitat needs consistent with Action Agenda priorities.

The authority should also establish performance standards for the participating jurisdictions to ensure that funding is used for actions that are sufficient in scale and concentration to deliver specific water quality, habitat, and other regional objectives. The benefits of this approach would be enhanced if participating jurisdictions were provided guidance, design standards, and support for building their capacity to address complicated regional issues such as removal of legacy loads and large-scale floodplain restoration.

If authority is granted by the legislature, the second step would be to enact the district through legislative action or a popular vote. One option that was discussed but not resolved by the Subcommittee would be to establish the entire region as the taxing district but have the Puget Sound Partnership serve as the governance structure for allocation of funding.

Recommendation Five: The Puget Sound Partnership and partners should support the continuation of federal and state funding sources that currently fund the implementation of the three Strategic Initiatives and the Action Agenda, with a particular emphasis on funding needed to implement the Habitat Initiative.

The implementation of the Strategic Initiatives and the Action Agenda as a whole is heavily reliant on several funding streams from the federal and state governments, and it is vitally important that the Puget Sound Partnership and partners support these sources in legislative and congressional budget processes.

On the federal side, these sources include the EPA Geographic Programs and National Estuary Program, the NOAA Pacific Coastal Salmon Recovery Fund, and numerous smaller contributors. State funding sources include the Puget Sound Acquisition and Restoration Fund, the Estuary and Salmon Restoration Program, the Floodplains by Design funding program, numerous water quality grant and loan programs provided through the Department of Ecology, and a variety of other state sources for habitat, stormwater, and shellfish needs.

As part of the development and implementation of the Puget Sound Partnership's 2015 legislative strategy, the Subcommittee should identify funding levels for these programs that are necessary to maintain progress on the Strategic Initiatives and Action Agenda in the 2015-2017 biennium and actively advocate for these sources. Even if a water infrastructure package is framed to support implementation of the Strategic Initiatives and makes it on the 2015 ballot, stand-alone funding will be needed for this work in the 2015-2017 budget and must be a priority in the 2015 legislative session.

This recommendation is particularly important in maintaining an adequate supply of funding for the Habitat Initiative. Habitat restoration has long been heavily dependent on annual federal and biannual state budget requests. With the addition of the multi-objective projects from the Floodplains by Design program and the court-ordered requirements for culvert retrofits, the Habitat Initiative has grown substantially in cost and funding gap, and continuation of state and federal budget sources has grown even more important. It is recommended that the Puget Sound Partnership and partners put advocacy for these sources at the top of their federal and state legislative agendas.

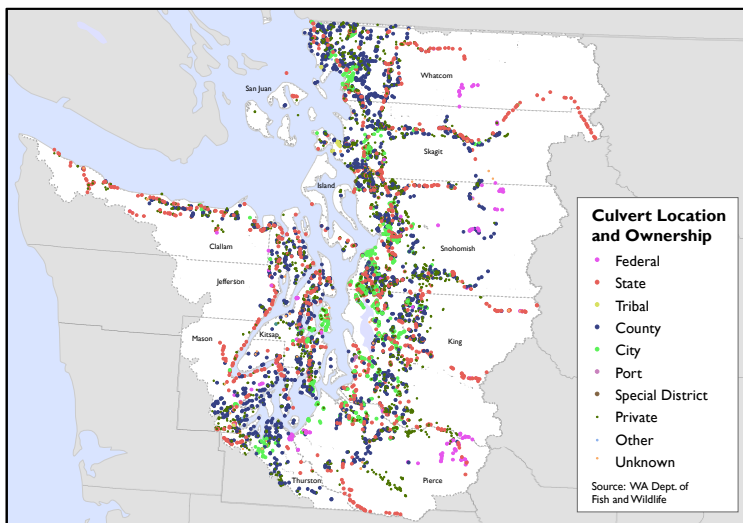
Recommendation Six: The Puget Sound Partnership and partners should seek increased funding for stormwater and other environmental improvements related to the state highway system in further negotiations on a state transportation package, as well as further alignment between environmental spending for highways and watershed and regional priorities for cleanup and restoration.

Existing funding levels for stormwater and environmental improvements on state highways are falling far short of needs. Much of the state highway system in the Puget Sound basin was constructed prior to current standards for stormwater treatment and fish passage. Improvements are made when existing roads are reconstructed or expanded, but there are very substantial legacy needs that have far exceeded the availability of state funding for these problems. This was

made plain in a court injunction in 2013 that requires the WSDOT to upgrade 1,014 culverts on state roads and highways that restrict fish passage. The total cost of retrofits to these culverts is estimated at \$2.4 billion or \$310 million per biennium. In the 2013-2015 biennium, only \$36 million was provided for stand-alone culvert projects. In addition to culverts on state highways, there are thousands of culverts on local and private roads that block passage.

Retrofits to stormwater systems are handled in a similar way, routinely as roads are newly built or reconstructed, but far less frequently when stormwater improvements are the principal focus of the project. Total needs are not estimated, but the state road system in the Puget Sound basin comprises 1,965 centerline miles, much of which were constructed before the mid-1990s when current stormwater standards were established. In preparation for a major stormwater retrofit initiative, WSDOT has completed an extensive stormwater retrofit prioritization effort on state highways within the Puget Sound basin. The three step prioritization process was developed collaboratively with Ecology, U.S. Fish and Wildlife Service, and NOAA Fisheries staff. As high priority highway segments are identified, WSDOT region staff are scoping these stormwater retrofit projects. WSDOT estimates this scoping process will identify \$40-50 million in projects which would retrofit all the highest-priority highway segments in Puget Sound. Current funding levels for stand-alone stormwater projects are very modest; in the 2013-2015 biennium, WSDOT requested \$8.0 million and received \$2.5 million for these projects. Increased funding for these needs is fundamental to implementing the Habitat and Stormwater Strategic Initiatives.

Figure 4. Culverts Blocking Fish Passage in Puget Sound Basin



Source: Washington Department of Fish and Wildlife

In addition, spending on highway stormwater and environmental needs should be further synchronized with watershed planning to ensure that investments are consistent with watershed cleanup and restoration priorities. This is best accomplished through coordination between WSDOT project managers and county and tribal watershed planners early and often as projects are being designed and permitted.

Recommendation Seven: The Puget Sound Partnership and partners should advocate for the strategic prioritization of federal and state infrastructure funding based on economies of scale, advancement of the science, equity and social justice, agriculture and resource land protection, and workforce development.

There are opportunities to accelerate environmental improvements and improve the cost-effectiveness of the funding strategy if linkages can be made across recommendations to help drive priorities. The following are several examples:

- Highway corridors often cross water courses and bisect urban communities. If upgrades to stormwater and passage barrier issues on state highways are implemented in association with habitat restoration, removal of legacy loads, and/or stormwater retrofits in adjoining communities, drainages along major transportation corridors could be significantly improved in a relatively short time, with state revenues augmenting local revenues.
- As survey and design work is completed for highway work, it might be possible to extend the survey work into cooperating jurisdictions to establish baseline linked inventories for entire drainage networks, often difficult to accomplish across jurisdictional boundaries.
- Mitigation sites will be needed to offset project impacts and some funding could be directed through permitting agencies to high priority local jurisdictions or WRIA-designated high priority salmon habitat, wetland, and other ecological restoration projects.
- Street sweeping services could be coordinated between state and local governments or jointly funded through private contracts, making it possible to reduce the overall costs of equipment purchase for increased numbers of street sweepers rented (or service contracts awarded).
- Certification and community college programs could train teams of staff to work on the ground (as part of operations and maintenance teams doing the work) with an understanding of the technical, legal, and tribal foundations needed to work in the intermingled natural and constructed systems that comprise stormwater and habitat, providing a cadre of individuals who understand the system and are at least conversant with the large issues at play. The creation of entry level and upper-end research jobs would create the possibilities of career paths for a variety of individuals at various stages of life and economic condition.
- In rural areas, linkages to failing septic systems and agricultural land preservation could potentially be made to ensure transportation improvements avoid agricultural lands, improve upstream culvert blockages, and where possible, serve as seed money to upgrade septic systems as parts of an overall watershed grant package.

Recommendation Eight: The Puget Sound Partnership and partners should review and revise this funding strategy during the biannual updates of the Action Agenda.

Over the course of this project, several people have commented on the similarities between today's circumstances and those facing the Puget Sound Partnership and partners when the 2008 Action Agenda and funding strategy were developed. Some issues have become more prominent while others have receded, but the underlying approach to raising funds is not dramatically different today than it was six years ago. On the plus side, this suggests that the approach developed in 2008 – heavily reliant on annual and biannual budget success in Olympia and Washington D.C., with match from local utilities and tribes – has been fairly successful. The Puget Sound Partnership and partners have continued to make substantial progress on the Action Agenda thanks to this approach.

However, some of the concepts discussed in the first funding strategy, including development of regional funding sources, use of markets and trading to steer investments, and development of dedicated state revenues, have not progressed as much. These options require concerted, multi-year work to implement, and this level of follow-through has been a challenge. Tying the review and revision of the funding strategy to the biannual update of the Action Agenda would help focus attention on these more complex multi-year needs.

It also appears that regular updates of the funding strategy are helpful in refining the actions proposed in the Action Agenda updates. As noted earlier in this report, the Subcommittee spent a great deal of time refining the medium- and long-term actions in each Initiative before developing the funding strategy. Cost estimates require a degree of precision in defining projects and programs, and a greater emphasis on funding is likely to add a useful discipline to the development of the Action Agenda.

Next Steps

The following immediate next steps are recommended in order to move the funding strategy forward.

1. Seek review, revisions, and approval of the funding strategy by the Puget Sound Partnership's Ecosystem Coordination Board and Leadership Council.
2. Adopt relevant sections of the funding strategy in the 2015 legislative agendas of the Puget Sound Partnership and partner organizations and agencies. Priorities are summarized below.
3. Advocate for Strategic Initiatives and other Action Agenda priorities in the development of the water infrastructure package and in federal and state budget deliberations in late 2014 and early 2015.
4. Pursue the development of regional strategies on setting priorities, supporting a Sound-wide study of stormwater needs, and evaluating options for multi-jurisdictional and multi-watershed funding beginning in 2015.
5. Integrate the review and revision of the funding strategy in the process for updating the Action Agenda.

Summary of Recommendations for the 2015 State Legislative Session

The following items should be integrated into the 2015 state legislative agendas of the Puget Sound Partnership and supporting partners.

1. Support for the water infrastructure package and advocacy for Action Agenda priorities in the package.
2. Support for the Department of Ecology capital budget requests for Floodplains by Design and Stormwater Financial Assistance grants.
3. Support for Department of Health bills seeking funding sources for the septic system loan and county septic management programs in all Puget Sound counties.
4. Advocacy for a Sound-wide study of stormwater needs, priorities, and funding strategies.
5. Support for a substantial increase in funding for stormwater and other environmental improvements on state highways.
6. Support for state grant and loan programs fundamental to the Action Agenda, including the Centennial Clean Water program, the Salmon Recovery Funding Board grants, the Washington Wildlife and Recreation Program, and many others.

Funding Strategy for the Strategic Initiatives from the 2012-2013 Puget Sound Action Agenda

**Final Report
Volume Two: Technical Report
August 13, 2014**

With corrections to shellfish funding information of September 9, 2014

**Prepared for:
Puget Sound Partnership
Ecosystem Coordination Board Finance Subcommittee**



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Consultant Team: Mark Buckley, ECONorthwest; Dennis Canty, Evergreen Funding Consultants; Betsy Daniels, Triangle Associates, Inc.; Megan Johnston, Triangle Associates, Inc.; and Austin Rempel, ECONorthwest.

For more information about this report, please contact:

Mark Buckley

ECONorthwest
222 SW Columbia Street
Portland, OR 97201
503-222-6060

1 Introduction

As part of the 2012-2013 Action Agenda, the Puget Sound Partnership (Partnership or PSP) prioritized the three Strategic Initiatives of:

- **Protect and restore habitat;**
- **Prevent pollution from urban stormwater runoff; and**
- **Restore and re-open shellfish beds.**

The Puget Sound Partnership's Ecosystem Coordination Board (ECB), which represents the range of partner institutions to the recovery of Puget Sound, created a Finance Subcommittee to develop a strategy for long-term funding of the Strategic Initiatives. In order to develop this funding strategy, the Finance Subcommittee addressed a necessary series of questions:

1. What actions are necessary to achieve the Strategic Initiatives?
2. What are the costs of these actions?
3. What funding is currently available and likely available in the future for these actions?
4. What is the funding gap, and how should it be addressed?

The ECB Finance Subcommittee (Subcommittee) worked with support staff combined with outreach to agency and topical experts to answer these questions from January to July, 2014. This report documents the data compiled in support of addressing these funding questions.

The Action Agenda and associated efforts to achieve Puget Sound recovery are constantly and simultaneously under implementation, improvement, and adaptation. Consequently this report is a snapshot in time, based on the best understanding of the short-term and long-term priorities and needs, and expectations about their trajectories. The Partnership released the 2014-2015 Action Agenda while this project was underway, and the Partnership is reviewing new salmon recovery plans. A number of other useful research projects are underway and incomplete but beginning to generate results, such as the WRIA 9 stormwater retrofit study, Department of Health (DOH) work on a shellfish habitat program, and a variety of work in support of the Floodplains by Design program. This report incorporates the best available information, but new and likely better information will increasingly be available.

This report covers a wide range of objectives and actions. The information herein identifies the primary actions, costs, funding sources, and funding opportunities. Other program and project-specific documentation, much of which is referenced in this report, hold more comprehensive detail. The objective of this presentation

is to provide sufficient information to understand the major actions and needs, and the largest existing and potential funding sources. Individual projects and programs will typically involve a larger or more nuanced set of objectives, and corresponding funding opportunities. The intention of the ECB Finance Subcommittee is to develop a set of large-scale funding strategies and resulting funding sources to meet major goals of the Strategic Initiatives across the Puget Sound Basin.

1.1 Accuracy and Precision, Confidence and Uncertainty in this Analysis

Answering the question, *“what are the long-term funding needs for the Strategic Initiatives?”* requires assembly of several distinct analytical components, which currently bear varying levels of certainty. Scientific progress in Puget Sound has accomplished significant understanding of the current impaired and declining condition of Puget Sound and the major stressors driving this state. The resulting sophisticated understanding of this complex problem of recovery drives the Partnership’s Action Agenda.

In the short term, this scientific process identifies current projects and programs to move towards recovery success. But full recovery will not be accomplished in the near term. Long-term planning is necessary, and scientific understanding triangulated with currently-defined and successful projects and programs identifies the core components of the Strategic Initiatives over the long term, and the level of effort that will be necessary. Therefore current components of the Strategic Initiatives allow a high degree of accuracy and precision for the complete set. But the long-term needs are most accurate in the major components, while minor components are likely incompletely-defined and in many cases, necessary programs do not yet exist.

These realities drive the overall approach to this analysis and presentation of information and results. We provide the available information of relatively high confidence and certainty, which means winnowing the set of strategies and actions as we move to description of the long-term needs. We provide a high level of detail for the Near-Term Actions as defined in the Action Agenda, but in the long-term focus on the major actions with the bulk of the funding need. So the long-term components of this analysis do not include the individual, small-scale and short-term actions surely to arise comparably to the currently-defined Near-Term Actions. But these short-term actions are currently a small share of the need and cost, and similar ones in the future are likely to be as well.

When long-term costs are not already well-defined, we present the best available information. In some cases, this involves presenting information from multiple

sources with explicit and implicit synthesis and triangulation. In this sense, it is most accurate to consider long-term costs to be representative and intended to provide an estimate of the order of magnitude as precisely as appropriate.

We do know that actions to protect Puget Sound and prevent degradation are at least an order of magnitude less costly than *ex post* cleanup and restoration.¹ So waiting for full program definition for major efforts is more expensive than acting now. Our prioritization process for areas of long-term analysis was based on the core strategies defined in the Action Agenda with the most confidence both in their need and likelihood for successful contribution to Puget Sound recovery.

1.2 Prioritization Methodology

In order to develop funding strategy recommendations for implementation of the 2012-2013 Action Agenda, a significant amount of effort went into the process of defining the scope of actions to be included in the programs, costs, and gap analyses, which would serve as the foundation of the proposed investment and funding strategy.

In the initial stages of the funding strategy development process, it became evident that utilizing Near-Term Actions (NTAs) outlined in the 2012-2013 Action Agenda to identify the overall effort trajectory for each Strategic Initiative would not be sufficient for identifying the overall long-term needs for programs and costs of the Strategic Initiatives. Many of the NTAs are one-time, short-term actions, and focusing only on NTAs would exclude important and costly programs from the analysis (particularly those related to stormwater). The ECB Finance Subcommittee agreed that an NTA-focus would not be adequate to accurately characterize Strategic Initiative programs, costs, and funding gaps through Puget Sound recovery. In order to conduct a more comprehensive and accurate analysis of the Strategic Initiative programs and costs—and in the end a funding strategy for those programs—we (with guidance from the ECB Finance Subcommittee) expanded the analysis beyond the NTAs to the Strategic Initiative sub-strategy level. In particular we investigate the long-term stormwater needs, the culvert retrofit challenge for fish passage, the emerging strategies around multiple benefits within floodplains, and the septic retrofit loan program from the Department of Health.

¹ This is based on prior work by the authors and others to conduct cost comparisons for the initial Action Agenda. For example, restoring habitat is much more costly than protection and prevention of damage to the same habitat.

In order to narrow and re-frame the scope of the analysis at the sub-strategy level, we developed an approach to prioritize sub-strategies and corresponding actions in the 2012-2013 Action Agenda by priority rankings, costs, and levels of current funding.² Through this process, we identified 5-7 high-medium priority, high-cost, and under-funded sub-strategies and actions for each Strategic Initiative. With the support of the ECB Finance Subcommittee, those priority items remained the focus of the funding strategy analysis and development process (including programs, costs, and funding gaps analyses and funding strategy recommendations).

It's important to note that at the sub-strategy level, the Action Agenda often does not define the long-term projects/programs to achieve the stated goal of the sub-strategy. In some cases it was necessary to extrapolate long-term projects/programs based on best available knowledge and consultation with the Puget Sound Partnership and stakeholders—while also respecting the Action Agenda. As a result, the consultants and ECB Finance Subcommittee spent significant time clarifying long-term sub-strategy programs (and well-supported assumptions) for the Strategic Initiatives to include the programs, costs, and gap analyses prior to developing funding strategy recommendations.

² Sub-strategy/action priority rankings were based on rankings in Appendix G of the 2012-2013 Action Agenda, costs and gaps were based on previously completed estimates.

2 Needs, Programs and Actions for the Strategic Initiatives

This section provides highlights of the needs and identified actions for each Strategic Initiative. This information is primarily based on descriptions from the Action Agenda. Refer to the Action Agenda and associated documents on the Partnership's website for greater detail.

2.1 Habitat

The Habitat Strategic Initiative focuses on salmon recovery, but also contributes to progress toward the 2020 ecosystem recovery targets for floodplains, chinook salmon, freshwater water quality, summer stream flows, land development and land cover, shoreline armoring, shellfish beds, swimming beaches, eelgrass, estuaries, toxics in fish, pacific herring, orcas, and marine sediment quality (Table 1).

Table 1. Action Agenda Strategies and 2020 Ecosystem Targets Associated with the Habitat Strategic Initiative NTAs

	Number of NTAs	Percent of NTAs
Strategies		
Strategy A. Protect and Restore Terrestrial and Freshwater Ecosystems	17	71%
Strategy B. Protect and Restore Marine and Marine Nearshore Ecosystems	6	25%
Strategy C. Reduce and Control the Sources of Pollution to Puget Sound	1	4%
Total	24	-
Ecosystem Recovery Targets		
Floodplains	12	50%
Chinook Salmon	10	42%
Freshwater Quality	8	33%
Summer Stream Flows	5	21%
Land Development and Cover	5	21%
Shoreline Armoring	4	17%
Shellfish Beds	3	13%
Swimming Beaches	2	8%
Eelgrass	2	8%
Estuaries	1	4%
Toxics in Fish	1	4%
Pacific Herring	1	4%
Orcas	1	4%
Marine Sediment Quality	1	4%
Total	24	-

Source: PSP 2012-2013 Action Agenda

2.1.1 Action Agenda Strategies for Habitat Protection and Restoration

The approach to protecting and restoring habitat to support salmon recovery is focused on the implementation of high priority restoration projects, removing barriers to restoration and protection, and addressing new threats. The Habitat

Strategic Initiative NTAs are summarized in the list below, and further described in Table 2. These NTAs capture a range of one-time and potentially ongoing efforts, as they cover a range of program design, education, restoration, monitoring and maintenance efforts.

The 2012-2013 Action Agenda identifies the following sub-strategies and actions under the Habitat Protection and Restoration Initiative:

Protect Through Regulations

- Sub-Strategy A 7.1: Update Puget Sound instream flow rules to encourage conservation
 - A 7.1: *All of sub-strategy A7.1 is a priority for the habitat protection and restoration strategic initiative.*
- Sub-Strategy A 5.1: Improve data and information to accelerate floodplain protection, restoration, and flood hazard management.
 - A 5.1 NTA 1: Floodplain Protection and Policy Team Actions
- Sub-Strategy A 5.3: Protect and maintain intact and functional floodplains.
 - A 5.3 NTA 4: Levee Vegetation.
- Sub-Strategy B 1.3: Improve, strengthen, and streamline implementation and enforcement of laws, regulations, and permits that protect the marine and nearshore ecosystems and estuaries.
 - B 1.3 NTA 2: Hydraulic Code Rules Revision.
- Sub-Strategy A 1.3: Improve, strengthen, and streamline implementation and enforcement of laws, plans, regulations, and permits consistent with protection and recovery targets.
 - A 1.3 NTA 1: ECB Address Regulatory Exemptions.
- Sub-Strategy A 1.2: Support local governments to adopt and implement plans, regulations, and policies consistent with protection and recovery targets, and incorporate climate change forecasts.
 - A 1.2 NTA 1: Land Use Planning Barriers, BMPs and Example Policies.
- Sub-Strategy B 1.2: Support local governments to adopt and implement plans, regulations, and policies that protect the marine nearshore and estuaries, and incorporate climate change forecasts.
 - B 1.2 NTA 1: Update Local Shoreline Master Programs.
- Sub-Strategy C 8.1: Prevent and reduce the risk of oil spills.
 - C 8.1 NTA 2: Evaluate Risk Assessments for Update Needs.

Protect Through Incentives

- Sub-Strategy B 2.1: 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.

- B 2.1 NTA 1: Protect 10% of Bluff-Backed Beaches.
- Sub-Strategy B 2.3: Remove armoring, and use soft armoring replacement or landward setbacks when armoring fails, needs repair, is non protective, and during redevelopment.
 - B 2.3 NTA 1: Homeowner Incentives for Landward Setbacks.
- Sub-Strategy A 4.2: Provide infrastructure and incentives to accommodate new and re- development within urban growth areas.
 - A 4.2: *All of sub-strategy A4.2 is a priority for the habitat protection and restoration strategic initiative.*

Remove Barriers to Restoration

- Sub-Strategy A 6.1: Implement high priority projects identified in each salmon recovery watershed's three- year work plan.
 - A 6.1: *All of sub-strategy A6.1 is a priority for the habitat protection and restoration strategic initiative.*
- Sub-Strategy B 2.2: Implement prioritized nearshore and estuary restoration projects and accelerate projects on public lands.
 - B 2.2 NTA 1: Implementation of Projects Identified by PSNERP.
- Sub-Strategy B 5.3: Prevent and rapidly respond to the introduction and spread of terrestrial and aquatic invasive species.
 - B 5.3 NTA 2: Invasive Species Early Detection and Monitoring.

Table 2. Habitat Strategic Initiative Near-Term Action Summary

Near Term Action(s)	Description
Implement Salmon Recovery 3-year Workplans	This was identified by the ECB Subcommittee as the most important action in the Habitat Strategic Initiative. Full implementation of the Puget Sound Chinook Salmon Recovery Plan, including support of the highest priority protection and restoration projects as identified by salmon recovery lead entities, addressing barriers to faster permitting of salmon recovery restoration projects and, developing cooperative agreements with project partners.
Implementation of Projects identified by PSNERP	Implementation of projects identified by Puget Sound Nearshore Ecosystem Restoration Project (PSNERP).
Protect 10% of Bluff-Backed Beaches	Promote acquisitions, easements, or other protective covenants to permanently protect at least 10% of bluff-backed beaches other priority nearshore habitats facing potential shoreline development pressure.
Protect and Restore Stream Flows	Establish and enforce in-stream flow rules in the Puget Sound Basin. This will involve setting flows in the remaining priority Puget Sound watersheds, developing and implementing the comprehensive basin flow protection and enhancement programs called for in the Salmon Recovery plans, and establishing a local compliance presences.
Invasive Species Early Detection and Monitoring	Develop and implement an early detection and monitoring program plan for priority invasive species in Puget Sound.
Evaluate [Oil Spill] Risk Assessments for Update Needs	Evaluate existing Puget Sound marine transportation oil spill risk assessments, identify any gaps in marine safety and work with experts to develop and apply appropriate risk reduction measures.
Homeowner Incentives for Landward Setbacks	Convene a process to develop and recommend incentives that help homeowners permanently remove armoring and encourage setback of houses. Incentives could include, but would not be limited to financial, regulatory, low interest loans or grants.
Provide for growth	Provide infrastructure and incentives to accommodate new and redevelopment within urban growth areas.
Land Use Planning Barriers, BMPs and Example Policies	Identify the primary barriers to incorporating policies consistent with implementation of the Action Agenda into local land use planning and decisions, and identify best practices and assistance needed to overcome these barriers. This will address implementation of protection strategies, encouraging compact growth patterns, increased density, water quality standards, redevelopment, and rural lands protection.
Floodplain protection and policy team actions	Advance floodplain protection and restoration by facilitating actions, policy changes, and program changes.
Levee vegetation	Craft a regional variance to the U.S. Army Corps of Engineer's vegetation on levees policy.
Update Local Shoreline Master Programs	Provide funding and technical assistance to local jurisdictions to update local shoreline master programs.
Hydraulic Code Rules Revision	Revise Hydraulic Code Rules and clarify conditions under which hydraulic projects must be conducted to prevent or mitigate the impacts to fish life and habitat.
ECB address regulatory exemptions	Address regulatory exemptions to provide effective oversight and mitigation sequencing for activities that impact the ecosystem.

Source: PSP 2012-2013 Action Agenda. See Action Agenda for more detail on actions.

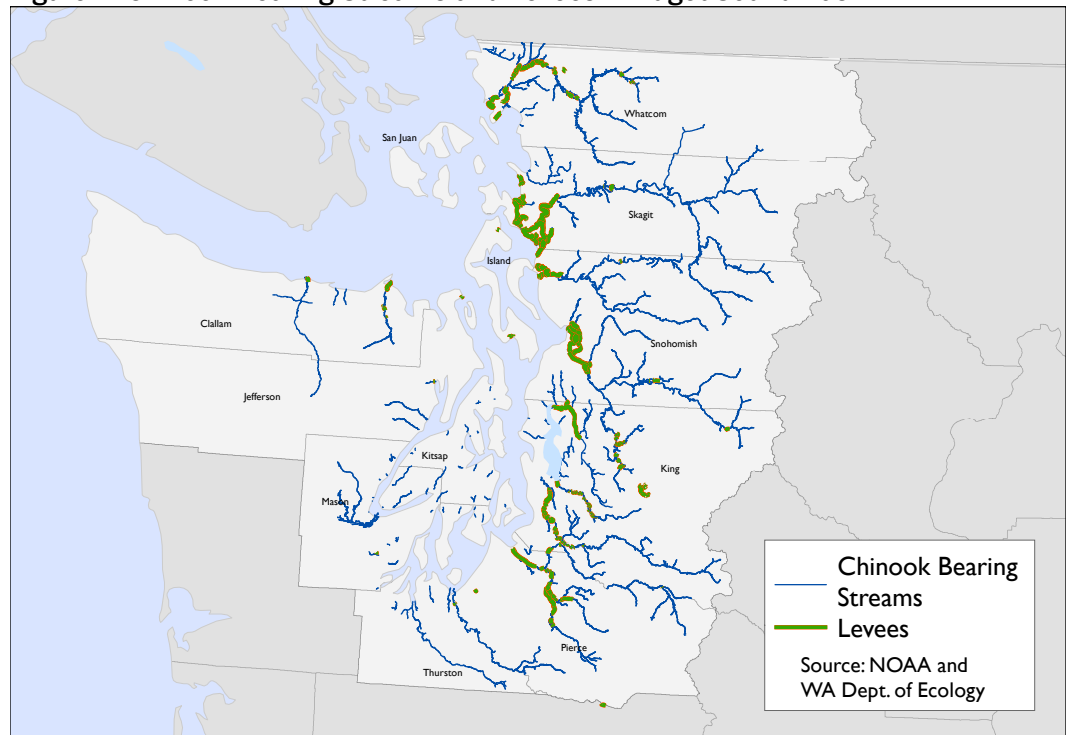
Table 2 provides summary information for the NTAs defined for the 2012-2013 Action Agenda. It is important to emphasize that these are not the only actions that will be needed to protect and restore habitat and, as such, they represent only the initial, priority efforts required to achieving the corresponding 2020 Recovery Goals. There are potentially many additional elements of program implementation that have not been identified or described, and the additional costs and sources presented later in this report reflect this broader scope of assessment.

Salmon Recovery

Puget Sound Chinook salmon are roughly one-third as abundant as they were in the early 1900s, and in 1999 they were listed as “threatened” under the federal Endangered Species Act.

The 2020 Target for Wild Chinook Salmon is: *Stop the overall decline and start seeing improvements in wild Chinook abundance in two to four populations in each biogeographic region.* While Chinook populations in Puget Sound naturally exhibit large annual and long term fluctuations, wild spawner abundance numbers have shown little progress toward this target, and have actually declined since the early 2000s. Chinook are found in all counties of Puget Sound (Figure 1).

Figure 1. Chinook Bearing Streams and Levees in Puget Sound Basin



The Puget Sound Salmon Recovery Plan is the primary, all encompassing plan to achieve the 2020 Chinook target. The plan includes fourteen watershed-specific

plans which, together, identify hundreds of different actions to protect and restore salmon populations, including habitat restoration and acquisition projects, as well as protecting habitat through a combination of regulations, incentives and education. Sub-Strategy A 6.1 of the Action Agenda is the implementation of the high priority projects identified in each of these plans, and was identified by the ECB as one of most important actions in the Habitat Strategic Initiative.

Floodplains

Advances in understanding of the key drivers and limiting factors to Puget Sound recovery increasingly highlight the importance of functional, well-connected floodplains. Floodplains facilitate floodwater storage, groundwater recharge, water filtration, sediment and nutrient retention, and also supply important habitat for fish and wildlife. These functions and services have been lost in large areas of Puget Sound through a combination of levees, shoreline armoring and residential, commercial, industrial, and agricultural development.

The concentration of urban development within floodplains has also led to heightened exposure to risks and damage from floods and landslides. Floodplain management therefore involves tradeoffs between these areas' ecological value, their high value to humans in terms of development, and also in term of potential loss from natural disasters. Protection and enhancement of riparian and floodplain habitat are key parts of virtually every recovery plan for salmon (Figure 2).

Consequently, it was identified as one of the highest priorities in the Habitat Strategic Initiative.

