



Puget Sound Nearshore Project Priorities: Assessing Consistency between Local and Regional Strategies of the Puget Sound Salmon Recovery Plan



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TABLE OF CONTENTS

INTRODUCTION	1
BACKGROUND	1
The importance of the nearshore to salmonids	3
BASIS FOR COMPARISON	5
Regional Nearshore Chapter (Volume II, Chapter 15).....	7
Regional Habitat Strategies Chapter (Volume I, Chapter 6).....	7
LOCAL AND REGIONAL NEARSHORE STRATEGIES COMPARISON	13
North Puget Sound Analysis: WRIAs 1-4, 6, and 17-19	13
WRIA 1 - Nooksack	13
WRIA 2 - San Juan	15
WRIA 3 and 4 - Skagit	17
WRIA 6 - Island.....	19
WRIA 17, 18 and 19 - North Olympic Peninsula	21
North Puget Sound Summary	22
Central Puget Sound Analysis: WRIAs 5, and 7-9	24
WRIA 5 - Stillaguamish.....	24
WRIA 7 - Snohomish	26
WRIA 8 - Lake Washington/Cedar/Sammamish	28
WRIA 9 - Green/Duwamish and Central Puget Sound.....	31
Central Puget Sound Summary.....	32
South Puget Sound and Hood Canal Analysis: WRIAs 10-17	33
WRIA 10 - Puyallup	33
WRIA 11- 15 - South Sound	34
WRIA 14, 15, 16 and 17 - Hood Canal	36
WRIA 15 - West Sound Watersheds	37
South Sound and Hood Canal Summary	39
CONCLUSIONS AND RECOMMENDATIONS	40
REFERENCES	42
APPENDIX A: NEARSHORE STRATEGY SUMMARY BY WATERSHED RECOVERY PLAN	44
APPENDIX B: SOUND-WIDE NEARSHORE STRATEGY SUMMARY	71
APPENDIX C: CROSS-WALK OF 3-YEAR PROJECT LISTS AND REGIONAL STRATEGIES	74

LIST OF FIGURES

Figure 1. Salmon Recovery Planning Areas.....	2
Figure 2. Draft distribution of CWT-recovered Chinook salmon juveniles in Puget Sound	6

LIST OF TABLES

Table 1. Protection of functioning habitat and high water quality (Regional Nearshore Chapter Table 7.1)	8
Table 2. Improve the function of nearshore habitats by restoration, rehabilitation or substitution (Regional Nearshore Chapter Table 7.2)	9
Table 3. Research, monitor, evaluate and refine hypotheses, goals and strategies (Regional Nearshore Chapter Table 7.3).....	11
Table 4. Summary of strategies from the Regional Habitat Strategies Chapter	12

INTRODUCTION

In 2006 the Washington Department of Fish and Wildlife (WDFW) funded three Puget Sound Lead Entities (King County [WRIA 9], San Juan County, and Kitsap County [West Sound Watersheds Council]) to form a work group to evaluate salmon recovery actions in the nearshore. Specifically, the group was asked to analyze consistency between nearshore recovery strategies developed at two different scales of analysis in the Puget Sound Salmon Recovery Plan: fine-scale actions developed at the watershed scale, and broad strategies developed at the regional scale. WDFW hopes that this analysis will lay the foundation for the ultimate goal of developing an interim work schedule for salmon recovery actions in the Puget Sound nearshore. This analysis will be vital for the new [Puget Sound Partnership](#) in developing the 2020 Action Agenda, which will provide a “roadmap to a healthy Puget Sound.” This analysis will also aid future project and funding prioritization efforts undertaken by federal, tribal, and state resource managers, funding entities, and local watershed restoration groups.

This project grew out of needs identified during recent nearshore project funding and prioritization efforts, and because of data obtained from ongoing research on restoration science of the nearshore. The Puget Sound Nearshore Partnership is currently engaged in a sound-wide nearshore ecosystem analysis known as the [Puget Sound Nearshore Ecosystem Restoration Project](#) (PSNERP), or General Investigation Study, which is scheduled for completion in 2009. However, there is a need for guidance on early action investments in the interim. Our analysis provides guidance to resource managers and lead entities to better illuminate how individual nearshore projects align with regional nearshore priorities. Currently, lead entities and resource managers are compiling a collection of potential nearshore projects that can be implemented through various funding programs such as the [Estuary and Salmon Restoration Program](#) (ESRP). Having interim guidance on how to develop an appropriate portfolio will ensure that projects funded by ESRP and other such programs have Sound-wide strategic significance. Overall, it is hoped that by viewing local projects in the context of Sound-wide priorities and strategies we can begin to see beyond the boundaries of individual watersheds and work to restore the whole of Puget Sound.

BACKGROUND

Recovery of salmon species listed under the Endangered Species Act in Puget Sound requires not only recovery actions in the freshwater streams and rivers where salmon spawn, but also in the estuaries, shorelines and marine waters of Puget Sound. These nearshore areas serve as rearing habitat, migratory corridors, refugia and areas for physiological transition from freshwater to saltwater.

The Puget Sound Salmon Recovery Plan (Shared Strategy Development Committee 2007) was adopted by NOAA’s National Marine Fisheries Service (NMFS) in January 2007 as the basis for the Recovery Plan for the Puget Sound Chinook Salmon (NMFS 2006)⁵. Developing the Shared Strategy recovery plan was a multi-year effort that included development of salmon recovery plans at multiple spatial scales. Fourteen separate watershed-based recovery plans were written and incorporated as separate chapters within the overall Puget Sound Salmon

⁵ NMFS developed a supplement to the Puget Sound Salmon Recovery Plan and these two documents combined comprise the federal recovery plan.

Recovery Plan (see Figure 1). While some of these watershed-based plans consider the role of estuarine and marine waters in support of their watershed's salmon populations, few acknowledge the regional character of all those populations mixing together in the Sound and migrating to and from the Pacific Ocean. A fifteenth chapter, known as the "[Regional Nearshore Chapter](#)", was produced by the [Puget Sound Action Team](#) (now known as the Puget Sound Partnership) that attempted to combine what is known, or at least hypothesized, about the movements and uses of the greater Puget Sound nearshore by multiple salmon populations and life histories expressed beyond the confines of natal rivers.

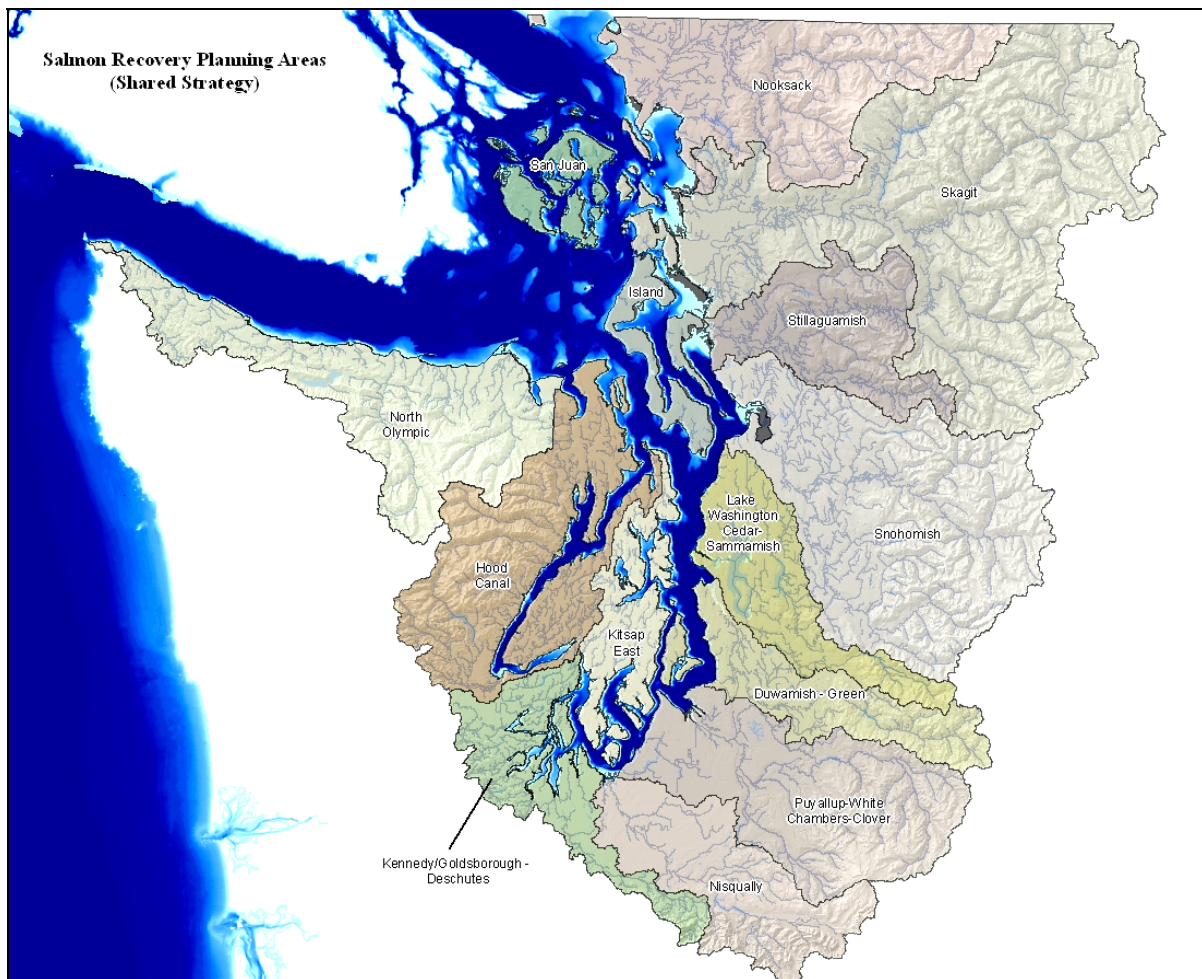


Figure 1. Watershed-based salmon recovery planning areas.

The Regional Nearshore Chapter draws from current landscape ecology and restoration theory, assessment methods and philosophies described by PSNERP but limits its analysis to juvenile Chinook salmon and to a lesser extent Hood Canal summer chum salmon and anadromous bull trout. The Puget Sound Nearshore Partnership, charged with developing and implementing PSNERP, recently gained funding and authority (ESRP as noted above) from the Washington State Legislature to conduct “early actions” for estuarine and salmon recovery which can begin to implement some of the recommended estuarine and nearshore actions for salmon recovery from the regional nearshore chapter as well as set the stage for building more complex nearshore restoration portfolios that address broader ecosystem restoration that will be identified by the PSNERP final feasibility study.

At the time of watershed chapter development, the Puget Sound Action Team provided authors a basic [guidance document](#) to use. However, the fourteen watershed chapters and the Regional Nearshore Chapter of the recovery plan were written concurrently. Because watershed chapter authors did not have the more detailed guidance provided by the Regional Nearshore Chapter, each watershed’s level of understanding of the importance of the nearshore was varied at the time of strategy development and thus the importance of the nearshore in individual watershed chapters was varied. Regardless, it was not expected that watersheds would account for fish from outside their watersheds that utilize their areas, and this is the fundamental difference between watershed chapters and the Regional Nearshore Chapter. Therefore, this analysis was initiated anticipating inconsistencies, and aimed to highlight them to direct future actions and prioritization.

The importance of the nearshore to salmonids

The importance and timeliness of this project builds upon the collective research and understanding of salmonid use of the nearshore in Puget Sound. The shaded text on pages 3-5 of this document is excerpted from a synthesis of this collective research presented in the Regional Nearshore Chapter. For a more thorough review of the importance of the nearshore to salmonids the reader is referred to [Fresh \(2006\)](#).

Essentially, the importance of the nearshore habitats to salmon falls into four functions: feeding, refuge from predation, physiological transition, and migratory pathway.

Influence of species, population and life history strategy on nearshore habitat use

Differences in salmonid use of nearshore habitats occur between species, between populations within a species, and between individuals within a population. These differences must be accounted for in planning, implementing, and monitoring protection and restoration strategies and actions for salmon in the nearshore. For example, actions that target specific habitats or landscapes to benefit one species or population may not be as beneficial to other species and populations.

Life history strategy

Within any population, individuals vary in their approach to using spawning, rearing, and migration habitats in space and time. Differences within populations in use of nearshore habitats in such attributes as residence time, timing of arrival in the estuary, habitat usage, and size of arrival in the estuary has been demonstrated by a considerable number of studies.

The following four alternative life history strategies for juvenile Chinook salmon use of nearshore habitats are based primarily upon research by Eric Beamer of the Skagit River Systems Cooperative.

1. **Fry migrants** - this life history type spends little time in freshwater after hatching (between 1 -10 days) and migrates rapidly through its natal estuary/delta. These fish rear in and along nearshore regions, particularly in non-natal estuaries (what are referred to as pocket estuaries) that may be relatively remote from their natal river. Fish are small (<50mm) at the time of estuarine entry.
2. **Delta fry** - similar to pocket estuary fry except delta fry may remain in natal delta habitats to rear for extended periods of time. This life history type is also small sized (<50mm) when entering an estuary, and will leave their natal estuary at a size of about 70mm.
3. **Parr migrants** - remain in freshwater and rear for up to 6 months before migrating to the estuary. Fish from this life history type are larger in size when entering an estuary.
4. **Yearlings** - rear in freshwater for approximately one year before migrating to Puget Sound. Fish from this life history type spend a short time in an estuary.

Nearshore habitats

The nearshore ecosystems of Puget Sound consist of a mix of habitats that juvenile salmon can potentially occupy. Habitat is the physical, biological, and chemical characteristics of a specific unit of the environment occupied by a specific plant or animal (in this case, salmon). Thus, habitat is unique to specific organisms and encompasses all the physiochemical and biological requirements of that organism within a spatial unit.

A diverse array of attributes can be defined to define physical, biological, and chemical habitat of salmon in nearshore ecosystems. Physical habitat represents the structural features of the habitat used by salmon. Within a delta, physical habitat includes such attributes as location of a marsh channel, length of the channel, average depth, connectivity to main distributary channel, depth profile, and so on. Within a shoreline environment, physical habitat includes substrate composition, beach gradient, exposure to wave energy, characteristics of adjoining riparian vegetation, and composition of habitat along the beach.

The most obvious chemical habitat attributes are temperature, salinity and dissolved oxygen. These three parameters have a significant affect on the functions of that habitat. Biological habitat includes all the plant and animal species and communities that salmon interact both directly and indirectly with. Biological habitat components can vary according to their location in the nearshore, time of year, size of the salmon, species of salmon being considered, and so on.

Geographic distribution- differences between subbasins

Research conducted in the last several years in Puget Sound using recovery of coded wire tags (CWT) from hatchery fish has found that juvenile hatchery Chinook salmon disperse widely throughout Puget Sound after passage through natal deltas. Thus, at least for hatchery fish, each region of Puget Sound supports both natal and non-natal populations (Figure 2).

Salmon biologists believe it is reasonable to assume that naturally produced fish exhibit similar types of dispersal patterns (K. Fresh, NOAA Fisheries) and that each region of Puget Sound supports both natal and non-natal populations. The degree of support provided by any one region for different populations is unknown, although continuing analyses of CWT Chinook salmon juveniles will provide additional insight in the near future. Based upon personal communications with investigators doing this work in Puget Sound, we propose the following hypotheses about non-natal use of Puget Sound:

- Areas immediately adjacent to natal estuaries are especially important to natal populations, although they can be also used by non-natal fish
- Major estuaries are used by non-natal populations
- Regions south of entry points of populations into Puget Sound are less important than areas to the north
- Importance of areas to the south of entry points of populations into Puget Sound decrease with distance

BASIS FOR COMPARISON

between regional and local strategies

Two separate regional chapters of the Puget Sound Salmon Recovery Plan were used in this comparison of local watershed and regional recovery actions. One was the already mentioned Regional Nearshore Chapter (Volume II, Chapter 15). The other was a portion of the Regional Habitat Strategies Chapter (Volume I, Chapter 6) addressing the estuaries, Puget Sound and the Pacific Ocean.

Through a detailed review of stressors and support functions encountered by multiple populations of Chinook across Puget Sound's nearshore landscape, the Regional Nearshore Chapter broadly defined shorelines, deltas and pocket estuary features that should be protected and restored to improve functions. This chapter includes three key tables that summarize nearshore strategies, goals, and objectives to aid in salmon recovery.

The strategies in the Regional Habitat Strategies Chapter are "intended to bolster and support watershed efforts by adding appropriate regional scale approaches and guidance." This was done by addressing issues that are common to multiple watersheds or that have not been adequately addressed within individual watershed plans. The Regional Habitat Strategies Chapter provides seven key results necessary to support recovery of Chinook salmon along with supporting strategies for achieving these results.

Using the strategies presented in the Regional Nearshore Chapter and the Regional Habitat Strategies Chapter (hereafter collectively referred to as the regional chapters), one representative each from North, Central and South Puget Sound analyzed individual watershed recovery plans and compared regional and local recommended actions for consistency and identified gaps. Their analysis and summary matrices reference specific strategies identified in the tables below.

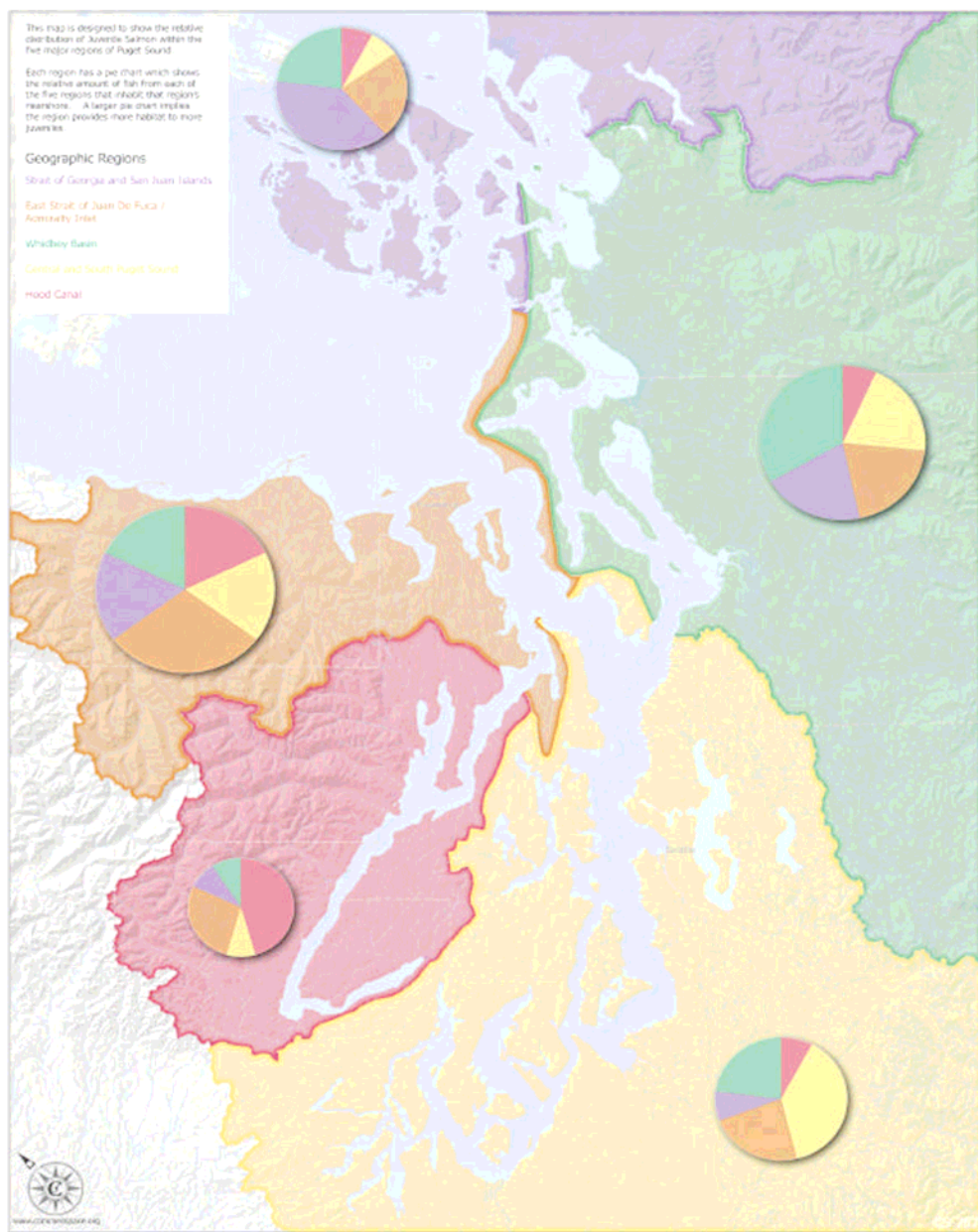


Figure 2. Draft distribution of CWT-recovered Chinook salmon juveniles in Puget Sound

Source: Semi-quantitative portrayal of distribution hypotheses suggested by Kurt Fresh, NOAA Fisheries, NWFSC and Bill Graeber, NOAA-TRT (personal communication)

Regional Nearshore Chapter (Volume II, Chapter 15)

Staff from Puget Sound Action Team and NOAA Fisheries worked with Shared Strategy of Puget Sound and the Nearshore Policy Group (NPG) to develop the Regional Nearshore Chapter background document on nearshore and marine aspects of salmon recovery. This document reflects a pursuit of this regional evaluation as a complement to the local watershed-scale and population-focused planning of the watershed recovery plan chapters. The Puget Sound region's salmon recovery efforts must include attention to the nearshore and marine environments because:

- The viability of Puget Sound Salmon and bull trout must be improved.
- Salmon and bull trout, including the species groups designated as threatened, rear in and move through Puget Sound's nearshore and marine environments year-around and rely on these environments to complete their life cycle.
- Nearshore and marine environments of Puget Sound have been greatly altered from their condition prior to settlement of the Puget Sound region by people of European descent.
- Puget Sound environments will be altered further as the region's human population continues to grow.

The following tables 1-3 are excerpted from the Regional Nearshore Chapter, section 7, Proposed Recovery Goals and Strategies. These strategies sprung from analysis and regional geographic review of multiple interacting populations of salmon in the nearshore. The Regional Nearshore Chapter sets the stage for this analysis of watershed chapters' treatments of the nearshore.

Research shows that solely focusing on habitat recovery is not sufficient for salmon recovery. We need to integrate hatchery, hydropower and harvest as well. The Technical Recovery Team and NOAA pointed out that we can address all strategies and actions listed in all the watershed chapters and the Regional Nearshore Chapter of the Shared Strategy's Puget Sound Salmon Recovery Plan, and we would still have low certainty of achieving recovery. The recovery plan is based on Viable Salmon Populations (VSP). VSP require abundance, productivity, diversity and spatial structure (see pp. 3.29 – 3.31 of The Regional Nearshore Chapter for more on VSP). The regional and local watershed chapters identify the need for studies on abundance based on VSP. It is not certain how nearshore recovery impacts abundance. Diversity of life history types across geography is another characteristic of VSP that the Regional Nearshore Chapter was able to address beyond productivity because of the geographic scope of the study that was undertaken. The reader is referred to The Regional Nearshore Chapter and Fresh (2006) for further information. For sub-basin specific references, see [Appendix E of the Regional Nearshore Chapter](#).

Regional Habitat Strategies Chapter (Volume I, Chapter 6)

[Chapter 6](#) of the Puget Sound Salmon Recovery Plan (Volume I) examines regional salmon recovery strategies, including a section on regional habitat strategies. We summarize below in table 4 the estuarine, Puget Sound and Pacific Ocean habitat strategies section of that chapter. That section generally asks: are we protecting the right places? How do we know what is "enough" habitat to recover? How do we develop and implement solutions that work for fish and people? This summary is one of the reference points for the analysis of individual chapters' nearshore strategies.

Table 1. Protection of functioning habitat and high water quality
(Regional Nearshore Chapter Table 7.1)

	Strategy	Goals and objectives addressed	Relation to hypotheses and subbasin evaluations
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	Maintaining nearshore and marine conditions that support recovery Increased stewardship – related to opportunities for voluntary actions by a large number of landowners	Protection targets are identified in hypotheses 4 & 5 and in subbasin evaluations Stressors to be addressed to protect functions are suggested by hypothesis 7 and specifically identified in subbasin evaluations
7.1.2	Evaluate effectiveness of existing programs	Increased confidence in recovery – related to assurance that recovery actions are effective	Protection targets identified in hypotheses 4 & 5 and in subbasin evaluations Stressors to be addressed to protect functions are suggested by hypothesis 7 and specifically identified in subbasin evaluations
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	Maintaining nearshore and marine conditions that support recovery Increased confidence in recovery – related to assurance that recovery actions are effective Increased stewardship – related to opportunities for voluntary actions by a large number of landowners	Protection targets identified in hypotheses 4 & 5 and in subbasin evaluations Stressors to be addressed to protect functions are suggested by hypothesis 7 and specifically identified in subbasin evaluations Preference for process-based protection is specified in hypothesis 8.
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	Maintaining nearshore and marine conditions that support recovery (and increased viability of salmon and bull trout) Increased confidence in recovery – related to relative assurance that major events might be avoided or quickly remediated.	Protection targets are identified in hypotheses 4 & 5 and in subbasin evaluations Stressors to be addressed to protect functions are suggested by hypothesis 7 and specifically identified in subbasin evaluations

Table 2. Improve the function of nearshore habitats by restoration, rehabilitation or substitution (Regional Nearshore Chapter Table 7.2)

	Strategy	Goals and objectives addressed	Relation to hypotheses and subbasin evaluations
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	<p>Achieving and maintaining nearshore and marine conditions that support recovery</p> <p>Increased viability of Chinook – especially by support for sensitive life history types – and other salmon and bull trout</p> <p>Increased confidence in recovery from: information about effects on viability; assurance that sensitive life history types receive support</p>	<p>Restoration of tidal exchange processes derives from hypotheses 1, 2, 4, and 8.</p> <p>Opportunities for improved tidal exchange are identified in subbasin evaluations.</p>
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	<p>Achieving and maintaining nearshore and marine conditions that support recovery</p> <p>Increased viability of Chinook – especially by support for sensitive life history types – and other salmon and bull trout</p> <p>Increased confidence in recovery from: information about effects on viability; assurance that sensitive life history types receive support</p>	<p>Improvement of water and sediment quality derives from hypotheses 1, 4, and 5.</p> <p>Opportunities for water quality improvements are identified in subbasin evaluations.</p>
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	<p>Achieving and maintaining nearshore and marine conditions that support recovery</p> <p>Increased viability of Chinook – especially by support for sensitive life history types – and other salmon and bull trout</p> <p>Increased confidence in recovery from: information about ability to restore function and to affect viability; assurance that sensitive life history types receive support</p> <p>Increased stewardship – related to opportunities for actions by a large number of landowners</p>	<p>Restoration of shoreline conditions adjacent to major estuaries derives from hypotheses 1, 2, 4, and 8.</p> <p>Opportunities for improved shoreline function are identified in subbasin evaluations</p>

	Strategy	Goals and objectives addressed	Relation to hypotheses and subbasin evaluations
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	<p>Achieving and maintaining nearshore and marine conditions that support recovery (and increased viability of salmon and bull trout)</p> <p>Increased confidence in recovery from information about ability to restore function and to affect viability</p> <p>Increased stewardship – related to opportunities for actions by a large number of landowners</p>	<p>Restoration of sediment delivery derives from hypotheses 1, 2, 4, and 8.</p> <p>Opportunities for improved sediment delivery are identified in subbasin evaluations</p>
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	<p>Achieving and maintaining nearshore and marine conditions that support recovery (and increased viability of salmon and bull trout)</p> <p>Increased confidence in recovery from information about ability to restore function and affect viability</p> <p>Increased stewardship – related to opportunities for actions by a large number of landowners</p>	<p>Restoration of marine riparian functions derives from hypotheses 1, 2, 4, and 8.</p> <p>Opportunities for improved sediment delivery are identified in subbasin evaluations</p>
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	<p>Increasing viability of Chinook salmon – by support for spatial structure</p> <p>Increased confidence in recovery from assurance that spatial structure receives attention</p>	Restoration in all subbasins derives from hypothesis 5.

Table 3. Research, monitor, evaluate and refine hypotheses, goals and strategies
(Regional Nearshore Chapter Table 7.3)

	Strategy	Goals and objectives addressed	Relation to hypotheses and subbasin evaluations
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	Increased confidence in recovery from evidence of effectiveness, support for hypotheses, and/or assurance of commitment to adaptation.	Would test hypotheses 1, 2, and 8. Would provide for evaluation of implemented actions
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	Increased confidence in recovery from evidence of effectiveness, support for hypotheses, and/or assurance of commitment to adaptation.	Would test hypotheses 3, 4, 5, and 6.
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	Increased confidence in recovery from evidence of effectiveness, support for hypotheses, and/or assurance of commitment to adaptation.	Would test hypotheses 3, 4, 5, and 6.
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	Increased confidence in recovery from evidence of effectiveness, support for hypotheses, and/or assurance of commitment to adaptation.	Would test various elements of hypothesis 7.
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	Increased confidence in recovery from assurance that strategies and actions will be re-directed based on new information	Would suggest revision of hypotheses and subbasin evaluations.

Table 4. Summary of strategies from the Regional Habitat Strategies Chapter

<p>A. Protection of key habitats and freshwater and saltwater processes from physical or biological disruptions</p> <p>A1. Improve existing protection programs and continue implementation through local, state, tribal and federal governments.</p> <p>A2. Evaluate the effects of existing protection programs and their contribution to salmon recovery.</p> <p>A3. Coordinate protection actions at the subbasin or appropriate scale to ensure levels of protection needed for salmon recovery are met.</p> <p>A4. Implement, evaluate and change strategies and actions where necessary.</p> <p>B. Creation of additional estuarine habitat and processes in the major river deltas</p> <p>B1. Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater</p> <p>B2. Conduct further technical assessments and/or build public support where local communities are not ready for restoration</p> <p>B3. In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies</p> <p>B4. Preserve future opportunities in all major river deltas</p> <p>B5. Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines</p> <p>C. Restoration of marine shorelines (including freshwater inputs) outside of major deltas where there is a significant benefit for population/ ESU viability</p> <p>C1. Improve our understanding of what are ‘enough’ places and the ‘right’ places to restore outside of major deltas in order to support ESU viability</p> <p>C2. Restore habitats (where processes are intact) or key processes where such restoration is linked to a likely population response</p>	<p>D. Protection and restoration of fresh- and saltwater quality</p> <p>D1. Implement protection and restoration strategies in areas prone to low dissolved oxygen levels</p> <p>D2. Implement protection and restoration strategies in areas prone to high temperatures</p> <p>D3. Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas</p> <p>E. Protection and restoration of freshwater quantity</p> <p>E1. Use Department of Ecology’s Instream Flow program and other processes to protect and restore freshwater quantity</p> <p>F. Reduction of the risk and damage from catastrophic events</p> <p>F1. Prevent Oil Spills</p> <p>F2. Prepare for Oil Spills</p> <p>F3. Response to Oil Spills</p> <p>F4. Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response</p> <p>G. Reduction of the risk and damage from non-indigenous species and other alterations to food webs</p> <p>Below is a list of issues that should be studied scientifically over time to determine their impact on recovery. With that information, appropriate management strategies can then be developed and implemented. In the long-term we will need to better understand ecological functions to integrate recovery for the Puget Sound Chinook ESU and salmon recovery with other Puget Sound ecosystem restoration efforts.</p> <p>G1. Non-native species impact on habitats and food webs used by salmon</p> <p>G2. Hatchery fish inputs that impact salmon through competition, predation and alterations in community structures</p> <p>G3. Relationship between key food web species and salmon</p> <p>G4. Fish and shellfish harvest effects on community structures that affect salmon</p>
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LOCAL AND REGIONAL NEARSHORE STRATEGIES COMPARISON

The following compilations were prepared by three lead entity coordinators in the Puget Sound Region (San Juan, West Sound, WRIA 9). During this collaborative effort, the three lead entity coordinators worked tirelessly with their colleagues and on their own to prepare these analyses and the matrices found in the appendices. This is a major step in furthering regional salmon recovery in the nearshore for Puget Sound and their work is invaluable in the scope of salmon recovery. The reader is directed to the full project analysis tables (Appendix C), for background on the narrative analysis and subsequent summary tables (Appendices A and B). For organizational purposes, the Puget Sound was split into three areas for the analysis; North Sound, Central Sound, and South Puget Sound and Hood Canal. WRIA 17 is included in both the North Sound and South Sound sections. Please reference [Washington Department of Ecology's web page](#) for geographic locations of each of the following WRIsAs.

North Puget Sound Analysis: WRIsAs 1-4, 6, and 17-19

WRIA 1 - *Nooksack*

General Overview

Listed species in the Nooksack include North/Middle Fork and South Fork Chinook which together make up one of the five genetic diversity units in Puget Sound. Both are considered essential to regional scale recovery. Bull trout are also listed as threatened. The Nooksack is also home to local populations of threatened bull trout, coho, fall chum and odd-year pink salmon, summer and winter steelhead, coastal cutthroat and Dolly Varden.

Overall, the Nooksack is concentrating their salmon recovery efforts on addressing productivity and abundance of Nooksack early Chinook. They acknowledge the perceived importance of nearshore actions for salmon recovery but it is not their focus at this time based on their assessment of the most important limiting factors. The email letter from Alan Chapman, ESA Coordinator, outlining their approach and concerns is provided:

The WRIA 1 Recovery Board has evaluated the limiting factors constraining the productivity and abundance of Nooksack early Chinook and has placed the highest priority on restoring the conditions that would produce adequate numbers of fingerlings out of the river in May or June. We are not unaware of the impact of the nearshore or off shore estuarine/marine habitat on the productivity and abundance of Chinook migrants, we have just not seen the evidence that would warrant a priority greater than that given to the production of fingerlings. I have been active in the Whatcom Marine Resource Committee and we have been working on identification of shoreline restoration and protection actions through the Shoreline Master Plan and Critical Areas Ordinance revisions in the County and City of Bellingham. The general approach of the recovery plan has been to pay attention to the activities in the nearshore areas and ensure that they do not impair current functions. We are promoting current studies and fish distribution studies to determine where and how long Chinook are present in different areas of the surrounding estuarine areas to determine whether the current approach should be modified.

The ultimate goal for salmon recovery in WRIA 1 is to recover self-sustaining salmonid runs to harvestable levels through the restoration of healthy rivers and natural stream and

estuary/nearshore marine processes, careful use of hatcheries, and responsible harvest. In the near-term (10-year time frame), Nooksack's objectives are to:

- Focus and prioritize salmon recovery efforts to maximize benefit to the two Nooksack early Chinook populations;
- Address late-timed Chinook through adaptive management, focusing in the near-term on identifying hatchery- versus naturally-produced population components;
- Facilitate recovery of WRIA 1 bull trout by implementing actions with mutual benefit to both early Chinook and bull trout and by removing fish passage barriers in presumed bull trout spawning and rearing habitats in the upper Nooksack River watershed; and
- Address other salmonid populations by (a) protecting and restoring WRIA 1 salmonid habitats and habitat-forming processes through regulatory and incentive-based programs; and (b) encouraging and supporting voluntary actions that benefit other WRIA 1 salmonid populations without diverting attention from early Chinook recovery.

The WRIA 1 Salmonid Recovery Plan identifies these proposed actions for estuarine and nearshore marine areas:

- Assessment of Nooksack Chinook distribution in and use of nearshore, including study of circulation in Bellingham Bay that would affect juvenile Chinook distribution and migratory pathways.
- Restoration of floodplain connectivity upstream of the Nooksack delta
- Restoration of connectivity (upstream and downstream) and estuarine habitat quantity and quality on the Lummi delta.
- Restoration of non-natal estuary habitat (Squalicum Creek, Whatcom Creek) and other pocket estuary habitat (Post Point lagoon) in Bellingham Bay.
- Improvement of connectivity along urbanized shoreline habitat benches constructed in association with redevelopment of inner Bellingham Bay
- Protection of existing function through Shoreline Master Program updates for Whatcom County and cities of Bellingham and Blaine.

Number of Nearshore Projects Identified

There are 7 nearshore projects defined in Nooksack's 3-year plan. These are a combination of acquisition and restoration projects designed to protect over 700 acres of estuary and nearshore habitat and restoration of more than 165 acres of estuary and nearshore habitat and 6-8 miles of tidal slough restoration. Additional work includes projects to address instream flow processes. Their habitat monitoring work is intended to evaluate effectiveness of voluntary and regulatory programs and to quantify linkages among watershed processes, land use, habitat and population response. WRIA 1 is also actively participating in a technical advisory capacity in the Critical Areas Ordinance (CAO) and Shoreline Master Plan (SMP) updates throughout the watershed.