Initially, a 2020 target was defined for floodplains: by 2020, 15% of degraded floodplain areas are restored, or floodplain projects to achieve that outcome

are underway across Puget Sound, and there is no additional loss of floodplain function in any Puget Sound watershed relative to a 2011 baseline. This target is based on modeling that suggests restoring 15 percent of floodplain function would have a real benefit for landscape-scale ecological processes important to Puget Sound recovery.

Floodplain Sub-Strategies and NTAs from the Action Agenda

Sub-Strategy A 5.1 Improve data and information to accelerate floodplain protection, restoration and flood hazard management

NTA 5.1.1: Floodplain Protection and Policy Team Actions

Sub-Strategy A 5.3 Protect and maintain intact and functional floodplains.

NTA 5.3.1: FEMA Annual Reporting for NFIP BiOp

NTA 5.3.2: CAO Updates on Frequently Flooded Areas

NTA 5.3.3: BiOp Compliance and Floodplain Target

NTA 5.3.4: Levee Vegetation

Sub-Strategy A 5.4 Implement and maintain priority floodplain restoration projects

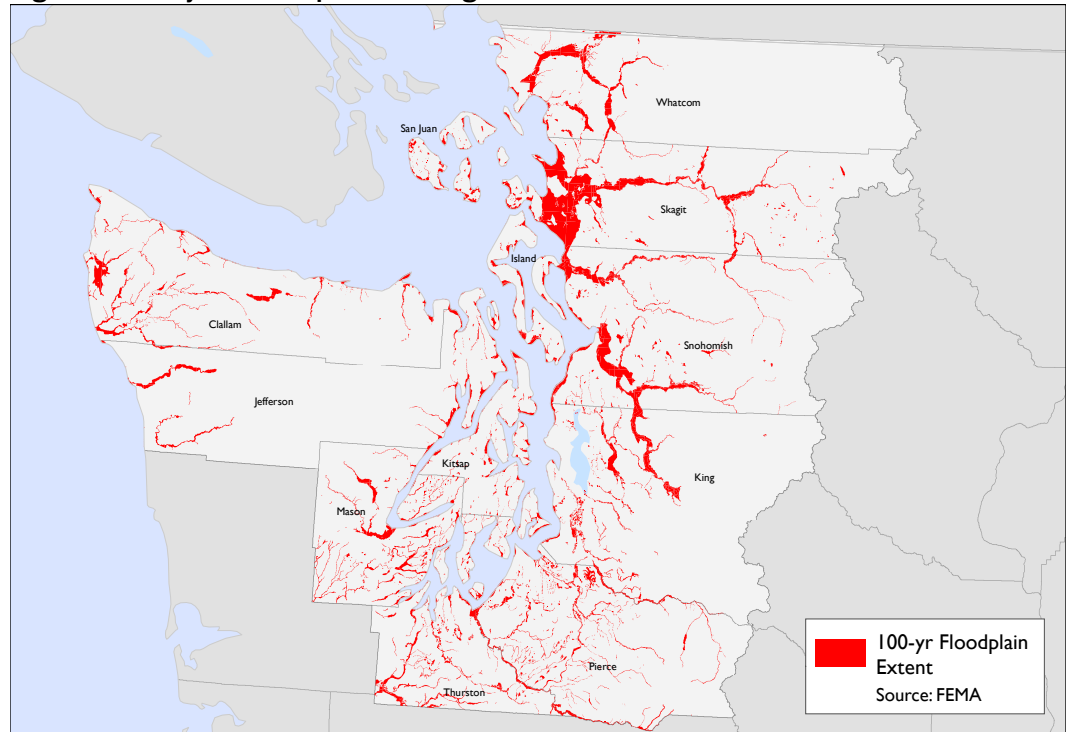
NTA 5.4.1: Prioritization of State Highways with Floodplain Impacts

NTA 5.4.2: Ag Land Ecosystem Services Markets

NTA 5.4.3: Candidate Areas for Land Swaps

Much of floodplain area in Puget Sound is currently in agricultural production. These farming uses play a number of socially and economically important roles in regional communities, contribute an array of conservation investment opportunities, and can contribute habitat functions particularly in comparison to more developed land uses.

Figure 2. 100-year Floodplains in Puget Sound Basin



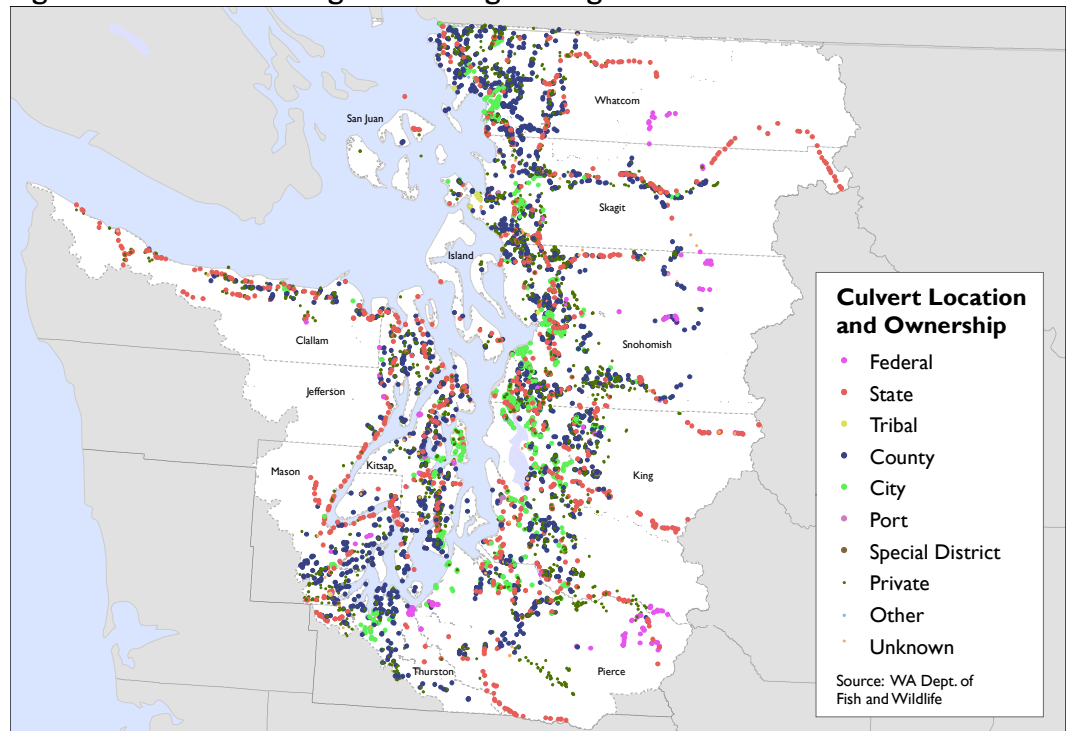
Culverts

Culverts are structures, typically made from a pipe or concrete, that allow water to flow under a road, railroad, or trail. Many culverts in Puget Sound were installed or have become impassable for fish and other aquatic organisms to scale, thus preventing them from reaching upstream habitat. Additionally, culverts can lead to excess water velocities that make navigation difficult or impossible, and can increase erosion and sediment loads. In these ways and others, even small, individual culverts can result in direct loss of instream and riparian habitat.

Culverts not only prevent fish passage and ecological connectivity, but also prevent downstream flows of gravel needed for spawning redds and woody debris important for habitat and channel processes, and can create an entry point for road-runoff pollutants. These negative impacts and risks can be minimized by removal of the culvert, replacement with full-span bridges, or simulation of a natural channel through the structure.

- Culverts in Puget Sound are owned and managed by a variety of entities. Responsibility for fish blocking culverts on fish bearing streams is shown in Figure 3 and
- Table 3. At the state level, most culverts are owned by the Washington State Department of Transportation (WSDOT) and associated with state highways.³ A federal court injunction issued in March 2013 requires the state to remove approximately 800 state-owned culverts that block habitat for salmon and steelhead by 2030.⁴

Figure 3. Culverts Blocking Fish Passage in Puget Sound Basin



To address these ‘problem culverts’, WSDOT has established a Fish Passage Barrier Removal Program to identify and remove barriers to fish passage caused by culverts under state highways since 1991. This is a cooperative effort with the Washington Department of Fish and Wildlife (WDFW). WSDOT’s approach to culvert mitigation includes the following actions:

- *“Fish barriers are corrected through highway projects, whenever a hydraulic permit is required*

³ WDFW, personal comm., 06/14

⁴ WSDOT. 2014. Fish Passage Facts.
<http://www.wsdot.wa.gov/Environment/Biology/FP/fishpassagefacts.htm>

- *Stand-alone projects fix high priority barriers on highways that will not be addressed by a highway construction project anytime soon*
- *Some barriers are corrected through our Maintenance program, which replaces a failing culvert with a fish passable structure”*

Table 3. Identified Fish Blocking Culverts in Puget Sound Basin

Owner	Number of culverts	Share of culverts
Private	3,207	41%
County	2,036	26%
State	1,221	16%
City	908	12%
Federal	181	2%
Unknown	147	2%
Tribal	27	0.3%
Other	12	0.2%
Port	10	0.1%
Special District	4	0.1%

Source: WDFW Fish Passage Barrier Inventory

Table 3 shows the identified set of fish-blocking culverts in the Puget Sound Basin. Reason and deduction among experts suggests this is not the complete set of such culverts, but represents the vast majority. There is speculation that the Department of Natural Resources (DNR) and private land likely hold more culverts, but discussions with culvert experts at the Recreation and Conservation Office (RCO) and WDFW suggest the number is likely to be very small. A conservative estimate might be a doubling of the unknown culverts, which would increase the total identified, 7,753, by less than 2 percent.

2.2 Stormwater

The quality of surface water in Puget Sound is in decline, and monitoring data and analysis demonstrate that stormwater runoff is the primary driver for this decline in water quality.⁵ Similarly, biological research is increasingly revealing the negative effects of water quality on aquatic fish and wildlife populations.⁶ These are among the reasons that stormwater pollution has been a primary focus of the Puget Sound Partnership and the Action Agenda since their inception.

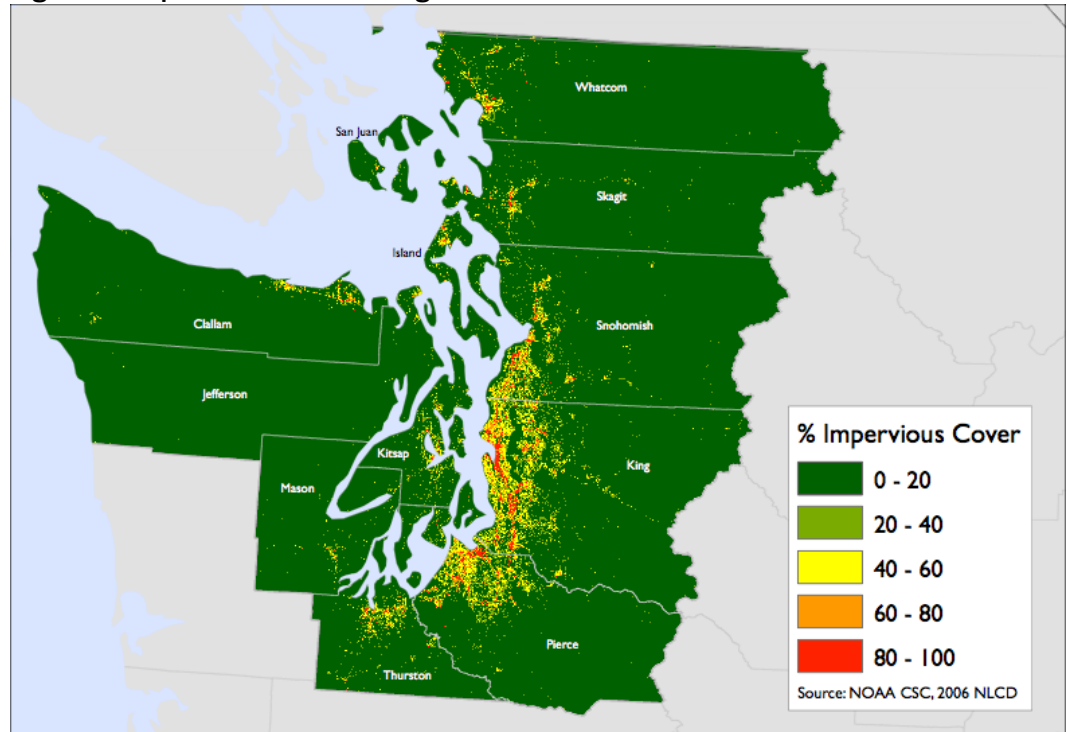
Stormwater runoff from urban areas, in particular, is a primary agent of chemical, physical and biological degradation in Puget Sound. Impervious surfaces – such as pavement and compacted ground - prevent infiltration, which

⁵ Action Agenda, State of the Sound, Science Update

⁶ Action Agenda, State of the Sound, Science Update

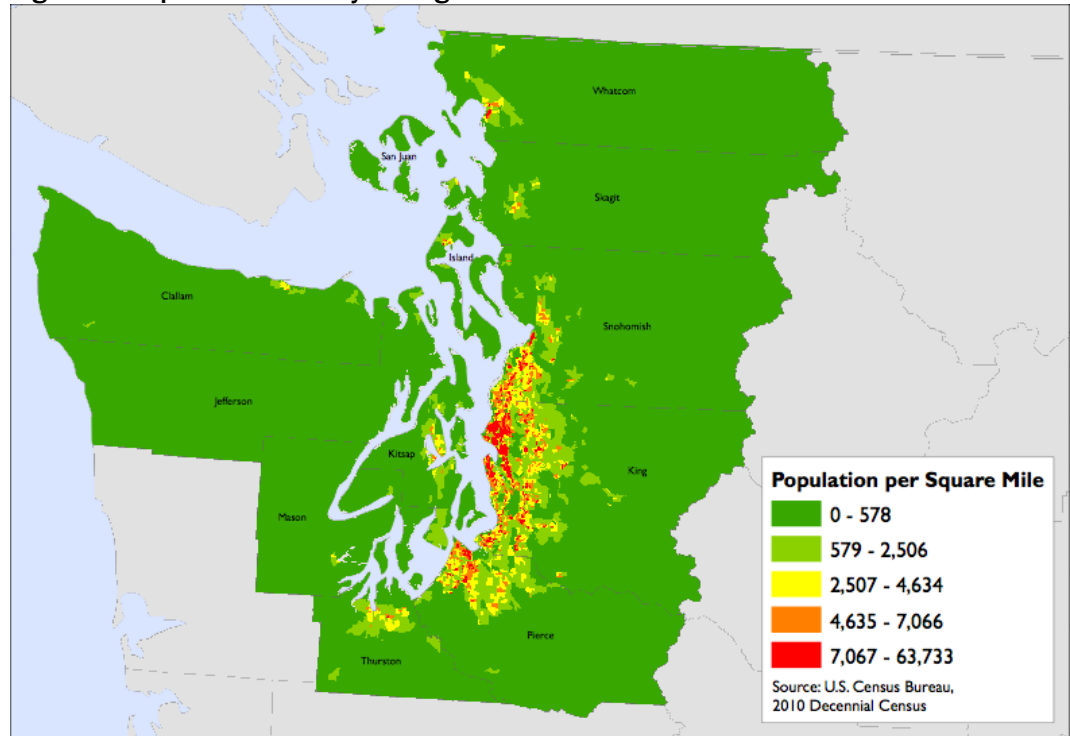
means that most precipitation in urban areas is transported as surface runoff. This runoff accumulates various pollutants as it flows through the urban environment, including heavy metals, petroleum products, pesticides, fertilizers and bacteria.⁷ Additionally, the high, flashy flow regimes associated with excess stormwater runoff lead to flooding and property damage, as well as damage to fish habitat by eroding stream banks and widening stream channels, depositing excess sediment, and otherwise altering natural streams and wetlands. Impervious coverage concentration, similar to population and pollution-generating activities, is highest in urban areas of the Puget Sound Basin (Figure 4 and Figure 5)

Figure 4. Impervious Cover in Puget Sound Basin



⁷ Unlike wastewater, stormwater runoff is not sent to treatment plants before being discharged to Puget Sound. Prior to 1990, stormwater management focused solely on conveyance (i.e. draining stormwater runoff efficiently to prevent flooding). Most of the development in Puget Sound - approximately 70% of the development within King County, for example - occurred before 1990, so stormwater runoff from these areas is discharged into local water bodies without treatment.

Figure 5. Population Density in Puget Sound Basin



2.2.1 Action Agenda Strategies for Addressing Stormwater Pollution

The Stormwater Strategic Initiative primarily contributes to progress toward the 2020 Ecosystem Recovery Targets for freshwater water quality toxics in fish, marine water quality, marine sediment quality, chinook salmon, summer stream flows, land development and cover, shellfish beds, swimming beaches, shoreline armoring, and orcas (Table 4). It is important to note that none of these targets are exclusively influenced by stormwater pollution control. Stormwater is one of multiple factors for the conditions of Puget Sound it affects. This makes progress on stormwater difficult to measure, and the total amount of stormwater pollution control necessary for recovery difficult to specify. But it also demonstrates the important synergies for stormwater pollution control projects. Still, biological conditions in surface freshwater is generally worst near urban areas (Figure 6 and Figure 7).

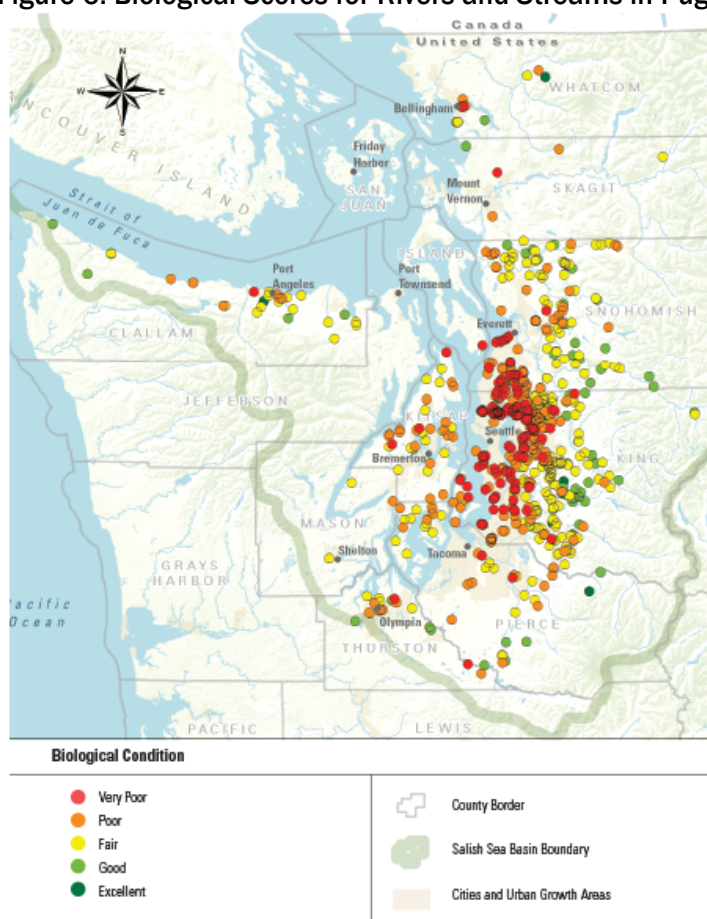
Table 4. Action Agenda Strategies and 2020 Ecosystem Targets Associated with the Stormwater Strategic Initiative NTAs

	Number of NTAs	Percent of NTAs
Strategies		
Strategy C. Reduce and Control the Sources of Pollution to Puget Sound	8	89%
Strategy D. Implementation, Collaboration, Behavior Change and Stewardship and Monitoring	1	11%
Total	9	-
Ecosystem Recovery Targets		
Freshwater Quality	9	100%
Toxics in Fish	9	100%
Marine Water Quality	8	89%
Marine Sediment Quality	8	89%
Chinook Salmon	4	44%
Summer Stream Flows	3	33%
Land Development and Cover	2	22%
Shellfish Beds	2	22%
Swimming Beaches	1	11%
Shoreline Armoring	1	11%
Orcas	1	11%
Total	9	-

Source: PSP 2012-2013 Action Agenda

With these challenges for identifying the complete strategy to address stormwater problems, the Action Agenda's strategy for managing urban stormwater runoff in Puget Sound is focused on fixing existing problems and preventing new ones, controlling pollution sources, and outreach and education. The Stormwater Strategic Initiative, as envisioned in the 2012-2013 Action Agenda, is summarized in the list below and further described in Table 5.

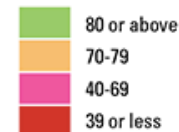
Figure 6. Biological Scores for Rivers and Streams in Puget Sound Basin



Source: Puget Sound Vital Signs – Freshwater Quality, Puget Sound Stream Benthos

Figure 7. Puget Sound Water Quality 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average
Duckabush River nr Brinnon	93	95	94	90	74	94	89	85	88	96	86	89	97	90
Skokomish River nr Potlach	95	95	94	85	70	67	92	89	89	94	86	70	88	86
Snohomish River at Snohomish	92	91	89	81	74	75	89	75	81	85	79	77	90	83
Elwha River nr Port Angeles	86	88	83	76	73	74	86	67	66	81	81	76	64	77
Cedar River at Logan St/Renton	87	76	60	78	72	84	81	79	79	81	77	75	85	78
Skagit River at Marblemount	87	86	59	85	64	81	84	75	75	81	56	77	76	76
Skagit River nr Mount Vernon	89	91	71	76	61	73	77	77	75	76	74	73	77	76
Nisqually River at Nisqually	40	60	79	79	69	71	74	75	91	74	83	86	86	74
Deschutes River at East St Bridge	62	72	70	73	61	83	88	88	83	76	74	60	84	75
Stillaguamish River nr Silvana	81	60	44	72	55	67	71	69	75	75	71	59	81	68
Green River at Tukwila	82	73	66	67	75	49	72	68	60	69	63	68	75	68
Samish River nr Burlington	86	75	32	49	34	71	67	74	59	80	63	52	78	63
Nooksack River at Brennan	65	68	58	57	52	54	61	51	60	69	56	55	62	59
Puyallup River at Meridian St	60	58	57	55	51	58	59	58	61	49	62	56	71	58



Source: Puget Sound Vital Signs – Freshwater Quality, Statewide Water Quality Monitoring Network, Washington Department of Ecology
Note: Higher numbers indicate better water quality.

Watershed Approach:

- Sub-Strategy C 2.1: Manage urban runoff at the basin and watershed scale
 - C 2.1 NTA 1: Watershed Based Stormwater Management.

Prevent New Problems

- Sub-Strategy C 2.2: Prevent problems from new development at the site and subdivision scale
 - C 2.2 NTA 1: NPDES Municipal Permits.
 - C 2.2 NTA 3: Stormwater Management Outside Permitted Areas.

Fix Existing Problems

- Sub-Strategy C 2.3: Fix problems caused by existing development (structural upgrades; regular and enhanced maintenance)
 - C 2.3 NTA 1: Stormwater Retrofit Projects.

Control Sources of Pollution

- Sub-Strategy C 1.1: Implement and strengthen authorities and programs to prevent toxic chemicals from entering the Puget Sound environment
 - C 1.1 NTA 3: Fish Consumption Rates.
- Sub-Strategy C 2.4: Control sources of pollutants
 - C 2.4 NTA 1: Compliance Assurance Program.

Education

- Sub-Strategy C 2.5: Provide focused stormwater-related education and training
 - C 2.5 NTA 1: LID Training and Certification.
 - C 2.5 NTA 2: Education for the Next Generation of Stormwater Professionals.
- Sub-Strategy D 6.1: Implement a long-term, highly visible, coordinated public- awareness effort using the Puget Sound Starts Here brand.
 - D 6.1 NTA 1: Phase 2 of Puget Sound Starts Here

Table 5. Stormwater Strategic Initiative NTA Summary

Near Term Action(s)	Description
NPDES Municipal Permits.	Ecology will issue municipal permits for western Washington and provide financial assistance to permittees for implementation, particularly for code changes, stormwater system mapping, operations and maintenance, inspections and enforcement. This will require additional resources to Ecology for permit oversight, technical assistance, and enforcement. Ecology will provide incentives to NPDES permittees who, by interlocal agreement, lead or carry out regional or watershed scale NPDES implementation.
Stormwater Retrofit Projects.	Lead a process to identify high priority retrofit projects and complete conceptual design to a stage sufficient to seek project implementation funding.
Watershed Based Stormwater Management.	Commission an evaluation of the feasibility, cost, and effectiveness of transitioning the existing municipal stormwater permit approach to watershed- based municipal stormwater management.
Stormwater Management Outside Permitted Areas.	Identify two high priority shellfish growing areas degraded by urban stormwater discharges and work with local governments and other key parties to reduce these impacts to the areas.
Fish Consumption Rates and Sediment Management Standards.	Establish accurate default fish consumption rates and complete the rulemaking processes for Sediment Management Standards.
Compliance Assurance Program.	Increase inspection, technical assistance, and enforcement programs for high-priority businesses and at construction sites.
Phase 2 of Puget Sound Starts Here.	Implement Phase 2 of the Puget Sound Starts Here campaign.
LID Training and Certification.	Provide focused training for local government staff on LID project review, and inspections and approvals, as well as to local government staff and private sector on maintenance. Develop new professional certification for stormwater maintenance specialists and provide business staff and contractors with training on source control, spill recognition, spill response, and erosion control.
Education for the next Generation of Stormwater Professionals.	Develop a near-term plan to provide a sustainable water resource management academic curriculum in all Puget Sound counties for future stormwater professionals.

Source: PSP 2012-2013 Action Agenda. See Action Agenda for more detail on actions.

It is important to emphasize that these are not the only actions that will be needed to manage urban stormwater runoff and, as such, they represent only the initial, priority efforts required to achieving the corresponding 2020 Recovery Goals. There are potentially many additional elements of program implementation which have yet to be fully described.

Appropriate stormwater control strategies are context-specific, and Puget Sound sees the full range of treatment strategies, from combined systems with sewers for wastewater treatment, separated systems with varying levels of treatment, and emerging strategies employing natural systems and infiltration via green stormwater infrastructure.

Stormwater is primarily managed under the National Pollutant Discharge Elimination System (NPDES) permitting program and development codes. Some areas of existing development are gradually becoming covered under NPDES permit terms, or via stormwater code-compliance with new development and re-development.

Consequently the overall costs of NPDES and code compliance are increasing. However, there are major sources of stormwater pollution due

to existing development that pre-dated stormwater codes and are unlikely to be addressed in the foreseeable future. These areas of existing development are targets for retrofitting stormwater control and treatment. Given the high and increasing costs of NPDES compliance, it is unreliable to plan on a business-as-usual approach to address these areas.

NPDES overlap with Stormwater Strategic Initiative

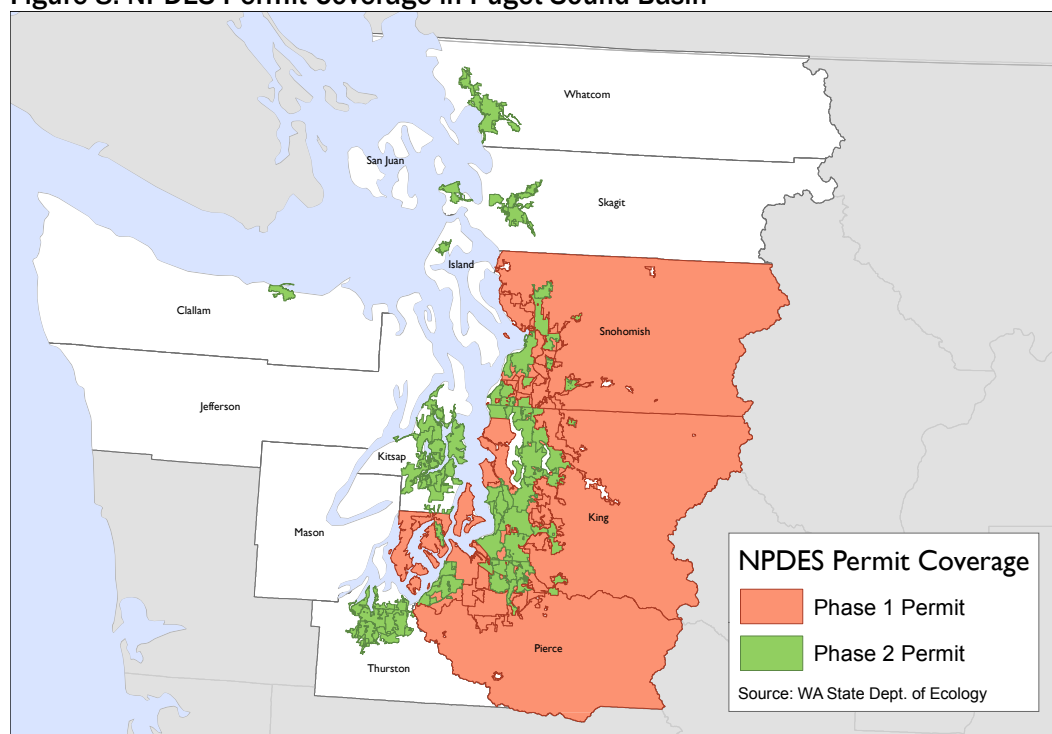
Primary sub-strategies:

- Watershed-based stormwater management
- Prevent problems from new development
- Fix existing problems
- Control sources of pollution
- Education and training

NPDES Permit Compliance

Stormwater runoff is regulated by local, state, and federal statutes. The most important among these is the federal Clean Water Act (CWA, 1972). One of the primary mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program. The NPDES stormwater permitting program regulates three types of activities: (1) Industrial activities; (2) Municipal Separate Storm Sewer Systems ('MS4s'); and (3) Construction activities. In Washington State, the Department of Ecology (Ecology) has been delegated authority from the U.S Environmental Protection Agency (EPA) to administer the NPDES permit program. Municipal stormwater permits are the most important tool to reduce the volume of stormwater-borne pollutants entering Puget Sound.

Figure 8. NPDES Permit Coverage in Puget Sound Basin



NPDES permitting requirements were phased on over time. Phase I (implemented in 1990) included medium and large municipalities (both incorporated cities and unincorporated counties); municipalities with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium" municipalities. Phase I municipal permittees in the Puget Sound basin are King, Pierce, and Snohomish Counties, as well as the Cities of Tacoma and Seattle. Other public entities that own and operate stormwater systems located within these municipalities, such as the Washington State Department of Transportation

and the Ports of Seattle and Tacoma, are also required to be covered under the permit.⁸

Phase II stormwater regulations, implemented by Ecology in 2007, extended coverage of the NPDES program to certain “small” municipal separate stormwater sewer systems (MS4s).⁹ These include urbanized areas and their adjacent urban fringe areas that together have a population of at least 50,000 and a population density of at least 1,000 people per square mile. Small MS4s covered by a Phase II Permit can also include areas outside an urbanized area if the MS4 discharges cause, or have the potential to cause, adverse effects on water quality. These areas must also have a population of at least 10,000, and a population density of at least 1,000 people per square mile. There are 76 Phase II cities and counties in the Puget Sound basin.¹⁰

NPDES permits require municipalities to provide and fund programs and actions to ensure that all practical efforts are being made to protect water quality. The required programs are:

- Public Education & Outreach.
- Public Involvement and Participation
- Illicit Discharge Detection & Elimination.
- Pollution Prevention, Good Housekeeping.
- Municipal Operations and Maintenance.
- Control Runoff from New Development, Redevelopment and Construction Sites.
- Monitoring and Assessment.
- Structural Stormwater Controls (**Phase I only**).