Nooksack's nearshore projects concentrate on obtaining additional information regarding salmonid usage of the Bellingham Bay and adjacent areas as well as modeling current patterns to predict juvenile salmonid distribution.

Gap Analysis

As has been noted, Nooksack has prioritized their efforts in other areas rather than on nearshore projects in their watershed thus gaps do exist between their plan and the regional chapters. No projects specifically highlight regional or cross watershed collaboration however, their plan does support participating in regional and state salmon recovery forums. Section 7.2

from the Regional Nearshore Chapter is underrepresented in their work plan in regards to projects to analyze or improve nearshore processes such as sediment quality and delivery, marine riparian functions, eel grass beds, etc. Additionally, some of the studies recommended in section 7.3 of the Regional Nearshore Chapter are not covered by watershed work plan. These include initiating studies of an intensively monitored shoreline, studying the effects of stressors or threats on salmon, or conducting studies to test hypotheses about effects of estuaries on salmon viability. Many of these studies are likely to be more effectively conducted on a regional basis. There are no specific plans to convene a management conference to refine hypotheses and adapt strategies and actions, although the work plan does acknowledge the importance of implementing an adaptive management program.

The WRIA 1 three-year work plan also does not address well some of the strategies listed in the Regional Habitat Strategies Chapter. The work plan does not list programs or actions to protect and restore water quality, or to reduce the risk and damage from catastrophic events or invasive species and food-web alterations.

WRIA 2 - *San Juan*

General Overview

Sockeye and coho salmon, Kokanee, steelhead, rainbow and coastal cutthroat trout and native char along with Chinook have been documented in the county's marine waters. A small number of coho salmon have been reported spawning in Cascade Creek and possibly other streams on Orcas Island. San Juan Valley Creek on San Juan Island and Cascade Creek on Orcas Island support introduced runs of chum.

The major contribution San Juan County offers Puget Sound salmon recovery efforts is high-quality nearshore habitat critical to salmon and their prey as all 22 populations of Puget Sound Chinook salmon use this area for feeding on their outward and inward migrations.

The key 10-year goal of WRIA 2 is to identify critical habitats and ecosystem interactions in order to develop protection and restoration actions that will be most effective in moving populations of Puget Sound Chinook towards recovery. In San Juan County protection of high quality nearshore marine habitat is the top salmon recovery goal. The current prioritized action strategy to meet the protection goal is:

- Assessment Projects – fulfilling critical data gaps via conservation research assessments which will enhance and support protection and identify needs and opportunities for restoration;
- Protection Projects – includes data sharing, stewardship, acquisition and easements, incentives and education;
- Restoration Projects – to be based on habitat condition assessments.

It is assumed that outreach and education are included in each of the categories.

The primary placement of assessment strategies is a starting point to enhance protection and identify needs and opportunities for restoration. Assessments ranked first for WRIA2 because - at least for the next several years - better information will significantly enhance the use of existing voluntary and regulatory tools for nearshore habitat protection and restoration.

Number of Nearshore Projects Identified

Overall, San Juan has a comprehensive list of nearshore projects in their 3-year plan as nearly all of the projects in watershed work plan address nearshore. WRIA 2 is predominantly focused on nearshore activities, as they do not have significant salmonid spawning populations occurring in their watershed. The WRIA 2 salmon work plan is intended to support nearshore habitats and food webs for all 22 Puget Sound populations and other salmonids.

WRIA 2 has a mix of 19 acquisition/easement and restoration projects designed to protect and restore estuarine and nearshore habitats. These have been further defined in the current 2007 3-year work plan. The projects restore 22 acres and over 4.75 miles of estuary and nearshore habitat. (The original analysis was completed on the previous 2006 work plan.) Additional work is focused on removal of derelict nets and gear, removal of creosote logs and invasive species control.

Assessment projects are in the WRIA 2 plan to identify the relationships between nearshore habitat functions and fish distribution based on life histories and genetic stock identification. A significant project for San Juan is the “Big Picture Project” which the San Juan County Lead Entity worked with other watersheds to pursue funding as a North Sound project. Even after an extensive funding search there was no apparent support for a North Sound project so the project has since been scaled back to the scope and funding opportunities at each local watershed. The project(s) results are intended to increase understanding of benefits to fish and nearshore habitats utilized and the results will provide data to create a framework for prioritizing nearshore protection and restoration actions.

Additional assessments in the San Juan plan include analysis and synthesis of data gaps. Sixteen major areas have been identified where significant data gaps exist that hinder the progress of salmon recovery. Analysis and synthesis of the best available science for issues such as permitting reverse osmosis systems, affects of mari-culture net pens in marine waters, identification of areas at risk from oil spills and response plans, and habitat issues around proposed tidal power turbines are currently lacking. These are high priority summaries that will be used to develop guidance and policies when projects such as these are proposed as well as additional information to prioritize protection and restoration activities.

WRIA 2 is also actively participating in a technical advisory capacity in code updates and in evaluating existing voluntary, regulatory and incentive programs via the San Juan Eco-system Based Initiative project. San Juan is also participating in the Marine Stewardship Planning for the entire county with the Marine Resources Committee, which includes developing a monitoring plan.

Gap Analysis

The WRIA 2 plan meshes very well with the regional chapters. Only a few gaps exist in relation to section 7.3 of the Regional Nearshore Chapter. This includes initiating studies of an intensively monitored shoreline and conducting studies to test hypotheses about effects of estuaries on salmon viability. Many of these studies are likely to be more effectively conducted on a regional basis. There are no specific plans to convene a management conference to refine hypotheses and adapt strategies and actions, although watershed work plan does note the need for adaptive management, especially as results of assessment projects become available.

There was one additional action from the Regional Habitat Strategies Chapter that was not identified in San Juan’s plan in regards to water temperature issues.

WRIA 3 and 4 - *Skagit*

General Overview

The Skagit is the only river system in Washington, which supports all five species of salmon: Chinook, chum, coho, pink and sockeye. It is home to six of the region's 22 populations of threatened Chinook salmon and the largest population of listed bull trout. It contains the largest pink salmon stock in Washington as well as steelhead.

The fundamental objectives of the Skagit Work Plan are to:

- Improve the abundance of those species that are listed under the ESA. This will be achieved by protecting and restoring those areas most important to the survival of these fish during critical periods in their life-history, including migration and foraging habitat in the middle and lower Skagit, and brackish water habitat important to growth and smoltification (i.e., physiological transition from freshwater to saltwater) provided in the Skagit Delta, Skagit Bay, Swinomish Channel, and pocket estuaries;
- Improve the strongest populations of Chinook salmon to sustainable and harvestable numbers;
- Sustain and improve life history variability and genetic diversity of Chinook salmon throughout the watershed. Protecting and restoring rearing habitat in the streams and rivers of the upper watershed areas will improve the abundance of stream-type fish. Restoring a broad range of historically important habitats will improve the life history diversity of Chinook salmon life by providing a wider variety of habitats to these species. Improving habitat diversity is the most important step towards improving life history diversity;
- Develop and implement a set of rapid recovery actions that reduce the extinction risk of the weakest populations in the watershed;
- Build organizational capacity among project sponsoring organizations;
- Develop broad-based partnerships and community support for salmon recovery through public outreach and education;
- Improve the watershed's capacity to fund and complete large-scale protection and restoration projects by fostering long-term partnerships among agencies, tribes, conservation groups, and other local stakeholders;
- Support a strong research and monitoring program that will guide the recovery process in the future; and
- Implement an adaptive management process that will continually refine and redirect recovery actions.

Consistency with the Regional Chapters

The Skagit plan overall is in line with the regional chapters. There are 12 nearshore/estuary projects defined in Skagit's 3-year plan. The restoration projects restore over 630 acres of estuarine and nearshore habitat. Additionally, there are 2 additional projects that are not in the current 3-year plan but are being considered for near term inclusion. Projects planned in the nearshore are intended to restore and retain pocket estuary habitats, and to restore and preserve the natural geological beach processes that create and maintain nearshore forage fish habitats. The proposed nearshore projects are intended to address ecological processes key to nearshore habitats including:

- Restore connectivity among nearshore areas and marsh habitats
- Address water quality and ditching in the headwater wetlands

- Restore inter tidal pocket estuary habitat by removing fill and creating new outlet channels
- Protect and restore sediment source beaches

Projects planned in the estuary and freshwater tidal areas are aimed at restoring access to isolated habitats, re-establishing migration pathways among existing habitats, and restoring the hydrological and ecological processes that form and maintain these habitat areas. Specific estuary and tidal wetland project objectives include:

- Removing hydraulic controls that limit the development of channel networks and native vegetation
- Improving habitat connectivity and capacity (e.g., restoring the connectivity between the Swinomish Channel and the North Fork of the Skagit River)
- Restoring riverine tidal wetland habitats for juvenile rearing
- Expanding estuarine emergent marsh rearing habitat

Skagit has also included local (Skagit) and regional research studies (Whidbey Basin and North Puget Sound) in their current work plan. This research is intended to improve understanding of the relationship between climate, food resources, habitat conditions and constraints, and migratory behavior on the survival of juvenile salmonids. They are also reviewing permits and supporting regulatory protection programs and enforcement. Skagit will also conduct an “audit” in the next few years to evaluate the efficacy of regulations, with the intent to create a report card. Skagit will then use this data to frame future work planning. This work is not captured in the current 3-year work plan as it is expected to occur beyond the next 3-year timeframe.

Gap Analysis

In general, the Skagit plan has good overlap with the Regional Nearshore Chapter recommendations; however a few gaps were noted. The Skagit plan is currently lacking in any nearshore acquisition projects. There are no plans to convene a management conference to refine hypotheses and adapt strategies and actions and initiating studies of an intensively monitored shoreline are not in watershed work plan. This study could more effectively be conducted on a regional basis.

Additionally some gaps exist with the strategies and actions of the Regional Habitat Strategies Chapter. The work plan does not specifically address possible interactions between hatchery vs. wild fish and does not list actions to protect and restore water quantity or quality including issues regarding toxics and preventing or preparing for catastrophic events such as oil spills.

Included are comments from a conversation with Shirley Solomon, Skagit Watershed Council, regarding the summary results:

- Skagit is interested in joining with other groups regarding nearshore issues and working at the subbasin level, especially in areas that have natural affiliation.
- The Skagit Watershed Council has begun the basics of how to ramp up for recovery plan implementation but due to limited funding and resources is unable to address many of the gaps identified. For example, issues related to climate change are important but the Council is “not going there for now.”
- Does not believe dissolved oxygen levels are generally an issue in the Skagit area and is not aware of any oil spill response work occurring locally, but again not likely to be areas the Council plans to focus on at least for the near term.

- Additionally, Skagit is focused on H-Integration but appreciative of the need to address other issues such as stormwater, etc. However, a more pressing local need is to address agricultural run off.

WRIA 6 - *Island*

General Overview

Only coho salmon are known to spawn in streams on South Whidbey Island. Juvenile Chinook from Skagit, Stillaguamish, Snohomish, Hood Canal, Lake Washington, Green, Puyallup, White and Nisqually river likely use Island County nearshore-marine habitats with regularity prior to moving off-shore to deeper waters. Skagit, Stillaguamish and Snohomish populations are probably the most abundant among these. Many adults returning to Puget Sound rivers are known to hold off the southern tip of Whidbey prior to entering their home rivers. Bull Trout use Island County nearshore as marine foraging areas. Chum and pink salmon are also known to occur on Whidbey, and coastal cutthroat are present in streams on Whidbey and Camano Islands.

Learning more about salmon use of WRIA 6 habitats, setting measurable goals, establishing a robust protection strategy, and working with the community to find solutions that work for fish and people are the key 10-year goals of the WRIA 6 Salmon Recovery Plan. WRIA 6 provides critical rearing and migratory function to all twenty-two Chinook populations in Puget Sound and early science suggests the ten Whidbey Basin populations use WRIA 6 marine shorelines extensively, particularly during early life stages when they are most vulnerable. WRIA 6 habitats support the abundance, productivity, spatial structure and diversity of the Puget Sound Chinook evolutionarily significant unit. Initial habitat and marine process analysis suggests that portions of WRIA 6 still provide a high degree of function. These areas are top priority for stewardship and voluntary protection actions, and already receive protection thru various regulatory programs. While protection is the primary early focus, it is also understood that some restoration will also likely be necessary to reach recovery targets.

WRIA 6 Action Priorities:

- 1 - Marine Fish Distribution and Protection
- 2 - Restoration and Habitat Assessments

WRIA 6 Habitat Priorities:

- 1 - Mudflats, marshes, pocket estuaries
- 2 - Sand/gravel beaches, sandflats, instream/riparian
- 3 - Cobble beaches, rocky shore, uplands

WRIA 6 Process Priorities:

- 1 - Shoreline Sediment Transport, Tidal Exchange, Hydrology
- 2 - Nutrient Cycles, Food Web, Animal/Plant Communities
- 3 - Upland / Coastal Stream Processes

Overall, Island has a comprehensive list of nearshore projects in their 3-year plan as nearly all of the projects in watershed work plan address nearshore. WRIA 6 is predominantly focused on nearshore activities, as they do not have significant salmonid spawning populations occurring in their watershed. The WRIA 6 salmon recovery plan is intended to support nearshore habitats and food webs for all Puget Sound populations and other salmonids. WRIA 6 has 11 acquisition/easement and restoration projects designed to protect over 7000 acres of nearshore habitat and restoration of 200 acres of marsh and 1,000 feet of sand and gravel beaches.

Additional work is focused on removal of derelict nets and gear, removal of creosote logs and invasive species control. Projects for protection and restoration of upland hydrology, stream flows and riparian habitats have also been identified in the work plan.

Assessment projects are in watershed work plan to identify the relationships between nearshore habitat functions and fish distribution based on life histories and trophic interactions. Hydrologic modeling of the Whidbey Basin is also identified in watershed work plan. These assessments are intended to increase understanding of benefits to fish and dynamics of individual sites and the results will be used to reevaluate priorities. WRIA 6 is also actively participating in a technical advisory capacity in code updates, development of a monitoring program for habitat projects and to provide early assessment of oil spill response needs.

Gap Analysis

The WRIA 6 plan meshes very well with the regional chapters. Only a few gaps are noted primarily in relation to section 7.3 of the Regional Nearshore Chapter. This includes initiating studies of an intensively monitored shoreline, conducting studies to test hypotheses about effects of estuaries on salmon viability. Many of these studies are likely to be more effectively conducted on a regional basis. There are no specific plans to convene a management conference to refine hypotheses and adapt strategies and actions, although watershed work plan does mention the need for adaptive management, especially as results of assessment projects become available.

There were also a few actions from the Regional Habitat Strategies Chapter that were not identified in Island's plan in regards to water quality issues regarding toxics, water temperature, low dissolved oxygen levels, and determining expected results from hazardous waste and nonhuman catastrophic event response.

Based on comments provided by Kim Bredensteiner, Island Lead Entity Coordinator, upon review of the initial summary results, the Island summary matrix was modified to note that the following two areas are applicable to WRIA 6 but are not currently on their 3-year work plan. The specific comments by Kim are provided:

There are two items under the Regional Habitat Strategies Chapter where I think that the goal is actually relevant to WRIA 6

B.1 - New habitat near estuarine deltas. The east side of Camano is adjacent to both the S. Skagit and the Stilly deltas. So far there aren't any completed projects under this item, but there have been some proposed/funded in the past. I would expect that there will be projects on future 3-yr plans that will address this again.

D.1 - Strategies in areas prone to low DO. While the matrix does not reflect water quality efforts in Penn Cove and Holmes Harbor, both of these areas have been noted to have slow circulation and low DO. Having this on the list actually makes me think that we might want to put the Holmes Harbor Shellfish district on the list in the future - if only in the 'other species' section...

WRIA 17, 18 and 19 - *North Olympic Peninsula*

General Overview

The Elwha and Dungeness watersheds (WRIA 18) support one of the most diverse groupings of salmon populations in the state. The Elwha and Dungeness River are home to over 88 unique populations of salmon stocks including threatened summer/fall Elwha Chinook, threatened spring/summer Dungeness Chinook, threatened Hood Canal/Strait of Juan de Fuca summer chum, threatened bull trout, and populations of coho, chum, pink, summer and winter steelhead, rainbow trout and sea-run and resident cutthroat. Prior to construction of the Elwha Dam, the Elwha River also supported a population of sockeye salmon.⁶

The North Olympic Peninsula Lead Entity's (NOPLE) goal is to achieve genetically diverse, self-sustaining, salmon populations that support healthy ecosystems as well as ceremonial, subsistence, recreational, and commercial fisheries. To that end, besides the ESA species, NOPLE priority stocks include those that are considered critical, uniquely vulnerable, or are of particular ecological and/or economic importance. Chinook, chum, coho, and steelhead are all considered priority stocks.

The overall goal for Dungeness recovery is to return salmon to harvestable numbers while protecting water quality and quantity and preventing loss of life and property from flooding. Dungeness 10-year objectives:

- Protect the best remaining habitat through conservation easement, regulatory action, and education/stewardship, and restore (rehabilitate) priority-degraded habitat by implementing the Dungeness River Management Team (DRMT) habitat restoration strategy.
- Increase data collection and analysis to provide a rebuilding exploitation rate (there is not a directed fishery on Dungeness Chinook).
- Continue rebuilding the local Dungeness Chinook broodstock through the WDFW Dungeness/Hurd Creek hatchery facilities.

The goal of the salmon recovery strategy for the Elwha River is best captured in the language of the Elwha River Ecosystem Fisheries Restoration Act (ERFRA): "full restoration of the Elwha River ecosystem and native anadromous fisheries...".

Elwha 10-year objectives:

- Provide salmonid access throughout the historic range in the Elwha River watershed through removal of the Elwha and Glines Canyon dams.
- Develop an integrated nearshore recovery strategy for the north Olympic Peninsula
- Continue to restore (rehabilitate) degraded habitat in the Elwha-Morse area, and protect the best remaining habitat through conservation easement, regulatory action, and education/stewardship.
- Establish minimum instream flow requirements for salmon in the Elwha River.

⁶ Unlike WRIA 17 and WRIA 18, WRIA 19 has no chapter within the Puget Sound Salmon Recovery Plan. The North Olympic Peninsula Lead Entity (NOPLE) is concerned that effective integration with other North Olympic Peninsula plans and processes can not occur without first filling this information gap. Absent such a plan, the Lyre-Hoko WRIA 19 Watershed, and its associated nearshore, is vulnerable to damage and may be severely limited in its ability to gain funding needed for restoration and protection work. This plan will become part of the Elwha-Dungeness North Olympic Peninsula's chapter of NOAA's Regional Salmon Recovery Plan.