CSO Outfalls in Puget Sound

Community	# Outfalls
Bellingham	2
Bremerton	15
Everett	13
King County- West Point Treatment Service Area	34
LOTT (Olympia)	1
Mount Vernon	2
Port Angeles	4
Seattle Public Utilities – City of Seattle	92
Snohomish	2

Source: WA Ecology. Combined Sewer Overflows.
<http://www.ecy.wa.gov/programs/wq/permits/cso.html>

⁸ Phase I Municipal Stormwater Permit, 2013.

⁹ Phase I regulations are more comprehensive than Phase II regulations. The most recent permit has brought the Phase II permits closer to the Phase I requirements. For example, the requirements that apply to development and redevelopment are now identical in both permits, and both now require Low Impact Development (LID) wherever feasible. Phase II requirements are still lower in categories like source control, structural retrofits, inspection requirements, watershed scale planning, and education/outreach.

¹⁰ Western Washington Phase II Municipal Stormwater Permit, 2013

- Source Control Program for Existing Development (**Phase I only**).

The comprehensive scope of these activities overlaps considerably with the most important aspects of the Stormwater Strategic Initiative (see list). The municipal stormwater control costs can be associated with costs to address combined sewer overflows for communities in Puget Sound with combined systems and CSO outfalls.

Under the Clean Water Act {section 303(d)}, surface waters are identified (typically by states) as impaired if they do not meet water quality standards. These impaired waters systematically by priority receive designation of Total Maximum Daily Load (TMDL) for acceptable levels of pollutants to achieve the water quality standards. As TMDLs are defined, the restrictions can be incorporated into NPDES permits, contributing to increasing stormwater quality improvements and control costs over time. Ecology currently identifies 501 rivers and streams, 129 lakes, as well as various areas of Puget Sound in need of TMDLs.¹¹ Updated fish consumption rates will likely contribute to more strict water quality standards, which carries into more strict TMDLs.

Connection to other Strategic Initiatives

Declines in water quality caused by stormwater runoff have far reaching consequences for the health of the Puget Sound ecosystem. Stormwater pollution contributes to degradation that affects salmon population health and similar ecological conditions.¹² Shellfish harvest restrictions are typically associated with stormwater runoff events. Stormwater effects Puget Sound conditions and recovery efforts both downstream and upstream when considering spawning effects.

Stormwater Retrofits

While the Clean Water Act requires municipalities to take steps to manage and mitigate runoff from urban areas, current regulations do not necessarily or sufficiently address runoff

Retrofits and the Stormwater Strategic Initiative

Primary sub-strategies:

- Watershed-based stormwater management
- Prevent problems from new development
- **Fix existing problems**
- Control sources of pollution
- Education and training

¹¹ Puget Sound Partnership. 2014/2015 Action Agenda.

¹² Booth, D.B., Karr, J.R., Schauman, S., Konrad, C.P., Morley, S.A., Larson, M.G., Burges, S.J., 2004. Reviving urban streams: land use, hydrology, biology, and human behavior. *Journal of the American Water Resources Association* 40 (5), 1351–1364.

from previously developed areas. Accordingly, this task has been identified as being one of the key problems under the Stormwater Strategic Initiative.

Due to the nature of the regulations that were in place during the mid to late 20th century (prior to Ecology's 1992 Stormwater Management Manual for Western Washington), when the majority of development occurred in the Puget Sound Basin, much of the existing stormwater infrastructure is inadequate and undersized relative to current standards.¹³

Options for managing runoff from existing areas usually involve a suite of techniques that expand beyond the more traditional, structural "gray-infrastructure" solutions of augmenting existing cement and pipe systems that capture, concentrate, and convey rainwater away from where it falls. The best management practices (BMPs) for retrofits are inserted in an urban landscape where little or no prior stormwater controls exist. These techniques include green infrastructure and low impact development practices that manage stormwater onsite through installation of ponds, bio-swales, green roofs, parks, roadside plantings, and other mechanisms that mimic natural hydrologic processes, such as absorption and infiltration into soil. It can also include street sweeping. The flexibility and multiple-benefit characteristics of green infrastructure approaches make them particularly attractive in Puget Sound, and are a core component of stormwater management for the major stormwater managers in Puget Sound.

In some cases existing stormwater infrastructure does exist, but it is inadequate or improperly maintained. In such cases removal of legacy pollutant loads that have built up within the system, or even improved operation and maintenance techniques, can be the most appropriate efforts to address stormwater problems.

NPDES Permits and Retrofit Overlap

NPDES permits do address retrofit requirements, but there is little action explicitly required. Phase I permittees are required to have a retrofit plan, but the plan details vary across permits, and permittees can propose specific compliance terms. Phase II permittees do not generally have retrofit requirements as part of the permit.

New development and redevelopment must abide by stormwater codes in Ecology's *Stormwater Management Manual for Western Washington* (2012 latest

¹³ Washington State Department of Ecology 2005, Stormwater Management Manual for Western Washington Ecology.

edition).¹⁴ By these means, areas without stormwater management come under coverage. Rates of redevelopment in the basin are typically on average 1 to 2 percent per year, although some areas are higher and redevelop relatively frequently, while others are unlikely to redevelop in the foreseeable future. Small public and private projects might not pass thresholds of total area of new impervious surface necessary to trigger code requirements.¹⁵

So public and private restoration, reconstruction, and redevelopment might address a share of existing retrofit needs, but it is unlikely to address all. Redevelopment targets are not chosen for water quality needs, so it is uncertain that the most important targets for retrofit will tend to be addressed.

Also, there are categories of actions that can have real benefits for stormwater pollution control, but might not be completely addressed to an efficient level by permit requirements. For example, street sweeping and removal of sediment build up (legacy loads) from conveyance systems can have real benefits per dollar spent in comparison to new treatment facility construction, but levels of permit requirements vary.

Under optimal conditions, stormwater control dollars would always be spent on the next most (marginally) efficient target, meaning where each dollar removes the most pollutant among all still available. NPDES permits and stormwater codes generally target these objectives, but within regulatory and practical constraints. Efforts to increase flexibility for regulatory compliance are typically motivated by this objective.

2.3 Shellfish

The focus of the Shellfish Recovery Strategic Initiative is to restore the ability to harvest shellfish from beds that are currently closed due to pollution. The 2012-2013 Action Agenda identifies a 2020 goal to increase harvestable shellfish beds by 10,800 acres, with 7,000 acres from areas currently closed to harvest. Pollution of shellfish beds is a fairly widespread problem, affecting around 20% of all shellfish beds in the Puget Sound basin. The anthropogenic contribution of pollution of shellfish beds is primarily related to land use in upstream watersheds, and particularly the design and operation of septic systems and livestock management practices.

¹⁴ WA Ecology. 2012. *Stormwater Management Manual for Western Washington*. <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>

¹⁵ Bissonette and Parametrix. 2010. *Urban Stormwater Runoff Preliminary Needs Assessment Technical Memorandum*.

Figure 9. Classified Shellfish Harvest Areas



Source: PSP and Washington Department of Health, Office of Shellfish and Water Protection

Puget Sound has long been one of the nation's leading areas for the production of commercial oysters, clams, and mussels, and the commercial shellfish industry has been a mainstay of local economies around the Sound since the late 1800s. Several Puget Sound counties rank in the top ten nationally for the value of commercial shellfish harvest.

Shellfish beds are also actively used by Puget Sound tribes to support commercial and subsistence fisheries. Shellfish have historically been an important food source for Puget Sound tribes and the tribes are guaranteed

access to commercial and private shellfish beds by treaty. Shellfish beds in the Puget Sound also support recreational fisheries.

Shellfish are filter feeders, drawing water through their digestive systems to collect nutrients and organisms. This trait makes them particularly vulnerable to pollution, as any contaminants in their water source will concentrate in their digestive systems. When contaminated shellfish are eaten by humans, pollutants can be passed on to the consumer. Because of this hazard, state and local departments of health regulate shellfish harvest to prevent contaminated shellfish from entering the food stream. Commercial shellfish beds are frequently monitored to ensure that they are safe to harvest for human consumption. In recent years, closures of shellfish harvests due to contamination have been fairly common around Puget Sound (Figure 9).

Across Puget Sound, there are an estimated 190,000 acres of classified commercial and recreational shellfish beds. According to the DOH, about 36,000 acres – approximately 19 percent – are closed due to pollution sources. Table 6, adapted from the 2013 Pathogen Grant Work Plan identifies restoration potential of 26 growing areas around Puget Sound and indicates that there are three principal reasons that shellfish beds are restricted from harvest:¹⁶

- **Nonpoint pollution**, including stormwater and pathogenic pollutants from on-site sewer systems (OSS), livestock wastes, or a combination of the two;
- **Wastewater treatment plants** that are discharging partially treated sewage that contains pathogens; and
- **Marinas** that discharge pathogens from shore-side restrooms and illicit sewage discharges from boats.

It is not uncommon for more than one of these factors to be present in a shellfish area.

¹⁶ Conversations with DOH staff indicate that this table is the basis for the 10,800-acre objective, although the restoration potential in the DOH table sums to 8,139 acres.

Table 6. 2020 Restoration Potential and Current Status for Puget Sound Shellfish Growing Areas

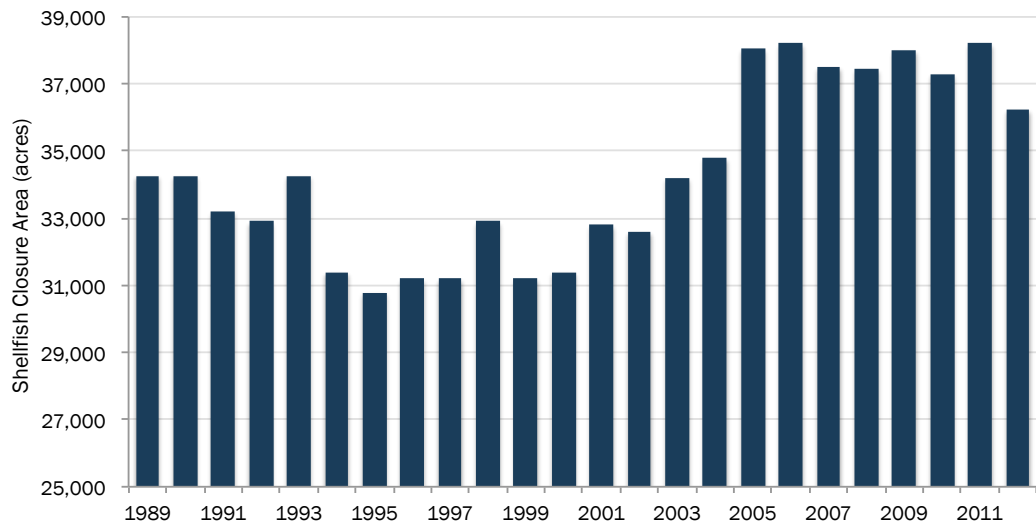
County	Growing Area	2020 Restoration Potential (acres)			Reasons for Restriction		
		Conditionally Approved	Restricted	Prohibited	Nonpoint	WWTP	Marina
Clallam	Dungeness Bay			100	X		
Clallam	East Straits			21		X	
Island	Port Susan			150		X	X
Island	SW Whidbey Island			300	X		X
Island	Holmes Harbor			100	X		
King	East Passage			217	X		
King	Quartermaster Hbr			417	X		X
Kitsap	Kingston			180		X	
Kitsap	Port Gamble			87		X	
Kitsap	Port Madison			57	X	X	
Kitsap	Port Madison			272	X	X	
Kitsap	Port Orchard Passage			125	X	X	X
Kitsap	Liberty Bay/Lemolo			400	X		X
Mason	North Bay			50	X		
Mason	Oakland Bay	190				X	
Pierce	Henderson Bay		24		X		
Pierce	Ketron Island			150		X	
Pierce	Ketron Island			208		X	
Skagit	Samish Bay	2,150			X		
Skagit	Samish Bay	1,887			X		
Skagit	Padilla Bay	151			X		
Snohomish	Possession Sound			300		X	
Thurston	Nisqually Reach			75	X		X
Whatcom	Birch Bay			128	X	X	X
Whatcom	Drayton Harbor			150	X	X	X
Whatcom	Drayton Harbor	250			X	X	X
Totals		4,628	24	3,487	18 of 26	14 of 26	9 of 26

Source: Washington State Department of Health

The DOH periodically reviews classifications and can upgrade or downgrade areas based on changed circumstances. In 2011, the DOH upgraded the classification of 697 acres in five commercial shellfish areas. Over the same time period, 4,960 acres were downgraded in two areas. Poor water quality in the Samish Bay and Pacific Coast growing areas resulted in significant classification downgrades.

Over the past 30 years, DOH has downgraded the classification of about 56,000 acres and upgraded the classification of about 46,000 acres. Most of the downgrades took place between 1981 and 1995, when 45,000 acres were downgraded and 7,000 acres were upgraded. Since 1995, Health has downgraded 11,000 acres while upgrading 40,000 acres.

Table 6 is a selected list of sites in Puget Sound with restoration potential rather than a comprehensive list of growing areas with pollution-related restrictions, which would be far more extensive. This analysis was used to identify restoration targets in the 2012-13 Action Agenda.

Figure 10. Area of Shellfish Beaches Closed for Harvesting in Puget Sound Since 1989

Source: U.S. EPA

DOH also lists shellfish beds that are threatened with downgrade each year. In 2011 seven areas in Puget Sound were threatened with a downgrade in classification: Burley Lagoon, Dyes Inlet, Filucy Bay, Padilla Bay, Pickering Passage, Port Townsend Bay, and South Skagit Bay.

2.3.1 Action Agenda Strategies for Achieving Restoration of Shellfish Beds

Even with significant downgrades in 2011, in recent years efforts of state and local government, tribes, private landowners, and shellfish growers have resulted in a net increase of about 1,400 acres of shellfish areas reopened for harvest due to pollution control. Strategies and actions in the 2012-2013 Action Agenda are focused on capitalizing on the lessons learned from these experiences and increasing this trend.¹⁷

The solutions that have traditionally been adopted to reopen shellfish beds include:

¹⁷ Summarizing the overall trend in closures as 'neutral', the U.S. EPA stated: "Since our last report in 2005, over 3,800 acres of previously closed shellfish beds in Puget Sound have been upgraded or re-opened due to improvements in water quality. However, there's been an overall increase in the number of acres of shellfish beds that are prohibited or restricted from harvesting. This increasing trend may be due partly to increased water quality monitoring." <http://www2.epa.gov/salish-sea/shellfish-harvesting>

1. Intensive studies of potential pollution sources in affected watersheds (via Pollution Identification and Correction, or 'PIC', programs);
2. Promotion and funding of subsidized loan programs for septic system improvements;
3. Promotion and funding of livestock best management practices (BMPs), when livestock are a pollution source;
4. Education related to septic system and livestock management; and
5. Intensive monitoring to ensure that the measures are effective and shellfish beds are restored to a harvestable condition.

The PIC studies, loan program for septic systems (also known as on-site sewage or OSS systems), and monitoring programs are traditionally provided by county health districts with partial funding provided by state and federal grants. The agricultural BMPs are generally offered through local conservation districts.

The 2012-2013 Action Agenda proposes a similar program for the near-term, with proposed actions to:

Prevent Pollution through Incentives

- Sub-Strategy C 5.3: Improve and expand funding for on-site sewage systems and local OSS programs.
 - C 5.3 NTA 1: Regional OSS Homeowner Loan Program
 - C 5.3 NTA 2: Regional OSS Program Funding Source

Prevent Pollution through Existing Regulations and Programs

- Sub-Strategy B 3.1: Protect intact marine ecosystems particularly in sensitive areas and for sensitive species.
 - B 3.1 NTA 2: Outfall Strategy on State-Owned Aquatic Lands
- Sub-Strategy C 1.5: Control wastewater and other sources of pollution such as oil and toxics from boats and vessels.
 - C 1.5 NTA 1: No Discharge Zone Evaluation and Petition
- Sub-Strategy C 1.6: Implement and strengthen authorities and programs to prevent toxic chemicals from entering the Puget Sound environment.
 - C 1.6 NTA 3: Water Quality Enforcement
- Sub-Strategy C 3.2: Ensure compliance with regulatory programs designed to reduce, control, or eliminate pollution from working farms.
 - C 3.2 NTA 1: Priority Areas for Voluntary Incentive and Regulatory Programs
- Sub-Strategy C 7.1: Improve water quality to prevent downgrade and achieve upgrades of important current tribal, commercial and recreational shellfish harvesting areas.
 - C 7.1 NTA 3: Pollution Control Action Team

- Sub-Strategy C 9.4: Develop and implement local and tribal pollution identification and correction programs.
 - C 9.4 NTA 1: Pollution Identification and Correction Programs

Encourage Beneficial Use

- Sub-Strategy C 7.3: Ensure environmentally responsible shellfish aquaculture based on sound science.
 - C 7.3 NTA 3: Shellfish Model Permitting Program

Part of the local contribution to these efforts is the state-mandated identification of Marine Recovery Areas.¹⁸ The long-term actions to achieve the 2020 goal are assumed to flow from these near-term actions, but are not fully described.

¹⁸ WA Department of Health, 2006. *Marine Recovery Area Guidance: Supplemental to the On-Site Sewage System Management Plan Guidance for the Twelve Puget Sound Counties*.
<http://www.doh.wa.gov/Portals/1/Documents/Pubs/337-085.pdf>

3 Costs of the Strategic Initiatives

In this section we summarize the best available information on costs for the Strategic Initiatives. We provide the costs for identified NTAs from the 2012-2013 Action Agenda to provide the current snapshot of project diversity, but focus on the complete set of long term costs necessary to achieve success for each Initiative. This includes both public and private costs. The core priority program areas for each Initiative define the costs for the funding strategy and funding gaps summarized later in Section 5. The core priority areas have consensus concerning their importance, and a level of effort that generally demands increased funding and implementation over decades. Cost data for the NTAs are relatively well-defined and bring high confidence. But moving out into the long-term set of needs and their costs brings challenges with major data gaps. In this report, we triangulate using the NTAs, the strategies and sub-strategies associated with each Strategic Initiative, and the available studies, to build a picture of the needs and costs over time. Hopefully ongoing and future efforts will continue to improve these need and cost details over the long term.

3.1 Habitat

3.1.1 Near Term Action Costs

Cost estimates for NTAs are included in Appendix A of *State of the Sound 2013*. Financial estimates of the costs and existing funding for each Action were provided by NTA owners (i.e. the entities primarily responsible for implementing the Actions). The \$405 million in habitat-related NTAs generally include costs that are or would be incurred by partner entities. It is important to note that the estimate does not report ongoing costs and, in some cases, owners were unable to estimate total costs for particular actions due to the difficulty of projecting future costs. The update process for the Action Agenda continues to identify additional local projects for inclusion in the habitat-related NTAs.

As Table 7 indicates, the largest cost component of the NTAs for the Habitat Strategic Initiative is for implementation of the three-year recovery plans, at more than \$360 million for the three-year 2013-2015 period (per Appendix A of the 2013 *State of the Sound* report).

Table 7. Three Year (2013-2015) Costs of NTAs Associated with the Habitat Strategic Initiative

Action Number	Description	Total Cost
A1.2.1	Land Use Planning Barriers, BMPs and Example Policies	\$30,000
A1.3.1	Address Regulatory Exemptions	\$30,000
A4.2	Provide for growth (All NTAs)	\$-
A5.1.1	Floodplain Protection and Policy Team Actions	\$877,000
A5.3.4	Levee Vegetation	\$2,708,000
A6.1	Implement Salmon Recovery 3-year Workplans (All NTAs)	\$384,524,000
A6.1.1	Secure Annual Chinook Investment	\$360,364,000
A6.1.2	Restoration Permit Barriers	\$50,000
A6.1.3	BNSF Railroad Cooperative Agreement	\$265,000
A6.1.HC6	Hood Canal Salmon Recovery	\$664,000
A6.1.SJI9	San Juan County Lead Entity	\$2,116,000
A6.1.STRT1	Elwha River Ecosystem Recovery	\$2,687,000
A6.1.STRT2	Straits Salmon Recovery Plans	\$18,378,000
A6.1.WS9	West Sound SR3 Chico Creek Culvert Replacement	\$-
A7.1	Protect and Restore Stream Flows (All NTAs)	\$4,895,000
A7.1.1	Set Instream Flows in Priority Watersheds	\$1,500,000
A7.1.2	PEP Development and Implementation	\$-
A7.1.3	Water Code Compliance and Enforcement	\$1,395,000
A7.1.STRT6	Strait Instream Flow Rules	\$2,000,000
B1.2.1	Update Local Shoreline Master Program	\$9,272,000
B1.3.2	Hydraulic Code Rules Revision	\$225,000
B2.1.1	Protect 10% of Bluff-Backed Beaches	\$15,000
B2.2.1	Implementation of Projects Identified by PSNERP	\$1,565,000
B2.3.1	Homeowner Incentives for Landward Setbacks	\$48,000
B5.3.2	Invasive Species Early Detection and Monitoring	\$21,000
C8.1.2	Evaluate Risk Assessments for Update Needs	\$495,000
Total		\$404,705,000

Source: Puget Sound Partnership, State of the Sound 2013

3.1.2 Long Term Action Costs

Salmon Recovery Plans

The Puget Sound Recovery Plan (2005) calculated the costs of the habitat actions identified in 10 of the 14 watersheds in the region (for the ten-year period between 2006 to 2015) as being roughly \$1.1 billion, or \$120 million per year for the first ten years of implementation. The NOAA Fisheries Puget Sound Chinook Salmon Recovery Plan 2011 Implementation Status Assessment Final Report (2011), discussing the same information, reported that the majority of these costs

(roughly \$1.04 billion) were capital costs, corresponding to roughly 715 projects. Non-capital costs made up the difference (~ \$78 million), with 423 programs proposed for implementation in the 2010-13 recovery plan three-year work plans. Experts suggest that salmon recovery will require an ongoing effort at these levels or greater, so the roughly \$120 million per year cost is best considered an annual cost for the foreseeable future, rather than a set timeframe that will sunset at a certain date.

Funding for Salmon Recovery in Washington State (Evergreen Funding Consultants, 2011) compiled and analyzed costs of the habitat-related elements of salmon recovery at the regional level for the period 2010-2019. The cost estimates are based primarily on the regional recovery plans, and the report provides estimates of the costs associated with habitat restoration and protection, as well as the aligned, non-capital actions that are undertaken by the regional recovery organizations, watershed leaders, tribes, participating agencies and organizations, and landowners to fulfill commitments outlined in the regional recovery plans.¹⁹ The diverse range of watershed-specific actions in the regional plans are categorized into: capital costs (marine and estuary restoration, floodplain restoration, channel reconstruction, tributary restoration, fencing and riparian planting, land and easement acquisition, fish passage barrier retrofits, instream flow enhancements, and water quality improvements) and non-capital costs (program operations; monitoring, studies, and assessments; outreach and education; and development and enforcement of regulations).

Estimated costs (in 2010 dollars) for salmon recovery efforts (over the ten year planning horizon) in Puget Sound include \$1,695 million in capital costs (\$1,136 million for restoration, \$218 million for land and easement acquisition, \$161 million for passage barrier retrofits, \$50 million for instream flow enhancements, and \$129 million for water quality improvements) and \$266 million in non-capital costs (\$45 million for program operations; \$134 million for monitoring, studies, and assessments; \$43 million for outreach and education; and \$45 million for development of regulations).²⁰ These costs, when averaged over the ten year period, equate to \$196 million in annual costs. This is currently considered to be the most reliable ongoing annual cost estimate for the salmon recovery plans, but the set of identified project needs and their costs continue to increase. The latest set of submissions for salmon habitat project needs by local organizations in Puget Sound totals \$784 million, but this estimate is still in review and does not

¹⁹ Due to lack of data availability, costs related to hatchery and harvest improvements were not included in these cost estimates.

²⁰ This estimate includes Hood Canal, which was considered separately in the ECF 2011 report.

correspond to a specific timeframe.²¹ It is best to consider the \$196 million in annual cost estimate representative and indicative of the appropriate order of magnitude for costs moving forward.

Floodplains

Costs associated with floodplains protection primarily include the capital costs associated with acquisition and easements, and the cost of labor and materials required for restoration actions, such as such as levee removal and breaching. Other major costs include those to support program operations, annual property maintenance, and the planning and design studies that precede restoration and protection actions.

No previous studies have examined the costs of protecting floodplains at a basin wide scale in Puget Sound. The closest estimation is provided in *Funding for Salmon Recovery in Washington State* (Evergreen Funding Consultants, 2011), which compiled and analyzed costs of the habitat-related elements of the regional salmon recovery plans. The report estimates the costs associated with habitat restoration and protection, as well as the aligned, non-capital actions that are undertaken by the regional recovery organizations, watershed leaders, tribes, participating agencies and organizations, and landowners to fulfill commitments outlined in the regional recovery plans. The study categorized the capital costs of habitat restoration by habitat type/activity (marine and estuary restoration, floodplain restoration, channel reconstruction, tributary restoration, fencing and riparian planting, land and easement acquisition, fish passage barrier retrofits, instream flow enhancements, and water quality improvements) and non-capital costs (program operations; monitoring, studies, and assessments; outreach and education; and development and enforcement of regulations).

The floodplain specific estimate (~\$472 million, in 2010 dollars) was the largest single cost component in the habitat restoration category, making up about 40% of all ten-year restoration costs. This figure (which only includes restoration costs) equates to \$142 million over a three-year timeframe, \$283 million over six years (by 2020), and \$47 million as an annual average, ongoing estimate. While floodplain-specific cost breakdowns were not reported categories, applying the same percentage from similar projects to these categories may provide a rough estimate:

- Land and Easement Acquisition: ~\$90 million total (3-year: \$27 million, six-year: \$54 million, \$9 million average annual/ongoing)

²¹ Macilroy, C. 2014. Personal communication concerning analysis of cost data provided by Puget Sound Partnership.

- Non-Capital Costs (program operations; monitoring, studies, and assessments; outreach and education; and development and enforcement of regulations): ~\$111 million total (3-year: \$33 million, six-year: \$66 million, \$11 million average annual/ongoing)

Estimating Long Term Floodplain Restoration Costs

In this section, we attempt to provide a rough estimate of the long-term floodplain restoration total costs. Individual project-level costs can vary based on several factors, particularly concerning the current intensity of use which affects both land acquisition (or opportunity) costs as well as restoration costs. A study detailing the costs of Puget Sound salmon habitat projects, *Primer on Habitat Restoration Costs*²², identified floodplain restoration costs as ranging from \$10,000 to \$300,000 per acre. Opportunistic efforts timed with other floodplain investments might lower the marginal costs considerably in developed areas. Results of a King County levee setback study along the lower Green River between Kent and Tukwila found marginal restoration costs in the \$10s to \$100s of thousands per acre, even with acquisition and conversion costs for commercial land, if levee reconstruction would already be occurring.²³

‘Coordinated Investment for Puget Sound Floodplains’ is a floodplain protection initiative by Department of Ecology that identifies high priority floodplain restoration projects and attempts to align the multiple entities and funding sources working for floodplain restoration in Puget Sound. The initiatives’ most recent capital request (2013-2015) amounted to \$33 million for 9 projects.

The 2013-initiated ‘Floodplains by Design’ program, a collaboration between Department of Ecology, the Puget Sound Partnership, the Nature Conservancy and other agencies and organizations, aims to implement floodplain projects that generate multiple-benefits, including habitat, across Washington State. Of identified and funded projects for the initial round of funding, \$33 million was allocated for Puget Sound projects.²⁴ This state contribution is matched by other funding sources in all cases, indicative of the overall multi-benefit approach at the core of the program. It is unclear as to the share of matching contributions that contribute to habitat function, but it is arguable that the habitat benefits

²² Evergreen Funding Consultants, 2003.

²³ Currently unpublished study but soon to be released for the stretch of the Green River from 180th to 200th Streets near Briscoe Park. King County with permission to cite.

²⁴ Department of Ecology. 2014.
<http://www.ecy.wa.gov/programs/sea/floods/floodplainsByDesign.html>

would not be achievable without the generation of other necessary benefit types, like structural flood protection and flow control.

In the absence of any existing analysis to estimate the total long-term floodplain restoration needs for Puget Sound, we used the information in Table 8 from the Puget Sound Vital Signs on Floodplains to develop a rough estimate of the potential cost associated with comprehensive floodplain restoration. It identifies, based on spatial analyses, the share of disconnected floodplain that could potentially be restored, based on hydrologic conditions.

Table 8. Floodplain Restoration Needs in Puget Sound

Floodplain Area	Sq Km	Acres	Percent of Total Floodplain Area	Percent of Disconnected Floodplain Area
Total	1,500	370,658	100%	-
Currently Connected	950	234,750	63%	-
Disconnected	550	135,907	37%	100%
Urban	75	18,532	5%	14%
Non-urban	475	117,375	32%	86%

Source: Based on data from PSP Floodplains Vital Signs

Based on previous analyses of land cover and zoning in Puget Sound floodplains (in Whatcom County and the Stillaguamish watershed), floodplains are primarily zoned as agricultural land (60-75%). Urbanized portions comprise roughly 10-20%, and the remainder is composed of timber/forestry lands and regional open space. The percentage urban area aligns with the Puget Sound-wide estimate reported in the vital signs report. Based on the non-urban land use estimates provided for the watersheds, we can assume that roughly 67.5% is in agricultural use, and the remaining 18.9% in open space (within the 86% non-urban, disconnected floodplain area).

Acreage of floodplain to be restored is potentially a misleading metric, as it may not relate linearly to total cost. The amount of levee removal and active channel modification appears to drive project costs. Typically, restoration projects target a small portion of a river or bank, which through modification, then reconnects a certain acreage of floodplain.

Based on analysis of PSAR floodplain projects, projects identified by the 'Coordinated Investment for Puget Sound Floodplains' initiative, and projects summarized in the "Primer on Habitat Restoration Costs" (Evergreen Funding Consultants, 2003), we identified a range of floodplain restoration costs per acre

that correspond to general land use categories.²⁵ To produce a coarse, conceptual estimate of the costs of restoring the 135,907 acres of disconnected floodplain identified above, we apply a distribution to this acreage across a spectrum of low to high development, based on the broad land use percentages reported above. To account for the highest costs for levee setback projects in heavily urbanized areas, we use a \$200,000-300,000/acre high-cost (based on the cost estimates described earlier), and the known urban acreage (18,532 acres).

Cost estimates based on this breakdown are likely not realistic in for 100 percent of the floodplain, as complete floodplain restoration would likely be infeasible due to existing uses, or costs would dramatically increase as approaching full restoration. They do provide a ballpark estimate for order of magnitude and considering a portion of the whole, likely in the billions to tens of billions of dollars for the basin as a whole (Table 9).

Table 9. Estimates of Potential Floodplain Restoration Costs (Millions)

Development Context	Least Urbanized (open space)		→	Agricultural Land/Low Density Residential		→	Most Urbanized	
Cost/Acre	\$1,304	\$15,953	\$41,840	\$67,726	\$126,921	\$186,116	\$200,000	\$300,000
Acreage Allocation	12,819	12,819	22,934	22,934	22,934	22,934	9,266	9,266
Cost (Millions)	\$17	\$205	\$960	\$1,553	\$2,911	\$4,268	\$1,853	\$2,780
							Total Acreage Restored	135,907
							Total Cost	\$14,546

Sources: WA RCO Prism Database; Evergreen Funding Consultants. 2003. A Primer on Habitat Project Costs. Puget Sound Shared Strategy. King County levee setback studies.

The 2020 target of 15% restoration of degraded floodplains corresponds to 20,386 acres restored over the next six years. If we apply this acreage equally across the set of costs in Table 9, this would cost roughly \$2.4 billion dollars. While unrelated directly, the total set of floodplain capital improvement projects identified by floodplain managers in Puget Sound as part of the Floodplains by Design for flood risk reduction totals \$2.2 billion. While these flood risk reduction investments do not directly correspond to habitat investments in floodplains, they do represent an opportunity for multi-purposing dollars spent in floodplains.

These long term costs are generally consistent with the level of annual funding targeted by the Floodplains by Design program. Annual funding needs are

²⁵ These costs mainly reflect direct restoration costs, but it may also include acquisition-related costs as there is a reasonable likelihood they've been lumped together in some project cost estimates. It is also unclear how much administration and planning cost is included.

dictated largely by identifiable and implementable projects, and include local and other forms of match. \$50 to 70 million annually provides a generally-consistent target, although the share of this cost most appropriately owned by the state is unclear.

Culverts

Table 10. Puget Sound Basin Culvert Retrofit Costs (Total in Millions)

Owner	Number of culverts	Average cost per culvert	Total Cost
Private	3,207	\$80,000	\$257
County	2,036	\$295,000	\$601
State	1,221	\$3,000,000	\$3,663
City	908	\$800,000	\$726
Federal	181	\$15,000	\$3
Unknown	147	\$288,000	\$42
Tribal	27	\$500,000	\$14
Other	12	\$288,000	\$3
Port	10	\$288,000	\$3
Special District	4	\$288,000	\$1
Total	7,753		\$5,313

Sources: WA RCO PRISM Database; WSDOT, 2014. Accelerating Fish Barrier Correction: New Requirements for WSDOT Culverts; Evergreen Funding Consultants. 2003. A Primer on Habitat Project Costs. Puget Sound Shared Strategy.

WSDOT has identified \$2.4 billion in costs for their culverts requiring retrofit, which, in order to meet an objective of completion by 2030, would equate to \$310 million per biennium. Applying a number of cost sources based on culvert type, we estimate the overall costs for all culverts identified in the RCO PRISM database at \$5.3 billion (Table 10). Costs are primarily based on actual project cost estimates from the PRISM database, which identifies culvert owner and project cost for implemented and designed retrofits. While the count of culverts requiring attention is a majority non-state ownership, the most expensive and difficult to finance culverts are generally state-owned. Combined with court mandate, this information suggests prioritization of increased funding effort for WSDOT state-owned culverts. While the database is incomplete, interviews with experts at multiple agencies suggest the share of undocumented culverts is low. So it is unlikely that costs would be substantially greater than this estimate. Federal per-culvert costs are low because these are primarily forest roads with minor structural requirements for retrofit. These cost estimates are preliminary, and agencies including WDFW are in the process of developing more accurate cost estimates.

3.2 Stormwater

3.2.1 Stormwater Near Term Action Costs

Table 11 below shows the costs of the stormwater NTAs, per Appendix A of the 2013 State of the Sound report.

Table 11. Three Year Costs of NTAs Associated with the Stormwater Strategic Initiative

Action Number	Description	Total Cost
C1.1.3	Fish Consumption Rates	\$1,110,000
C2.1.1	Watershed Based Stormwater Management	\$46,000
C2.2.1	NPDES Municipal Permits	\$1,974,000
C2.2.3	Stormwater Management Outside Permitted Areas	\$224,000
C2.3.1	Stormwater Retrofit Projects	\$14,828,000
C2.4.1	Compliance Assurance Program	\$391,000
C2.5.1	LID Training and Certification	\$1,938,000
C2.5.2	Education for the Next Generation of Stormwater Professionals	\$5,700,000
D6.1.1	Phase 2 of Puget Sound Starts Here	\$1,280,000
Total		\$27,491,000

Source: PSP, State of the Sound 2013

While a \$27 million program over three years is not insignificant, it is a small fraction of what is widely assumed to be a multi-billion dollar cost in the long run.

3.2.2 Stormwater Long Term Cost Estimates

Current Public Costs

The most identifiable and well-documented costs of preventing urban stormwater runoff are associated with efforts by WSDOT, Ecology, and local municipalities, as presented in Table 12. Cost estimates are presented as three-year costs, six-year costs (inclusive of the initial three-year costs), and an average annual cost for years seven and onward. In general, these cost estimates are based on the sources identified in the table, with costs beyond the initial three years including all potentially ongoing cost categories. The costs for municipalities cannot be fully decomposed into all of their program elements. The smaller Phase II communities face particular challenges in sufficiently funding these regulatory compliance mandates.

NPDES Compliance Costs

NPDES compliance costs span the gamut of stormwater pollution control costs, including planning and implementation. The suite and distribution of these costs

vary by permit holder and are driven by permit requirements as defined by Department of Ecology. The costs associated with the stormwater management activities required by the NPDES municipal permits generally fall into three main conceptual categories:

- **Non-capital, one time costs**, such as those associated with studies, planning and pre-implementation assessments.
- **Capital costs** are those associated with structural solutions such as the installation of stormwater treatment facilities (which can include land acquisition). Capital can require periodic replacement.
- **Non-Capital, ongoing costs** which are the costs of ongoing program operations and maintenance as well as repair.

Given that stormwater systems are owned and operated by public entities, the vast majority of costs within each of these categories accrue to public entities. These include:

- **Local governments** (cities and counties, as well as secondary permittees, like ports)
- **Washington Department of Transportation** (also a secondary permittee)
- **Washington Department of Ecology**
- **Private entities** (costs associated with development)

Information regarding the costs of NPDES permit compliance (Table 12) includes the following sources:

Bissonette 2010

A 2010 report titled *Urban Stormwater Runoff Preliminary Needs Assessment Technical Memorandum*, prepared by Bissonette Environmental Solutions and Parametrix represents the most complete assessment of the financial investment required to reduce stormwater pollutant degradation of Puget Sound that has been completed to date. The report develops rough estimates of the costs of compliance with NPDES permits incurred by Puget Sound permittees for the five-year period 2012-16. In addition to estimates of total compliance costs, the report estimates the portion of the costs that go towards annual maintenance and operations, as well as the additional costs of implementing a comprehensive monitoring and compliance program. While total cost estimates are available, the Bissonette report did not provide specific estimates for several cost categories mandated by the NPDES permits.

Bissonette also provides estimates of the annual, ongoing costs to the Washington State Department of Ecology associated with the implementation and oversight of the NPDES permit program (the agency provides guidance, issues permits for municipalities, industries and construction sites and highway

runoff, and provides technical and financial assistance), and we have updated and adapted these estimates for use in the present analysis.

Table 12. NPDES Permit Compliance Costs (Public) Puget Sound

Cost Owner/Activity	Current Expenditures (Millions)			Source of Cost Information
	Near-Term (Three-Year)	2020 (Six-Year)	Average Annual	
Washington Department of Transportation	\$46	\$93	\$15	1
Permit Coordination	\$0	\$0	\$0	1
Stormwater Program Management and Oversight	\$0	\$1	\$0	1
Total Maximum Daily Load Management	\$0	\$1	\$0	1
Construction Site Pollution Prevention Management	\$0	\$1	\$0	1
Stormwater Features Inventory	\$2	\$4	\$1	1
Illicit Discharge Detection and Elimination	\$0	\$1	\$0	1
Monitoring and Research	\$3	\$5	\$1	1
Annual Reporting	\$0	\$1	\$0	1
Washington State Ferries	\$0	\$0	\$0	1
Highway and Facility Maintenance	\$38	\$75	\$13	1
Stand-alone Stormwater Retrofit	\$2	\$3	\$1	1
Highway Runoff Program	\$0	\$1	\$0	1
Washington State Department of Ecology	\$29	\$58	\$10	2
NPDES Permit Program Implementation	\$10	\$19	\$3	2
Stormwater Construction Permit Programs	\$12	\$25	\$4	2
Industrial Stormwater Permit Programs	\$7	\$14	\$2	2
Local Municipalities (Cities and Counties) - NPDES Program Compliance	\$785	\$1,570	\$300	2, 3, 4
Stormwater System Maintenance and Operations	\$315	\$630	\$105	2
Total	\$860	\$1,720	\$325	

Sources:

1 = WSDOT NPDES Municipal Stormwater Permit Annual Reports for Fiscal Years 2010-2011, and 2012- 2013

2 = Bissonnette Environmental Solutions and Parametrix. 2010. Final Review Draft- Task 1: Urban Stormwater Runoff Preliminary Needs Assessment Technical Memorandum.

3 = SAIC. 2012. Cost of Compliance Analysis for the 2013 - 2018 NPDES Municipal Stormwater Permit. Prepared for Pierce County, WA.

4 = Washington State Auditor's Office, Local Government Financial Report System; trends over time.

Notes:

All values reported in 2014 dollars.

Pierce County 2013 - 2018 NPDES Municipal Stormwater Permit Compliance Cost Report

Ecology has introduced a new round of NPDES permits since the Bissonnette report was produced, and compliance costs for all permittees have increased under the requirements of the new permits. To estimate the increase in costs, we reviewed the 2012 Study *Cost of Compliance Analysis for the 2013 - 2018 NPDES Municipal Stormwater Permit*, prepared by SAIC for Pierce County. This is the only existing source of information regarding the magnitude of the cost increases experienced by permittees under the new permit. Based on the categorical and percentage cost increases experienced by Pierce County, we updated the region-wide compliance figures presented in the Bissonnette Report.

WSDOT NPDES Municipal Stormwater Permit Annual Reports (2010-2013)

WSDOT must address stormwater discharges from facilities it owns or operates in areas covered by the Phase I and II permits. Statewide, WSDOT must meet compliance requirements discharges originating from about 1,600 miles of highways, 31 maintenance facilities, 11 ferry terminals, 11 rest areas, and 11 park and ride lots. We used cost information provided in WSDOT's NPDES Municipal Stormwater Permit Annual Reports for Fiscal Years 2010-2011, and 2012- 2013 to estimate the costs incurred.

NPDES permitting and compliance costs are dominated by local municipal compliance costs. It is difficult to separate out NPDES-specific surface water costs, but when considering the past studies described above as well as sampling individual jurisdiction budgets and the complete set of stormwater utility revenue within the basin as detailed in the Local Government Financial Report System, costs appear to be roughly \$300 million per year or greater moving forward. To the extent that the increasing costs are associated with reductions in stormwater pollution from existing problems, the costs can be deducted from retrofit need estimates in the next section.

Current WDOT and Ecology stormwater budgets specific to NPDES are an order of magnitude lower, although both organizations are increasingly identifying and targeting retrofit and maintenance needs, that might be considered permit or non-regulatory efforts.

Private Costs

Based on rates of new and redevelopment and costs for code compliance, private costs (beyond stormwater fee payments) are likely roughly

Table 13. Kitsap County Stormwater Cost Shares

O&M	33%
Structural	18%
Program Admin	19%
Source Control	14%
New and Redevelopment	5%
Public Outreach, Education, and Involvement	6%
Stormwater Monitoring	4%
Research and Assessment	1%

Source: Kitsap County.¹

\$100 million annually, although the actual range could be \$50 to \$150 million.²⁶ These estimates are based primarily on the WRIA 9 Retrofit Study described in

²⁶ For these purposes, private refers to direct spending on stormwater compliance by developers and owners. It might include some public spending for compliance of public development in a private context. See the WRIA 9 Retrofit Study for more explanation.

the next section of this report (retrofits), as well as consultation with stormwater utility staff. Depending on the framing of these costs, they can also be considered to contribute to retrofit costs as they address problems from existing areas as part of the redevelopment process. And it is problematic to isolate the contribution of development costs to stormwater, as various design elements can be multi-purpose, and areas of frequent redevelopment might see new stormwater investments that are simply replacing functional existing systems.

Costs increasing over time

The NPDES compliance costs for permit holders are increasing over time. The Pierce County study found an increase in 20% annually over costs of the previous permit. The City of Shoreline has seen its most recent NPDES permit fee more than double its costs relative to the prior permit, from \$30,000 to \$67,000 in support of expanded regional monitoring, and has planned annual stormwater fee increases of 3-5 percent.²⁷ Surveys by the Association of Washington Cities have reported a substantial share of their communities experiencing funding challenges for current needs. In a survey of cities statewide, half reported delays in infrastructure capital investments in order to balance budgets, and nearly two-thirds reported anticipating such delays for budget balancing is forcing deferment of planned capital upgrades for stormwater.²⁸

Table 14. City of Bothell NPDES Compliance Cost Shares

O&M	81%
Public Education and Outreach	5%
Illicit Discharge Detection Elimination	5%
NPDES Program Admin	4%
Research and Assessment	3%
New and Redevelopment	2%
Stormwater Monitoring	0.4%

Source: City of Bothell.¹

There are efforts underway to improve the quality and cost-effectiveness of permit requirements. Ecology has undertaken efforts to coordinate monitoring at the regional level for the smaller Phase II communities.

²⁷ City of Shoreline. 2014 Proposed Budget.

<http://shorelinewa.gov/home/showdocument?id=14787>.

²⁸ Association of Washington Cities. 2013. State of the Cities.

Cost Components

The allocation of permit compliance costs varies across categories, as the scale of operation and state of development of programs varies, as well as permit requirements. Bissonette estimated that, on average, 35 percent of permittee costs are attributable to operations and maintenance. Capital investments for stormwater can be accounted various ways, and might not be annualized or recurrent. Estimates of surface water program expenditures broken out by activities that align with NPDES compliance requirements are scarce. Anecdotal examples show high degree of variation (e.g. Table 13 and Table 14). While community size, rate and timing of development, land use, and natural conditions likely contribute to this variation, it suggests that a one-size-fits-all approach to cost management would not likely be successful.

All major costs are not necessarily capital projects. Bothell's experience suggests potentially high operation and maintenance costs, as increasingly reported by NPDES permit holders. New investment areas like green stormwater infrastructure potentially introduce some new areas of uncertainty concerning long term O&M costs.

Pierce County's cost study identified the marginal (new) costs associated with new permit requirements, coming to roughly \$4 million annually. Most expenditure categories are increasing under the new permit requirements (Table 15); in particular, capital projects/retrofits and inspection, compliance and enforcement (IDDE) costs.

Table 15. Pierce County NPDES Cost Estimates 2013-2017

	New Compliance Costs					% of Total Additional Cost					
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	Average
1. NPDES Permit Management	\$114,100	\$114,350	\$103,000	\$103,000	\$103,000	3%	3%	3%	3%	3%	3%
2. Planning, Reporting, Mapping	\$162,500	\$167,050	\$155,700	\$155,700	\$155,700	4%	4%	5%	4%	4%	4%
3. Control Runoff New Development	\$546,950	\$908,250	\$112,550	\$114,650	\$59,850	14%	20%	3%	3%	2%	8%
4. Public Education and Outreach	\$61,750	\$104,050	\$60,950	\$61,700	\$61,700	2%	2%	2%	2%	2%	2%
5. Structural Stormwater Control	\$1,110,750	\$1,111,500	\$1,112,250	\$1,113,000	\$1,113,000	28%	25%	32%	32%	32%	30%
6. Source Control	\$71,000	\$47,700	\$46,300	\$46,300	\$93,900	2%	1%	1%	1%	3%	2%
7. IDDE Program	\$1,427,400	\$1,522,900	\$1,391,400	\$1,421,800	\$1,421,800	36%	34%	40%	41%	41%	38%
8. TMDL	\$271,700	\$271,700	\$271,700	\$271,700	\$271,700	7%	6%	8%	8%	8%	7%
9. Monitoring	\$108,000	\$170,900	\$170,900	\$170,900	\$170,900	3%	4%	5%	5%	5%	4%
10. Operations & Maintenance	\$25,600	\$25,600	\$2,200	\$2,200	\$2,200	0.7%	0.6%	0.1%	0.1%	0.1%	0%
11. Training	\$28,450	\$30,600	\$32,750	\$34,850	\$34,850	1%	1%	1%	1%	1%	1%
Total	\$3,928,200	\$4,474,600	\$3,459,700	\$3,495,800	\$3,488,600	100%	100%	100%	100%	100%	100%

Source: Pierce County Cost of Compliance Report

With increasing costs of compliance, it is difficult to specify a narrow NPDES permit cost estimate for the basin. Bissonette estimated \$160-170 million for 2009, but this did not include flow control, which can be managed and budgeted

jointly with stormwater as part of surface water, towards common objectives.²⁹ Bissonette estimated that NPDEs compliance costs comprise 50 to 80 percent of total stormwater expenditures, which would equate to a total ranging from \$200 to \$340 million. Bissonette acknowledged that costs were steadily increasing in 2009, as Phase II permittees ramped up their programs. As already described, costs are increasing across permit types for a variety of reasons.

Increasing permit compliance costs over time relate to the retrofit need for existing development. Redevelopment and increasing permit requirements as well as expansion of low impact development and green stormwater infrastructure approaches are making progress on problem areas. The retrofit cost section describes cost estimates for addressing problems from existing development. The line between permit/code compliance costs and retrofits is shifting and likely best thought of as a continuum to be considered holistically rather than a binary set of disparate efforts.

Long Term Stormwater Retrofit Costs

Retrofit strategies are context-dependent, and the appropriate mix of structural and non-structural actions depends on the stormwater pollution sources and opportunities for management or mitigation. Understanding the full magnitude of the need for treatment of existing development is challenging, but three studies have previously examined the costs of stormwater retrofits in Puget Sound:

Bissonette 2010

This report includes an assessment of the financial investment required to retrofit the entirety Puget Sound's existing stormwater infrastructure system. Potential stormwater retrofit costs were calculated based on the percentage of impervious area in Puget Sound, and information about the cost of implementing best management practices (BMPs) for reducing amount of suspended solids flowing from this area. The resulting retrofit cost estimates range from \$3.3 billion to \$15.6 billion for capital investment, and \$111 million to \$561 million for the corresponding annual maintenance investment (2010 dollars). The estimates vary based on the percentage of the impervious area in Puget Sound being addressed; upper end estimates correspond to the costs associated with retrofitting 100% of the existing impervious area in the Sound.

²⁹ Oftentimes stormwater management objectives are most effectively aimed at flow control, meaning management of water volume, particularly peak flows. Treatment systems have flow capacity, and flow control can reduce overflows. It also allows natural treatment to occur, and reduces the sediment and pollutant transport increases that occur with high flows.

However, this estimate focused primarily on the costs of solids removal, and did not include those associated with increased flow control (i.e. directly managing the quantity of stormwater runoff, rather than quality alone) and land purchase costs, and thus the figures obtained are likely underestimates.

Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed, King County (2012)

King County modeled the stormwater facilities that would be required to improve stream flow and water quality in Juanita Creek sufficiently to meet flow and water quality standards (primarily for salmonids). King County used a variety of metrics to evaluate the effectiveness of each mitigation scenario, including a biological indicator (Benthic Index of Biotic Integrity–BIBI; see Figure 1) estimated from regression relationships with hydrologic metrics, frequency of gravel disturbance, water-quality exceedances relative to Washington State standards (e.g., dissolved copper) and reductions in pollutant loads for water quality parameters with no regulatory thresholds (e.g., total suspended solids). They considered non-traditional retrofit strategies including green stormwater infrastructure.

They estimated that \$1.4B of new investment would be need in the roughly 7-square mile basin. It is important to note that the basin is almost entirely developed, so this area likely falls on the upper end of the cost spectrum. This estimate is inclusive of land acquisition, construction, and operation and maintenance costs.

Stormwater Retrofit Implementation Strategies for Water Resources Inventory Area, WRIA 9, King County (2014)

This recently published report represents the most comprehensive and precise estimation of retrofits costs for any area in the Puget Sound that has been accomplished to date. The study area covers the 278 square miles of the Green/Duwamish watershed and portions of the Central Puget Sound watershed that comprise WRIA 9. Using local stream flow and water quality information, King County modeled the stormwater facilities required to restore stream flow and water quality to pre-development conditions using a tool recently developed by the U.S EPA (the SUSTAIN model - System for Urban Stormwater Treatment and Analysis INtegration). They considered non-traditional retrofit strategies including green stormwater infrastructure. Additional analyses account for the impacts of population growth and future development/redevelopment activity on stormwater facility construction, the distribution of costs between public and private entities, the uncertainty associated with climate change impacts on stormwater facility sizing, and the stock of existing facilities.

The WRIA 9 study cost estimates for 100 percent retrofit of the 278 square mile region (not including Seattle) is \$11 billion (Table 16). These costs represent 100 percent retrofit, a likely unrealistic and possibly unnecessary extreme level of retrofit, but worthwhile for considering cost categories and less-than-100 percent scenarios.

Table 16. WRIA 9 Retrofit Study costs (100 Percent Retrofit Scenario)

Cost Category	Cost (millions)
Public Capital Costs for New and Redevelopment	\$3,800
Public Operation & Maintenance Costs	\$770
Public Inspection & Enforcement	\$3,600
All Private Costs	\$3,000
Total Costs	\$11,170

Source: WRIA 9 Retrofit Study. Costs indicate total costs over full timeframe necessary for total retrofit, roughly 100 years. Future costs are not discounted.

Total Retrofit Cost Estimation

According to the Juanita Creek study, estimated costs (in 2011 dollars) to achieve several stormwater retrofit scenarios ranged from \$200 million to \$1.4 billion dollars, equating to a range of \$30 to \$200 million per square mile. When combined with the Puget Sound-wide impervious surface area estimates presented in Bissonette, the costs break down as follows:

Table 17. Retrofit Costs for Puget Sound (Millions)

	Range of Imperviousness Addressed/Treatment Scenario	80-100%	50-100%	20-100%	0-100%
	Acres with Impervious Area (2006) Addressed in Treatment Scenario	60,206	162,201	282,663	319,409
Bissonette	Potential Total Capital Investment	\$3,010	\$8,110	\$14,133	\$15,645
	Potential Total Annual Maintenance Investment	\$111	\$300	\$523	\$561
	Retrofit Cost/Acre (Millions)	\$0.050	\$0.050	\$0.050	\$0.049
	Ongoing Annual Retrofit Maintenance Cost/Acre (Millions)	\$0.002	\$0.002	\$0.002	\$0.002
Juanita Creek	Low* Juanita Creek Retrofit Cost Estimate (Millions)	\$2,822	\$7,603	\$13,250	\$14,972
	High* Juanita Creek Retrofit Cost Estimate (Millions)	\$18,814	\$50,688	\$88,332	\$99,815

Source: Bissonette (2010) and King County (2012)

* 'Low' = \$30 million per square mile = \$0.047 million per acre

* 'High' = \$200 million per square mile = \$0.313 million per acre

The low-end retrofit costs for 100 percent replacement (associated with the least effective treatment scenario, ~\$14-15 billion) identified in the Juanita creek study correspond closely to those developed in the Bissonette study. The high-end retrofit costs (associated with the most effective treatment scenarios that lead to salmon-bearing streams, ~\$99 billion) identified, however, are roughly six times higher than the Bissonette estimates. Note that the comparisons in Table 17 are based on the Puget Sound wide impervious area estimates provided in Bissonette.

Consultation with WRIA 9 retrofit study project leadership suggests that preliminary estimates for these extrapolations of Bissonette and Juanita Creek data are close to the costs the WRIA 9 work is finding for the basin as a whole as well. The WRIA 9 work does include inspection and enforcement costs that push the total costs higher than these shown. The WRIA 9 work is particularly useful for considering cost breakdowns between categories

These costs as identified by the Juanita Creek and WRIA 9 studies are particularly large, but represent 100 percent retrofitting of untreated impervious areas. 100 percent retrofit of all existing development with unmanaged stormwater in the basin is not practically feasible, and likely highly inefficient. The variety of needs and types of controls, as well as local spatial and technical constraints, combined with the range of resulting benefit on receiving surface waters suggest increasing costs and decreasing benefits as approaching the 100 percent retrofit level.

Considering an estimate based on 50 percent retrofit over a 20 year timeframe, annual costs would range from \$380 million to \$2.5 billion, shown in Table 18. These costs are not discounted to present value, and consequently allow straightforward interpolations to less ambitious goals. For example, if the retrofits are spread over 100 years rather than 20 years, would be \$76 to \$500 million annually. Consideration of the full costs of implementation do push these costs towards the upper end of this range.

Table 18. Costs Associated With a 50% Retrofit Scenario (Millions)

Cost Term		Cost Estimate (Millions)			
		Near-Term (Three Year)	2020 (Six Year)	2034 (20 Year)	Average Annual
Finite task; costs reported here assume completion over a 20 year time period	Low Estimate	\$1,140	\$2,281	\$7,603	\$380
	High Estimate	\$7,603	\$15,206	\$50,688	\$2,534

Source: ECONorthwest with data from Bissonette (2010) and King County (2012)

Cost Effective Priority Actions for Existing Stormwater Problems

In light of the high costs for retrofits to existing development, interviews with stormwater experts and utility staff, as well as review of cost and effectiveness data suggest certain targets for particularly near-term benefits at relatively low cost. The two most often cited are increased street sweeping and removal of legacy sediment loads from stormwater conveyance systems.

Legacy Loads

Legacy loads represent material that has built up within stormwater conveyance and treatment infrastructure. While this is a new area of research and effort, initial findings suggest that it can be a particularly cost-effective opportunity. Tacoma cleaned 80,000 feet (15 miles) of pipelines for \$300,000, removing 220

cubic yards of sediment, and finding substantial reductions in levels of pollutants of concern downstream.³⁰ This equates to 208 tons of sediment removed, at a cost of \$0.72 per pound. Scaling by population of Tacoma relative to the total Puget Sound Basin, an equivalent proportional level of effort to remove legacy loads could cost \$6.2 million.³¹

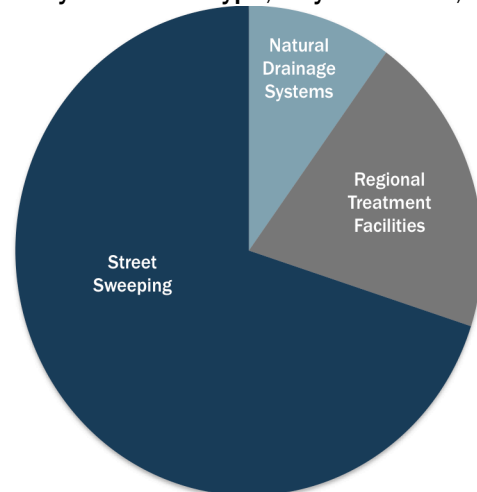
The legacy load removal project for Tacoma addressed less than 5 percent of total conveyance pipes, although it is unknown as to the full potential for such removal for the remainder of the system, and elsewhere in Puget Sound. Other general maintenance requirements can be necessary or associated with legacy load removal as well. Bissonette did report that permittees identified \$60 to \$120 million annually over five years of opportunity to address legacy loads in stormwater systems across Puget Sound, particularly with respect to a need in transportation (road) stormwater systems.

Street Sweeping

Street sweeping to capture pollutants before entering stormwater is another economical management strategy. Kitsap County recently invested in high efficiency street sweepers at a cost of \$209,000 each. Kitsap developed a street sweeping plan so as to target sweeping effort on those streets with the highest traffic.

Seattle Public Utilities (SPU) reports that it currently sweeps 10,000 curb miles within the city, removing 100 tons of pollutants per year. Under a just released Integrated Plan proposal, SPU would double the annual curb miles of sweeping to 20,000 miles with an estimated additional 40 tons of pollutant removed.³² After accounting

Figure 11. Portion of total annual pollutant load removed by treatment type, City of Seattle, 2013



Source: Seattle Public Utilities 2014

³⁰ Puget Sound Partnership. Highlights of the 2012/2013 Action Agenda for Puget Sound.

³¹ Based on 70 pounds per cubic foot of sediment.

³² Seattle Public Utilities. 2014. Street Sweeping. *Integrated Plan*. March 25. http://www.seattle.gov/utll/groups/public/@spu/@diroff/documents/webcontent/01_029656.pdf. Proposed street sweeping expansion would become a regulatory compliance requirement if approved by Ecology.

for the cost of a new sweeper in the first year and operation and maintenance over time, the average annual cost would be \$860,000 for this expansion. This equates to \$7 per pound of pollutant removed. Scaling the annual cost by population across Puget Sound relative to the city of Seattle would provide an estimate of \$5.5 million per year for a per capita proportional increase in street sweeping.

Costs of retrofitting existing impervious areas will, as with other Stormwater management categories, fall primarily on local governments, WSDOT, and private property owners. While detailed estimates are unavailable using current sources, previous estimates have established that public roads can account for roughly 30-50 percent of total impervious area and, furthermore, comprise the majority of public impervious lands. Based on these estimates, the proportion of public to private lands requiring retrofits could be roughly estimated at about 50 percent.

State Highways

WSDOT reports that most of its highways were built before stormwater regulations, and is incrementally addressing this problem through retrofit of the areas in most need.³³ Since it began tracking in 2010, WSDOT has retrofitted approximately 16 acres of impervious surface.³⁴

The state road system in the Puget Sound basin comprises 1,965 centerline miles, much of which were constructed before the mid-1990s when current stormwater standards were established. In preparation for a major stormwater retrofit initiative, WSDOT has completed an extensive stormwater retrofit prioritization effort on state highways within the Puget Sound basin. The three step prioritization process was developed collaboratively with the Department of Ecology, US Fish and Wildlife Service, and NOAA Fisheries staff. As high priority highway segments are identified, WSDOT region staff are scoping these stormwater retrofit projects. WSDOT estimates this scoping process will identify \$40-50 million in projects which would retrofit the highest-priority highway segments in Puget Sound. These are likely particularly efficient early effort targets.

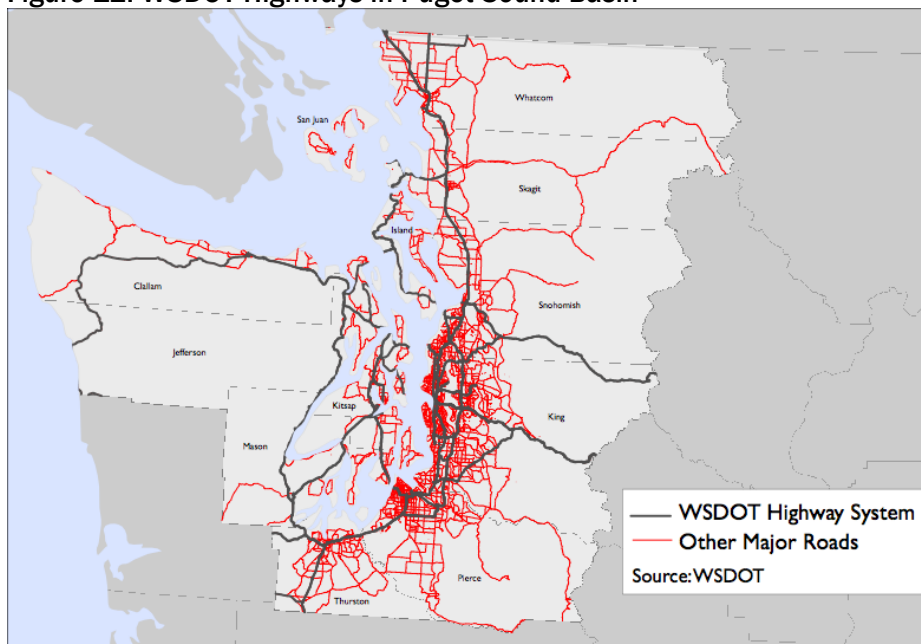
The extent of retrofit need suggests allowing any actions to proceed that will reduce the problem, such as public and private redevelopment or related efforts to achieve improved benefits per dollar spent. While redevelopment of state highways does occur, extensive areas in need of retrofit are identifiable that are

³³ WSDOT. 2013. 2013 Stormwater Report. October.