Additionally, due to capacity limitations and the way in which the lead entity operated historically, North Olympic has not merged their separate lists for Dungeness, Elwha, nearshore and Morse. All three plans for WRIA 17, 18 and 19 are included in this nearshore analysis along with the separate nearshore work plan.

- Implement monitoring and adaptive management strategy necessary to ensure recovery.
- Implement the hatchery program identified in the Elwha Fisheries Restoration Plan.

Restoration priorities follow a “bottoms-up’ philosophy, beginning at the estuary/river mouth and moving upriver. All nearshore projects are prioritized as Tier 1 projects.

Overall, North Olympic has a comprehensive list of nearshore projects in their 3-year plan. There are 18 nearshore/estuary capital projects identified in the North Olympic 3 year plans. These are a combination of acquisition and restoration projects designed to protect over 5,475 acres and over 1.5 miles of estuary and nearshore habitat and restoration of over 620 acres of estuary and nearshore habitat. Additional work is focused on restoring tidal flow functions and removal of derelict pontoons, removal of creosote logs and invasive species control.

Assessment projects address water quality and nutrient analysis, forage fish surveys, fish surveys to determine fish use, distribution, life histories and genetic stock ID, and invasive species such as increasing ulva presence and knotweed issues.

Watershed work plans have also identified monitoring of increased compliance with ordinances and regulatory activities, participation in updates to SMP, updates to stormwater management program and creation of stable funding for incentive programs.

Gap Analysis

In general, the North Olympic plans mesh well with the regional chapters. Only a few gaps exist based on the Regional Nearshore Chapter recommendations. This includes regional collaboration to prevent catastrophic events and conducting studies to test hypotheses about effects of estuaries on salmon viability. These studies may be more effectively conducted on a regional basis. There are no specific plans to convene a management conference to refine hypotheses and adapt strategies and actions, although the watershed work plans mention the need for adaptive management, especially as results of assessment projects become available.

Additionally some gaps exist for the Regional Habitat Strategies Chapter strategies and actions. The work plans do not specifically address possible interactions between hatchery vs. wild fish, addressing water quality issues regarding water temperature, low dissolved oxygen levels, and preventing or preparing for catastrophic events such as oil spills.

North Puget Sound Summary

The five North Sound watersheds have identified 67 projects to protect and restore 14,812 acres and 13.5 miles of estuarine and nearshore habitat. In general, all five North Sound areas are attempting to address nearshore projects in their work plans. As is typically the case, some watersheds are further along in this process than others.

It is appropriate to note and discuss briefly some of the gaps that appeared in multiple plans. None of the watershed work plans in any of the North Sound watersheds addressed the actions listed below from the Regional Habitat Strategies Chapter and the Regional Nearshore Chapter. A few ideas for each are noted but this should warrant more analysis and discussion in the future.

7.2.6 - Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound

There are likely multiple reasons why none of the watershed work plans address this action:

- All watersheds suffer from capacity issues and they are unlikely to take on any additional work outside of their current overextended roles.
- It is complex and challenging to coordinate with and reach consensus across the multiple organizations each area must deal with just at the local watershed level. Thus working across subbasins becomes exponentially more complex.
- A significant contributing factor may also be that the North Sound is too geographically dispersed to facilitate regular communications and meetings at the subbasin level.
- There are little to no incentives available that would support increasing local watershed staff workloads and complexity. The North Sound watersheds made an attempt to coordinate a fish utilization project since all watersheds have similar data gaps and there would be increased efficiency and broader knowledge gained from doing the same project in the same manner and timeframe. However, no cross-watershed funding could be found to support the project and no one had additional capacity to continue pursuing more time consuming options.

7.3.2 - Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability

This action begs to be accomplished at a regional level and/or supported via a single funding source to insure consistency of the monitoring actions and selection of appropriate representative sites.

7.3.5 - Convene management conference to refine hypotheses and adapt strategies and actions

This action is likely being accomplished via various mechanisms in each watershed; it is just not specifically called out in the local work plans at this time.

D.2 - Implement protection and restoration strategies in areas prone to high temperatures.

None of the watersheds specifically addressed high temperature issues although a number of them do have climate change issues in their work plans.

And these actions were addressed in only one of the North Sound watershed plans:

7.3.4 – Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations

Some watersheds are attempting to address research and data gaps but it is challenging to make the trade offs necessary at the local level to allocate scarce funding to answer this and many of the other research actions. A regional approach to research actions may ultimately be a more successful approach to accomplish fulfilling the data gaps that exist in understanding salmonid use of estuaries and nearshore habitats.

A.3 - Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.

Same or similar issues as for 7.2.6 above.

G.4 - Fish and shellfish harvest effects on community structures that affect salmon.

It could be that the limited research that has been done on this issue may be so slim and not widely known or publicized. Thus, this action is not even on “the radar” of most recovery groups.

In regards to some of the gaps that were noted in multiple plans, an overarching question arises regarding what are appropriate projects and actions to expect the local watersheds to perform and what actions would be more appropriate, efficient, etc. for a centralized source or region to perform. The “Big Picture Project” (fish utilization project) is one example of a data gap that may lend itself to a broader approach. It is also interesting to note that there were three watersheds (Skagit, Nooksack, Island) that have hydraulic/hydrologic modeling projects on their 3-year work plans. These could be projects that would also make sense to leverage across watersheds. More discussion amongst and across the watersheds should be facilitated about the issue of addressing research and data gaps.

Central Puget Sound Analysis: WRIAs 5, and 7-9

WRIA 5 - *Stillaguamish*

General Overview and Consistency with the Regional Chapters

[The Stillaguamish Watershed Chinook Salmon Recovery Plan](#) generally meshes well with the regional chapters. Overall, the watershed recovery plan largely focuses on upstream activities with a smaller portion devoted to nearshore actions. However, most of the strategies identified in the regional chapters are addressed in the Stillaguamish plan.

The Stillaguamish’s 22 miles of marine shoreline is small compared both to its 700 square miles of drainage area and to the shoreline of many other Puget Sound watersheds. The authors of the watershed recovery plan appear to remain somewhat unconvinced of the importance of nearshore habitats to salmon survival. These habitats have been highly degraded. For example, at the time of European settlement there were approximately 4,439 acres of salt marsh habitat connected to the Stillaguamish Watershed. Two-thirds of this area was gone by 1886, and by 1968, only 15% of the original salt marsh remained. The Stillaguamish Technical Advisory Group recommends a target of 80% of historic estuarine and nearshore habitat with properly functioning conditions. Achieving this goal would require restoration of approximately 2,020 acres of estuarine area.

Number of Nearshore Projects Identified

The Stillaguamish Implementation Review Committee produced both the watershed recovery plan discussed above, and a 3-year work plan. While the watershed recovery plan offers a comprehensive discussion of recommended approaches for salmon restoration in the Stillaguamish watershed, as well as priorities for the nearshore, the work plan offers more complete details of specific planned actions. Specifically, the 3-year work plan identifies:

- 22 habitat capital projects which directly address priority areas relevant to the nearshore
- 15 habitat capital projects which do not directly address priority areas relevant to the nearshore
- 7 non-capital nearshore projects

Priority Areas Identified

The priority restoration areas for the watershed as a whole are key reaches where Chinook salmon are currently productive, including spawning grounds, migration corridors and rearing areas. Prioritized nearshore restoration project sites include:

- Fresh-salt water transition zones, migratory corridors, refuge and forage areas
- Areas adjacent to areas subject to frequent tidal or seasonal flooding
- Shoreline areas bordering Chinook salmon migration routes
- Areas with evidence of historic blind tidal channel or salt marsh habitat
- Areas amenable to sustainable project development, including:
 - large parcels
 - parcels with less development and utility infrastructure
 - transportation or flood control structures
 - parcels with marginal economic use that may improve through habitat restoration

Types or Prioritization of Actions Identified

The watershed recovery plan's nearshore recommendations are generally focused on habitat restoration, particularly habitat enhancement, restoring hydrologic processes and improving water quality, and preserving habitats. Suggested habitat enhancement areas include blind tidal channels, salt marshes, and pocket estuaries, with activities including removal of bulkheads, enhancement of native vegetation, construction of log jams, and removal of noxious weeds from estuaries. The recommended hydrologic and water quality activities including removing levees, dikes and revetments where appropriate, creating dike setbacks, retrofitting tide gates, and reducing pollutant loads into the estuary. Finally, the watershed recovery plan recommends protecting functioning estuary, pocket estuary, and marine shoreline habitats, and purchasing easements on estuary and marine shoreline property.

The Stillaguamish Implementation Review Committee approved three actions in the Watershed recovery plan, prioritized as follows:

- Restoring 115 acres of salt marsh estuarine habitat including 18 acres of blind tidal channel habitat at Leque Island
- Restoring 80 acres of salt marsh estuarine habitat at The Nature Conservancy property
- Placement of 10 engineered log jams on the mud/sand flats to create salt marsh habitat

Regional Priority Projects and Multi-WRIA Projects

The Stillaguamish Salmon Recovery Plan recommends coordination with WRIAs 5, 6 (Island) and 7 (Snohomish) to promote and support nearshore and pocket estuary protection and restoration actions throughout Whidbey Basin and especially in Port Susan and Skagit Bay.⁷ This coordination could include the following actions on the part of the Technical Advisory Group and the Stillaguamish Implementation Review Committee:

- Review the Port Susan and Skagit Bay nearshore elements of the WRIA 6 and WRIA 7 salmon conservation plans
- Explore opportunities to support protection and restoration nearshore projects in WRIAs 5, 6 and 7
- Support studies that improve scientific knowledge of the Whidbey Basin nearshore habitat conditions and how they influence the recovery of natal and non-natal salmonid populations
- Support public education, outreach, and technical assistance that address the need for Port Susan and Skagit Bay nearshore habitat protection and restoration.

⁷ WRIAs 5, 6 and 7 will additionally be convening to discuss interrelated watershed and nearshore issues in the three watersheds, under a grant from the EPA and Washington Department of Ecology received following the development of these plans.

Gap Analysis

In general, there is good overlap between the actions recommended in the Stillaguamish Salmon Recovery Plan and in the Regional Habitat Strategies Chapter. Some of the studies recommended in section 7.3 of the Regional Nearshore Chapter are not covered by the watershed recovery plan. These include discussing the potential for collaboration between regional organizations/communities to prevent catastrophic events or protect nearshore habitat features from catastrophic events, such as oil spills; convening a management conference to refine hypotheses and adapt strategies and actions; or conducting studies in the heavily monitored Skagit Delta.

The watershed recovery plan does note that salmonids originating from other watersheds use the Stillaguamish nearshore for juvenile rearing and adult feeding and migration, and that juvenile salmonids are distributed widely throughout the Puget Sound basin nearshore after they leave their natal watersheds. While not specifically stated, the regional activities discussed above will likely offer opportunities for the Stillaguamish to cooperate with neighboring watersheds to address the connections between salmon habitats in neighboring basins.

WRIA 7 - Snohomish

General Overview of Consistency with Regional Chapters

[The Snohomish River Salmon Conservation Plan](#) is generally consistent with the regional chapters. The watershed recovery plan identifies twelve subbasin strategy groups, of which two are the nearshore and estuaries; many of the proposed estuary actions would impact the nearshore. The Snohomish River basin nearshore is a small part of the total basin area of 1,856 square miles; however the nearshore environment is given significant emphasis in the watershed recovery plan. While all of the strategies identified under the Regional Habitat Strategies Chapter are covered in the watershed recovery plan, gaps in coverage of the Regional Nearshore Chapter particularly include strategies to conduct scientific studies.

Number of Nearshore Projects Identified

The Snohomish Basin Salmon Recovery Forum produced both the Salmon Conservation Plan discussed above, and a 3-year work plan.

The 3-year work plan identifies:

- 14 nearshore capital projects
- 3 non-capital projects
- 7 cross-WRIA or Whidbey Basin capital projects

The Salmon Conservation Plan is more comprehensive, recommending:

- 16 potential nearshore restoration projects
- 17 potential nearshore non-capital projects
- 11 estuary projects with impacts on the nearshore, such as restoration of tidal marshes and areas with high saltwater-freshwater exchange

Priority Areas Identified

In general, the watershed recovery plan prioritizes nearshore activities in areas north of Everett, as these areas are generally undeveloped or less developed, and are not constrained by the

railroad. Specific areas include upper beach regions, which are important for forage fish spawning, and functioning feeder bluffs, which nourish beaches. Restoration activities are also prioritized in the lower estuary, such as Ebey Island and Smith Island, where the threat of future habitat loss is highest.

Types or Prioritization of Actions Identified

High priority nearshore restoration activities include:

- protecting undeveloped areas
- restoring shoreline conditions, e.g., by removing armoring or using bioengineering approaches
- restoring sediment processes by removing barriers to sediment transport and increasing connectivity between coastal bluffs and the marine environment
- planting native species to enhance riparian areas

Second-tier priority nearshore actions include:

- protecting and/or restoring water quality, with a particular focus on contaminated sediments, septic systems, illicit discharges, and/or non-point source pollution
- controlling invasive species
- protecting connections between habitats

Protection activities could occur by means of acquisition or programmatic efforts.

Many of the high priority estuarine activities are similar to the recommended nearshore activities. However, additional items include:

- protecting existing tidal mudflats, marshes, and other areas with high potential to be restored to tidal function
- reconnecting off-channel habitats such as blind tidal channels, sloughs, and marshes
- improving fish passage and tidal exchange
- enhancing instream structures

Regional Priority Projects and Multi-WRIA Projects

The 3-year work plan identifies seven cross-WRIA or Whidbey Basin capital projects or programs, which include:

- Training workshops for engineers and contractors
- A sidescan bathymetric survey of marine shoreline from Mukilteo to Port Susan
- Implementation of a fish utilization study in northern Puget Sound
- Cooperation with WRIs 5 and 8 to:
 - Map pocket estuaries
 - Implement the Mussel Watch program
 - Implement the Nearshore and Estuary Sound Stewards program
 - Remove 120 tons of creosote logs

In addition, there are regional discussions on establishing marine resource protection areas.⁸

⁸ WRIs 5, 6 and 7 will additionally be convening to discuss interrelated watershed and nearshore issues in the three watersheds, under a grant from the EPA and Washington Department of Ecology received following the development of these plans.

Gap Analysis

In general, there is good overlap between the actions recommended in the watershed recovery plan and the Regional Habitat Strategies Chapter. Some of the studies recommended in section 7.3 of the Regional Nearshore Chapter are not covered by the watershed recovery plan. These include studying the effects of shoreline ecosystems and shoreline restoration on salmon viability, studying the effects of stressors or threats on salmon, or conducting studies in the Skagit Delta. Many of these studies are likely to be more effectively conducted on a regional basis. There are no plans to convene a management conference to refine hypotheses and adapt strategies and actions; however this is likely because few relevant studies are being conducted in the watershed.

While watershed recovery plan does not specifically consider the importance of any specific nearshore region to fish in another region, engagement in regional efforts outlined above suggests that the interlinkages between watersheds are well understood.

WRIA 8 - *Lake Washington/Cedar/Sammamish*

General Overview of Consistency with Regional Chapters

The nearshore environment in WRIA 8 is heavily altered and developed. Therefore, WRIA 8's nearshore efforts focus on restoring lost habitat functions and protecting what is remaining.

The current version of the WRIA 8 3-year work plan identifies only four capital projects and six programmatic actions in the nearshore. However, these align well with the Regional Habitat Strategies and Regional Nearshore chapters: like these two chapters, WRIA 8's capital projects focus on restoration actions to increase functioning of marine shorelines in migratory corridors and conducting a feasibility study to identify ways to restore sediment transport to the beaches. The programmatic actions emphasize improving and supporting voluntary and regulatory approaches to protecting and restoring habitat, which align well with Strategy A of the Regional Habitat Strategies Chapter.

However, since the 3-year work plan identifies only 10 actions overall, it does not address many of the strategies identified in the regional chapters. Chapter 4 of the [WRIA 8 Chinook Salmon Conservation Plan](#) describes the watershed's conservation strategy, which is more comprehensive and therefore touches on many of the Regional Habitat Strategies Chapter and the Regional Nearshore Chapter strategies. The estuarine/nearshore portion of the WRIA 8 Conservation Strategy identifies the following priorities:

- Protect and restore water and sediment quality
- Protect and restore marine riparian vegetation
- Protect feeder bluffs, reduce bank hardening, and study sediment sources
- Reconnect and enhance pocket estuaries
- Restore functioning of marine shorelines, especially backshore areas
- Conduct studies on the following: how to redesign railroads to protect sediment sources; habitat processes and connections to juvenile habitat; migratory and rearing behavior of wild and hatchery juveniles; effects of hatchery outputs on survival and growth of wild fish; and effects of crab harvest on juvenile Chinook food supply.

These priorities match up well with the strategies identified in the regional chapters.

Number of Nearshore Projects Identified

WRIA 8 has developed three documents to guide salmon conservation efforts: its 3-year work plan, an “Action Start-list,” and the full WRIA 8 Chinook Salmon Conservation Plan.

- The 3-year work plan identifies four capital projects and six programmatic actions.
- The Action Start-list identifies 31 capital and programmatic actions.
- The full plan identifies the following:
 - 22 land-use actions
 - 17 prioritized site-specific restoration actions for the Ship Canal and Hiram Chittenden Locks
 - 5 prioritized site-specific protection actions for the nearshore
 - 30 prioritized site-specific restoration actions for the nearshore
 - 13 education and outreach actions for the Ship Canal, Locks, and Lake Union

Priority Areas Identified

The Conservation Strategy outlined in Chapter 4 of the WRIA 8 Chinook Salmon Conservation Plan states that because of uncertainties associated with Chinook use of estuarine and nearshore habitats, the WRIA 8 Technical Committee did not rely on habitat models to prioritize areas in these environments. Instead, the WRIA 8 Technical Committee compared historic and current habitat conditions in the Tidal Habitat Model, and concluded the following:

“...that protection and restoration should focus on reversing the effects of anthropogenic modifications to the system, especially the modification of ecosystem processes such as sediment supply, and protecting remaining areas of functioning habitat.”⁹

However, it is important to note that the WRIA 8 Chinook Salmon Conservation Plan places migratory and rearing habitats, including estuarine and nearshore habitats, in Tier 1 for all three of its salmon populations. The WRIA 8 Technical Committee suggests that in Tier 1 and 2 areas, protection and restoration actions will be necessary to rehabilitate Chinook salmon runs in this watershed¹⁰

Types or Prioritization of Actions Identified

The WRIA 8 3-year work plan emphasizes programmatic actions such as increasing innovative approaches to stormwater management, conducting education and outreach, and increasing incentive programs. It identifies four capital projects for the estuary and nearshore: operational improvements to improve survival at the Locks, creation of a pocket estuary at Big Gulch, increasing refuge and rearing habitat at the Salmon Bay Natural Area, and identifying options to restore sediment supply to the nearshore.