³⁴ Ibid.

unlikely to be addressed solely through redevelopment. Highways are particularly problematic for stormwater because of the extent of impervious surface, types of pollutants, and loads of pollutants for heavily trafficked routes. The WRIA 9 retrofit study identified the costs and extent of roads requiring retrofit in the Puget Sound Basin.

Figure 12. WSDOT Highways in Puget Sound Basin



Preliminary cost estimates for 100 percent retrofit of all roads and highways in the Puget Sound Basin, based on the WRIA 9 retrofit study, suggest \$300 million annual capital costs under a 30-year program, or \$90 million under a 100 year program (Table 19). Operation and maintenance, as well as inspection and enforcement costs accrue after construction. Of these areas, approximately 1/3rd are state-owned and 2/3rd locally-owned measured by surface area, or 1/10th state-owned and 9/10th locally-owned by length. Stormwater costs for roads are primarily a function of surface area, so by such measures, \$100 million would be the annual capital cost for a 30-year program, which is also approximately 1/3rd of all three cost categories under a 100-year program. Similar to discussion of the retrofit analyses above, it is unlikely efficient to attempt to retrofit 100 percent of the area, so a 50 year retrofit program of \$100 million would likely provide a substantial effect for problems caused by state-owned highways.

3.2.3 Public vs. Private Retrofit Costs

Private Retrofit Costs

The 319,409 acres of total impervious area that may require retrofitting includes both public and private lands. Control of urban stormwater runoff from existing

impervious will be partially achieved through the future construction of stormwater facilities required for new and redevelopment. *Stormwater Retrofit Implementation Strategies for Water Resources Inventory Area (WRIA) 9* (referred to as 'WRIA 9 Retrofit Study' hereafter) suggests that roughly 50 percent of the WRIA 9 study area will have new stormwater facilities built as part of new or redevelopment. Assuming a new and redevelopment rate of 1.6% per year, King County estimates that facilities would be built over most of the area, except road and highways (which are primarily in public ownership), within about 60 to 80 years. Seattle Public Utilities recently provided an estimate of a 1% annual rate of redevelopment as a rough approximation.

Applying this 50% redevelopment assumption to the total acreage of impervious land requiring retrofits, we can assume that 159,705 of the total 319,409 acres will be addressed by new and redevelopment. Furthermore, it is reasonable to assume and that most of this cost will accrue to private entities:

- The new NPDES permits require that LID be used, wherever feasible, for stormwater management during new development and redevelopment (2013-2018 Phase I and II Municipal Stormwater Permits, 2013). This places more responsibility for stormwater treatment and flow control from impervious surfaces on private entities, instead of the current system in which stormwater runoff is often routed to regional stormwater control facilities maintained by local governments.
- Many public redevelopment activities, such as road resurfacing and bridge and culvert replacements, do not create sufficient new impervious surface to meet the threshold for a retrofit (Bissonnette 2010)

Even though private entities will bear most of the up-front, capital retrofit costs, new and redevelopment will also entail increasing public expenditures associated with inspection and enforcement (I&E) of these additional facilities (WRIA 9 Retrofit Study). As for private operations and maintenance costs, public costs associated with I&E programs would be anticipated to increase annually as these facilities are constructed.

Table 19. Full Puget Sound Basin Road Retrofit Costs (Millions)

Puget Sound Basin Annual Costs	
30-yr program: roads and highways costs (millions)	
Annual Capital (1/30th built each year)	\$300
Annual O&M after all built	\$160
Annual I&E after all built	\$550
100-yr program: roads and highways costs (millions)	
Annual Capital (1/100th built each year)	\$90
Annual O&M after all built	\$48
Annual I&E after all built	\$170

Source: WRIA 9 Retrofit Study 2014. Future costs are not discounted. All calculations by WRIA 9 Retrofit Study but not yet published.

To further support this rough approximation of total cost ownership, Bissonnette estimates (based on limited examples) that the proportion of impervious area in public and private ownership at roughly 50 percent each.

The actual degree of accomplishment via private redevelopment is sensitive to codes, compliance, enforcement, and exemptions. Some proposals such as in-lieu fee programs are designed to address these cost and improvement issues. Depending on future program conditions, the costs and level of benefit from private activity might vary considerably.

Public-Private Retrofit Relationships

Relying solely on new and redevelopment, will not accomplish all of the retrofitting that will be required to meet Puget Sound water quality goals.³⁵ Additional targeted actions will be necessary. Some of these costs might be relatively inexpensive such as street sweeping and legacy loads, but public roads retrofits will have substantial costs. Public roads comprise the majority of public impervious lands³⁶, and therefore represent a reasonable target for a public program to address the remaining portion of retrofits not addressed by new and redevelopment.

There is some discussion about potential efficiencies for public vs. private ownership and responsibility for stormwater facilities. Fee-based programs, such as King County's in-lieu fee program for wetlands, can ease private compliance and fund public projects. Public ownership, given sufficient permit or code flexibility, might offer opportunities to target the most cost-effective control opportunities. Such banking or concentrated investments might be done privately. Philadelphia and Washington D.C. support such programs that encourage private investment in cost-effective retrofit or mitigation strategies.³⁷

A major cost category in the WRIA 9 retrofit study is public costs for inspection and enforcement. These costs would likely be reduced with fewer facilities,

³⁵ Booth, D., C. Crawford, B. Derry, C. Hinman, R. Horner, C. May, B. Moore, J. Richey, P. Roni, B. Wulkan. 2007. Stormwater Runoff and Puget Sound – Problems, Issues and Analyses Needed. Puget Sound Partnership. <http://faculty.washington.edu/rturner1/BIS293/Stormwater.doc>.

³⁶ Bissonnette 2010.

³⁷ Valderrama, A. and L. Levine. 2012. Financing Stormwater Retrofits in Philadelphia and Beyond. Natural Resource Defense Council. <http://www.nrdc.org/water/files/StormwaterFinancing-report.pdf>; Garrison, N., and K. Hobbs. 2011. Rooftops to Rivers II: Green Strategies for Controlling Stormwater and Combined Sewer Overflows. National Resources Defense Council. <http://www.nrdc.org/water/pollution/rooftopsii/>

whether compliance is pooled privately or publicly. Public ownership can also reduce these costs, though there would likely be direct tradeoffs with increased administration costs.

3.3 Shellfish

3.3.1 Near Term Shellfish Costs

In the absence of a long-term program plan for shellfish restoration, actions and costs of actions were extrapolated from the three-year costs estimated for shellfish near-term actions and the costs described in DOH's 2013 work plan for and EPA pathogen grant. Both sources include a mix of one-time and continuing costs, with neither intended to define a comprehensive long-term shellfish program. However, they are the best available sources for program activities and cost estimates. In time, these estimates should be upgraded through a more systematic approach to identifying a shellfish restoration program.

The 2012/2013 Action Agenda includes nine actions to describe the NTAs of the Shellfish Initiative. These cost estimates are summarized in Table 20.

Table 20. Three Year Costs of NTAs associated with the Shellfish Strategic Initiative

Action Number	Description	Total Cost
B3.1.2	Outfall strategy on state-owned lands	\$411,000
C1.5.1	No discharge zone evaluation/petition	\$241,000
C1.6.3	Water quality enforcement	\$850,000
C3.2.1	Priority areas for incentives	\$60,000
C5.3.1	OSS homeowner loan program	\$217,000
C5.3.2	OSS program funding source	\$195,000
C7.1.3	Pollution control action team	\$1,299,000
C7.3.3	Shellfish model permitting program	\$279,000
C9.4.1	Pollution ID & correction programs	\$4,924,000
Total		\$8,476,000

Source: PSP, State of the Sound 2013

Information on recurrent costs is also available through the description of program activities in the DOH's 2013 Pathogen Grant Work Plan, which presents the current and proposed work on shellfish restoration being undertaken using an EPA National Estuary Program grant. The DOH plan is a more detailed and accurate description of the shellfish restoration program that is currently being implemented than the Action Agenda description.

3.3.1 Long Term Shellfish Action Costs

On-Site Sewage Systems

Nonpoint pollution sources are the most frequent cause of harvest restrictions, being implicated in 18 of the 26 restricted areas. The costs of addressing nonpoint sources is likely to be a factor of the number of pollution sources, the costs of individual repair or replacement actions, and the frequency of the actions. On-site sewage systems (OSS) or septic systems are generally held to be one of the primary pollutant sources of concern for shellfish bed recovery.

DOH is currently evaluating funding sources for septic system repair and replacement (as specified in action C5.3.1) and has identified the annual costs for fully capitalizing a sustainable septic loan program.³⁸ A loan, rather than a grant, program is the focus because of the private ownership and therefore responsibility associated with the septic systems of concern. DOH estimated the cost per OSS repair or replacement loan to range from \$5,000 to \$12,000 with \$9,000 as the most likely average. Based on the identified needs for Puget Sound, the DOH study estimates an annual cost of \$2 to \$3 million declining over time until a 10-year total cost of \$22 to \$29 million, but gradually recovering loan repayments for a declining net cost after 10 years.

DOH is also evaluating long-term funding strategies for local septic management programs at the county level (as specified in action C5.3.2). The current estimate is that the current funding need of \$14 million will need to ramp up to \$20-24 million per year to sustain these programs.

Pollution Identification and Correction

Pollution Identification and Correction (PIC) programs are locally-targeted efforts to identify pollution sources affecting shellfish beds. These involve intensive local studies. The 2012/2013 Action Agenda identified three-year costs of \$4.9 million for PIC studies, which equates to \$1.6 million per year. DOH staff indicate that this is a very low estimate for a sustained program, and have suggested that total costs could be closer to \$10 to \$20 million per year³⁹. Due to the potential for new pollution sources to arise, it seems appropriate to assume this cost would continue over the long term.

³⁸ WA Department of Health. 2014. *Puget Sound Septic Financing Assessment*. June 4.

³⁹ Personal communication with Stuart Glasoe, September 2014.

Wastewater Treatment Plants

Wastewater treatment plants (WWTPs) are thought to be responsible for the majority of the Sound's prohibited shellfish growing areas. They are implicated in 14 of the 26 restricted basins, although they are the sole cause cited in only 7 cases. In cases that WWTPs are discharging effluent that is insufficiently treated to eliminate pathogens, it is either because they were designed and built to obsolete standards or because they are failing to perform to design and permit standards due to age or other circumstances.

A cursory analysis of WWTPs in restricted basins using the Department of Ecology's Water Quality Permitting and Reporting Information System (PARIS) indicates that the facilities vary greatly in size, from the plant handling all of Olympia's wastewater to plants for small industrial plants. The costs of repairs or retrofits for such a mixed group of facilities cannot be generalized but will need to be calculated individually.

While WWTPs are subject to periodic re-permitting under the NPDES, costs of compliance for WWTP upgrades can be daunting. These costs can be some of the greatest for communities in terms of improvements to Puget Sound. But these WWTP upgrades are not primarily targeted at achieving shellfish bed recovery and while extremely relevant to the overall Action Agenda, are not core to the particular actions under focus in this Strategic Initiative. This prioritization may however change over time.

Marinas

Marinas have been implicated in 9 of 26 restricted basins, but never as the sole reason for the restrictions.

The author's presumption is that the principal issues with marinas and shellfish are the discharge of untreated and undertreated waste from shore-based restroom facilities and the discharge of untreated or insufficiently treated sewage from boats.

Discharge of untreated sewage from boats is illegal in Puget Sound, but the regulation is difficult to enforce. Some boats predate the regulation and may not have approved marine sanitation devices (MSDs) installed. Even on boats with MSDs, users may not understand the systems and may inadvertently discharge untreated waste.

Direct discharge of effluent from certain MSDs is currently allowed under state law, but measures are currently being taken to establish a no-discharge zone for the Sound that would prevent these discharges, which have been demonstrated to result in nutrient and pathogen pollution.

The 2020 actions for marinas are presumed to include the one-time costs associated with the no-discharge zone proposal plus the ongoing costs to install and repair pump-out stations.

Interestingly, a 2012 report by Herrera for the Washington Department of Ecology⁴⁰ concluded that the number of current pump-out stations far exceeded the estimated demand for such facilities for recreational boaters. No findings for commercial users were possible given constraints in the study design.

Agriculture BMPs

The DOH 2013 Pathogen Grant Work Plan cited earlier estimates a cost of \$250,000 per year for agriculture BMPs. Given the abundance of agricultural land upstream of shellfish beds and the costs of BMPs, this appears to be a very low estimate. A more detailed assessment of the program and costs is beyond the scope of this project, but a very preliminary estimate of \$2 million per year has been used in this assessment. These costs of BMPs and conservation on farmland do contribute to shellfish recovery and protection, but the primary benefits address more general habitat and water quality objectives.

Summary of Estimated Long Term Shellfish Initiative Costs

The well-defined components of the Shellfish Initiative suggest a long-term public annual cost that includes:

- \$3 million for the OSS loan program (for at least 10 years);
- \$24 million for local septic management programs (indefinitely);
- \$10 to \$20 million for pollution identification and correction (PIC) programs (indefinitely).

In addition, long-term costs will include funding needs associated with several actions that have not been fully described or estimated, including improvements in wastewater treatment facilities, upgrades in marinas, and agricultural best management practices. These could result in a very substantial increase in the estimated cost of the shellfish program as a whole.

⁴⁰ Herrera Environmental Consultants, 2012; Puget Sound No Discharge Zone for Vessel Sewage

4 Historical and Current Funding of the Strategic Initiatives

4.1 Habitat

Table 21. Costs and current funding for Three-Year NTAs Associated with the Habitat Strategic Initiative (2013-2015)

Action Number	Description	Total Cost	Funded or Budgeted	Gap
A1.2.1	Land Use Planning Barriers, BMPs and Example Policies	\$30,000	\$0	\$30,000
A1.3.1	Address Regulatory Exemptions	\$30,000	\$29,000	\$1,000
A4.2	Provide for growth (All NTAs)	\$-	\$0	N/A
A5.1.1	Floodplain Protection and Policy Team Actions	\$877,000	\$981,000	\$0
A5.3.4	Levee Vegetation	\$2,708,000	\$2,708,000	\$0
A6.1	Implement Salmon Recovery 3-year Workplans (All NTAs)	\$384,524,000	\$123,223,000	\$261,301,000
A6.1.1	Secure Annual Chinook Investment	\$360,364,000	\$113,114,000	\$247,250,000
A6.1.2	Restoration Permit Barriers	\$50,000	\$50,000	\$0
A6.1.3	BNSF Railroad Cooperative Agreement	\$265,000	\$38,000	\$227,000
A6.1.HC6	Hood Canal Salmon Recovery	\$664,000	\$0	\$664,000
A6.1.SJI9	San Juan County Lead Entity	\$2,116,000	\$2,116,000	\$0
A6.1.STRT1	Elwha River Ecosystem Recovery	\$2,687,000	\$100,000	\$2,587,000
A6.1.STRT2	Straits Salmon Recovery Plans	\$18,378,000	\$7,805,000	\$10,573,000
A6.1.WS9	West Sound SR3 Chico Creek Culvert Replacement	\$-	\$0	N/A
A7.1	Protect and Restore Stream Flows (All NTAs)	\$4,895,000	\$3,080,000	\$1,815,000
A7.1.1	Set Instream Flows in Priority Watersheds	\$1,500,000	\$900,000	\$600,000
A7.1.2	PEP Development and Implementation	\$-	\$0	N/A
A7.1.3	Water Code Compliance and Enforcement	\$1,395,000	\$1,280,000	\$115,000
A7.1.STRT6	Strait Instream Flow Rules	\$2,000,000	\$900,000	\$1,100,000
B1.2.1	Update Local Shoreline Master Program	\$9,272,000	\$9,020,000	\$252,000
B1.3.2	Hydraulic Code Rules Revision	\$225,000	\$77,000	\$148,000
B2.1.1	Protect 10% of Bluff-Backed Beaches	\$15,000	\$15,000	\$0
B2.2.1	Implementation of Projects Identified by PSNERP	\$1,565,000	\$1,565,000	\$0
B2.3.1	Homeowner Incentives for Landward Setbacks	\$48,000	\$48,000	\$0
B5.3.2	Invasive Species Early Detection and Monitoring	\$21,000	\$21,000	\$0
C8.1.2	Evaluate Risk Assessments for Update Needs	\$495,000	\$225,000	\$270,000
Total		\$404,705,000	\$140,992,000	\$263,817,000

Source: PSP, State of the Sound 2013

4.1.1 Near Term Funding

The 2013 State of the Sound report attempted to identify the available and budgeted funding for the 2013-15 fiscal years and the funding gap. This information is summarized in Table 21.

4.1.2 Core Habitat Funding Trends

Funding for Salmon recovery in Puget Sound comes from a wide variety of sources. Federal funding programs are administered by a variety of agencies, have varying requirements for state and local matching funds, and are focused on many objectives. Some of the programs, such as the Pacific Coastal Salmon Recovery Fund, focus specifically on salmon recovery goals, while others are focused on only certain types of habitat (e.g., instream flows or nearshore). Others have broader mandates, such as maintenance of parks and/or recreation areas, in addition to fish and wildlife habitat.

In a trend that began with the first salmon recovery funding in fiscal year 2000, a great deal of funding for salmon habitat restoration in Washington State has come from direct federal appropriations to the salmon recovery plan via the NOAA Pacific Coastal Salmon Recovery Fund program. This source dates back to the FY 2000 budget and was championed by Senator Slade Gorton and Congressman Norm Dicks, both very senior members of key appropriations committees who have since left Congress. After receiving \$110 million at its peak in fiscal year 2002, the five-state program has been hovering between \$65 and \$80 million in recent years. Washington state has received \$18 to \$30 million each year and coastal tribes have received an additional \$5 to \$11 million.

At the federal level, major programs and funding sources include:

- The EPA's National Estuary Program
- NOAA's Coastal and Estuarine Lands Conservation Program
- National Parks Service Land & Water Conservation Grants
- Pacific Coast Salmon Recovery Fund
- NOAA Species Recovery Grants
- Partners for Fish and Wildlife Program
- Puget Sound Nearshore Ecosystem Restoration Project (PSNERP)

The state lagged in early funding of the salmon recovery effort but has stepped up funding levels since 2007. At the state level, over 20 different funding programs administered by seven agencies support projects related to salmon habitat protection and restoration. Major state programs and funding sources include:

- DNR Land Acquisition Grants

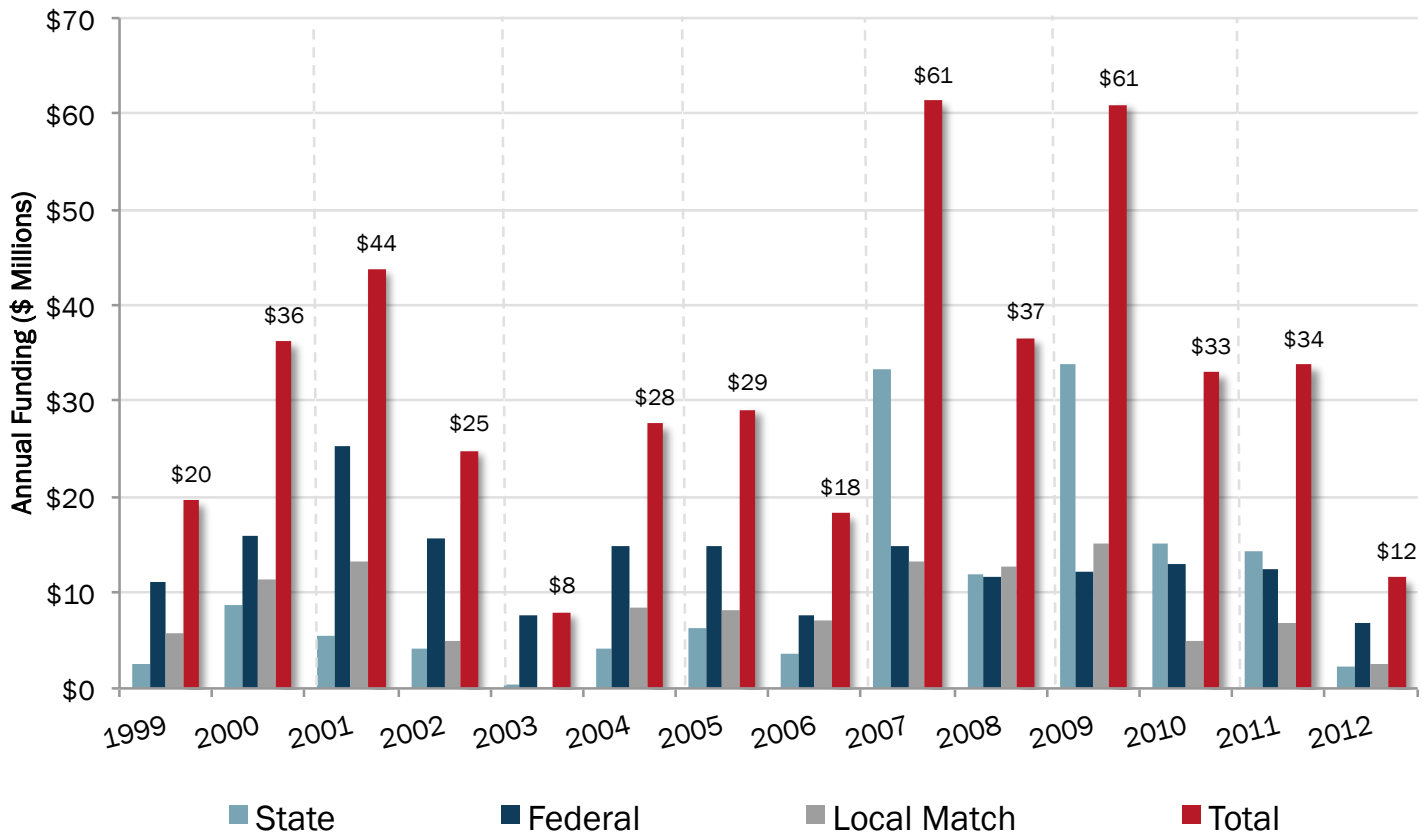
- Forest Riparian Easement Program
- Puget Sound Estuary and Salmon Restoration Program (ESRP)
- Puget Sound Acquisition and Restoration Program (PSAR)
- Salmon Recovery Funding Board Programs
- Road Maintenance and Abandonment Plan
- Community Partnership Restoration Grants
- Conservation Reserve Enhancement Program
- Family Forest Fish Passage Program
- Watershed Plan Implementation and Flow Achievement Program
- Water Irrigation Efficiencies Program
- Washington Wildlife & Recreation Program Grants
- Aquatic Lands Enhancement Grants

Local governments and community organizations have provided a considerable amount of local match through a combination of local utility sources, general funds, and philanthropic programs such as the National Fish and Wildlife Foundation's Community Salmon Fund, which distributed more than \$25 million in small grants for salmon recovery in Washington.

An estimate of total funding administered by the Salmon Recovery Funding Board, by level of government (note that these estimates only include the required 15 percent match, which tends to under-report matching funds from both federal and local sources), through fiscal year 2012 is shown in Figure 13.⁴¹

According to the Puget Sound Recovery Plan (2005), average annual funding for salmon recovery in Puget Sound at the time amounted to \$60 million. Annual funding from sources that are expressly for salmon projects and programs — such as the Salmon Recovery Funding Board (SRFB)— generally amounts to \$20-25 million. Sources that are not salmon-focused but have been used extensively for salmon projects in recent years (including funding from local surface water management programs, U.S. Army Corps of Engineers restoration programs, and a wide variety of local, state, and federal environmental grant programs) contribute at least \$40 million per year.

⁴¹ This includes funds administered by the Salmon Recovery Funding Board through the Pacific Coastal Salmon Recovery Fund, salmon recovery fund (state match), Puget Sound Acquisition and Restoration fund, Family Forest and Fish Passage Program, Estuary and Salmon Restoration Program, federal Puget Sound Chinook critical stock program, and hatchery reform. Thus, it is does not reflect all funding for habitat restoration, and includes some funding – such as hatchery funding - that isn't directed at habitat restoration.

Figure 13. Public funding levels for salmon recovery in Puget Sound, 1999-2012

Source: Washington State Recreation and Conservation Office, State of the Salmon in Watersheds Report 2012

The NOAA Fisheries Puget Sound Chinook Salmon Recovery Plan 2011 Implementation Status Assessment Final Report (2011), meanwhile estimated three-year funding available for planned capital projects at \$326 million (31% of the amount needed to accomplish the work). For non-capital programs, the funding available was estimated to be only \$18 million, or 20% percent of the need.

Funding for Salmon Recovery in Washington State (Evergreen Funding Consultants, 2011) consulted Puget Sound regional staff who indicated that annual funding of roughly \$48 million is available for capital needs, and \$5 million per year for non-capital needs. In line with the NOAA Fisheries estimate, these results suggest that that existing funding levels would support less than one-third of the projected recovery plan costs. The most important sources of funding identified by regional staff are shown in Figure 2.

Figure 14. Funding Sources for Salmon Recovery in Puget Sound, 2010

	Funding Source	Percent of Funding
Capital Activities	PSAR	30%
	Local Government	27%
	SFRB	14%
	Other State	12%
	Other Federal	9%
	Special Districts	8%
Non-Capital Activities	Other State Sources	29%
	PSAR	27%
	Local Government	20%
	SFRB	16%
	Special Districts	7%
	Other Federal Sources	1%

Source: EFC 2011

A certain portion of ongoing program costs for interested entities, such as WDFW and Ecology, may contribute to salmon habitat recovery. This funding, has been fairly stable over the last couple of years, especially given general economic conditions.

Floodplains

In 2013 the Department of Ecology was successful in securing legislative funding through the Floodplain by Design (their partnership with TNC, PSP, etc., etc.) effort. Ecology was given \$38.7 million to advance integrated floodplain projects in Puget Sound (the nine, 'Coordinated Investment for Puget Sound Floodplains' project described in the 'costs' section) and an additional \$11.25 million for a statewide Floodplains by Design competitive grant program. The total Puget Sound apportionment of these funds for 2013-2015, including operations/administration within Ecology, is \$47.73 million. A certain portion of the PSP, WDFW, and DNR's operating budgets are unaccounted for, but estimates from OFM have placed the floodplain portions of these agencies' operating budgets at about \$2-5 million dollars each. During the 2015-2017 legislative budget process, Ecology will request additional funding for a package of restoration projects. This represents a new stream of funding that was not previously allocated to floodplains.

Given that floodplain protection and restoration projects are also conducted as part of the regional salmon recovery plans, we can assume that a portion of the annual \$60 million spent goes towards floodplains. If the roughly 40% of this sum (capital, and non-capital), in accordance with the percentages reported in ECF 2011 (see cost section), were spent on floodplains, this might equate to \$24 million annually.

Of the projects funded by the Salmon Recovery Funding Board (available through RCO's PRISM database) through the Pacific Coastal Salmon Recovery Fund, salmon recovery fund (state match), Aquatic Lands Enhancement account, Puget Sound Acquisition and Restoration fund, Washington Fish and Wildlife program and the Estuary and Salmon Restoration Program, those that include reference to floodplain functions add up to approximately \$95 million for the years 2000 through 2013. This equates to roughly \$7 million, annually, with higher, more consistent funding allocations since 2007. While this database is by no means complete, it does provide a lower bound estimate.

Over the last ten years, funding for floodplain protection and restoration has been between \$7 to \$25 million on an annual basis. Assuming the continuation of the heightened state allocation gained during 2013-2015 budget cycle and planned for the 2015-2017 cycle, it is reasonable to expect roughly \$25 million a year for floodplain protection and management in Puget Sound, going forward.

Culverts

Funding for the WSDOT and WDFW culvert retrofit programs in recent funding cycles has amounted to \$36-50 million biennially (or \$18-25 million a year).⁴² There is currently no established funding plan for WSDOT to addressing the total court-ordered retrofit responsibilities. It is anticipated that culverts operated by the state Departments of Fish and Wildlife and Natural Resources, along with State Parks, will be corrected with traditional state funding sources.

4.2 Stormwater

4.2.1 Near Term Funding

The 2013 State of the Sound report identifies the available and budgeted funding for the 2013-2015 fiscal years and the funding gap. This information is summarized in Table 22.

⁴² WDFW and WSDOT. <http://wdfw.wa.gov/publications/00049/wdfw00049.pdf> and http://www.wsdot.wa.gov/NR/rdonlyres/11D6A32A-E036-4FF1-9501-8535DFFEA769/0/Folio_FishPassage.pdf

Table 22. Costs and Current Funding for NTAs Associated with the Stormwater Strategic Initiative

Action Number	Description	Total Cost	Funded or Budgeted	Gap
C1.1.3	Fish Consumption Rates	\$1,110,000	\$1,110,000	\$0
C2.1.1	Watershed Based Stormwater Management	\$46,000	\$10,000	\$36,000
C2.2.1	NPDES Municipal Permits	\$1,974,000	\$1,974,000	\$0
C2.2.3	Stormwater Management Outside Permitted Areas	\$224,000	\$0	\$224,000
C2.3.1	Stormwater Retrofit Projects	\$14,828,000	\$14,828,000	\$0
C2.4.1	Compliance Assurance Program	\$391,000	\$0	\$391,000
C2.5.1	LID Training and Certification	\$1,938,000	\$1,938,000	\$0
C2.5.2	Education for the Next Generation of Stormwater Professionals	\$5,700,000	\$0	\$5,700,000
D6.1.1	Phase 2 of Puget Sound Starts Here	\$1,280,000	\$1,280,000	\$0
Total		\$27,491,000	\$21,140,000	\$6,351,000

4.2.2 Core Stormwater Funding Trends

NPDES Permit Funding

Local Jurisdictions

Stormwater utility fees collected and used by local NPDES permit holders provide roughly 90 percent of the funding for stormwater activities in Puget Sound associated with NPDES permit compliance. The fees

fund local programs that directly and indirectly address stormwater pollution and water quality management goals as a whole. By some definitions, 50 to 80 percent of stormwater utility revenue in Puget Sound is directly spent on NPDES permit compliance, with the remainder addressing related education, watershed, and surface water issues.⁴³ Permit requirements vary among jurisdictions, particularly between Phase I and Phase II communities. Consequently fee revenue funds capital investments, operation and maintenance, inspection and enforcement, monitoring, education, watershed projects, and other community-

Stormwater Utilities

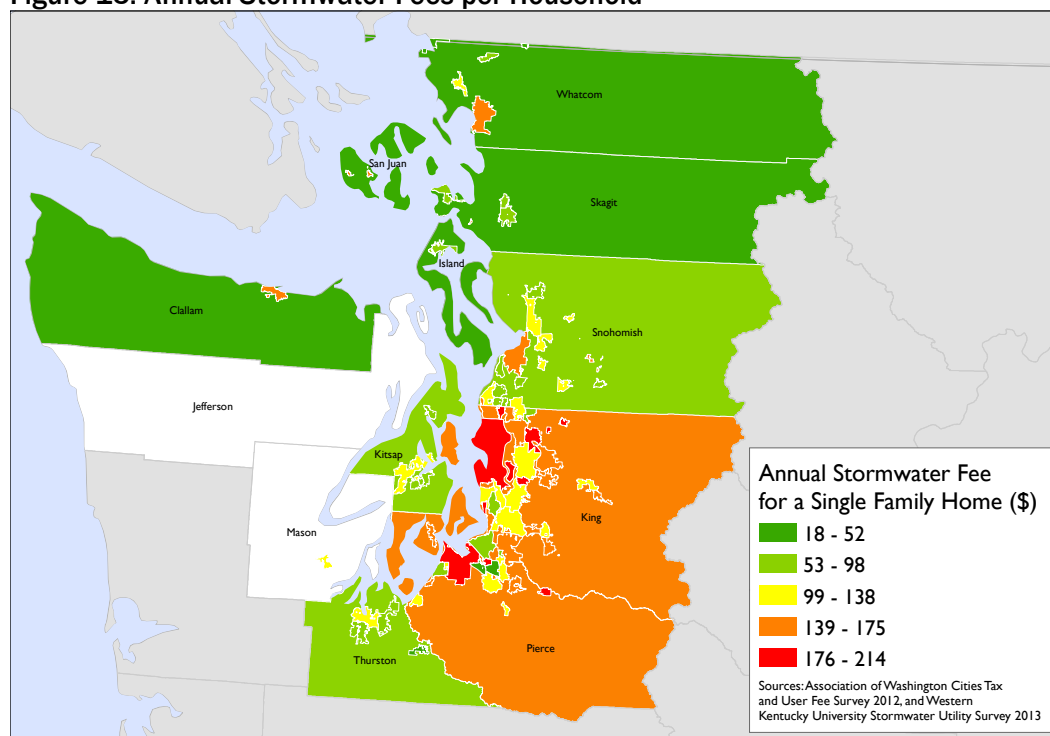
"A stormwater utility is essentially a special assessment district set up to generate funding specifically for stormwater management. Users within the district pay a stormwater fee, and the revenue thus generated directly supports maintenance and upgrade of existing storm drain systems; development of drainage plans, flood control measures, and water-quality programs; administrative costs; and sometimes construction of major capital improvements. Unlike a stormwater program that draws on the general tax fund or uses property taxes for revenue, the people who benefit are the only ones who pay."