The WRIA 8 Action Start-list focuses on protecting and restoring sediment supplies, reducing bank hardening, protecting and restoring marine riparian vegetation, and reducing the number and coverage of overwater structures in the watershed. The Action Start-list also emphasizes the importance of creating pocket estuaries and protecting sediment and water quality.

The full WRIA 8 Chinook Salmon Conservation Plan provides a list of 35 prioritized projects for estuarine and nearshore protection and restoration. Of the top ten restoration projects, four would restore pocket estuaries and freshwater inputs to the nearshore. The others seek to

⁹ Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Steering Committee 2005. Volume 1, ch. 4, pg. 16.

¹⁰ Ibid, pgs. 16, 25 and 38.

restore marine riparian vegetation and create and/or restore habitat at Point Wells, Shilshole Bay, and Richmond Beach.

The WRIA 8 Technical Committee used the Ecosystem Diagnosis and Treatment (EDT) model to prioritize sub-areas and projects in most of WRIA 8. However, due to lack of certainty about Chinook use of the nearshore, the Technical Committee did not use EDT to prioritize projects there. Instead, the projects were prioritized using expert opinion about their ease of implementation, their benefit to Chinook salmon, and the priorities identified in other science-based habitat protection programs.

Regional Priority Projects and Multi-WRIA Projects

None of the three WRIA 8 planning documents – the 3-year work plan, the Action Start-list, and the full WRIA 8 Chinook Salmon Conservation Plan – identify any regional or multi-WRIA projects. The apparent focus in WRIA 8 was on local populations, and consideration may have been given to the concept that improvements in the function and processes of the local nearshore would likely benefit other nearby populations and nearshore processes.

Gap Analysis

Given that the WRIA 8 3-year work plan identifies only four capital projects and six programmatic actions, it does a fairly good job of covering the strategies listed in the Regional Nearshore Chapter. However, some gaps do remain. In particular, the 3-year work plan identifies only one study, of ways to improve nearshore sediment supplies. Also, aside from encouraging the use of innovative approaches to stormwater management, the work plan does not address water and sediment quality issues.¹¹

The WRIA 8 3-year work plan does less well when compared to the strategies listed in the Regional Habitat Strategies Chapter. The work plan does not list programs or actions to protect and restore water quality or water quantity, or to reduce the risk and damage from catastrophic events or invasive species and food-web alterations.

The Action Start-list and the full watershed recovery plan, being far more comprehensive, compare more favorably to the strategies in the Regional Habitat Strategies Chapter. These documents mention at least one action, either programmatic or project, to address each of the strategies in the Regional Habitat Strategies Chapter, with one exception: WRIA 8 has no major river delta and so Strategy B is not addressed. In particular, WRIA 8 focuses on stormwater management to address water quality and quantity issues, and the influence of hatchery fish on wild fish to address non-indigenous species issues; both major issues in WRIA 8. Generally speaking, the actions in the WRIA 8 Action Start-list and full watershed recovery plan focus most heavily on protection and habitat restoration actions (Strategies A and C). There are far fewer actions that address Strategies D, E, F, and G.

The WRIA 8 Chinook Salmon Conservation Plan does mention several times that fish from other watersheds use Salmon Bay and nearshore habitats in WRIA 8. However, watershed recovery plan does not propose projects or actions based upon this information.

¹¹ In addition, the work plan does not address ways to improve tidal exchange processes in river mouth estuaries. However, Salmon Bay is not a natural river mouth estuary and given the influence of the Locks, it may not be possible to improve tidal exchange processes there.

WRIA 9 - *Green/Duwamish and Central Puget Sound*

General Overview of Consistency with Regional Chapters

The [WRIA 9 Salmon Habitat Plan](#) meshes well with the regional chapters. Perhaps because of Policy MS1 (see below), WRIA 9 has placed a strong emphasis on restoring the transition zone in the Duwamish Estuary and protecting and restoring rearing habitats in the estuary and nearshore. As a result, the WRIA 9 Salmon Habitat Plan identifies policies, programs, and projects that match up well with those named in the regional chapters.

Number of Nearshore Projects Identified

WRIA 9 has produced two relevant planning documents: its 3-year work plan and the full WRIA 9 Salmon Habitat Plan. These documents identify the following numbers of projects:

- The 3-year work plan identifies 30 capital projects and 20 programs and key actions to protect and restore the estuary and nearshore.
- The Duwamish Sub-watershed chapter of the Habitat Plan identifies nine policies and programs, and 13 projects to restore this basin.
- The Nearshore Sub-watershed chapter of the Habitat Plan identifies 11 policies and programs, and 21 projects to protect and restore the nearshore. One of the projects identifies 52 locations for protection on Vashon and Maury Islands and on the mainland.

Priority Areas Identified

Policy MS1 established three priority areas for management action implementation efforts in WRIA 9:

- The Duwamish Estuary transition zone habitat;
- Rearing habitat in the Middle Green River, Lower Green River, Duwamish Estuary, and Marine Nearshore sub-watersheds; and
- Spawning habitat in the Middle Green and upper Lower Green River sub-watersheds.

Policy MS1 further specifies that over the first 10 years of plan implementation, the watershed will devote 40 percent of its funding for management action recovery efforts to restoring the transition zone in the Duwamish Estuary, and 30 percent of its funding to protecting and restoring rearing habitats, including those in the nearshore. Therefore, WRIA 9 has planned to focus the bulk of its implementation dollars on protecting and restoring estuarine and nearshore habitats and functions.

Types and Prioritization of Actions Identified

In the Duwamish, actions identified in both the 3-year work plan and the full WRIA 9 Salmon Habitat Plan focus on expanding and enhancing estuarine habitat, particularly in the transition zone, and restoring shallow-water and refugia habitats. The documents also identify actions to restore natural sediment-delivery processes, and protect and restore water and sediment quality.

In the nearshore subwatershed, the 3-year work plan and Habitat Plan focus on restoring and protecting sediment transport processes, pocket estuaries, and sediment quality, particularly in Elliott Bay. Watershed recovery plan also emphasizes the importance of protecting and expanding forage-fish spawning areas and the availability of vegetated shallow nearshore and marsh habitats.

Regional Priority Projects and Multi-WRIA Projects

The WRIA 9 Salmon Habitat Plan and 3-year work plan do not identify regional or multi-WRIA projects. The apparent focus in WRIA 9 was on local populations, and consideration may have been given to the concept that improvements in the function and processes of the local nearshore would likely benefit other nearby populations and nearshore processes.

Gap Analysis

Because of the high importance WRIA 9 has placed on restoring the estuarine transition zone and rearing habitats in the nearshore and estuarine environments, the WRIA 9 Habitat Plan and 3-year work plan do match up very well with the regional chapters. Even so, some gaps do remain. The WRIA 9 documents do not call for many studies, although the WRIA 9 Salmon Habitat Plan does stress the importance of adaptive management.

The 3-year work plan identifies many projects that restore key habitats and processes, create additional estuarine habitat in the major river delta, and restores shorelines outside of the major delta. The full plan discusses the need for long range water quality and water quantity strategies, as well as strategies to reduce the risk and damage from invasive species and to create structural dispersion of fish populations to minimize impacts from catastrophic events. However, these long-term plans are not expressed in prioritized strategies in the 3-year work plan.

The Nearshore Sub-watershed chapter of the WRIA 9 Salmon Habitat Plan notes that studies have shown that juvenile Chinook from at least 10 other watersheds use the nearshore habitats of WRIA 9.

Central Puget Sound Summary

In general, the four watersheds of Central Puget Sound – WRIA 5, 7, 8, and 9 – have produced habitat plans and 3-year work plans that match well with the strategies identified in the regional chapters. The Central Puget Sound planning documents focus on protecting remaining habitat and restoring pocket estuaries, shallow-water habitats, estuarine transition zones, marine riparian vegetation, and sediment supplies.

Together, the four watersheds have identified nearly 200 capital projects to protect and restore estuarine and nearshore habitats, and over 50 policy or programmatic actions. In addition, WRIA 5 and WRIA 7 together identified 11 cross-WRIA projects. These four watersheds generally have acknowledged and emphasized the importance of protecting and restoring nearshore and estuarine habitats – indeed, WRIA 9 has made restoring the estuarine transition zone in the Duwamish its top priority for funding over the next 10 years.

Although these four watersheds' plans match up well with the regional chapters, some gaps remain. In their 3-year work plans, the watersheds identified fewer studies than policies and projects, and therefore do not match up well with section 7.3 of the Regional Nearshore Chapter. While the importance of managing water quantity (Strategy E of the Regional Habitat Strategies Chapter) and planning for catastrophic events (Strategy F) is stressed in watershed recovery plans, none of the watershed groups identified strategies to address these issues in their 3-year work plans. Similarly, long range strategies to protect water quality and non-indigenous species were addressed in each plan, but only two watersheds identified actions to protect the specific water quality issues of temperature, dissolved oxygen and toxic chemicals of

Strategy D in their 3-year work plan, and only one watershed identified ways to reduce risk and damage from non-indigenous species (Strategy G) in the work plan.

South Puget Sound and Hood Canal Analysis: WRIAs 10-17

WRIA 10 - *Puyallup*

General Overview of Consistency with the Regional Chapters

The Puyallup River Three Year Work Plan is generally consistent with the regional chapters of the Puget Sound Salmon Recovery Plan. The 3-year work plan reflects the work plan for the entire Pierce County Lead Entity (WRIA10/12). This analysis, however, covers only the marine and nearshore area north of the Tacoma Narrows Bridge, because the remaining projects were included in the South Sound analysis.

The geographic area is generally referred to as Commencement Bay, the body of water on which Tacoma is located. Commencement Bay extends from Point Defiance in the west to Browns Point in the east. This analysis also covers the western shoreline of Puget Sound from Point Defiance to the Tacoma Narrows Bridge.

Commencement Bay has become home to one of the most active commercial ports in the world. Significant development of Commencement Bay beginning in the late 19th century fundamentally altered the estuarine and nearshore environments utilized by anadromous salmonids. Prior to 1850 the Bay ecosystem was characterized by interconnected and independent habitats dependent on one another to support the functioning ecosystem. It has been estimated that of the original 2,100 acres of historical intertidal mudflat approximately 180 acres remain today.

Number of Nearshore Projects Identified

The focus of salmon recovery in the Puyallup and White Rivers is primarily in the freshwater protection and restoration. However, there are 11 projects and the programs on the 3-year work plan that reflect the importance of the nearshore and marine environment:

Specifically, the 3-year work plan identifies:

- 7 nearshore habitat capital projects
- 4 non-capital nearshore related projects

The priority areas for the Puyallup Nearshore are roughly divided into projects that will create habitat within the Port of Tacoma; and projects that protect and enhance Puget and Hylebos Creeks, the closest natural estuarine areas to the mouth of the Puyallup River.

The non-capital projects highlight involvement of citizen's Bay Watcher Program and nearshore project development and effectiveness monitoring by the South Puget Sound Salmon Enhancement Group.

Regional Priority Projects and Multi-WRIA Projects

There are no multi-WRIA projects on the 3-year work plan.

Gap Analysis

The area of shoreline included in this analysis is highly urbanized. In addition, many of the project opportunities for nearshore restoration and protection have been included in the adjacent geographic areas (parts of WRIA 10 with WRIA 9 nearshore, and parts of WRIA 12 with the South Sound). The gaps that remain include:

- There are no actions in the 3-year work plan associated with the stretch of shoreline from the Tacoma Narrows Bridge around and including Point Defiance Park. One could assume that this stretch of shoreline is in protection status.
- There are no actions identified in the 3-year work plan for human or non-human caused catastrophic events, including: prevention, protection of nearshore habitats against, or determination of expected results from such events. These actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.
- There are no actions identified to assess impacts of non-native species or hatchery impacts or relationships between key food web species and salmon. These actions are noted in the Recovery Plan itself.
- There are no actions identified to evaluate the effectiveness of existing programs.
- There are no actions identified to address low dissolved oxygen or high temperatures.

WRIA 11- 15 - *South Sound*

South of the Tacoma Narrows Bridge

General Overview of Consistency with the Regional Chapters

[The South Sound Regional Nearshore Chapter Watershed 3 Year Plan](#) is generally consistent with the regional chapters of the Puget Sound Salmon Recovery Plan. The 3-year work plan reflects the work of several salmon and watershed planning areas, an artifact of its geography and the manner in which the other chapters of the Recovery Plan were written.

The Nisqually River is the only major river system in the basin and has the only spawning population included in the Puget Sound Chinook Evolutionarily Significant Unit. However, the South Sound is a distinctive and highly productive part of Puget Sound, and serves as a nursery area for juvenile Chinook from other parts of the ESU.

Five Watershed Resource Inventory Areas (WRIA) drain into South Puget Sound:

- WRIA 11 - Nisqually
- WRIA 12 – Chambers Clover
- WRIA 13 – Deschutes
- WRIA 14 – Kennedy-Goldsborough
- WRIA 15 – East Kitsap

Number of Nearshore Projects Identified

The South Puget Sound Salmon Recovery Group produced the 3-year work plan, meeting on a regular basis to update and coordinate the process to identify priorities in the multiple WRIA area. Components of this plan were also included in the 3-year work plans for Nisqually (WRIA 11), West Sound (WRIA 15) and Pierce County (WRIA10/12), but not in the analysis of those 3-year work plans for this report.

Specifically, the 3-year work plan identifies:

- 19 nearshore habitat capital projects
- 1 capital project designed to aid in fish tracking information
- 4 non-capital nearshore related projects

Priority Areas Identified

The priority areas for South Sound are roughly divided into:

- The places assumed to be of importance to the Nisqually Chinook population because of geographic proximity:
 - Nisqually Estuary
 - Adjacent Marine areas
 - Migration corridor northward along western shoreline
- The rest of the South Sound is based on opportunity for restoration or acquisition.
- Highly visible projects that are part of a shoreline owner education component

Types or Prioritization of Actions Identified

The types of actions identified as capital projects generally focused on habitat restoration, particularly for connection at fresh-saltwater transition areas and along the shoreline. There is a sense of urgency to stop additional armoring of the shoreline and therefore develop alternative softbank technique demonstration projects with willing landowners.

The non-capital projects highlight the need for understanding and modeling nearshore habitat processes and stressors, and for protecting migration corridors.

Regional Priority Projects and Multi-WRIA Projects

This entire 3-year work plan is a multi-WRIA project. The technical partners in the South Sound are developing a strategic approach to restoration through a geo-referenced database, which will be used to guide policy for how to invest restoration funds. An important outcome from the implementation of the Recovery Plan, which generated the 3-year work plan process, was the formation of a South Sound Policy Group representing all five WRIAs. This policy group is working together across the five lead entities to leverage funds for protection and restoration of the nearshore.

Gap Analysis

Because of the high importance the South Sound has placed on restoring the estuarine transition zone and rearing habitats in the nearshore and estuarine environments, the South Sound 3 Year Plan does match up very well with the regional chapters. Even so, some gaps do remain:

- The South Sound Plan did not identify strategies for collaboration between the communities in the five WRIAs, although this has begun to occur. This gap includes evaluation of existing regulatory programs, instream flow processes and coordination of protection actions.
- There are also no actions identified in the 3-year work plan for human or non-human caused catastrophic events, including: prevention, protection of nearshore habitats against, or determination of expected results from such events. These actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.

- There are no actions identified for the prevention of toxic chemicals, such as those borne in stormwater, from entering Puget Sound. Again, these actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.
- There are no actions identified to assess impacts of non-native species or hatchery impacts or relationships between key food web species and salmon.
- The last area of gaps most likely applies to the entire Puget Sound region:
 - studying fish and shellfish harvest effects on community structures that affect salmon
 - convening management conferences to refine and adapt these strategies and actions (adaptive management)

WRIA 14, 15, 16 and 17 - *Hood Canal*

General Overview of Consistency with the Regional Chapters

The Hood Canal Watershed 3 Year Plan is very consistent with the regional chapters of the Puget Sound Salmon Recovery Plan. Hood Canal is a natural, glacier-carved fiord more than 60 miles long, which forms the westernmost waterway and margin of the Puget Sound basin. It is situated in Jefferson, Kitsap, and Mason Counties. It begins in the north in Admiralty Inlet between Tala Point and Foulweather Bluff and extends southwesterly about 45 miles to the Great Bend at Anna's Bay. From there its "hook" extends northeasterly 15 miles to its head at the Union River estuary near Belfair.

The Hood Canal watershed is defined as all the land and waters within the canal's hydrographic boundary- the drainage basin in which all the water flows to the canal. It encompasses a highly interactive system that is dependent upon the continuing cycle of clean water and nutrients to sustain its biological character.

Four Watershed Resource Inventory Areas (WRIA) drain into Hood Canal:

- WRIA 14 - Kennedy/Goldsborough
- WRIA 15 - Kitsap
- WRIA 16 – Skokomish/ Dosewallips
- WRIA 17 – Quilcene/Snow

Number of Nearshore Projects Identified

The Hood Canal Coordinating Council (HCCC) produced the 3-year work plan; this plan includes nearshore projects that are also a part of the Hood Canal Summer Chum Recovery Plan (Summer Chum Plan), which was formally adopted by the federal government in May 2007. Specifically, the 3-year work plan identifies:

- 25 nearshore habitat capital projects
- 8 non-capital nearshore related projects

Priority Areas Identified

The priority areas for Hood Canal for the Summer Chum Plan are the lower two miles of the Lilliwaup, Hamma Hamma, Duckabush, Dosewallips, Jimmycomelately, Snow/Salmon, Big/Little Quilcene and Union Rivers; the estuaries of those rivers; and the marine nearshore areas within a one mile radius of those river mouths. Additionally, the Skokomish River delta is a high priority for Chinook and bull trout recovery.

Types or Prioritization of Actions Identified

The types of actions identified as capital projects generally focused on habitat restoration, particularly for connection at fresh-saltwater transition areas and along the shoreline.

There are several non-capital projects that focused on assessment of existing actions, which is a notable gap in some other 3-year work plans. These include: land use permit tracking, effectiveness of anchor exclusions for eelgrass protection, juvenile salmonid research, and harvest management.

Regional Priority Projects and Multi-WRIA Projects

The locations of restoration and protection actions proposed in the 3-year work plan are those that directly relate to the recovery plans for summer chum, Chinook and bull trout. These are the highest priority for the Hood Canal region.

This entire 3-year work plan is a multi-WRIA project. The HCCC is in a unique position in its leadership role to direct and implement recovery efforts for the Hood Canal, including projects such as the Hood Canal Low Dissolved Oxygen Project, which was not included in the 3-year work plan.

Gap Analysis

The Hood Canal 3-year work plan has a high priority on restoring the estuarine transition zone and rearing habitats in the nearshore and estuarine environments, so it matches up extremely well with the regional chapters. Even so, some gaps do remain:

- There are also no actions identified in the 3-year work plan for human or non-human caused catastrophic events, including: prevention, protection of nearshore habitats against, or determination of expected results from such events. These actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.
- There are no actions identified for the prevention of toxic chemicals, such as those borne in stormwater, from entering Puget Sound. Again, these actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.
- There is a notable lack of restoration or protection projects for the eastern Hood Canal shoreline. This is presumably because there are no existing populations of salmonids protected by the ESA.

WRIA 15 - West Sound Watersheds

(East Kitsap Chapter)

General Overview of Consistency with the Regional Chapters

The West Sound Watersheds 3 Year Plan is generally consistent with the regional chapters of the Puget Sound Salmon Recovery Plan. The 3-year work plan reflects the work plan for the entire West Sound Watersheds lead entity but this analysis is only for the marine and nearshore area north of the Tacoma Narrows Bridge, because the remaining projects were included in the South Sound analysis.

The West Sound Watersheds geographically lie along the Kitsap Peninsula on the western side of Central Puget. The area included in this analysis has about 180 miles of shoreline that includes many inlets with quiet, shallow waters, which are ideal foraging and rearing habitat for juvenile salmon. Juvenile salmonids are present along the shoreline in high numbers from March through July and in lower numbers throughout the year. The numerous small streams in the West Sound region primarily support chum and coho salmon, steelhead and cutthroat trout. Chinook spawning, incubation and rearing have been identified in some of the larger streams, but are not included in the Chinook ESU. The streams are groundwater, and rainwater supported with no high-altitude supportive snowpack, and consequently are both warmer and with lower flows than standard habitats.

Number of Nearshore Projects Identified

The focus of salmon recovery in the West Sound remains on protection and restoration of the nearshore environment. All of the projects and the programs on the 3-year work plan reflect this intent, and are considered high priority.

Specifically, the 3-year work plan identifies:

- 12 nearshore habitat capital projects
- 9 non-capital nearshore related projects

Priority Areas Identified

The priority areas for West Sound 3-year work plan are divided into the following:

- Projects at locations identified in nearshore assessment conducted by the City of Bainbridge Island.
- Projects identified by lead entity Technical Advisory Group recommendations as a result of Limiting Factors Analysis.
- There was a delay in the completion of a SRFB funded nearshore salmon habitat assessment intended to assist in the refinement of protection and restoration strategy. This assessment will guide future project development when completed in 2008.

Types or Prioritization of Actions Identified

The types of actions identified as capital projects generally focused on habitat restoration, particularly for connection at fresh-saltwater transition areas. The projects will restore function to both large (Carpenter, Chico Creeks) and “pocket” estuaries (Harper, Donkey, Indianola). There are also several capital and non-capital projects with the goal of protecting migration corridors: by removal of armoring along the shoreline, re-vegetating the shoreline, and one acquisition project that will protect intact shoreline.

The non-capital projects highlight the need for understanding fish use of the nearshore habitat, assessing the status of the nearshore habitat, and for improving water quality and quantity.

Regional Priority Projects and Multi-WRIA Projects

Many of the locations of restoration and protection actions proposed in the 3-year work plan are regional priority projects, called out in the Regional Nearshore Chapter Appendix E. These include restoration or protection of pocket estuaries at Barker Creek, Appletree Cove, Harper, Eagle Harbor, Miller Bay, Gig Harbor, Blakely Harbor and Chico Bay. There are several projects (both capital and non-capital) that would protect or enhance migration corridors along the main basin of Puget Sound. There are no multi-WRIA projects on the 3-year work plan.

Gap Analysis

Because of the high importance the West Sound has placed on restoring the estuarine transition zone and rearing habitats in the nearshore and estuarine environments, the West Sound 3 Year Plan does match up very well with the regional chapters. Even so, some gaps do remain:

- There are no actions identified in the 3-year work plan for human or non-human caused catastrophic events, including: prevention, protection of nearshore habitats against, or determination of expected results from such events. These actions are identified in local governmental plans, and the cross walk between watershed recovery plans can be made to overcome this gap.
- There are no actions identified to assess impacts of non-native species or hatchery impacts or relationships between key food web species and salmon.
- There are no actions identified to evaluate the effectiveness of existing programs.
- There are no actions identified to address low dissolved oxygen or high temperatures.

The 3-year plan for the West Sound Watersheds reflects the progress made in the development of a salmon recovery planning and implementation organization. A Watershed Protection and Restoration grant from the Washington Department of Ecology is supporting the counties, cities and tribes in the process of becoming a functioning watershed council, which will also serve as the salmon recovery organization. The group elected to re-name the council as “West Sound Watersheds” to more accurately reflect the nature of the 125 small salmonid streams and 369 miles of shoreline in the planning area. In addition, the coordinator for the West Sound Watersheds participates in the planning for South Sound salmon recovery as an active member of that work group, because of the overlapping areas of responsibility.

South Sound and Hood Canal Summary

The boundaries for salmon recovery planning areas in southern and western Puget Sound do not match their WRIA designations along the shoreline very well. For this reason, the planning areas for the nearshore overlap, which made analysis of the nearshore projects on the individual 3-year work plans challenging. The Southwest and Hood Canal areas of Puget Sound include some of the most undeveloped shoreline (such as Squaxin Island) and also some of the most imperiled bodies of water (South Sound and Hood Canal low dissolved oxygen problems). Importantly, the jurisdictions involved recognize the proximities of their shorelines, and are working closely together. Examples of this include the (three county, two tribe member) Board of the Hood Canal Coordinating Council and the South Sound Salmon Recovery Group. The importance of this extensive shoreline in this area is truly reflected in the quality and caliber of the projects intended to implement the Puget Sound Salmon Recovery Plan.

The 3-year work plans identified 64 projects to protect and restore nearshore and estuarine habitat, and 25 non-capital projects that ranged from a Citizen Bay Watchers Program in Commencement Bay to a several Marine Riparian Initiatives in local communities.

It is appropriate to note briefly some of the gaps that appeared in several plans:

- There needs to be a cross-walk between the nearshore protection/restoration planners and the catastrophic natural or human-caused event strategists.
- Identify and begin to have intensively monitored shorelines.
- Develop and test hypotheses about nearshore and marine processes.

- Develop and test hypotheses about the effects of stressors on salmon individuals and life histories.

CONCLUSIONS AND RECOMMENDATIONS

There is a strong concurrence between the strategies identified at the regional scale (as described in the Regional Nearshore and the Regional Habitat Strategies chapters) and the watershed scale (as described in the individual watershed recovery plan chapters) of the Puget Sound Salmon Recovery Plan. The degree of concurrence is remarkable considering that the watershed recovery plans and regional strategies were developed simultaneously and thus watershed groups did not have the opportunity to incorporate the regional strategies into the watershed chapters. While nearshore is a lower priority for some watersheds, the watershed recovery plans recognize the importance of nearshore, estuarine and ocean processes in achieving recovery, as evidenced by the number of nearshore projects included in the plans. All told, more than 300 projects to protect and restore nearshore and estuarine habitats are included in the watershed plans, as are nearly 100 policy and programmatic actions that will enhance plan implementation.

This analysis was initiated anticipating inconsistencies between the strategies identified within the regional and watershed chapters of the Puget Sound Salmon Recovery Plan. The study's purpose was to highlight inconsistencies in order to direct future actions and project prioritization. A few inconsistencies do indeed exist. The following regional strategies (referenced by volume, chapter, and section below) are generally not addressed in watershed recovery plans across the region:

1. Convene management conference to refine hypotheses and adapt strategies and actions (Vol. II, Ch. 15, 7.3.5).
2. Organize regional and local collaboration regarding human or non-human caused catastrophic events, including: prevention, protection of nearshore habitats against, or determination of expected results from such events (Vol. II, Ch. 15, 7.1.4, and Vol. I, Ch. 6, F).
3. Implement protection and restoration strategies in areas prone to high temperatures (Vol. I, Ch. 6, D2).
4. Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations (Vol. II, Ch. 15, 7.3.4).
5. Designate and initiate studies of an intensively monitored shorelines (Vol. II, Ch. 15, 7.3.2).

The strategies listed above could be conducted at a variety of spatial scales. Watershed-scale actions will be a component for successful accomplishment of each one. The regional strategies currently absent from the watershed chapters can and should be incorporated in the future work plans developed at the watershed scale, even if in some cases the watershed action will simply be to participate in a regionally-led initiative. Cross-watershed collaboration will also be a critical element for most of these strategies. Several multi-watershed projects are apparent in existing watershed work plans; examples include the "Big Picture" fish utilization project of the North Sound, the Whidbey Basin projects in Central Sound, and the entire nearshore work plan of the South Sound WRIs. However, the staff and funding resources required for multi-

watershed efforts generally exceeds the individual watershed's limited capacity. Furthermore, few incentives exist in Puget Sound to foster cross-WRIA cooperation. Success of multi-watershed projects could be enhanced by programs and policies at the state and federal level that encourage and provide funding for cross-WRIA collaboration.

Some of these strategies will best be initiated and designed at a scale well beyond that of a single watershed. This is particularly true of research and monitoring aimed at understanding regional salmonid use of nearshore and estuarine habitats, salmonid responses to threats and impacts (including cumulative impacts), and the efficacy of recovery plan implementation. For broad-scale efforts such as these, a regional approach would be most appropriate to develop an integrated research and monitoring strategy with the ability to secure funding at the levels and durations needed. A regional approach will still require support and participation from watersheds across the region. Infusion of local knowledge in scoping, design, data collection and implementation will enhance results from these studies and improve implementation success of recovery plans at all scales.

Many of these proposed actions in the nearshore marine waters were generated through development of the Puget Sound Salmon Recovery Plan, however some projects may also benefit other species in decline. A future task would be to integrate actions identified within this plan into the steelhead recovery plan^{*}. The number of listed species that benefit from a project may be a useful factor in prioritizing projects within a work plan. The WDFW Habitat Work Schedule which tracks proposed, ongoing and potential Lead Entity projects will have the capacity to link nearshore projects with important Puget Sound initiatives including the Puget Sound Partnership Action Agenda.

The current analysis provides clear direction for refining watershed recovery plans and building future work plans: the gaps identified here should be incorporated in future plan iterations. The analysis also provides a starting point for developing an interim work schedule to prioritize salmon recovery actions in the Puget Sound nearshore. In addition to the preceding narrative summaries, the summary analysis tables in the appendices of this document will be useful in this effort. These tables provide a snapshot of how well watershed recovery plans and projects address regional nearshore strategies. The Nearshore Strategy Summary by Watershed Planning Group (Appendix A) lists by watershed the number of work plan entries for each regional strategy. The Sound-Wide Nearshore Strategy Summary (Appendix B) summarizes the number of work plan entries for each regional strategy across all watershed recovery plans. This provides a quick overview of which regional strategies are incorporated into watershed recovery plans and which are not. Finally, Appendix C allows the reader to ascertain how well individual projects are aligned with regional nearshore strategies. This table outlines which strategies are addressed by individual projects in each watershed, the primary habitat, project proponents, and estimated cost. As noted above, some of the regional strategies could most effectively be initiated at a regional scale. Regional entities such as the Shared Strategy of Puget Sound, the Puget Sound Partnership, the Puget Sound Nearshore Partnership, the Governor's Forum on Monitoring, and other cross-WRIA entities will be key players in prioritizing these broad-scale, regional initiatives and identifying organizational structures and potential funding sources for implementing these strategies.

^{*} Puget Sound Steelhead was listed in May 2007. Critical Habitat Status is under development.

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Appendix A: Nearshore Strategy Summary by Watershed Recovery Plan

This table itemizes the number of work plan entries associated with each regional strategy identified in each watershed recovery plan.

NEARSHORE STRATEGY SUMMARIES

WHATCOM

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	3	
7.1.2	Evaluate effectiveness of existing programs	1	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	3	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	3	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	0	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	1	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	0	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	1	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	Regional Work?
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	3	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	Regional Work?
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	0	Regional Work?
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	3	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	1	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	3	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	3	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	N/A to WRIA1
B.5	Preserve future opportunities in all major river deltas.	2	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	2	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	0	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	3	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	4	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

SAN JUAN

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	16	
7.1.2	Evaluate effectiveness of existing programs	2	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	12	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	5	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	0	N/A to WRIA2
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	6	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	6	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	2	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	3	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	Regional Work?
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	14	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	Regional Work?
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	0	Regional Work?
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	2	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	11	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	1	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	2	
A.4	Implement, evaluate and change strategies and actions where necessary.	2	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	0	N/A To WRIA2
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	1	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	N/A to WRIA2
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	N/A to WRIA2
B.5	Preserve future opportunities in all major river deltas.	0	N/A to WRIA2
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	N/A to WRIA2
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	15	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	9	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	N/A to WRIA2
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	7	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	4	
F.1	Prevent Oil Spills	2	
F.2	Prepare for Oil Spills	3	
F.3	Response to Oil Spills	3	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	2	
G.1	Non-native species impact on habitats and food webs used by salmon.	3	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	2	
G.3	Relationship between key food web species and salmon	2	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	1	

NEARSHORE STRATEGY SUMMARIES

SKAGIT

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	3	
7.1.2	Evaluate effectiveness of existing programs	0	not on work plan but in SRP
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	2	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	1	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	9	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	1	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	5	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	2	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	1	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	Regional work?
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	5	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	Regional work?
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	0	not on work plan but in SRP
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	Regional work?

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	2	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	not on work plan but in SRP
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	2	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	10	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	N/A to Skagit
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	3	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	14	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	N/A to Skagit
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	1	
G.1	Non-native species impact on habitats and food webs used by salmon.	1	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	2	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

STILLAQUAMISH

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	2	
7.1.2	Evaluate effectiveness of existing programs	4	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	2	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	3	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	6	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	7	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	8	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	9	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound		
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	2	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	1	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	1	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	2	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	2	
A.4	Implement, evaluate and change strategies and actions where necessary.	1	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	11	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	1	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	
B.5	Preserve future opportunities in all major river deltas.	1	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	1	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	1	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	1	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	5	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

ISLAND

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	15	
7.1.2	Evaluate effectiveness of existing programs	4	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	5	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	1	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	0	N/A to WRIA 6
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	4	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	11	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	3	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	2	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	Regional Work?
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	5	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	Regional Work?
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	0	Regional Work?
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	10	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	2	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	5	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	0	to be added to work plan
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	7	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	N/A to WRIA 6
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	N/A to WRIA 6
B.5	Preserve future opportunities in all major river deltas.	0	N/A to WRIA 6
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	N/A to WRIA 6
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	6	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	8	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	to be added to work plan
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	1	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	1	
F.3	Response to Oil Spills	1	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	2	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

SNOHOMISH

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	6	
7.1.2	Evaluate effectiveness of existing programs	4	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	1	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	1	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	1	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	5	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	3	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	7	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound		
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	3	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	1	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	1	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	3	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	21	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	3	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	2	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	2	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	4	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	3	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

KING WRIA 8

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	1	
7.1.2	Evaluate effectiveness of existing programs	1	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	4	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	0	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	0	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	2	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	1	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	1	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound		
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	1	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	Regional Work?

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	7	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	0	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	0	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	2	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

KING WRIA 9

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	12	
7.1.2	Evaluate effectiveness of existing programs	5	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	6	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	4	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	6	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	12	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	10	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	13	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound		
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	2	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	14	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	1	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	1	
A.4	Implement, evaluate and change strategies and actions where necessary.	1	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	4	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	4	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	0	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	0	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	14	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	3	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

PUYALLUP / WHITE

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	0	
7.1.2	Evaluate effectiveness of existing programs	0	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	1	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	2	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	0	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	3	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	2	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	0	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	2	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	1	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		not applicable
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	0	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	4	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	1	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	5	
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	1	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	0	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	4	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	1	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

SOUTH SOUND

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	2	
7.1.2	Evaluate effectiveness of existing programs	0	multiple counties
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	1	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	3	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	1	not in plan but on-going action (SPS DO Study)
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	15	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	1	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	1	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	3	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		not applicable
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	2	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	2	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	1	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.		not applicable
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.		not applicable
B.5	Preserve future opportunities in all major river deltas.	2	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	1	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	3	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	16	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	1	not in plan but on-going action (SPS DO Study)
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.		
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

NEARSHORE STRATEGY SUMMARIES

WEST SOUND

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	2	
7.1.2	Evaluate effectiveness of existing programs	0	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	0	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	2	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	3	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	4	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	3	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	5	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	5	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		not applicable
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	2	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	0	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	0	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.		not applicable
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.		not applicable
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	1	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	2	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	12	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	2	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	3	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.		

NEARSHORE STRATEGY SUMMARIES

HOOD CANAL

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	0	multiple counties
7.1.2	Evaluate effectiveness of existing programs	1	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	0	multiple counties
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	1	not on plan but inherent in HCCC
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	12	natal rivers include sum.chum
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	1	not on plan but on-going action (HCDOP)
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	11	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	0	one project identified in HCCC SRP
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	5	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	3	
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	1	not on plan but on-going action (HCDOP)
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	0	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		Not applicable
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	1	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	1	not on plan but inherent in HCCC
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	1	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	1	not on plan but inherent in HCCC SRP
A.4	Implement, evaluate and change strategies and actions where necessary.	1	not on plan but inherent in HCCC SRP
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	10	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	1	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.		Not applicable
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.		Not applicable
B.5	Preserve future opportunities in all major river deltas.	5	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	1	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	3	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	17	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	1	not on plan but on-going action (HCDOP)
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	0	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills		
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	1	

NEARSHORE STRATEGY SUMMARIES

NORTH OLYMPIC PENINSULA

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	9	
7.1.2	Evaluate effectiveness of existing programs	3	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	5	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	2	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	7	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	14	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	5	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	1	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound	0	Regional Work?
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	2	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	1	Regional Work?
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability	0	Regional Work?
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	0	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	8	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	2	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	5	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	2	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	2	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	N/A to NOPL
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	1	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	2	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	14	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	5	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills		
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	3	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	1	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

Appendix B: Sound-Wide Nearshore Strategy Summary

This table itemizes the number of work plan entries for each regional strategy across all watershed recovery plans. This provides a quick overview of which regional strategies are incorporated into watershed recovery plans and which are not.