Source: J. Kaspersen, Editor. 2000. The Stormwater Utility: Will It Work in Your Community? Stormwater Journal. Nov-Dec.

⁴³ Bissonette 2010.

based objectives for water quality and watersheds. In this way, spending that might be difficult to categorize as narrowly focused on stormwater pollution is likely generating multiple benefits that are compatible with other objectives of the Action Agenda for watershed scale improvement and habitat quality.⁴⁴

Figure 15. Annual Stormwater Fees per Household



Local stormwater utility fees are set to meet cost requirements. NPDES permit requirements drive revenue needs and therefore rate structures. While rate structures capture some variation with respect to amount of impervious surface and possibly intensity of use (e.g. residential vs. commercial), they do not necessarily capture the full cost of each property. They generally represent per-household division of jurisdiction-level stormwater and related surface water management costs. These cost drivers result in highest total stormwater revenue per-household and overall by jurisdiction in Phase I communities (Figure 15, Table 23). Stormwater management can have relatively high fixed (as opposed to variable) costs particularly for capital but also monitoring and other categories. In this way some small Phase II communities can face high or rapidly increasing per-household stormwater costs.

⁴⁴ E.g, habitat projects funded by King County fees: King County Surface Water Fee Facts. <http://your.kingcounty.gov/dnrp/library/water-and-land/rate-study/swm-fee-fact-sheet-2013.pdf>.

Table 23. Stormwater/Surface Water Fees and Fee Revenue by Permit Holder, Puget Sound Basin

Name	NPDES Permit ⁶	Annual Fee for a Single Family Home	Sources ¹⁻⁵	Total Stormwater Utility Revenue in 2012 ⁷
Algona	Phase II	\$66	1,2	\$233,557
Anacortes	Phase II	\$60	1,2	\$782,548
Arlington	Phase II	\$83	1,2	\$726,851
Auburn	Phase II	\$170	1,2	\$7,357,501
Bainbridge Island	Phase II	\$156	1,2	\$1,940,468
Bellevue	Phase II	\$116	1,2	\$16,374,529
Bellingham	Phase II	\$168	1,2	\$4,903,909
Black Diamond	Phase II	\$156	2	\$284,647
Blaine	N/A	\$52	1,2	\$290,031
Bonney Lake	Phase II	\$168	1,2	\$1,600,221
Bothell	Phase II	\$127	2	\$3,403,610
Bremerton	Phase II	\$104	1,2	\$2,203,738
Brier	Phase II	\$69	1,2	\$167,477
Buckley	Phase II	\$212	2	\$392,327
Burien	Phase II	\$117	2	\$2,543,590
Burlington	Phase II	\$76	2	\$1,022,908
Clallam County	N/A	\$36	5	No Data
Clyde Hill	Phase II	Unknown	No Fee Data Available	No Data
Covington	Phase II	\$175	2	\$1,731,685
Des Moines	Phase II	\$151	2	\$2,484,970
DuPont	Phase II	\$128	2	\$776,087
Duvall	Phase II	\$210	1,2	\$618,821
Eatonville	N/A	Unknown	No Fee Data Available	\$111,151
Edgewood	Phase II	\$40	1,2	\$647,109
Edmonds	Phase II	\$126	2	No Data
Enumclaw	Phase II	Unknown	No Fee Data Available	No Data
Everett	Phase II	\$146	1,2	No Data
Federal Way	Phase II	\$85	1,2	\$3,570,113
Ferndale	Phase II	\$132	1,2	\$26,974
Fife	Phase II	\$24	1,2	\$706,283
Fircrest	Phase II	\$108	1,2	\$374,485
Friday Harbor	N/A	\$152	2	\$459,499
Gig Harbor	Phase II	\$155	1,2	\$748,159
Gold Bar	N/A	Unknown	No Fee Data Available	\$31,908
Granite Falls	Phase II	\$108	1,2	\$129,541
Island County	N/A	\$39	3	\$422
Issaquah	Phase II	\$169	1,2	\$4,169,473
Kenmore	Phase II	\$167	2	\$1,640,281

Kent	Phase II	\$121	1,2	\$16,507,757
King County	Phase I	\$172	1,2	\$18,330,799
Kirkland	Phase II	\$170	1,2	\$8,397,890
Kitsap County	Phase II	\$70	1,2	\$7,148,113
La Conner	N/A	\$158	2	\$164,119
Lacey	Phase II	\$86	1,2	No Data
Lake Forest Park	Phase II	\$188	2	\$847,680
Lake Stevens	Phase II	\$104	2	\$1,374,429
Lakewood	Phase II	Unknown	No Fee Data Available	\$2,732,964
Langley	N/A	Unknown	No Fee Data Available	\$201,199
Lynden	Phase II	\$76	2	\$486,571
Lynnwood	Phase II	\$86	1,2	\$2,381,254
Maple Valley	Phase II	\$115	2	\$1,169,444
Marysville	Phase II	\$122	1,2	\$4,095,084
Medina	Phase II	Unknown	No Fee Data Available	No Data
Mercer Island	Phase II	\$180	2	\$1,682,829
Mill Creek	Phase II	\$78	2	\$696,972
Milton	Phase II	\$186	1,2	\$716,331
Monroe	Phase II	\$108	1,2	\$1,517,432
Mount Vernon	Phase II	\$73	2	No Data
Mountlake Terrace	Phase II	\$97	1,2	\$1,431,462
Mukilteo	Phase II	\$94	1,2	\$1,262,267
Newcastle	Phase II	\$180	2	\$843,036
Normandy Park	Phase II	\$192	2	\$558,624
North Bend	N/A	\$148	1,2	\$768,034
Oak Harbor	Phase II	\$92	1,2	\$1,380,231
Olympia	Phase II	\$127	1,2	\$4,170,444
Orting	Phase II	\$108	1,2	\$702,481
Pacific	Phase II	\$129	1,2	No Data
Pierce County	Phase I	\$144	1,2	\$18,332,307
Port Angeles	Phase II	\$144	1,2	\$735,531
Port Orchard	Phase II	\$84	1,2	\$688,856
Port Townsend	N/A	Unknown	No Fee Data Available	\$520,016
Poulsbo	Phase II	\$98	2	\$783,275
Puyallup	Phase II	\$125	2	\$3,836,559
Redmond	Phase II	\$199	1,2	\$10,802,777
Renton	Phase II	\$138	2	\$7,742,090
Ruston	N/A	Unknown	No Fee Data Available	\$30,713
Sammamish	Phase II	\$150	2	\$2,498,951
San Juan County	N/A	\$46	1,2	\$407,855
SeaTac	Phase II	\$83	2	\$1,783,281
Seattle	Phase I	\$206	2	\$77,133,415

Sedro-Woolley	Phase II	Unknown	No Fee Data Available	\$20,319
Shelton	N/A	\$137	2	\$717,277
Shoreline	Phase II	\$142	1,2	\$3,211,007
Skagit County	Phase II	\$37	1,2	\$97,035
Snohomish	Phase II	\$122	1,2	No Data
Snohomish County	Phase I	\$90	4	No Data
Snoqualmie	Phase II	\$135	2	\$798,891
Stanwood	N/A	Unknown	No Fee Data Available	\$450,196
Steilacoom	Phase II	\$165	1,2	\$498,730
Sultan	N/A	\$96	2	No Data
Sumas	N/A	\$18	1,2	\$15,137
Sumner	Phase II	\$120	1,2	No Data
Tacoma	Phase I	\$214	1,2	\$23,903,432
Thurston County	Phase II	\$54	1,2	No Data
Tukwila	Phase II	\$102	2	\$3,675,605
Tumwater	Phase II	\$92	2	\$1,343,244
University Place	Phase II	\$72	1,2	\$2,699,026
Whatcom County	Phase II	\$48	5	No Data
Woodinville	Phase II	\$85	1,2	\$1,111,215
Woodway	N/A	\$150	1,2	\$83,180
Yelm	N/A	\$30	1,2	\$83,616
Average Annual Fee:		\$118	Total:	\$306,025,855

Sources:

1 = Western Kentucky University Stormwater Utility Survey 2013

(http://www.awcnet.org/ResourcesResearch/Research/TaxandUserFeeSurvey.aspx)

2 = Association of Washington Cities Tax and User Fee Survey 2012

(http://www.wku.edu/engineering/civil/fpm/swsurvey/)

3 = Island County Public Works

(https://www.islandcounty.net/publicworks/clean_water_utility/docs/CWU%20Brochure%20-%20Final.pdf)

4 = Snohomish County (http://www.snohomishcountywa.gov/DocumentCenter/View/5727)

5 = San Juan County Public Works (http://sanjuanco.com/cdp/Stormwater/SW_Docs_Forms/SWAC_Docs/09-6-Pres-Fin-analysis-final%20(2).pdf)

6 = Washington State Department of Ecology

(http://www.ecy.wa.gov/programs/wq/stormwater/municipal/MuniStrmWtrPermList.html)

7 = Unaudited data from the Washington State Auditor's Office, Local Government Financial Report System

(http://portal.sao.wa.gov/LGCS/Reports/). Collected by summing all stormwater utility revenue for cities, towns and counties in Puget Sound (System Selection: Charges for Goods and Services, Physical Environment Related Fees, Other Utility Fees, Storm Drainage). Note that not all cities report revenue data, and that data is often missing between years; 'No Data' indicates that no stormwater fee revenue was reported for 2012 in LGFRS.

Stormwater control activities can locally be spread across a variety of departments because stormwater can indirectly be associated with a wide range of public activities, including general public works and transportation. In this way, program or project elements might be designed for stormwater or flow control functions, or watershed functions in general, and might or might not be captured directly in identified stormwater budgets.

Ecology

The Washington State Department of Ecology (Ecology) issues municipal, industrial, and construction permits as the primary method of regulating stormwater. The Department of Ecology's main stormwater activities are part of its Water Quality program. The average annual stormwater budget for Ecology has been increasing steadily, from \$5.8 million in 2007 to \$8 million in 2014 (*Table 24*). Stormwater represents 16 to 18 percent of Ecology's overall water quality budget. Bissonette reported that approximately 80 percent of Ecology's budget for administering the NPDES permit program (a subset of total stormwater budget) is expended in the Puget Sound basin.

Table 24. Ecology Stormwater and Water Quality Budgets

	Funding Period			
	2007-2009	2009-2011	2011-2013	2013-2015
Stormwater Budget	\$11,684,727	\$12,868,981	\$13,043,084	\$16,105,602
Change from Previous Funding Period	-	\$1,184,254	\$174,103	\$3,062,518
Percent Change from Previous Funding Period		10%	1%	23%
Total ECY Water Quality Budget	\$72,920,624	\$70,643,706	\$73,693,880	\$91,817,881
Change from Previous Funding Period	-	-\$2,276,918	\$3,050,174	\$18,124,001
Percent Change from Previous Funding Period		-3%	4%	25%
Stormwater as Percentage of Total Water Quality Budget	16%	18%	18%	18%

Source: WA Ecology. Budget and Program Overview. 2013-2015. December 2013.

Ecology receives revenue to fund water quality programs including stormwater from permit fees (as well as from other sources). For the 2011-2013 Biennium, Ecology received roughly \$3 million apiece (statewide) from the three categories of industrial stormwater permits, construction stormwater permits, and municipal stormwater permits.⁴⁵ Fees are structured to cover the costs of program administration. Overall state appropriations to Ecology for 2011-2013 for water quality permits was \$37 million. Following the above proportions of water quality budget for stormwater, and stormwater budget within Puget Sound approximates to \$5 million of the Ecology state appropriations for stormwater in Puget Sound.

WSDOT

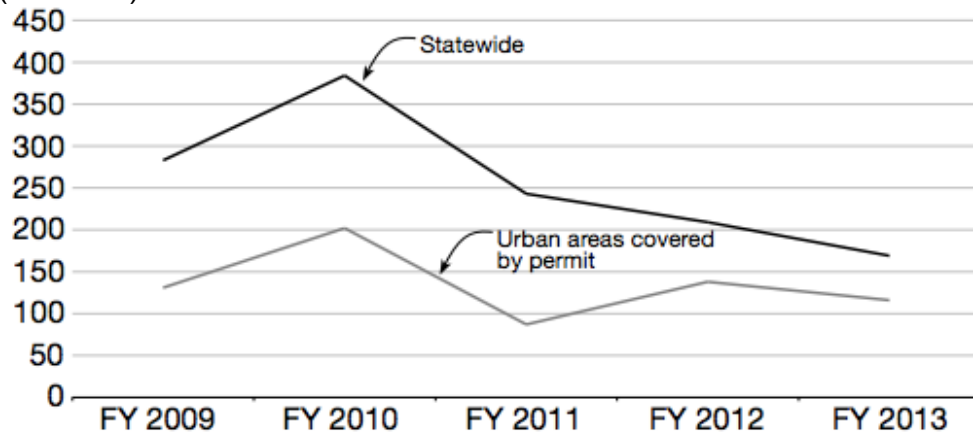
WSDOT reports stormwater funding in its annual NPDES permit reports. For the 2011-2013 Biennium, it received \$10 million in state appropriations to support its NPDES permit program, although it requested \$15 million. WSDOT does receive

⁴⁵ WA Ecology. 2013. Wastewater and Stormwater Discharge Permit Fee Program - Report to the Legislature State: Fiscal Years 2012-2013. December.

a variety of other sources of funding to support its NPDES program through grants, cost-shares, and expenditures as part of overall project budgets. It estimated total expenditures (and thus total funding) for NPDES permit implementation for the 2011-2013 biennium at \$22 million.

WSDOT typically constructs stormwater management facilities as part of larger transportation projects, such as adding new lanes to a highway. The number of funded transportation projects in the construction phase therefore directly affects how many stormwater management facilities WSDOT builds. (WSDOT Gray Book, September 2013). Since 2010, existing transportation funding has declined due to the completion of 348 of 421 Nickel and Transportation Partnership Account (TPA) projects. The graph below shows a five-year declining trend in the number of stormwater treatment facilities built (statewide and in urban areas covered by stormwater permits)

Figure 16. WSDOT Stormwater Treatment Facilities Constructed FY 2009-2013 (statewide)



Source: WSDOT Environmental Services Office, 2013 Gray Book

Retrofits

The importance of stormwater retrofits has only recently been established (in the last decade), and as such, information regarding funding needs and sources are still being actively developed. The list below is likely an incomplete assessment of all state-level funding for retrofits, as the costs can be incorporated into larger projects and programs as well. Recent specific appropriations that show the increasing trend include:

FY 2007:

\$2.5 million LID grants in Puget Sound Basin

FY 2008:

\$17.92 million for Puget Sound stormwater projects

FY 2010:

Centennial Clean Water Funds Stormwater projects: \$1 million

Puget Sound stormwater retrofits and LID construction projects: \$3.4 million

FY2011:

A total of \$23.4 million through the FY 2011 Stormwater Retrofit and LID (SWRLID) Competitive Program, to local governments covered by the National Pollutant Discharge Elimination System (NPDES) Phase I and II Municipal Stormwater permits. This portion of the appropriation provides funds for permit holders to plan, design, and construct stormwater retrofit or low-impact development (LID) projects. Roughly 90% of this funding went to Puget Sound grantees.

FY2012:

The 2012 State Legislature provided \$67 million through appropriation provisions statewide via the Supplemental Statewide Stormwater Grant Program.⁴⁶ It is assumed that 90% of this funding went to Puget Sound grantees.

FY2013:

The 2013 Legislature provided up to \$15 million dollars for cities and counties covered by one of the Phase I and II NPDES municipal stormwater permits to complete project-specific planning and design (pre-construction) activities. Eligible cities and counties are receiving funding offers up to \$120,000 per community to develop pre-construction activities for stormwater retrofit/LID projects. [Max \$10,800,000 for Puget Sound]

The 2013 Legislature provided \$85 million (\$95 million in competitive grants to local governments) and development of an ongoing comprehensive, statewide stormwater retrofit financial assistance program to be implemented in 2015. Additionally, \$1.98M has been appropriated to Ecology for a Low Impact Development Training program.

Additionally, the 2013-2015 National Estuary Program Watershed Grant - a federal funding source administered by Ecology - includes \$1,038,933 in competitive grant funding to support local governments, tribes, special purpose districts with stormwater retrofit planning & pre-design.

The past few years and funding cycles have seen increased state funding for

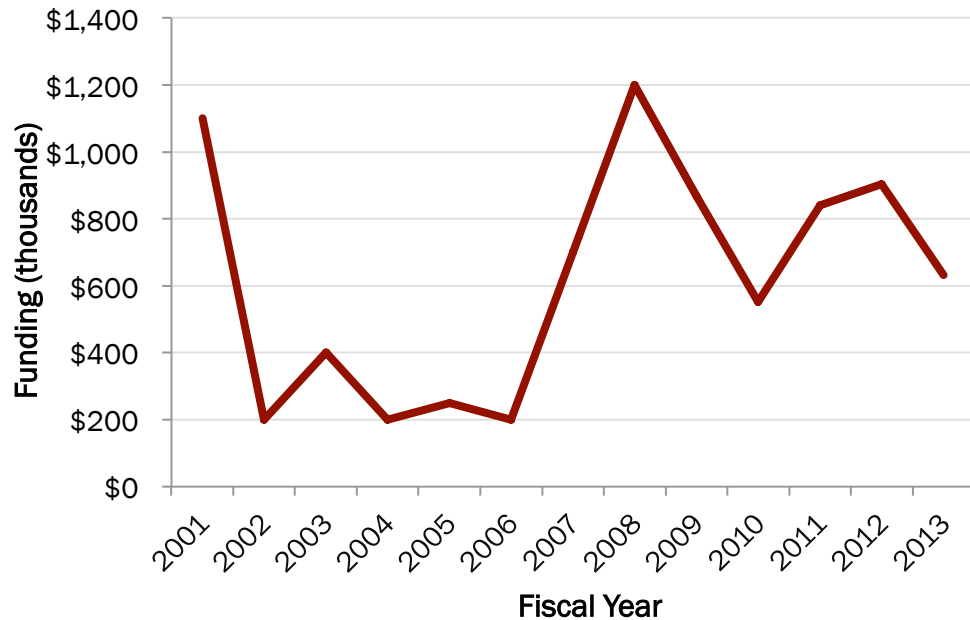
⁴⁶ Dept. of Ecology. *Supplemental Statewide Stormwater Grant Program*.

<http://www.ecy.wa.gov/programs/wq/funding/fundingprograms/otherfundingprograms/stwa12a/fy12astwa.html>.

retrofit specific activities, and much of that funding has gone to prioritization and pre-design activities. We assume that these state grants represent the majority of current funding for retrofits. It is not possible to determine what local governments spend on retrofits alone in a comprehensive way and, given the many demands on local stormwater funds, retrofits – or, active expansion of the stormwater treatment system - are likely to be a lower priority than existing obligations.

WSDOT sometimes conducts retrofits as a part of highway improvement projects. These opportunistic retrofit activities are not comprehensively tracked, and therefore it is difficult to account for all the areas that may have been retrofitted to date (WSDOT's 2010 Stormwater Report). The agency invests limited funds on stand-alone retrofits for existing highways (Figure 5).

Figure 17. WSDOT Investment in Stand-alone Stormwater Retrofits FY 2001-2013



Source: Data from WSDOT annual stormwater reports.

In the absence of sufficient funding, WSDOT is currently focused on completing existing stormwater retrofit projects and scoping new projects so they will be ready when funding becomes available. The agency has recently begun scoping approximately \$32M in standalone stormwater retrofit projects in Puget Sound, and hopes to have roughly \$40-\$50M in stormwater retrofit projects scoped by the end of this year to implement if funding were to become available in the upcoming transportation package (*Dick Gersib, pers. comm.*).

4.3 Shellfish

4.3.1 Near Term Funding

The actions that were specifically identified in the 2012-13 Action Agenda are largely funded, with a gap of \$1.8 million on a total funding need of \$8.5 million (per Appendix A of the [2013 State of the Sound](#) report). The principal funding sources are special state appropriations, state general fund appropriations, and a portion of EPA National Estuary Program funding that is passed through the state for work on Pollution Identification and Correction or PIC programs.

Table 25. Costs and Current Funding for NTAs Associated With the Shellfish Strategic Initiative

Action Number	Description	Total Cost	Funded or Budgeted	Gap
B3.1.2	Outfall strategy on state-owned lands	\$411,000	\$411,000	\$0
C1.5.1	No discharge zone evaluation/petition	\$241,000	\$241,000	\$0
C1.6.3	Water quality enforcement	\$850,000	\$689,000	\$161,000
C3.2.1	Priority areas for incentives	\$60,000	\$45,000	\$15,000
C5.3.1	OSS homeowner loan program	\$217,000	\$146,000	\$71,000
C5.3.2	OSS program funding source	\$195,000	\$136,000	\$59,000
C7.1.3	Pollution control action team	\$1,299,000	\$625,000	\$674,000
C7.3.3	Shellfish model permitting program	\$279,000	\$277,000	\$2,000
C9.4.1	Pollution ID & correction programs	\$4,924,000	\$4,115,000	\$809,000
Total		\$8,476,000	\$6,685,000	\$1,791,000

4.3.2 Other Funding for Shellfish Recovery

Spending levels are difficult to estimate for the Shellfish Initiative, largely because most spending is by private landowners and not by governments. This Initiative is heavily focused on actions on private land, including repair and replacement of under-performing septic systems and control of nonpoint source pollution from farms in the region. The very substantial private sector costs and funding commitments have not been calculated.

Governmental responsibilities include detection of water quality issues through the PIC programs, administration of county health programs, enforcement of regulations, and cost-sharing of private actions either through below-market loans (the tool of choice for septic systems), or cost-share grants and contracts with farmers for agricultural sources. Current spending includes:

- \$4.5 million in EPA funding allocated through the Departments of Health and Ecology for PIC program implementation, septic management plans, and improvements in manure management;
- \$1.9 million per biennium for shellfish food safety;

- \$1.4 million per biennium in the Department of Natural Resource's shellfish program; and
- \$6.5 million annually in county spending on management of shellfish-related public health programs.

In addition, DOE has provided grants from the Centennial Clean Water Program to defray administrative costs and lending risks for county loan programs. As of 2012, the state had allocated approximately \$10 million in loans, \$3.5 million in grants, and \$3.8 million in special funding to support these programs. The majority of this funding has been provided since the 2006 supplemental budget when \$6.5 million was provided in grant and loan funding for OSS purposes.

Local government shellfish protection districts (see RCW 90.72.040) are authorized by the state to levy fees, rates, and charges on property owners within district boundaries. Monitoring, inspection, and repair of OSS systems are authorized purposes of the shellfish protection districts. As of 2005, there were 12 designated shellfish protection districts in the Puget Sound basin. Shellfish protection districts are required if a shellfish harvest area is closed or downgraded by the DOH as a result of water pollution. A detailed analysis of revenues of the existing districts has not been conducted and it is unclear whether this funding is currently serving as a substantial source for county OSS management programs in the areas that have districts.

Funding for agricultural BMPs is currently provided through federal Farm Bill incentive programs (Conservation Reserve Enhancement Program, Environmental Quality Incentive Program, etc.) and allocated as contracts with individual farmers and ranchers. The total funding level has not been estimated⁴⁷.

Total current funding for shellfish recovery from all federal, state, and local sources is likely in the neighborhood of \$15-20 million per year⁴⁸. Note again that this disregards the very significant costs of septic system maintenance and repair and source control actions taken by the private sector.

⁴⁷ Total funding under conservation programs associated with the Farm Bill has increased from \$3.6 billion in FY 2005 to \$6 billion in FY 2012. Congressional Research Service. 2013. *Agricultural Conservation: a Guide to Programs*. R40763.

⁴⁸ Assuming \$6.5 M in county support for local septic management programs, \$2 M in additional spending by shellfish districts, \$1.7 M for DNR and DOH shellfish safety, \$2.2 M per year in EPA funding, \$2 M in DOE grants, and \$2 M in ag BMP's.

5 Long Term Funding Gaps of the Strategic Initiatives

This section summarizes the preceding sections by identifying the highest priority targets for improved funding over the long term. These targets are based on the most outstanding needs for increased funding in terms of both their potential effectiveness towards Puget Sound recovery, and the shortfall in existing funding. Assumptions concerning long term existing funding are particularly speculative and are based on current understanding and trajectory. While there is a large and growing set of NTAs under each Strategic Initiative, this gap analysis focuses on the highest priority actions over the long term and identifying:

- Costs for level of funding to see real recovery benefits
- Current and expected funding under business-as-usual
- Annual expected funding gap moving forward based on current funding levels and assumptions

The preceding sections demonstrate the overall complexity of the set of costs and existing expenditures associated with the Strategic Initiatives. The gaps presented here are points on continua and are presented to provide a basis for considering the scale of new funding necessary to achieve the Strategic Initiatives. In this way these long term estimates are most appropriately interpreted as representative of orders of magnitude. This section provides relatively wide ranges for some categories of costs and current funding. Later in the next section, as well as references in Volume 1 tend towards more central ranges for reporting.

These gaps are based on the forward-looking and long term needs for each Strategic Initiative. Short term needs will likely continue, although current program design and research investments could decline over time as programs come on line.

5.1 Habitat

Table 26. Habitat Strategic Initiative Major Long Term Funding Gaps

Action	(\$ Millions)		
	Annual Cost	Current Annual Funding	Annual Funding Gap
Salmon Recovery Work Plans	\$120-196	\$38-44	\$76-158
Floodplains	\$50-70	\$30-50	\$0-40
Culverts	\$155-175	\$18-25	\$130-157
Total	\$325-441	\$86-119	\$206-355

Salmon recovery plans are the largest current cost category for the Habitat Strategic Initiative, and annual costs are likely to remain in the neighborhood of \$150 million to \$200 million annually for the foreseeable future (Table 26). The other two primary cost categories, floodplain restoration and culvert retrofit, are more recent areas of emphasis, and consequently long term costs and funding can be more difficult to predict. Communications with Floodplains by Design leadership suggest that \$50 million annually, potentially up to \$70 million, could address the identifiable and appropriate projects. Culvert retrofit could hold particularly high state-level costs, beginning with \$155 million annually for WSDOT. WSDOT intends to complete these efforts by 2030, but inventory data suggest other public and private culverts could double the long-term culvert retrofit costs.

While current funding for implementation of the salmon recovery plans and floodplain restoration is considerable, there are potentially substantial gaps moving forward as the Strategic Initiatives requires more complete funding of projects identified in the three-Year salmon recovery work plans, and funding for Floodplains by Design moves toward reliable annual state-level funding. Culvert funding provides the greatest uncertainty and potential gap, as the pace of retrofit implementation, and scale of retrofit need in terms of local, private and potentially other state-owned culverts are identified and possibly addressed.

5.2 Stormwater

Table 27. Stormwater Strategic Initiative Major Long Term Funding Gaps

Action	(\$ Millions)		
	Annual Cost	Current Annual Funding	Annual Funding Gap
NPDES Permits and Codes	\$440-\$490	\$375-\$425	\$15-\$115
Retrofits and non-Permit/Code	\$100-200	\$50-150	\$50-\$150
Total	\$540-690	\$425-575	\$65-\$265

Stormwater costs are particularly high in Puget Sound, but so is current funding (Table 27). While the majority of this funding comes from private and local sources currently, the increasing costs are likely particularly challenging for some jurisdictions.

Defining the gap for permit and code compliance must consider the increasing difficulty or unsustainability for some permit holders of both maintaining current funding levels, and addressing delayed capital upgrades and maintenance needs. Private funding contributions in terms of costs of compliance are difficult to quantify, but there is significant overlap in potential responsibility for costs moving forward between public and private sources.

Retrofit needs for existing development influence the growing permit and code costs via multiple pathways, including direct costs associated with new development, expanded efforts for LID and green infrastructure, watershed scale efforts, and public costs associated with ongoing maintenance of facilities established under codes. The scale of total potential retrofit need is great enough that 100 percent retrofit over practical planning horizons is likely infeasible, but the current suite of efforts on new and existing problems does leave room for investment in certain particularly cost-effective options, such as street sweeping and sediment legacy loads. And state highways provide a useful focal point of escalated effort for several scientific and practical reasons.

Retrofit funding has been increasing, but given the magnitude of the costs, the gap is still going to be substantial. Additionally, the division between permit/code compliance and retrofit needs will increasingly become ambiguous and likely less important. Other considerations for the gap, particularly with respect to outstanding needs for existing development:

5.3 Shellfish

Table 28. Shellfish Strategic Initiative Major Long Term Funding Gaps

Action	(\$ Millions)		
	Annual Cost	Current Annual Funding	Annual Funding Gap
Septic Upgrades	\$3	\$1	2
Septic Mgmt Programs	\$24	\$7	17
PIC Programs	\$10-20	\$2	\$8-18
Ag BMPs	\$2	\$1-2	\$0-1
Planning, Science, Admin	\$2-4	\$1-2	\$0-3
Total	\$41-53	\$12-14	\$27-41

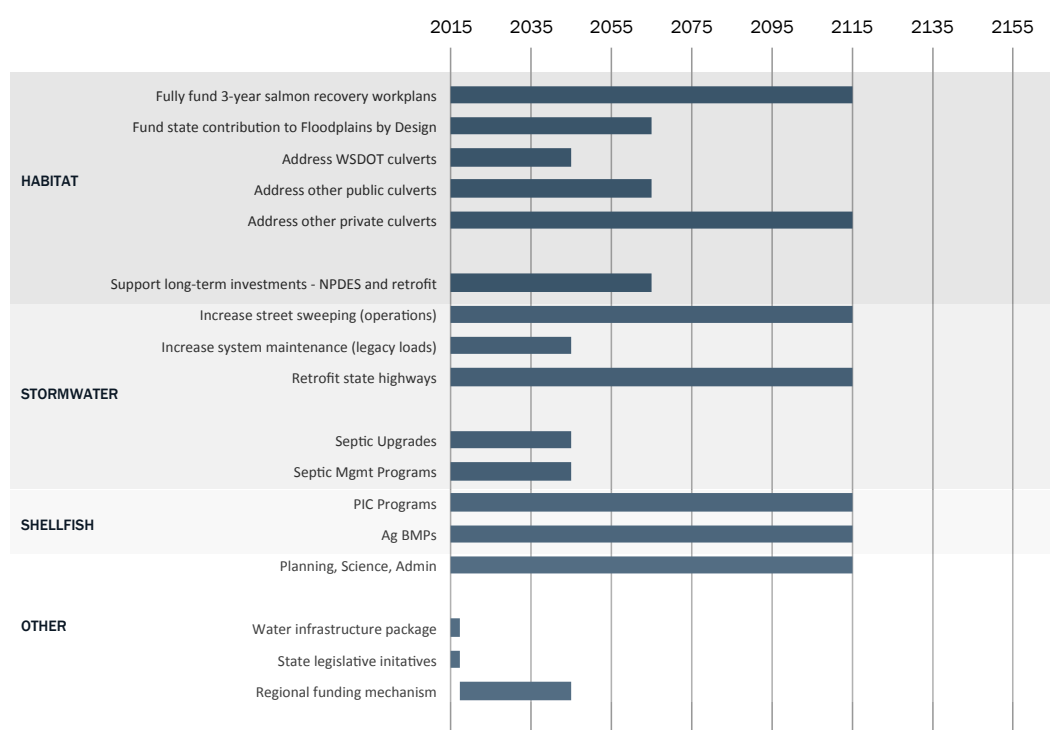
These costs do not include the relevant, but otherwise targeted efforts to address WWTP upgrades and outfall problems. Such WWTP costs would significantly dwarf these shellfish-specific programs and strategies. Additions to the program in the areas of agricultural BMPs, WWTP actions, and/or increased public contribution to accelerate and target OSS upgrades could significantly increase the cost range.