SOUND-WIDE NEARSHORE STRATEGY SUMMARIES

	Whatcom	San Juan	Skagit	Stilla- guamish	Island	Sno- homish	King WRIA 8	King WRIA 9	Puyallup / White	South Sound	West Sound	Hood Canal	N. Olympic Peninsula	Totals
Strategy	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan
Chapter 15 (Regional Nearshore Chapter)														
7.1.1	3	16	3	2	15	6	1	12	0	2	2	0	9	71
7.1.2	1	2	0	4	4	4	1	5	0	0	0	1	3	25
7.1.3	3	12	2	2	5	1	4	6	1	1	0	0	5	42
7.1.4	0	5	1	0	1	0	0	0	2	0	0	1	0	10
7.2.1	3	0	9	3	0	1	0	4	0	3	2	12	2	39
7.2.2	0	6	1	6	4	1	0	6	3	1	3	1	7	39
7.2.3	1	6	5	7	11	5	2	12	2	15	4	11	14	95
7.2.4	0	2	2	8	3	3	1	10	0	1	3	0	5	38
7.2.5	1	3	1	9	2	7	1	13	2	1	5	5	1	51
7.2.6	0	0	0		0				0	0	0	3	0	3
7.3.1	3	14	5	2	5	3	1	2	1	3	5	1	2	47
7.3.2	0	0	0	1	0	1	0	0	0	0	0	0	1	3
7.3.3	0	0	0		0								0	0
7.3.4	0	2	0	1	0	1	0	0	0	0	0	1	0	5
7.3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOUND-WIDE NEARSHORE STRATEGY SUMMARIES

	Whatcom	San Juan	Skagit	Stilly	Island	Snoho	WRIA8	WRIA9	Puyallup	S.Sound	W.Sound	Hood	NOPL	Totals
Strategy	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan
Chapter 6 (Regional Habitat Strategies Chapter)														
A.1	3	11	2	2	10	3	7	14	0	2	2	1	8	65
A.2	1	1	0	0	2	0	0	1	0	0	0	1	2	8
A.3	0	2	0	2	0	0	0	1	0	0	0	1	0	6
A.4	3	2	2	1	5	0	0	1	0	0	0	1	5	20
B.1	3	0	10	11	0	21	0	4	4	2	0	10	2	67
B.2	0	1	0	1	7	3	0	0	0	1	0	1	2	16
B.3	0	0	0	0	0	0	0	4	1				0	5
B.4	0	0	0	0	0	0	0	0	5				0	5
B.5	2	0	0	1	0	0	0	0	0	2	0	5	0	10
B.6	2	0	0	0	0	2	0	0	1	1	1	1	1	9
C.1	0	15	3	1	6	2	0	0	0	3	2	3	2	37
C.2	3	9	14	1	8	4	2	14	4	16	12	17	14	118
D.1	0	0	0	0	0	0	0	0	0	1	0	1	0	2
D.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D.3	0	7	0	1	0	3	0	3	1	0	2	0	5	22
E.1	4	4	0	0	1	0	0	0	0	0	3	0	0	12
F.1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
F.2	0	3	0	0	1	0	0	0	0	0	0	0	0	4
F.3	0	3	0	0	1	0	0	0	0	0	0			4
F.4	0	2	1	0	0	0	0	0	0	0	0	0	0	3
G.1	0	3	1	5	0	0	0	0	0		0	0	3	12
G.2	0	2	0	0	0	0	0	0	0	0	0	0	0	2
G.3	0	2	2	0	2	0	0	0	0	0	0	0	1	7
G.4	0	1	0	0	0	0	0	0	0	0		1	0	2

Appendix C: Cross-walk of 3-Year Project Lists and Regional Strategies

Cross-walk of individual watershed 3-year project lists and nearshore strategies as identified in the Regional Habitat Strategies Chapter of the Puget Sound Salmon Recovery Plan and the Regional Nearshore Chapter.

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

WHATCOM

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1, 7.3.1	B.6			Planning/Assessment	Modeling of Currents in Bellingham Bay				\$56,000
7.3.1	B.6			Planning/Assessment	Chinook Habitat Use Assessment of Bellingham Bay & Adjacent Areas				\$250,000
7.2.1	B.1, B.5, C.2			Habitat Restoration & Acquisition	Smuggler's Slough Acquisition & Reconnection				\$2,807,000
7.2.1	B.1, C.2			Habitat Restoration & Acquisition	Lummi Delta Project				\$408,000
7.2.3, 7.2.5	B.1, C.2			Habitat Restoration	Squalicum Cr Estuary Restoration				\$410,000
	E.1			Hydrology	Bertrand Cr - Well and Surface Storage System				\$725,000
	E.1			Hydrology	Bertrand Cr - Wetlands Enhancement				\$55,000
				Habitat Restoration	Schneider Cr - Flood Gate Modification				\$150,000
7.1.1	A.1, B.5			Acquisition	Acquisition of Priority Habitats				\$6,000,000
7.1.1, 7.1.3	A.1, A.4			Planning/Assessment	Update Lynden, Ferndale, Nooksack, Everson, and Blaine SMP and/or GAO				\$243,000
				Planning/Assessment	Restoration Plan/Watershed Mgmt Plan Implementation				\$495,000
	E.1			Hydrology	WRIA 1 Instream Flow Negotiations (early chinook habitats)				\$375,000
7.1.2, 7.1.3, 7.3.1	A.2, A.4			Monitoring	Habitat Monitoring to Support Adaptive Management				\$300,000
				Monitoring	Expand Monitoring and Stock Identification of chinook populations				\$480,000
	E.1			Hydrology	WRIA 1 Instream Flow Negotiations (other salmonid habitats)				\$250,000
				Habitat Restoration	Fish Passage Barrier Removal Program				\$750,000
7.1.1, 7.1.3	A.1, A.4			Planning/Assessment	Update Sumas SMP				\$60,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Protection/Restoration of known KEY Habitats/Processes									
		Degraded salmon habitat	C	Restoration salmon access	Culvert/ Bridge Replacements (Deer Harbor, Victorian and Crow Valleys, Cascade Creek, Buck Bay)	removal of fish barriers in streams	SJC Public works	nearshore	\$500,000
7.2.3	C.2	Degraded salmon/forage fish habitat	C	Restoration of salmon and forage fish habitat	Lagoon/estuary restoration (Shoal Bay, Fossil Bay, Neck Pt)	restore connectivity, increase nearshore habitat for juvenile salmon and forage fish	conservation district/KWIAHT/FSJ	nearshore /lagoon	\$125,000
7.2.2, 7.2.3	C.2, D.3	Degraded forage fish habitat	C	Restoration of salmon and forage fish habitat	Creosote log/piling removal (15 sites)	Water Quality and Restoration of forage fish spawning beaches	WA DNR / SJC-MRC/Salm on Affect	beach/intertidal/subtidal	\$100,000
7.2.4	C.2	Degraded forage fish habitat	C	Restoration of nearshore habitat	Deer Harbor derelict cement pool removal	removal of concrete pool-restore habitat	LB	intertidal	\$50,000
7.2.3, 7.2.4	C.2	Degraded forage fish habitat	C	Restoration forage fish beaches	Bulkheads/armoring of shore (~20 sites)	remove/reduce negative impacts on Forage fish spawning habitat	SJC Public Works/FSJ /landowners	intertidal	\$200,000
7.2.5	C.2	Degraded forage fish habitat	C	Restoration forage fish beaches	Riparian Restoration of forage fish beaches (vegetation)	Improve quality of spawning beaches	FSJ, Ducks unlimited	riparian	\$10,000
7.2.3	C.2	Degraded forage fish habitat	C	Restoration	Thatcher Bay Restoration	Restore Thatcher Bay nearshore habitat for forage fish and salmonids	SFEG	nearshore /intertidal	\$280,000
7.1.1	A.1	Threatened salmon habitat	C	Protection (Salmon+Forage Fish)	Nearshore Acquisitions / Easements	habitat conservation through ownership	Land Bank/ Preservation Trust	nearshore	unknown
	D.3	Threatened salmon/forage fish habitat	NC	WQ monitoring	Nearshore/Marine and fresh water (storm water) quality monitoring	improved water quality	EPA/Conservation District/UW/KWIAHT	marine/nearshore	\$150,000
7.2.2	D.3	Threatened salmon/forage fish habitat	NC	water quality	Friday Harbor wastewater	improved water quality for nearshore system	Town of Friday Harbor	surface water	imbedded
	E.1	FW habitat Characterization	NC	stream flow monitoring	San Juan County Stream flow monitoring FW quantity	maintain flow via water rights	CD/FHL/KWIAHT	fresh surface water	\$60,000

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.3.1, 7.1.3	A.1, C.1	Threatened salmon/forage fish habitat	NC	Salmon Capacity	Assessment and protection of kelp beds	Habitat importance to adult salmon, protection through regulatory options	FSJ/DNR	bull kelp	imbedded
		Threatened salmon/forage fish habitat	NC	Restoration of salmon and forage fish habitat	Derelict Gear Removal	Restore benthic habitat for eelgrass; eliminate derelict gear	NW Straits Commission /SJC-MRC	photic zone & marine	\$10,000
7.2.3	C.2	Threatened forage fish habitat	NC	Restoration of forage fish habitat	Beach Clean-up of debris	increase spawning habitat	FSJ	beach	\$5,000
7.2.5	C.2	Threatened salmon/forage fish habitat	NC	Protection of salmon and forage fish habitat	Spartina Control of the few invasive occurrences	Avoid major habitat problems	?	intertidal	\$11,000
7.1.1	A.1	Degraded forage fish habitat	NC	Protection forage fish beaches	Bulkheads/armoring of shore	future permitting to encourage soft shore protection	SJC Public Works/FSJ/landowners	intertidal	\$20,000
7.1.3, 7.3.4	G.1	Threatened salmon/forage fish habitat	NC	Protection analysis	Cypress Island Fish Farm	Evaluate if farmed Atlantic salmon are escaping and are a threat to Pacific salmon	NMFS/SJC	nearshore / subtidal	\$50,000
7.1.2	A.3	Threatened salmon/forage fish habitat	NC	Protection (Salmon+Forage Fish)	SJ Co habitat protection	blueprint	FSJ	shoreline	\$115,000
7.3.1	G.1	Threatened forage fish habitat	NC	Assessment	Exotic Species	monitor/map exotic species on priority habitats	FHL/FSJ/Beach Watchers	all	\$10,000
TOTAL COSTS									\$1,196,000
							Total Capital Need		
Synthesis works and compilation of identified GAPS									
7.3.1	C.1	GAP - Salmon Habitat	NC	Historical Use- interviews	salmon pathways	relationship of adult salmon migration to habitats (kelp beds)	NWSC/SJC-MRC	pelagic	\$20,000
7.1.4	F.2, F.3	GAP-Threatened salmon/forage fish habitat	NC	Protection (Salmon+Forage Fish)	Evaluate IOSA data	responsive measures based on spill patterns	Oil Spill Assoc./FSJ	marine	imbedded
7.1.4	F.4	GAP- Salmon Habitat Use	NC	Salmon Capacity	Climate/ocean/species interactions	WRIA specific climate model-species response	National Wildlife Fed/UW/N OAA	variety	imbedded
7.1.4	F.1, F.2, F.3	GAP - salmon/forage fish habitat	NC	Protection (Salmon+Forage Fish)	Evaluate incidence & types of oil spills	Identify key locations at risk		marine	imbedded
7.1.3	G.1	GAP- salmon/forage fish habitats	NC	Protection analysis	mariculture (net pens)	Position paper for SJ County		nearshore / subtidal	imbedded
		GAP - salmon /forage fish habitats	NC	Protection (Salmon+Forage Fish)	Review/ standardize monitoring methods	white paper on refined methodologies		all	imbedded

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.2, 7.1.3, 7.2.2	D.3	GAP - water quality	NC	Protect/Restore water quality	Marina point/no point source pollution	White paper on issues		food web	imbedded
7.1.1, 7.2.2	D.3	GAP - salmon/forage fish habitat	NC	water quality	Sanitary (Septics) Survey's)	repair failing septic	San Juan County Health	marine/nearshore	imbedded
7.3.1	C.1	GAP- Salmon Habitat Use	NC	Habitat Characteristic/Process	Hydrodynamics (currents)	larval fish transport/retention mechanisms	SRSC	variety	imbedded
7.1.4	F.4	GAP- Salmon Habitat Use	NC	Salmon Capacity	sea level rise	consequences to habitat	National Wildlife Fed/UW/USGS	nearshore / intertidal	imbedded
7.2.2, 7.2.3	C.2, D.3	GAP-Threatened forage fish habitat	NC	Restoration	Storm water Structure Inspections	Address impacts of erosion, pollution, nearshore habitat impacts, water quality	SJC Public works	variety	imbedded
7.2.5		GAP - Fresh water habitat	NC	Characterize	Data compilation of riparian/tidal marsh habitats	white paper and maps of riparian habitat and tidal marshes		riparian/tidal marsh	\$5,000
7.1.1	A.1	GAP - Fresh water habitat	NC	Characterize	Watershed Conservation Easements	Protect salmonid habitat with land conservancy	SJ Preservation Trust/Land Bank	stream/riparian	\$0
TOTAL COSTS									\$25,000
Research / Science									
7.3.1	C.1	Salmon Habitat Use	NC	Salmon/Forage fish capacity	Geomorphic Assessment - Nearshore Habitat and Fish Use Quantification	Model shoreline, "drift cells", determine fish usage	Skagit River System Cooperative/ FSJ	all	\$50,000
7.3.1	C.1	Salmon Habitat Use	NC	Salmon Capacity	Nearshore/Marine Juvenile Salmonid Distribution	beach seine, Map and inform regulatory agencies for permitting/protect/restore sites	Beach Watchers NOAA/Samish	beaches, pocket estuaries, eelgrass, kelp	\$210,000
7.3.1	A.1, C.1	Salmon Habitat Use	NC	Salmon Capacity	juvenile salmonid use salt marsh, stream mouths, pocket estuaries	sample, Map and Inform regulatory agency for permitting/protect/restore sites	ACE/KWIA HT	stream mouths	\$150,000
	C.1	Salmon Habitat Use	NC	Salmon Capacity	juvenile salmon use open water	sample with tow net, Map and Inform regulatory agency for protect sites	ACE/Samish/NMFS	stream mouths	\$30,000
7.3.1	C.1	Salmon Habitat Use	NC	Salmon Capacity	salmon use of drift habitat, kelp canopy and understory	sample habitat, Map and document use	FSJ	kelp	\$150,000
	G.3	Threatened forage fish habitat	NC	Genetic Stock ID	forage fish population structure	Protection of discrete population segments	NMFS genetics lab	variety	\$30,000
7.3.1	G.2	hatchery management	NC	Salmon Capacity	Ecological interactions of hatchery and wild salmon in marine habitats	may affect size, timing, quantity of releases at hatcheries	Tribes, WDFW, NOAA	all	\$30,000

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.3.1	C.1	Salmon/Forage fish habitat use	NC	Assessment	Assessment and protection of kelp beds	Historic and current distribution	FSJ/DNR	bull kelp	\$115,000
7.3.1	C.1	Salmon/Forage fish habitat use	NC	Assessment	identification of juvenile salmon habitat	timing and residency in preferred habitats- a tagging study	Samish	nearshore	\$150,000
7.1.3, 7.3.1	C.1	Degraded salmon/forage fish habitat	NC	Restoration	Eelgrass Restoration Projects	eelgrass habitat assessment	FSJ/UW	subtidal	\$50,000
	B.2	Degraded salmon/forage fish habitat	NC	Assessment/ Restoration	Thatcher Bay old mill site	feasibility plan for Thatcher Bay/restoration	SFEG/UW	nearshore / intertidal	\$115,000
	E.1	Fresh water inputs into Sound	NC	watershed capacity	Restore fresh water inputs-quantity	Map of fresh water system/ reestablish historic watershed flow/ address diversions	SJC / KWIAHT	watershed	\$100,000
	G.3	Salmon Habitat Use	NC	Salmon Capacity	Trophic Interactions - nearshore habitats	analyze benthic/pelagic resource use by juv.salmonids	UW/WWU	variety	\$200,000
7.3.4	G.2	Hatchery Management	NC	Salmon Capacity	Glenwood Springs Chinook hatchery	pathways they use after release/interactions with wild Chinook	LLTK, Tribes, WDFW	variety	\$30,000
7.3.1	C.1	Genetic Stock ID	NC	Salmon Capacity	Discrete Population Segments - Salmon	ID priority habitats for ESA listed species	genetics lab	beaches, pocket estuaries, eelgrass, kelp	\$30,000
7.3.1	C.1	Salmon/Orca Habitat Use and Interactions	NC	Assessment	Resident chinook salmon use of nearshore and pelagic waters in orca feeding grounds.	Distribution and habitat use of resident chinook by acoustic tracking. Relate to Orca presence	UW/NWFS C/ACE	pelagic/nearshore	\$200,000
	E.1	Fresh water habitat	NC	watershed capacity	Stream Habitat Surveys / Watertype Assessment	Interactive GIS showing water type survey results and prioritizing watershed and estuarine restoration / protection opportunities.	Washington Trout	streams/ponds/estuaries	\$175,000
	C.1	Genetic Stock ID	NC	Salmonid Capacity	Native salmonid use of spawning habitat-stock ID	Cutthroat, Kokane, brook trout natal streams identified	ACE/KWIAHT/WT	streams	\$40,000
TOTAL COSTS:									\$1,855,000
Technical Assistance/Education - Programs									
7.1.1, 7.1.3	A.1	TA-Threatened forage fish habitat	NC	Protection	Forage Fish Habitat Enhancement	Regulations to protect/enhance forage fish spawning beaches/eelgrass meadows, landowner incentive program	PT, LB	sand/gravel beach	imbedded
7.1.3	A.1	TA- salmon/forage fish habitats	NC	Protection (Salmon+Forage Fish)	Nearshore work windows- HPA input	Add county requirements for pre-project survey	MRC/WDFW	nearshore	imbedded
	A.4	TA - salmon habitat	NC	Outline future salmon recovery plans for San Juan county	WRIA 2 Salmon Recovery Plan / Sub area Plan	Actions proposed to protect and restore Chinook populations	LE	marine/nearshore	imbedded
7.1.1		TA - salmon habitat	NC	protect and restore salmon/forage fish habitats	LE - coordinate educational resources to include salmon and forage fish habitat components in existing programs	coordinated education on the protection of salmon resources	LE	all	imbedded
7.1.3	G.4	TA - harvest management	NC	Salmon Capacity	Section 7 consultation on salmon harvest management plan relative to orca consumption	may affect harvest management plan details	Tribes, WDFW, NOAA	pelagic	imbedded