6 Overall Cost Estimates for the Strategic Initiatives Over Time

Table 29. Summary Long Term Costs and Funding Gaps for the Strategic Initiatives

Strategic Initiative/Action	(\$ Millions)			Timeframe (Years)
	Annual Cost	Current Annual Funding	Current Annual Funding Gap	
Habitat	\$325-441	\$86-119	\$206-355	100
Salmon Recovery Work Plans	\$120-196	\$38-44	\$76-158	100
Floodplains	\$50-70	\$30-50	\$0-40	50
Culverts	\$155-175	\$18-25	\$130-157	100
Stormwater	\$540-690	\$425-575	\$65-\$265	100
NPDES Permits and Codes	\$440-\$490	\$375-\$425	\$15-115	100
Retrofits and non-Permit/Code	\$100-200	\$50-150	\$50-\$150	100
Shellfish	\$41-53	\$12-14	\$27-41	100
Septic Upgrades	\$3	\$1	2	30
Septic Mgmt Programs	\$24	\$7	17	30
PIC Programs	\$10-20	\$2	\$8-18	100
Ag BMPs	\$2	\$1-2	\$0-1	100
Planning, Science, Admin	\$2-4	\$1-2	\$0-3	100
Total	\$906-1184	\$523-708	\$298-661	30, then declining
Representative Average Annual	\$1,000	\$600	\$400	

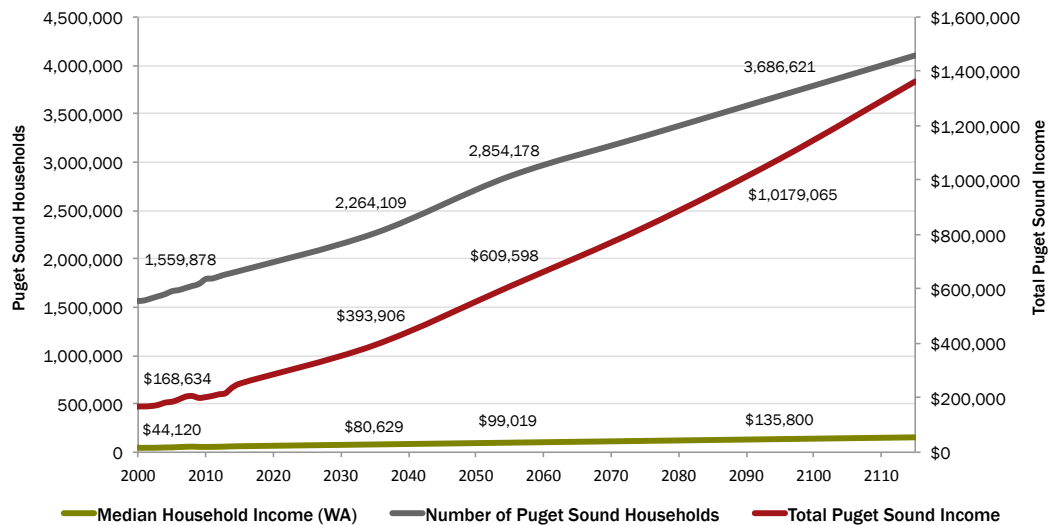
Figure 18. Strategic Initiative Timeframes (Estimated)



In total when considering the full set of long term priorities for the Strategic Initiatives, the annual funding gap is likely in the vicinity of \$400 million

annually, declining over time (Table 29). These overall estimates are based on some staggering of implementation, synergies and efficiencies over time and not a simple addition. Habitat costs are the greatest, although culvert costs and possibly floodplain projects are likely to decline over time, particularly if early success continues. Stormwater costs will likely remain high for the 100 year timeframe, although major capital upgrades and system maintenance costs should decline after early efforts. Shellfish costs are low in comparison, and the primary problem of OSS upgrades should be generally addressed over the next 10 to 30 years. In general though, it is likely that most core strategies of the Strategic Initiatives will continue over the next 100 years (Figure 18). These timeframe estimates are approximate and likely to evolve.

Figure 19. Projected Households and Income for Puget Sound



Sources:

Income Data:

- Office of Financial Management's *Median Household Income Estimates by County: 1989 to 2012 and Projection for 2013* (<http://www.ofm.wa.gov/economy/hhinc/medinc.pdf>). Projections based on OFM forecasts for growth in personal income, and the ratio of median household income to per capita income: OFM's *Long-Term Forecast of Washington Personal Income* (<http://ofm.wa.gov/economy/longterm/2014/lt2014ch4.pdf>) and OFM's *Historical Per Capita Personal Income* (<http://www.ofm.wa.gov/trends/economy/fig101.asp>)
- Total Puget Sound income estimated as a product of per capita income and total Puget Sound population.

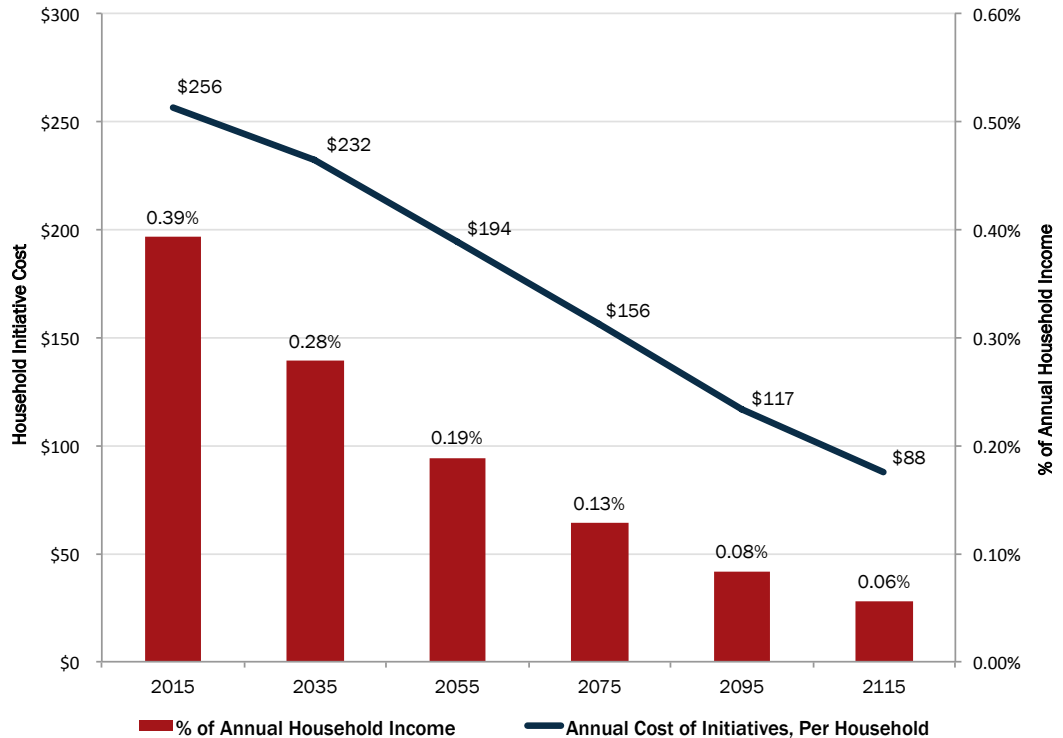
Populations and Household Data:

- Linear extrapolations based on Office of Financial Management's *County Growth Management Population Projections by Age and Sex: 2010-2040* (Final Projections of the Total Resident Population for the Growth Management Act Medium Series: 2010 to 2040: http://www.ofm.wa.gov/pop/gma/projections12/GMA_2012_county_pop_projections.pdf).
- Estimates of the number of households beyond 2010 and between decennial census estimates (U.S. Census Bureau, *Table QT-P11 Households and Families - 2010 Census Summary File 1*, *Table P015 Households - 2000 Census Summary File 1*, and *Table D-1 General Population and Housing Characteristics - 1990 Census of Population and Housing Summary Tape File 1*) were based on the calculated rate of change in the ratio of households to total population between 1990 and 2010, and the assumption that these ratios continue in the future.

Significant portions of the Strategic Initiatives are likely to decline over time though, and over this same timeframe, population in Puget Sound is projected

both to increase in size and in income (Figure 19). This combination of expected future conditions combine to create substantially declining costs of the Strategic Initiatives per household over time (Figure 20). Still, local jurisdictions report that fees are becoming more and more difficult to afford for households, and these costs will need to be weighed within the context of local budget constraints. These budget constraints will largely drive the level of emphasis necessary for state and federal sources.

Figure 20. Projected Costs of the Strategic Initiatives per Household



Sources:

Income Data:

- Office of Financial Management's *Median Household Income Estimates by County: 1989 to 2012 and Projection for 2013* (<http://www.ofm.wa.gov/economy/hhinc/medinc.pdf>). Projections based on OFM forecasts for growth in personal income, and the ratio of median household income to per capita income: *OFM's Long-Term Forecast of Washington Personal Income* (<http://ofm.wa.gov/economy/longterm/2014/lt2014ch4.pdf>) and OFM's *Historical Per Capita Personal Income* (<http://www.ofm.wa.gov/trends/economy/fig101.asp>)

Populations and Household Data:

- Linear extrapolations based on Office of Financial Management's *County Growth Management Population Projections by Age and Sex: 2010-2040* (Final Projections of the Total Resident Population for the Growth Management Act Medium Series: 2010 to 2040: http://www.ofm.wa.gov/pop/gma/projections12/GMA_2012_county_pop_projections.pdf).
- Estimates of the number of households beyond 2010 and between decennial census estimates (U.S. Census Bureau, *Table QT-P11 Households and Families - 2010 Census Summary File 1*, *Table P015 Households - 2000 Census Summary File 1*, and *Table D-1 General Population and Housing Characteristics - 1990 Census of Population and Housing Summary Tape File 1*) were based on the calculated rate of change in the ratio of households to total population between 1990 and 2010, and the assumption that these ratios continue in the future.

7 Future Funding Opportunities of the Strategic Initiatives

Starting Principles for Improved Funding

The fundamental premise behind the Strategic Initiatives is that improving these natural characteristics of Puget Sound is a worthwhile endeavor. The benefits of improved and increased salmon habitat and shellfish beds, and reduced stormwater pollution, justify the necessary costs. From an economic perspective, this under-provision is a market failure, and can be attributed to the public good and common property resource characteristics of the Strategic Initiatives. This market failure can be attributed to a number of countervailing forces, including imperfect information (e.g. scientific unknowns of the importance until recently), diffusion of benefits (including across generations), free-riding, and lack of coordination and implementation mechanisms.

Even though markets might fail for these public objectives, there are important principles from public choice theory and public finance that can help guide public funding and financing to avoid government failure as well. It is a complex problem to understand which resources should be applied to which problems. Many of the same forces that drive efficient markets can be used as guidance for efficient public funding. These include:

- Those who benefit the most pay the most⁴⁹
- For options of equal effectiveness, the lowest cost is chosen
- Benefits are better sooner than later (time preference)
- Transaction costs matter, and should be minimized⁵⁰
- Budget constraints must be respected

To these principles can be added social objectives for fairness and equity, as well as consideration of existing rights akin to property rights such as rights to clean water and a functional natural environment.

From these principles we can take some characteristics of funding strategies that are likely to contribute to success:

- Funding sources must have a clear nexus to funded actions

⁴⁹ Benefit in the case of stormwater might also be interpreted as “consume” in the sense that those creating and using impervious area are beneficiaries, and should bear the costs associated.

⁵⁰ Transaction costs are costs necessary to implement an exchange. From a programmatic sense, administration costs would be included.

- Funding needs to be at a scale sufficient to capture all or at least the primary set of beneficiaries
- Funding should be flexible enough to target the most cost-effective solutions
- Funding programs should rely on proven and existing approaches to minimize transaction costs and unintended consequences (to the extent possible)
- Beneficiaries should not be called upon to fund beyond their means, or to a point that other priorities suffer

Ability to pay, and levels of payment already in place need to be taken into account to satisfy several of these objectives. Similarly, innovative approaches offer a variety of efficiency gains, but typically must be tested and implemented incrementally to avoid high transaction costs or unintended consequences. Approaches like reverse auctions sound exotic, but they in principle simply allow market-like behavior to identify the most cost-effective options. In-lieu fee and banking programs help reduce information and transaction costs to similarly achieve the most cost-effective outcomes at their most efficient scale and geography of implementation. Borrowing tools and methodologies from elsewhere, or from different problems or scales, can significantly reduce transaction (and administration) costs.

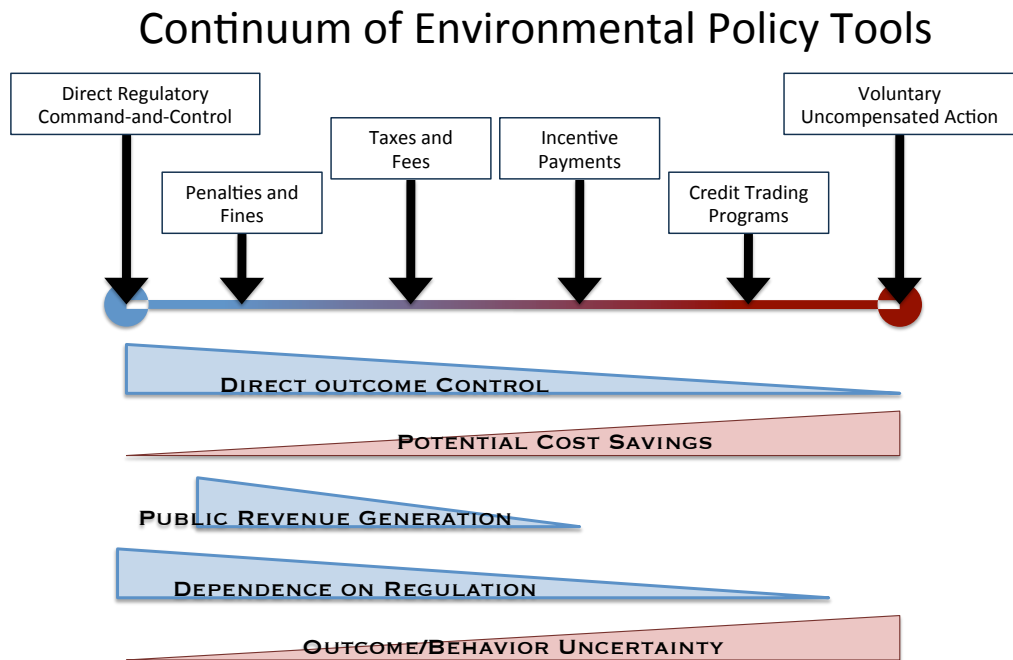
Funding can also utilize mechanisms that relate to behaviors that are best encouraged or discouraged, from a social efficiency perspective (Figure 21). For example, using fees or prices to internalize externalities (third-party costs) can generate funds and reduce problems by bringing use levels into alignment with full costs. And recognizing the level of private benefit to an undesirable behavior is important to determine if a cost imposed is just an added fee, or a real fine that is sufficient penalty to discourage the action.

When these fees are used to incorporate public costs into activities where public funding is already strained, such as services provided to new development, it is crucial to capture all costs. If the WRIA 9 retrofit study results hold, it will be important to find ways to either ensure that new and redevelopment cover their full costs for inspection and enforcement, as well as long-term operation and maintenance needs. Similar to impact fees, local jurisdictions are further challenged when NPDES permit compliance responsibilities associated with development arise. It is important to have mechanisms for development to pay for its own costs. And if these requirements are imposed sporadically, there can be inequitable economic development disadvantages from one community to another. Inequitable stormwater fees can have similar distortionary effects.

Much success has been found in Puget Sound through the multiple-benefit approach to program design.⁵¹ These recognize that opportunities to coordinate a wide array of benefits create more benefit and more possible funding. These strategies work for multiple benefits not just among the Strategic Initiatives or Action Agenda, but other public goals such as flood protection, healthy food supplies, and even recreation and amenity opportunities.

Similarly, it is important to recognize that existing programs often must satisfy objectives other than solely those of the Strategic Initiatives. Regulatory tools as well as statutory constraints might limit the ability of funds to target the most efficient objectives. Any new public funding should attempt to target those actions with the most cost-effectiveness yet neglected by existing programs. Legacy loads in stormwater systems are likely such an example.

Figure 21. Policy and Funding Tool Tradeoffs



Source: ECONorthwest

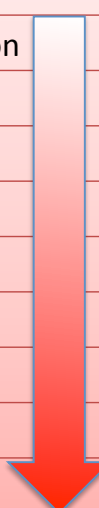
Given the variety and importance of constraints on regulatory compliance, a useful precautionary approach can involve incremental implementation of flexibility in funding and implementation options. Early steps can help to

⁵¹ See for example Fisher Slough in the Skagit Delta, the Floodplains by Design program, green stormwater infrastructure efforts, etc.

establish consistent performance measures across jurisdictions and geographies, and establish benchmarks and locally-specific objectives. Figure 22 shows one set of example approaches to increasing information with an eye both to better identification of prioritization of funding targets, as well as possibly improving efficiency of current spending, if data and analysis from early stages suggest. For example, standardized stormwater pollution measurements across Puget Sound could help establish more specific vital signs, management objectives, and recognition of where stormwater pollution control efforts are making progress, and where more progress is needed. Later, this information might inform regional efforts and identify watershed-level or regional approaches to funding and implementing the most cost-effective strategies.

Figure 22. Incremental Uses for Crediting and Trading Programs

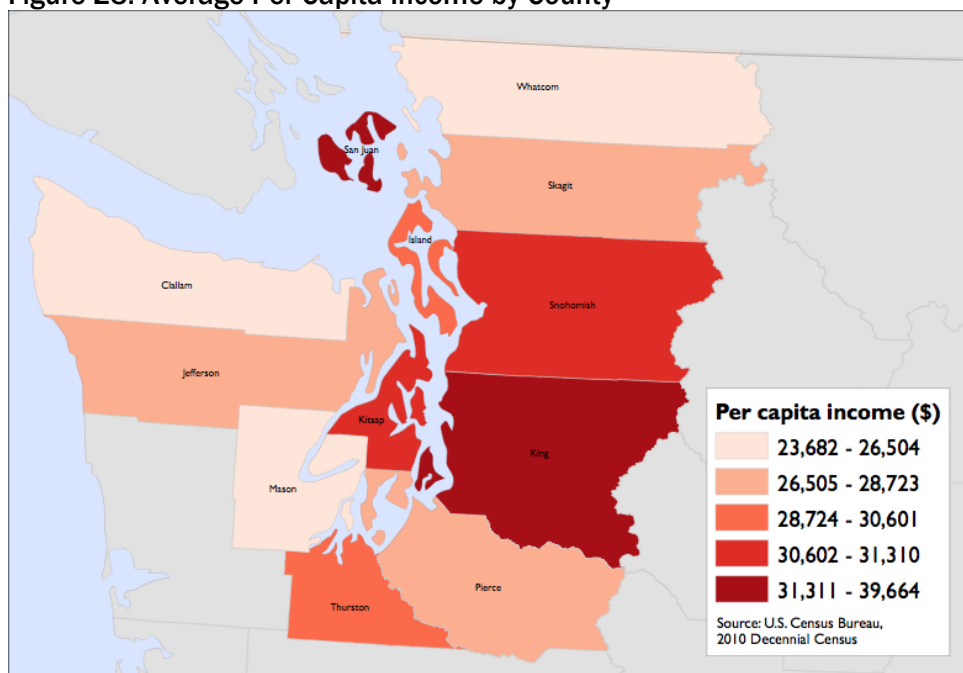
	Applications of Crediting and Trading Tools		
Crediting	Tool/technique for project benefit estimation		
	Metric for project prioritization		
	Performance tracking and accounting		
	Tool, metric for allocation of funding		
Trading	On-site compliance flexibility		
	Intra-entity compliance flexibility		
	Inter-entity compliance flexibility		
	Inter-basin/region compliance flexibility		
	Fully transferable currency for compliance		



Source: ECONorthwest

Income and wealth constraints matter both at the scale of households and communities. Income varies greatly within the Puget Sound Basin, yet stormwater fees are very insensitive to this variation (Figure 23). The lack of an income tax in Washington makes respect for varied income constraints difficult, but other means can be available to account for varied ability to pay. There are also realities that more income and wealth provides more opportunity to benefit from a healthy Puget Sound. And businesses in the region particularly are able to benefit, even by way of the quality of life benefits that attract highly-skilled labor and provide compensation.⁵²

⁵² This is sometimes called a “second paycheck”.

Figure 23. Average Per Capita Income by County

7.1 Habitat

Based on the appropriations from state and federal sources, efforts in Washington D.C. and Olympia are fairly successful (e.g. \$80 million request for PSAR generated \$70 million; there were threats to cut the Pacific Coast Salmon Fund to \$50 million, but it was maintained at \$65 million). The diversity of funding sources may actually contribute to redundancy and stability in funding. There are likely additional opportunities to achieve salmon habitat benefits secondarily via realignment of other conservation and restoration expenditures, such as mitigation activities, the Farm Bill, and private grant programs.

Realignment

Sources with high potential realignment are those with few constraints. These include general funds and programs, accounts with broad mandates, and grants whose authorities do not give them significant constraints. Medium potential realignment sources are restricted by fund source to a given emphasis but which may be reallocated among projects in the area of emphasis. For example, spending on Remedial Action Grants and grants from the RCO could be realigned to focus on public works projects that benefit Puget Sound. State agencies with natural resource responsibilities generally have medium potential with the assumption that their funds are more easily redirected than others. Sources with low potential, such as the Army Corps of Engineers and local military bases, will be difficult to realign due to substantial restrictions in the fund source. As currently structured, mitigation spending has a low potential for

realignment because it must directly address the harm caused by specific projects.

Change the scope or pace of recovery plan implementation

The 2005 Salmon Recovery Plan points out that only about a third of the financing sources in use can be used across the region. The geographically flexible sources are the SRFB state and federal sources as well as certain grants. Spending is typically constrained to the jurisdiction where it is sourced, and mitigation spending is particularly site-specific. In response, the flexible sources are used for the very highest priorities across Puget Sound. The Skagit River watershed receives additional funds for this reason.

Potential habitat funding sources

There is no simple way to raise the funds needed for a fully dependable, long-term funding strategy for the habitat program. The most likely sources are:

- Continued but diversified federal appropriations;
- Continued but diversified state appropriations;
- New state dedicated revenues;
- A new regional habitat/water quality district with dedicated revenue;
- Dedicated local tax and fee revenues;
- A combination of the items above.

Federal appropriations: It is important to continue active efforts to support the Pacific Coastal Salmon Recovery Fund program. The effort that began several years ago to diversify funding sources for the recovery effort has borne some fruit. EPA has become a major player in the funding of Puget Sound recovery, although their focus is likely to remain on Clean Water Act compliance. There are indications that they may become more involved in riparian restoration, which should be encouraged. EPA receives funding through a different federal budget bill than NOAA, which may allow opportunities for multiple political leaders to step up to lead parts of the strategy.

The development of an Army Corps of Engineers funding stream is still largely unproven. The creation of the PSNERP restoration authority under the Water Resources Development Act of 2000 was intended to provide a new, sound-wide approach to cost-sharing larger scale restoration projects, and fourteen years later, PSNERP continues to actively work through the Corps process to secure federal ecosystem restoration funding. At one time, the region was very successful at earmarking Corps authorities for major restoration projects, but earmarks are no longer possible and local projects need to go through conventional processes to be funded.

With regards to goals, continuation of current federal funding levels should be considered a success given the national political climate and the halting recovery of the economy.

State appropriations: State appropriations still have growth potential for Puget Sound recovery. Efforts to diversify state funding should continue to reach out to new partners. The Washington State Conservation Commission would be the lead in the regional conservation partnership program proposal that is being advanced by a variety of local interests. Those agencies already engaged are sure to have a broader group of funding sources that could be brought to bear on this Strategic Initiative, such as the funding provided by Ecology in 2013-2015 for floodplain initiatives.

State dedicated revenues: Prior funding strategies have investigated a variety of dedicated revenue sources for salmon recovery, including hotel and motel taxes, utility taxes, cigarette and alcohol taxes, and lottery proceeds. A thorough look at these options is beyond the scope of this project, but it would be useful to dust off these ideas and give them another look. Their advantage is that small but broadly based taxes can raise a significant amount of funding year in and year out.

New regional habitat/water quality district: This idea has floated around since it was originally proposed by King County in the mid-90s, although its origins could also be dated back to the creation of Metro and the cleanup of Lake Washington in the 1950s and 60s. The concept then was to form a multi-jurisdictional regional agency to undertake a mission – the cleanup of the massively polluted lake – that was beyond the jurisdictions and capabilities of any of the individual local governments.

The process today for developing a new regional habitat/water quality district would be much like that used in the creation of Metro: secure new authority in the state legislature, and then use the authority to create a new regional district to raise and spend money to undertake the restoration program. Of course, care would need to be taken in creating a governance structure that would withstand the court challenges that resulted in the disbanding of Metro in 1994.

The Puget Sound authority concept was advanced most recently in 2008, when a delegation led by Bill Ruckelshaus and the Puget Sound Partnership worked to champion a bill to create the authority for a regional habitat/water district. The Governor ultimately declined to introduce the bill and the initiative faded.

The idea is most compelling at the full twelve-county scale. A nexus is necessary between payments and benefits, in that the system must be broad enough to capture the area of both those who benefit and the sites for actions to restore

habitat. As many commentators have noted, some of the most pressing funding needs in the Puget Sound basin are in areas that do not have strong local tax bases. The entire region would benefit substantially from a cleaner and healthier Puget Sound and it would be fitting if the entire region paid for it. Many of the dedicated state revenues discussed previously, or regional fees and taxes (discussed below) might be suitable candidates for a regional district.

Dedicated local fees and taxes: Salmon habitat projects provide local benefits, both directly through opportunities to use restored areas and enjoy salmon populations, and indirectly through support of the overall Puget Sound ecosystem. Local residents consequently, out of both fairness and efficiency, need to play a role in funding salmon recovery projects. One potential opportunity for mutual benefit is to address the need for dedicated sources of long-term operating and maintenance budget; money that would pay for local jobs and stimulate local economies.

Flood protection: Beyond current funding sources, there is considerable interest in the potential for spending on flood protection in floodplains to be multi-purposed to also provide habitat benefits. Moving structures out of floodplains can also lead to significant flood damage cost savings (Table 30). Total flood damages estimates in Puget Sound over the past two decades reach \$860 million.⁵³ As described earlier, the Floodplains by Design program has identified \$784 million in needed and intended flood protection investments in Puget Sound.

Mitigation mechanisms: A variety of approaches are in operation or design for the purpose of improving the overall habitat benefit provided by available funding and spending for habitat improvement. Mitigation banks and in-lieu fee programs already exist within Puget Sound for wetlands and habitat. See Appendix A for more discussion on some of the existing programs. Other opportunities likely exist as well. Oregon Department of Transportation is

Table 30. Flood Insurance Claim Payments Due to Flooding Since 1978 (Millions)

County	Total Claims	Total Payments
King	1,449	\$15.5
Snohomish	957	\$11.6
Skagit	958	\$10.4
Pierce	499	\$8.3
Whatcom	376	\$4.2
Thurston	200	\$2.5
Mason	141	\$1.3
Clallam	83	\$1.0
Kitsap	65	\$0.6
Island	128	\$0.5
Jefferson	25	\$0.2
San Juan	2	\$0.0
Total	4,882	\$56.3

Source: BureauNet 2006

⁵³ PSP. 2010. Floodplain Management: A Synthesis of Issues Affecting Recovery of Puget Sound.

designing and soon piloting a fish passage banking program so that culvert retrofit spending is pooled and targeted at the most efficient and important opportunities first.

7.2 Stormwater

Cost-effective strategies for stormwater pollution management will be context-specific, and involve a portfolio approach of multiple techniques as the problems of greatest need are not uniform across communities. Opportunistic synergies will be important to identify and act upon (e.g. when redevelopment occurs that doesn't trigger regulatory requirements, or other construction activities). Prioritization across the basin (process already underway) is necessary, and has already revealed opportunities with 1) roads and highways and 2) runoff from parcels in high priority areas that are unlikely to be redeveloped in the near future.

Stormwater pollution sources and funding capacity are diverse, and can vary across jurisdictions. It is unclear whether local surface water management fees can be increased sufficiently to fund the operation and maintenance of new facilities. Stormwater fees do vary dramatically across Puget Sound. Opportunities to manage permit compliance investments for redevelopment or reconstruction at the watershed scale might expand the share of pollutant load that can be addressed for the money spent. This recognition that redevelopment sites are not always the location and scale most efficient for addressing problems motivates regional proposals such as in-lieu fee programs. Efficiencies will necessarily be a key to improvements, given the level of funding already underway and concern over budget constraints.

Potential Stormwater Funding Sources

To summarize the future funding needs for the Urban Stormwater Strategic Initiative, the studies and short-term processes identified in the Action Agenda, appear to be adequately funded, indicating that the Action Agenda is having its desired effect at driving state budget allocations. The long-term needs are for two costly but essential elements – stormwater retrofits and NPDES compliance – both of which are largely unfunded. These programs have traditionally been the responsibility of local governments and the private sector, but this discussion assumes that there may be some interest in cost-sharing the most pressing needs with new funding sources.

The Washington State Legislature is currently reviewing options for funding water infrastructure projects, including stormwater improvements, at a more generous level. This discussion is occurring in the House Capital Budget

Committee under the leadership of Representatives Dunshee and DeBolt, and Senator Honeyford.

The options under consideration in this effort focus on developing additional state capital funding capacity for water infrastructure, including stormwater management, flood management, water quality improvement, and water supply. The options include bonding or cash appropriations that would rely on such revenue sources as:

- Establishment of a statewide stormwater fee;
- Establishment of a real estate excise tax on all real estate transactions;
- Reestablishment of the sales tax on bottled water;
- Redirection of existing public utility tax revenues; and
- Added utility fees on natural gas or electric utilities.

Statewide stormwater fee: It appears this would use existing state authority to levy a fee on real property much as has been done with local stormwater utilities. Three options for rate structure are under consideration: levying based on impervious area, on a per-parcel basis, or on a per-acre basis. All could raise upwards of \$250 million per year based on the rate assumptions used in the legislative analysis.

Real estate fee: This option would presumably use the state's current REET authority to apply a per-transaction fee of \$975 on all real estate transactions in the state. The legislative projection is that this would raise at least \$250 million per year.

Bottled water: The reapplication of sales taxes to bottled water, a tax previously repealed by public initiative, would raise \$22-24 million per year.

Utility taxes: The redirection of 9.7% of existing public utility tax revenues would provide \$42-49 million per year. The other fee options would impose a monthly or per-kilowatt fee to utility customers and would raise between \$158 and \$213 million per year.

Markets: Market-based approaches offer efficiencies via numerous pathways. Beyond simply crediting, banking, and fee programs (see Appendix), there are also creative financing approaches under development. For example, communities like Philadelphia are helping to create markets for private investment in stormwater retrofit through regulatory compliance flexibility and incentives. Energy efficiency markets have seen success with such an approach.

In-Lieu Fees: In-lieu fee programs involve payment for stormwater compliance rather than on-site compliance. They can be designed to incorporate market forces or not. In a basic sense, they can provide opportunity to pool funding and use it to target the most efficient opportunities. Such stormwater programs are increasingly in use across the country (See Appendix A for examples). These efficient opportunities can be identified by public agencies, or more broadly via market forces such as through reverse auctions, whereby the lowest bidder for a given level of stormwater management wins the funding.

Road pricing: Funding roads and transportation systems is moving towards more efficient approaches as well, and stormwater cost shares can be a part of such approaches. Road pricing is the movement towards creating funding sources for roads that are based on level of use. Gas taxes are a crude form, but miles-travelled are better aligned, and already under experimentation in Puget Sound, and pilot in Oregon and elsewhere. For example, at roughly 35-40 billion vehicle miles travelled (VMT) annually in Puget Sound, a \$0.001 per VMT would raise \$35-40 million annually.

7.3 Shellfish

The most significant gap in funding the shellfish program is related to the repair and replacement of septic systems.⁵⁴ The cost of the DOH program to subsidize homeowner loans is relatively small compared to other elements of the Strategic Initiatives, particularly in the long term following repayment. At the moment, there is no defined solution for funding these costs. The DOH is in the midst of a study to assess funding strategies and in general the ECB Finance Subcommittee defers to that process to specify the program and funding strategy.

There is likely room within the DOH strategy to bring additional funding or policy to bear to accelerate OSS repair and replacement, or ensure particularly problematic areas are adequately addressed.

The other program components of the Shellfish Initiative, such as concerning marinas and the PIC studies, similarly have relatively minor costs, and it is important that they receive reliable funding sources. This suggests continued pursuit of federal grants, but complemented with state funding when necessary.

While not addressed in this report, continued efforts for WWTP upgrades and outfalls will be crucial to the long term success of shellfish bed recovery efforts.

⁵⁴ This is based on omission of WWTP upgrades from the focus of the Shellfish Initiative.

Shellfish will continue to contribute an important and valuable realization of the benefits of improving water quality in Puget Sound.

Appendix A - Alternative Programs for Water and Habitat

The magnitudes of costs and funding gaps identified in this report emphasize the importance of using available funds as efficiently as possible. Crediting, banking and trading programs provide both tested and emerging approaches to more efficient use of funds, as well as leveraging existing funds to attract other funding and investment sources. There are programs in Washington and elsewhere that have found success for objectives similar to the Strategic Initiatives, but there are serious constraints on their potential, and numerous requirements necessary to see well-functioning programs. This appendix provides an overview of select relevant programs and mechanisms.

The federal government is paying increased attention to ecosystem services and market-based approaches to their development. In 2008, the Secretary of Agriculture formed the Office of Ecosystem Services and Markets, recently renamed the Office of Environmental Markets. The Secretary established this office in order to build “technical guidelines that outline science-based methods to measure the environmental services benefits from conservation and land management activities in order to facilitate the participation of farmers, ranchers, and forest landowners in emerging environmental services markets.”⁵⁵ State and local government agencies in Washington are involved in associated efforts as well.

Similar mechanisms are experiencing success in Puget Sound. King County’s Mitigation Reserves Program provides a successful in-lieu fee example that is using mitigation responsibilities to fund major projects that can experience higher benefits and long-term success than typical one-off compliance projects.

Some agencies are developing mechanisms to address risk and uncertainty associated with market-based approaches to natural resource management. In some cases, government entities have acted as brokers to address information and transaction costs, as well as managing a share of the liability. To protect themselves from future liability, buyers can draw additional credits from banks when credit projects fail, for example when a restoration project does not perform as expected. Additionally, buyers can use trading ratios greater than one-to-one to address uncertainty for unknown project failures. For example, a

⁵⁵ Schafer, E. 2008. *Secretary’s Memorandum 1056-001*. U.S. Department of Agriculture. <http://www.ocio.usda.gov/directives/doc/SM1056-001.htm>.

two-to-one trading ratio would require the transaction to generate two acres of benefit for each acre of lost benefit offset.

Existing Transaction Programs and Applications

Despite the challenges, market-based approaches to provisioning ecosystem services are in place and under development worldwide. Voluntary markets, such as much of the U.S. carbon sequestration market, rely on a mix of private and public motivations. These voluntary markets, while beneficial, do not typically provide a reliable and sufficient level of service. Achieving socially-identified levels of ecosystem service-provision typically requires a regulatory mandate for provision of the service or a constraint on the degradation of the service. Once a mandate or constraint is in place, regulators can achieve efficiencies with market-based goods in the form of credits, conditional on monitoring and enforcement of the credit and regulation terms. In some cases, activities described as markets are actually payments for ecosystem services (PES), facilitated between private individuals, corporations, organizations, and/or governments as one-time solutions to regulatory requirements.⁵⁶

In general, farm operators participating in ecosystem service markets restore or manage their land beyond current regulatory requirements. These changes in management may generate payments or credits that farmers can sell to businesses, cities, utilities, or other entities seeking to offset environmental degradation. These markets provide a means by which entities that cannot avoid environmental degradation in conducting their business can offset their negative impact in a cost-effective manner. Non-regulated entities may choose to voluntarily purchase ecosystem services credits for marketing purposes or to comply with their internal environmental management goals.

Site-specific demands tend to determine the viability of these transactions. A local example is the City of Portland, which wanted to avoid the costs associated with investing in a filtration system to treat its drinking water. Instead of spending \$200 million on a new filtration system, the City of Portland protected 102 square miles of its watershed from activities that might introduce pollution and other impurities into its drinking water. This equates to an avoided-cost benefit of \$3,000 per acre for water filtration services.⁵⁷ Similarly, Clean Water Services, a water-resource management utility in northwestern Oregon avoided

⁵⁶ Ecosystem services refer to valuable services provided by natural systems.

⁵⁷ ECONorthwest, with data from the Portland Water Bureau, <http://www.portlandonline.com/water/index.cfm?c=29784>; and Krieger, D. 2001. *Economic Value of Forest Ecosystem Services: A Review*. The Wilderness Society.

investing in a chiller for a water treatment plant on the Tualatin River by planting riparian vegetation to shade and cool the river, for a savings of \$50 million.⁵⁸ Clean Water Services managed risk and uncertainty by purchasing cold-water releases from an upstream reservoir. Given the concerted efforts at the state and federal level, opportunities for revenues from ecosystem-service provision are likely to increase in the region.

Other countries are developing markets that value, purchase, and trade water quality and quantity, habitat, biodiversity, and other ecosystem services. Business and individuals may employ these credit techniques to adhere to regulations while avoiding other more costly compliance techniques. The carbon-emissions market (in terms of carbon sequestration) is much larger than other ecosystem services markets and has developed a sturdier institutional framework. Including market-based actions under the Kyoto Protocol and the European Union Emissions Trading Scheme, the total market volume is now over \$100 billion annually, with prices ranging to over \$40 per ton of carbon dioxide-equivalent.⁵⁹

In the following sections, we present the current status for several ecosystem service-based markets. With the exception of voluntary carbon markets, these markets typically require local entities to drive demand.

Water Transactions

Ensuring the public's continued access to water supplies of sufficient quantity and quality is a pressing issue regionally and locally. It is an issue that is likely to grow in importance as climate change impacts the availability and reliability of water resources. Population growth, changing water-use patterns, and new regulatory demands have and likely will continue to pressure water users and suppliers. In the face of these challenges, regulators and water-resource managers are increasingly turning to market-based tools to manage water supplies.

There are two types of market-based mechanisms to address water-resource issues: markets primarily designed to manage water quality and markets primarily designed to manage water quantity. Water-quantity markets usually allow participants to buy and sell consumptive water rights. In some cases, water

⁵⁸ Niemi, E., K. Lee and T. Raterman. *Net Economic Benefits of Using Ecosystem Restoration to Meet Stream Temperature Requirements*. ECONorthwest.

⁵⁹ Point Carbon. 2009. *Carbon Market North America*. August 29.

http://www.agcarbonmarkets.com/documents/Point%20Carbon_Offsets_Likely_Senate.pdf

quantity markets can improve river and stream flows by allowing public or private entities to lease or buy the water rights of a third party, who then leaves the water instream, increasing stream flows. Water-quality markets employ a similar approach to reduce water pollution by developing credits for regulated pollutants. Water-quality trading offers the possibility of meeting a watershed's water quality goals with its most cost-effective opportunities and creates incentives for water quality improvement.

Water Quantity and Quality Transactions and Agriculture

Instream flow leasing is an example of water quantity trading that allows agricultural producers to participate. In these models, public and private entities pay the owners of water rights to leave a portion of their water right instream or to put water back into the stream channel. For example, the Washington Water Trust partnered with John Crosetto, the General Manager of Teanaway Valley Family Farm, located on the North Fork of the Teanaway River in Washington. According to this lease, Washington Water Trust reimburses the Teanaway Valley Farm for a lease of 102 acre-feet until 2023. With this project and seven others like it, the Washington Water Trust has increased flows by up to 5.5 cubic feet per second in the North Fork of the Teanaway River.⁶⁰

In addition to water-quantity trading, water-quality trading is a tool that industrial and municipal facilities may use to lower their costs of meeting water-quality standards. Regulated facilities might compensate agricultural producers for a less costly, but equivalent, pollutant or temperature reduction. To achieve this end, trading partners enter into a contractual agreement, which financially benefits both parties and improves water quality with a lower financial investment. A water-quality trading market exists only when these parties have different costs to reduce their respective pollutant contributions, which creates an efficient market for less-expensive approaches to improving water quality. These markets have also employed Agricultural Best Management Practices (BMPs) in the Chesapeake Bay and the Ohio River drainage.

Some farmers in the Pacific Northwest already augment their incomes by providing water quality improvements. Producers in Washington County, Oregon who are enrolled in the Conservation Reserve Enhancement Program (CREP) earn additional revenue through the Tualatin Soil and Water Conservation District. These producers receive the standard \$265 per acre per

⁶⁰ Colombia Basin Water Transactions Program. No date. *Stories from the Field: Salmon Return as Long-Term Leases Restore Water to the Teanaway*.
<http://www.cbwtp.org/jsp/cbwtp/stories/stories.jsp?year=2006>.

year for tree plantings to cool the Tualatin River through the CREP, but can also net an additional \$128 per acre per year for improving water quality.⁶¹ Clean Water Services, a wastewater and stormwater public utility that must reduce the amount of heated water entering the Tualatin River from its facilities, provides these additional funds.

Water-Quantity Transactions in Washington State

The Colombia Basin Water Transactions Program. In 2002 the National Fish and Wildlife Foundation (the Foundation) created the Columbia Basin Water Transactions Program (CBWTP) to address regional water supply challenges. The Foundation noticed that as a result of legal water withdrawals during the peak growing season, stretches of many streams and rivers would run low – and sometimes dry – with significant consequences for imperiled salmon, steelhead, and trout.⁶² To mitigate this problem, the CBWTP uses permanent acquisitions, leases, investments in efficiency, and other incentive-based approaches, along with program partners in Oregon, Washington, Idaho and Montana, to fund landowners to restore flows to existing habitat. The Foundation and the Bonneville Power Administration (BPA) jointly manage the CBWTP. The BPA, along with the Northwest Power and Conservation Council, also provides the majority of the funding for the program.

Washington Water Trust. Established in 1998, the Washington Water Trust (WWT) is another independent, non-profit that works to increase stream flows using a market-based approach. Like the CBWTP, the WWT purchases or leases ecologically significant water rights from voluntary public or private sellers, and then dedicates the acquired water to instream use to increase tributary flows. The Washington State Trust Water Program, along with a variety of private partners, provides funding for the Washington Water Trust.

Dungeness Water Exchange

A collaboration among Department of Ecology and local agencies and tribes in the Dungeness River watershed along with Washington Water Trust have created a water bank to ensure sufficient instream flows while providing a

⁶¹ Conservation Technology Information Center. 2006. *Getting Paid for Stewardship: An Agricultural Community Water Quality Trading Guide*. July.

⁶² Colombia Basin Water Transactions Program. No date.
<http://www.cbwtp.org/jsp/cbwtp/program.jsp>.

mechanism for acquisition of water supply through the exchange. Mitigation opportunities allow generation of credits through water conservation efforts.⁶³

Washington Water Acquisition Program. Washington State launched the Washington Water Acquisition Program in 2003 with the goal of increasing stream flows in 16 watersheds. This program uses funds from the state and federal governments, along with program sponsors, to buy or lease water rights from farmers, ranchers and other water-rights holders. The program then returns the water it obtains to the creeks, streams, and rivers where it was originally withdrawn.

Participants in the Washington Water Acquisition Program have the option of selling all or part of their water rights or leasing all or part of their water rights. If a participant chooses to sell his or her water right, program sponsors will work to negotiate a sale price that is based on a fair market value. At the conclusion of the sale, the state will hold the water in trust permanently. If a participant wishes to lease his or her water right, a fair market value is again assessed, and there is no risk of relinquishing the water, though long-term leases have a higher priority.⁶⁴

Yakima Basin Integrated Water Resource Management Plan. As part of the joint effort by Washington State (primarily Department of Ecology) and Bureau of Reclamation, the Yakima basin plan under design and evaluation would address water supply scarcity in large part through increase transfer opportunities among irrigation districts for agricultural use. In this way, net farm earnings can be nearly maintained under drought conditions by means of greater flexibility in geographical use of available water.⁶⁵

Water-Quality Transactions

Background and Developments. While there are no active water quality trading markets in Washington State, there are several regional and national examples which might provide reference points for Washington landowners interested in future opportunities in these markets.

⁶³ Washington Water Trust. 2014. Dungeness Water Exchange.
<http://www.washingtonwatertrust.org/water-exchange>

⁶⁴ Department of Ecology, State of Washington. No date. *Water Acquisition: Increasing Stream Flows in Critical River Basins*. <http://www.ecy.wa.gov/programs/wr/market/wacq.html>.

⁶⁵ Department of Ecology. 2014. Yakima IWRMP.
<http://www.ecy.wa.gov/programs/wr/cwp/ybip.html>.

Sources of water quality pollutants and impairment are generally divided into two categories: point sources and non-point sources. Point sources, like factories and sewage treatment plants, are those entities that discharge pollutants from a single point or a concentrated body of points. A non-point source, like a farm or urban runoff, by contrast, is typically diffuse. Non-point sources often do not have a precise original source of pollution and so are typically unregulated.

To address growing concerns over water quality, some U.S. local and state government agencies have implemented nutrient caps or limits on discharge of pollutants into waterways. In some cases, regulated entities can use water-quality trading to reduce the costs associated with the caps and still offset the water quality degradation. In these instances, trading allows sources with relatively higher abatement costs to purchase pollution reductions from sources that have lower abatement costs. Water quality trading can occur from point-to-non-point sources, point-to-point sources or non-point-to-non-point sources.

Table III-3 illustrates four broad market structures in water quality trading: bilateral trades, sole source offsets, clearinghouses, and exchange markets. Some trading programs combine elements of two or more of these structures.⁶⁶ To reduce concerns over risk and uncertainty, some programs require greater than a one-to-one trading ratio, which is the ratio of the purchased reduction to the regulated pollutant. For example, a two-to-one ratio means that an entity would purchase two pounds of pollutant reductions for every one pound they discharge above their regulatory limit.

⁶⁶ Selman, M., S. Greenhalgh, E. Branosky, C. Jones, and J. Guiling. 2009. *Water Quality Trading Programs: An International Overview*. WRI Issue Brief: Water Quality Trading, No. 1. March.

Table A-1: Description of Water Quality Transaction Structures

Type of Market Structure	Description	Example
Bilateral Trades	One-to-one negotiations where traders arrive at a price through a process of bargaining.	The Tualatin River Program in Oregon, in which Clean Water Services bought temperature credits from 25 different farmers who implemented riparian buffers on their properties.
Sole-source offsets	Regulated entities can increase nutrient discharge at one point if they reduce their nutrient discharge at another location, either on- or off-site.	The Chatfield Reservoir Trading Program, which decommissioned septic systems in exchange for building a sewage treatment plant.
Clearinghouses or “in-lieu-fees”	A single intermediary links buyers and sellers of credits, which are uniform commodities.	The Virginia Quality Trading Program, which sells credits to regulated facilities and then purchases credits from the regulated community or non-point sources outside the community.
Exchange markets	Buyers and sellers meet in a public forum where all commodities are equivalent and all prices are transparent.	The Pennsylvania Water Quality Trading Program

Source: Adapted by ECONorthwest from Selman, M., S. Greenhalgh, E. Branosky, C. Jones, and J. Guiling. 2009. *Water Quality Trading Programs: An International Overview*. WRI Issue Brief: Water Quality Trading, No. 1. March.

In one of the more advanced national water quality developments, the U.S. Environmental Protection Agency developed and maintains the Chesapeake Bay Watershed Model in support of a watershed partnership that incorporates water quality trading programs in four states—Pennsylvania, Virginia, Maryland, and West Virginia—and the District of Columbia. Together these districts contain the 300 subwatersheds that feed into the mouth of the Chesapeake Bay. All of these programs operate in conjunction with newly adopted water quality standards, which employ point-source nutrient discharge limits.⁶⁷

When agricultural producers participate in water-quality trades, a regulator often must establish the farms’ baseline nutrient discharges before the producers can generate and trade any nutrient reduction credits. In Virginia, for example, there is a performance-based baseline for agriculture. Participating farmers must implement riparian buffers, streambank fencing, cover crops, and no-till agriculture before they gain eligibility for Virginia’s trading program and can generate credits.⁶⁸

⁶⁷ Chesapeake Bay Program. No date. *History of the Chesapeake Bay Program*. <http://www.chesapeakebay.net/historyofcbp.aspx?menuitem=14904>.

⁶⁸ Selman, M., S. Greenhalgh, E. Branosky, C. Jones, and J. Guiling. 2009. *Water Quality Trading Programs: An International Overview*. WRI Issue Brief: Water Quality Trading, No. 1. March.

Biodiversity (Habitat) Transactions

The explicit goal of a biodiversity market is to protect wildlife through the provision of habitat. For this reason, biodiversity payment schemes must include some characteristics of habitat enhancement and management. Payments for biodiversity services, therefore, include any payment for the protection, restoration, or management of habitat. Examples include biodiversity offsets, conservation easements, payments for biodiversity management, transfers of development rights, and habitat credit markets.

Biodiversity Markets and Agriculture

Agriculture occupies a significant portion of land in Washington, forming the most predominant land use type in many eastern basins and the second most common land use in western Washington. Agriculture in Washington is frequently located along streams and in the lower portions of watersheds, where historically, the most productive salmon habitat occurred. About 37 percent of salmon streams in Washington pass through private land used for agriculture.⁶⁹

Agricultural land may also play an increasingly critical role in preserving ecosystems as developers convert rural land in surrounding areas into urban and industrial land uses. In Washington State, between 1982 and 1997, about 20 percent of the farmland in the Puget Sound region was lost to other uses, especially in King and Snohomish Counties where urban growth has been high.⁷⁰ As a result of these dynamics, agriculture likely will play an important role in maintaining healthy ecosystems and biodiversity in the coming years in Washington State.

Some organizations and local governments have implanted pilot programs for improving biodiversity and habitat in Washington. Farmers in Skagit County, for example, have joined a pilot program with The Nature Conservancy to earn additional income for innovative integration of active agriculture and environmental services. In this program, the farmers flood one third of the 210 acres of dedicated land to produce critical habitat for migratory birds. Of the other two-thirds, the farmers mow one and use the other for grazing livestock or

⁶⁹ Smith, C. 2006. *Evaluation of CREP Riparian Buffers in Washington State*. Washington State Conservation Commission. April.

⁷⁰ Smith, C. 2006. *Evaluation of CREP Riparian Buffers in Washington State*. Washington State Conservation Commission. April.

planting row crops. In exchange for their labor, expense, and the use of their land, the farmers have earned \$350,000 over the first three years of the program.⁷¹

Biodiversity Transactions in Washington State

Conservation Reserve Enhancement Program. The Conservation Reserve Enhancement Program (CREP) is a voluntary federal incentive program for farmers, which aims to improve water quality and biodiversity along streams nationwide. This program aims to improve riparian habitat while lessening farmers' financial burden for restoration and conservation. The U.S. Department of Agriculture's Farm Service Agency administers CREP, in partnership with state, tribal, and private agencies.

In Washington State, the federal CREP program has partnered with the Washington State Conservation Commission and the Farm Service Agency (FSA). These agencies have cooperatively administered Washington CREP since its inception in 1999. This program provides incentives to restore and improve salmon and steelhead habitat on private land.⁷² It is voluntary and offers financial incentives for farmers to restore native vegetation to buffers along salmon streams and to preclude agricultural activities in those areas during the contract duration, which is 10 to 15 years.⁷³

There are number of eligibility requirements for participation in CREP, which include requirements for the land, stream, and participant. Basic eligibility requirements oblige the potential land to: (1) have the required cropping history, (2) support the required vegetation, and (3) be parallel and adjacent to an eligible stream.⁷⁴ For the CREP forested riparian buffer, there are 10,000 miles of streams designated as eligible. Only landowners are eligible to participate in the contract. The landowner furthermore must have owned or operated the property for at least 12 months prior to offering it for CREP.⁷⁵

⁷¹ American Farmland Trust. No date. *Washington: Partnering for Farms and Salmon*. <http://www.farmland.org/resources/reports/default.asp>.

⁷² Washington State Conservation Commission. 2010. *Fact Sheet: Conservation Reserve Enhancement Program (CREP) Washington State*. April.

⁷³ Smith, C. 2006. *Evaluation of CREP Riparian Buffers in Washington State*. Washington State Conservation Commission. April.

⁷⁴ Washington State Conservation Commission. 2010. *Fact Sheet: Conservation Reserve Enhancement Program (CREP) Washington State*. April.

⁷⁵ Washington State Conservation Commission. 2010. *Fact Sheet: Conservation Reserve Enhancement Program (CREP) Washington State*. April.

Table A-2: Financial Reimbursement within the CREP Washington State Program

Type of Reimbursement	Amount of Reimbursement	Details
Annual Rental Payments	CREP rental rate incentives are based on the average “soil rental rates” (SRR) for the site times at the following rental rates:¹	
<i>Forested Riparian Buffers</i>	200%	Must be planted to native trees and shrubs suitable to the site. Grasses will also be included if necessary. The minimum buffer width is 35' and the maximum is 180'.
<i>Hedgerow Buffers</i>	175%	Hedgerows are a 15' buffer planted to woody vegetation. The species planted must be native. These are limited to salmonid-bearing streams 15' wide or less.
<i>Grass Filter Strips</i>	150%	Can range from 20' to 120'. Enrollment is limited to non-salmonid bearing water courses within the watershed containing a designated stream.
Signing Incentive Payments (SIP)	\$100 per enrolled acre	Issued shortly after the contract is approved.
Cost share reimbursement for establishment	50% from FSA 10% from Washington State	Issued in two components. The components are limited to normal, eligible installation costs approved by the FSA and all are issued after installation of the practice.
Practice Incentive Payment (PIP)	40%	May not be issued until the entire practice is installed. See Practice Installation Loans.
Maintenance Payments	100% of eligible costs	After CREP is installed, Washington State will pay costs of maintaining the cover to specifications for up to 5 years.
Practice Installation Loans		PIP cannot be issued until installation is complete. To limit the financial burden, conservation districts can provide 0% interest loans for the PIP portion of reimbursement.

¹Average SRRs for enrolled land can vary from \$50 to \$215, times the associated rental rate percentages. SRRs are based on dryland agricultural rents in the county, adjusted for the enrolled soils' inherent productivity.

Source: Adapted by ECONorthwest from Washington State Conservation Commission. 2010. *Fact Sheet: Conservation Reserve Enhancement Program (CREP) Washington State*. April.

Program participants are eligible for financial reimbursements outlined in Table A-2. FSA annual rental payments, including the incentives, SIPs and PIPs, are subject to a \$50,000 per-year payment limitation that applies to all other CRP payments the participants may earn.⁷⁶ There is no limitation on cost share payments or the State maintenance payments other than eligible cost caps.

Since the program began in Washington State, participants have signed 576 contracts and planted 9,565 acres of riparian buffer at an average width of 150 feet and spanning a length of 553 miles.⁷⁷ The U.S. Department of Agriculture

⁷⁶ Washington State Conservation Commission. 2010. *Fact Sheet: Conservation Reserve Enhancement Program (CREP) Washington State*. April.

⁷⁷ Becker, D. Conservation Commission, quoted in Smith, C. 2006. *Evaluation of Riparian Buffers in Washington State*.

(USDA) has paid an average of \$1,008,045 each year to Washington landowners in rental payments for these protected buffers.⁷⁸

Mitigation Banking. In addition to conservation banking, mitigation banking is a market-based approach to preserving wetlands. Public or private entities, called mitigation bankers or bank sponsors, can restore and preserve wetlands, streams, and other aquatic resources in exchange for credits. Mitigation bankers can sell these credits to regulated parties who must provide wetland or buffer mitigation for a permitted project. The Mitigation Bank Review Team (MBRT), a group of regulatory agencies on the local, state, and federal level, regulates mitigation banks nationwide. The MBRT is also responsible for issuing credits and approving the sale of those credits. King County's Mitigation Reserves Program is a local successful example.

Clean Water Act. Section 404 of the Clean Water Act (CWA §404) establishes a federal program to regulate the discharge of material into federally jurisdictional wetlands, streams, and other waters. As part of the CWA §404, regulated entities must compensate for unavoidable impacts to waters by purchasing offset credits. A regulatory guidance document directs mitigation banks, which can generate wetland and stream credits. The guidance document describes the physical and legal characteristics of the bank, the proposed mitigation design, the net ecological benefit that will result from implementation of the proposal, the total number of mitigation credits generated at the bank, and the schedule for releasing those credits.⁷⁹

There are a number of criteria used to evaluate a site's potential for developing a successful mitigation bank. These criteria include the market and land-use considerations outlined in Table A-3.

⁷⁸ Smith, C. 2006. *Evaluation of CREP Riparian Buffers in Washington State*. Washington State Conservation Commission. April.

⁷⁹ Normanly, B. 2007. *A Primer on Mitigation Banking: Process and Potential Revenue*. Forest Landowner. November/December.

Table A-3: Clean Water Act Site Selection Criteria

Banking Market Criteria	Land-Use Criteria
The potential bank site is located in a high-growth watershed that is not saturated with existing mitigation banks.	Mitigation banking is consistent with adjacent land uses and will not create complications arising from neighboring properties or infrastructure (e.g., existing roads, utility lines, impoundments, etc.).
The potential bank is located within an area in which credits are required for large local, state, and federal projects, e.g., state department of transportation road projects, military base expansion, reservoirs, landfills, etc.	The potential bank site contains ditches, constructed waterways, tile drainage, levees, and other manmade structures that have altered the site's natural hydrologic regime.
The potential bank is located within a watershed listed, or is otherwise considered by the regulatory agencies as high priority.	The potential bank site contains impounded, channelized, or straightened streams in which natural channel form can be restored.
	The potential bank site contains wetland or stream buffers in which vegetation consisting of planted pine monoculture, pasture grasses, or agricultural crops can be replaced with native species.

Source: Normanly, B. 2007. *A Primer on Mitigation Banking: Process and Potential Revenue*. Forest Landowner. November/December.

Habitat Bank: Mitigation Banking in Washington State. Habitat Bank is a private organization that develops and operates mitigation banks in Washington State. This program has six current mitigation bank projects, which Table A-4 outlines below. Washington State's Department of Ecology has approved the Habitat Bank through its pilot banking program.

Table A-4: Available Mitigation Banks in Washington

Mitigation Bank	Details
Snohomish Basin Mitigation Bank	This bank serves the Snohomish, Skykomish and Snoqualmie drainage basins. It has credits available for sale for critical area impacts within its service area.
King County Mitigation Reserves Program	Program increases success and efficient targeting of mitigation spending for riparian buffers, wetlands, rivers and streams.
Colombia River Mitigation Basin	In conjunction with the Port of Vancouver, this bank serves 162 acres of the Colombia River floodplain in Clark, Cowlitz, and Skamania Counties. Credits will be available in 2010.
Lake Washington-Sammamish Watershed Bank	This bank will serve King and Snohomish Counties, WRIA 8 and the Lake Washington and Sammamish watershed. The proposal is currently under evaluation by the MBRT.
East Fork Lewis Mitigation Bank	This bank will restore approximately 100 acres of wetland habitat and provide mitigation credits for the East Fork Lewis Watershed. This bank will serve portions of the cities of Battleground, Ridgefield and La Center and drainages such as Gee, Allen and the upper end of Mill Creek. Credits will be available in 2010.
Battle Ground Mitigation Project	Located in the City of Battle Ground, this project will restore approximately 60 acres of wetland habitat and provide credits for projects within in the city.

Source: Adapted by ECONorthwest from Habitat Bank and Mitigation Banking.
<http://www.habitatbank.com/home.html> and King County. 2014. Mitigation Reserves Program.
<http://www.kingcounty.gov/environment/waterandland/wetlands/mitigation-credit-program.aspx#basics>

Forterra: Transfer of Development Rights. Forterra [formerly Cascade Land Conservancy (CLC)] works with landowners, local governments, and developers to identify and conserve priority natural areas. The Conservancy compensates farm and forest owners using traditional approaches such as land purchases, conservation easements and donations of land, as well as innovative tools such as mitigation banking, transfer of development rights, and conservation development.

In 2007 CLC cooperated with Pierce County, Washington to create a voluntary transfer of development rights (TDR) program that partners farm owners and developers.⁸⁰ In these initiatives, agricultural landowners sell the development rights to their properties to developers who want to build in greater density areas. The program's first two transactions protected 89 acres of family-owned forested land in June, 2009.⁸¹ CLC has developed or is developing similar TDR programs with Kittitas County, the City of Tacoma, the City of Sammamish, and the City of Snohomish. King County has developed its own, similar TDR program as well.

⁸⁰ Forterra/Cascade Land Conservancy. 2008. Transfer of Development Rights (TDR) in Washington State: Overview, Benefits, and Challenges. Jeff Aken, Jeremy Eckert, Nancy Fox, and Skip Swenson. http://www.forterra.org/files/resources/TDR_in_WA_State_1.pdf.

⁸¹ Tacoma Daily Index. 2009. *Cascade Land Conservancy: TDR program saves 90 acres of Pierce County Forest*. July 19.