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1		Education	NC	4th Grade	salmon-in-the-schools	Juvenile salmon ecology	SJNI,LLTK	nearshore	\$1,000
7.1.1		Education	NC	avoid eelgrass/forage fish beaches	Boater Education	Marine Stewardship	Whale museum/MRC	marinas	\$3,000
7.1.4, 7.2.2	F.1,F.2, F.3	Education	NC	clean salmon habitat	Oil Spill Education	improve water quality	Oil Spill Ass. /FSJ/NPS/schools/SJC public works	surface water	\$0
7.1.1		Education	NC	K-8 education, adult	Outdoor Classroom	Juvenile salmon ecology	SJNI/FHL/Whale museum	nearshore	\$1,000
7.1.1		Education	NC	priority habitats	Marine Ecosystems Signage - MRC	Public Outreach	MRC grant	protected areas	\$5,000
	A.1, E.1	TA-Threatened salmon habitat	NC	Protection	Incorporate drainage basin planning in Comp Plan/ordinance	assist county planning process	SJC Public Works & Planning	variety	imbedded
7.1.1, 7.1.3	A.1	TA- salmon/forage fish habitats	NC	Protection	Overwater structures	protect eelgrass and beaches through permitting process-"no-net loss"	WDFW/W DNR	sub-tidal	imbedded
7.1.1		TA- salmon/forage fish habitats	NC	Protection (Salmon+Forage Fish)	Landowner conservation motivation	encourage salmon friendly actions on property through incentives	SJC/LB/PT /FSJ (open space program)	watershed / nearshore	imbedded
		Education	NC	citizen outreach	WRIA 2 Salmon Recovery Website	Public outreach	LE	all	\$2,000
7.1.1, 7.1.3	D.3	Education	NC	Promote use of Low Impact Development techniques	LID Education	LID techniques decrease development impacts on ecosystem	SJC Conservation District	watershed	\$2,000
7.1.1		Education	NC	reduce impervious surfaces	smart building program education	best building practices	FSJ/SJC	surface water	\$5,000
7.1.1, 7.1.3	A.1	TA-Threatened forage fish habitat	NC	Protection (Salmon+Forage Fish)	Reduce shoreline armoring	permitting for soft shoreline protection	FSJ/SJC	nearshore	imbedded
7.1.1, 7.1.3	A.1	TA- salmon/forage fish habitats	NC	Protection (Salmon+Forage Fish)	Management through Best Available Science	Improve Management plans	LB/PT/SJC /MRC/TNC /FSJ	all	imbedded
		TOTAL COSTS:							\$19,000
Local Salmon Recovery Capacity									
7.12, 7.13	A.2, A.3, A.4	Gaps - salmon habitat	NC	Management needs	Ecosystem Based Initiative Project Manager	Improved management			\$100,000
		Gaps - salmon habitat	NC	liaison	LE - co-ordinate salmon outreach with partners		LE grant		\$245,000

SAN JUAN

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
		Gaps - salmon habitat	NC	Compile, analyze & document known data sources and GAPS	Analyst	compilation and documentation of known data and sources			\$150,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

SKAGIT

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat Capital Projects									
Nearshore									
7.2.3, 7.2.5	B.1, C.2		C		Lone Tree lagoon			Marine Shorelines	\$30,000
7.2.2, 7.2.3, 7.2.4	B.1, C.2		C		Turners Bay			Marine Shorelines	\$275,000
7.2.3, 7.2.4	B.1, C.2		C		Similk Bay			Marine Shorelines	\$75,000
Estuary / Tidal Delta									
7.2.1	B.1, C.2		C		Milltown Island			Estuaries	\$225,000
7.2.1	B.1, C.2		C		Rawlins			Estuaries	\$573,440
7.2.1	B.1, C.2		C		Wiley Slough			Estuaries	\$1,080,000
7.2.1	B.1, C.2		C		McGlenn Causeway			Estuaries	\$1,500,000
7.2.1	B.1, C.2		C		Fisher Slough			Estuaries	\$5,700,000
7.2.1	B.1, C.2		C		South Fork Off Channel			Mainstem	\$195,000
7.2.1	B.1, C.2		C		Swinomish Channel Fill Removal			Estuaries	\$800,000
7.2.1	B.1, C.2		C		Telegraph Slough Reconnection			Estuaries	\$4,750,000
7.2.1	B.1, C.2		C		Dry Slough Tidegate			Estuaries	\$650,000
Regional Research Studies (Whidbey Basin)									
	G3		nonC		Trophic relationships				\$750,000
7.3.1			nonC		Juvenile Salmonid Origin				\$700,000
7.1.4	F.4		nonC		Global Warming Impacts				\$375,000
7.3.1	C.1		nonC		Chinook use of pocket estuaries				\$300,000
			nonC		SRT Evaluation				\$300,000
	G.3		nonC		Nutrient Dynamic and salmon food Research				\$150,000
	G.3		nonC		Forage Fish ecology				\$900,000
7.3.1	C.1		nonC		Nearshore / Offshore salmon and bull trout migration study				\$450,000
Research (Skagit Watershed)									
			nonC		Yearling Chinook Research				\$300,000
7.3.1	C.1		nonC		Chinook Life Histories & Marine Survival				\$300,000
	C.2		nonC		Hatchery/Wild Fish Interactions				\$100,000
			nonC		Salmon habitat and agriculture research				\$200,000
Habitat protection -- monitoring of regulatory programs									
			nonC		Independent Environmental Auditor				\$80,000
7.1.1, 7.1.3	A.1, A.4		nonC		Regulatory Protection Programs				\$1,440,000

SKAGIT

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1, 7.1.3	A.1, A.4		nonC		Review of Permits				\$240,000
Outreach & Education -- stewardship									
7.1.1			nonC		Community Outreach and Education				\$300,000
			nonC		Graduate Fellowships				\$75,000
Stock Monitoring and Research									
			nonC		Adaptive Mngt.				\$720,000
7.3.1			nonC		Delta nearshore chinook monitoring				\$350,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

STILLAGUAMISH

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.5		riparian restoration	C	restoration planting	Riparian Restoration Crew (Row 1)	255 Acres planted	Stillaguamish Tribe, Snohomish County	Mainstem, estuaries, tributaries	\$920,000
7.2.5		riparian restoration	C	Tree planting	South Fork Big Trees (Row 2)	27 acres planted	Snohomish County	mainstem	\$300,000
		riparian restoration	C	Tree planting	North Fork Big Trees (Row 3)	32 acres planted	Snohomish County	mainstem	\$275,000
7.2.5		riparian restoration	C	Revegetation in the Jordan Road meander area	Jordan Road Meander (Row 6)	6 acres restored	Snohomish County	mainstem	\$150,000
	G.1	riparian restoration	C	Knotweed control	Stillaguamish Knotweed Control Project (Row 7)	15 - 25 acres, 2-5 new river miles, retreat past areas	Stilly Snohomish Task Force, SCNWCB, Stillaguamish CWMA	mainstem, tributaries	\$375,000
	G.1	riparian restoration	C	implement stream survey and invasives control	North Fork, South Fork and Mainstem Tributaries Survey and Invasives Control (Row 8)	150 stream miles	Stilly-Snohomish FE Task force	mainstem	\$100,000
	G.1	riparian restoration	C	Riparian plantings and invasive control	South Fork Stillaguamish tributaries (Jim, Canyon, Turlo Creeks) riparian plantings/survey and control (Row 9)	25 acres planted	Stilly-Snohomish Task Force	tributaries	\$365,000
	G.1	riparian restoration	C	conduct stream survey and removal of English Ivy	Stillaguamish English Ivy survey and removal (Row 10)	150 stream miles	Stillaguamish Tribe, Snohomish County	mainstem, tributaries	\$30,000
7.2.1, 7.2.2, 7.2.5	B.1	restore salmon habitat	C	conduct tidal marsh restoration	Leque Island Restoration (Row 11)	115 acres tidal marsh restored	Ducks Unlimited, WDFW	estuaries	\$300,000
7.2.1, 7.2.2, 7.2.5	B.1	restore salmon habitat	C	conduct tidal marsh restoration	Port Susan Preserve Estuary Restoration (Row 12)	130 acres tidal marsh restored	TNC	estuaries	\$824,000

STILLAGUAMISH

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1, 7.2.2, 7.2.5	B.1	create salmon habitat	C	create tidal marsh areas	Tidal Marsh Creation Project (Row 13)	35 acres tidal marsh created	Stillaguamish Tribe, Tulalip Tribes, TNC	estuaries	\$240,000
	G.1	restore salmon habitat	C	control spartina	Spartina Control Project (Row 14)	ongoing spartina control	TNC, Snohomish County Noxious Weed Control Board, WDFW	estuaries	\$435,000
7.2.2	C.2	restore salmon habitat	C	restore nearshore habitat	Kayak Point Nearshore Restoration (Row 15)	600 feet of nearshore restored	Snohomish County, People for Puget Sound	marine shorelines	\$500,000
7.2.2		restore salmon habitat	C	Create a plant bank by collecting seeds, working with landowners, and monitoring growth	Estuary plant bank (Row 16)	10,000 plants in bank	Stillaguamish Tribe	estuaries, marine shoreline	\$60,000
7.1.3	D.3	protect functioning habitat	C	Remove creosote logs	Creosote Log Removal (Row 17)	20 tons of creosote logs removed	SCMRC	marine shorelines	\$30,000
7.2.5		protect functioning habitat	C	Install large river ELJs	Stillaguamish Tribe Large River ELJ installations (Row 18)	6 large river ELJs installed	Stillaguamish Tribe	mainstem	\$600,000
7.2.5		protect functioning habitat	C	Install large river ELJs	Snohomish County Large River ELJ installations (Row 19)	5 large river ELJs installed	Snohomish County	mainstem	\$750,000
	A.3	restore salmon habitat	C	Remove armoring along the Fork Bank area	Fork Bank Armoring Removal Projects (Row 23)	1.37 miles armoring removed	Snohomish County, Army Corps	mainstem	\$800,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	Lower Pilchuck Floodplain Restoration (Row 24)	500 feet of armoring removed, 6 acres of riparian planting, 40 LWD installed	Stillaguamish Tribe	tributaries	\$170,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	North Meander (Row 25)	4.6 acres restored	Snohomish County	mainstem	\$85,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	South Meander (Row 26)	4 acres restored	Snohomish County	mainstem	\$1,300,000

STILLAGUAMISH

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
	B.1	restore salmon habitat	C	Conduct floodplain restoration	Smoke Farm (Row 27)	4 acres restored	Cascade Land Conservancy, NRCS, Snohomish County	mainstem	\$178,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	Pentland Creek (Row 28)	3 acres restored, 3 acres planted	SCD	tributaries	\$20,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	Blue Slough Phase II (Row 29)	16.3 acres restored	SCD	tributaries	\$200,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	South Slough (Row 30)	11 acres restored	Snohomish County	mainstem	\$350,000
	B.1	restore salmon habitat	C	Conduct floodplain restoration	Dike Road/Johnson Levee (Row 31)	2 acres restored	Snohomish County, City of Arlington	mainstem	\$700,000
7.2.2, 7.2.4		address sediment supply	C	Conduct erosion control	Deer Creek headwaters road 18 (Row 33)	8.5 miles of erosion control	USFS, SCD	headwaters	\$80,000
7.2.2, 7.2.4		address sediment supply	C	Conduct erosion control	NF Canyon Creek Rd. 4150 and Spurs (Row 34)	12.6 miles erosion control	USFS, Stillaguamish Tribe	headwaters	\$450,000
7.2.2, 7.2.4		address sediment supply	C	Conduct erosion control	Hemple Creek Rd. 4009 (Row 35)	0.6 miles erosion control	Tulalip Tribes, USFS	headwaters	\$8,500
7.2.4		address sediment supply	C	Conduct erosion control	Squire Creek Rd 2040 stormproofing (Row 36)	2 miles stormproofed	Stillaguamish Tribe or SCD or USFS	headwaters	\$90,000
7.2.2, 7.2.4		address sediment supply	C	Conduct erosion control	Perry Creek Road 4063/spur (Row 37)	1.4 miles erosion control	Stillaguamish or Tulalip Tribes, SCD or USFS	headwaters	\$415,000
7.2.4		address sediment supply	C	Conduct erosion control	Gold Basin Slide (Row 38)	landslide treatment	Stillaguamish Tribe, USFS	mainstem	\$200,000
7.1.1, 7.2.2, 7.2.4	A.1, B.2	education and outreach	NC	Continue staffing for program	Sound Stewards Program (Row 65)	program continued	People for Puget Sound, SCMRC	basin-wide	\$12,000
7.1.2, 7.1.3		education and outreach	NC	Conduct feasibility studies, pilots, and workshops	Bioengineering Workshops for alternative shoreline protection (Row 66)	program developed	SCMRC, PSAT, WSU	basin-wide	\$13,000

STILLAGUAMISH

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1, 7.2.2	A.1	monitoring and outreach	NC	Train volunteers, volunteers conduct mussel surveys	Volunteer Mussel Survey/Analysis Program to identify pollutant concentration in marine waters (Row 70)	# of volunteers mussels surveyed	SCMRC, NOAA	basin-wide	\$10,000
7.1.2, 7.3.1, 7.3.2	A.4	monitoring and outreach	NC	Continue staffing for program	Estuary Monitoring and Assessment (Row 91)	Ongoing monitoring	Stillaguamish Tribe	basin-wide	\$240,000
7.3.4		Test hypotheses	NC	Conduct research, analysis, outreach and reporting	Juvenile salmon endocrine disruptor study (Row 95)	not quantified	Stillaguamish Tribe, NOAA, SCMRC	basin-wide	\$60,000
7.1.2, 7.2.2	C.1	restore pocket estuaries	NC	Conduct mapping	Pocket Estuary Mapping - Identify and prioritize for restoration (Row 96)	Estuary-wide pocket estuary map	SCMRC	estuary-wide	\$20,000
7.1.2, 7.3.1		Test hypotheses	NC	Develop a hydrodynamic model for restoration projects	Development and adaptation of hydrodynamic models (Row 97)	Integrated hydrodynamic models for restoration projects	Snohomish County	basin-wide	\$150,000
7.2.2		Assess sediment supply	NC	Develop a sediment budget	Sediment Budget (Row 100)	Sediment budget developed	TNC, USFS	basin-wide	\$35,000
	A.3, B.5	strategic planning	NC	Develop an estuary conservation plan	Comprehensive estuary conservation plan (Row 108)	Completed estuary conservation strategy	TNC, Snohomish County	estuary-wide	\$50,000

KEY:
 SCD: Snohomish Conservation District
 SCNWCB
 CWMA
 TNC The Nature Conservancy
 USFS U.S. Forest Service
 WDFW Washington Department of Fish and Wildlife
 SCMRC Snohomish County Marine Resources Committee
 PSAT Puget Sound Action Team
 WSU Washington State University
 NOAA National Oceanic and Atmospheric Administration

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat Capital Projects									
7.1.1	A.1		C		Livingston Bay Nearshore Acquisitions - protection of high priority nearshore in N Port Susan		WCLT, TNC	Marine Shoreline	\$930,000
7.1.1	A.1		C		High Priority Habitat Protection - acquisitions and conservation easements that protect intact top priority nearshore processes and functions		WCLT	Marine Shoreline	\$2,100,000
7.2.3			C		Nearshore Acquisitions for Restoration - acquisitions and conservation easements related to enhancement and restoration of top priority nearshore processes and functions		WCLT	Marine Shoreline	\$800,000
7.2.4			C		Ala Spit Protection & Enhancement - protection and/or restoration of down drift processes to maintain spit habitats <i>(Contingent on recommendations from assessment project)</i>		IC Planning	Marine Shoreline	\$300,000
7.2.4, 7.2.5	C.2		C		Skagit Bay Nearshore Enhancement/Restoration - enhancement of nearshore processes and functions at one or more of the Skagit Basin assessment sites <i>(Contingent on recommendations from assessment project and landowner willingness)</i>		SRSC	Marine Shoreline	\$350,000
7.2.3	C.2		C		Iverson Marsh Enhancement - design and enhancement of fish passage/ tidal connectivity		IC Planning, Stillaguamish Tribe, WFC	Marine Shoreline	\$600,000
7.2.3	C.2		C		Cornet Bay Enhancement/ Restoration - enhancement of eelgrass and forage fish habitat at Deception Pass State Park beach and pier in Cornet Bay		IC MRC; State Parks	Marine Shoreline	\$350,000
7.2.3	C.2		C		Crescent Marsh Restoration - improvement of internal hydrologic connectivity and restoration of tidal connectivity (continuation of SRFB project)		Navy	Marine Shoreline	\$1,300,000

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	C.2		C		Saratoga Passage Pocket Estuary Enhancement/ Restoration - enhancement of one or more pocket estuary sites (<i>contingent on assessment recommendations and landowner willingness</i>)		SRSC	Marine Shoreline	\$500,000
			C		Derelict Net Removal - identification and removal of derelict fishing nets in Island County marine waters		IC MRC; NW Straits Foundation	Marine Shoreline	\$30,000
7.2.2, 7.2.3	C.2		C		Creosote Log & Piling Removal - identification and removal of creosote debris and derelict creosote pilings from Island County nearshore, particularly in forage fish spawning areas		WADNR; IC Planning	Marine Shoreline	\$260,000
7.2.5			C		Spartina Removal Projects - identification and removal of <i>Spartina anglica</i> throughout Island County		IC Weed Control, WDFW, NGOs	Marine Shoreline	\$160,000
Future Habitat Project Development									
7.3.1	C.1		nonC		WRIA 6 Synthesis of Nearshore Habitat and Fish Distribution Data - countywide synthesis of all juvenile fish data and nearshore habitat assessment data		SRSC, WFC, Stillaguamish Tribe, NOAA		\$120,000
7.1.1	A.1		nonC		Strawberry Point Nearshore Protection Project - integrated protection planning, landowner outreach, & technical assistance		IC Planning and Partners (see note)	Marine Shoreline	\$211,000
7.1.1	A.1		nonC		North Camano Nearshore Protection Project - integrated protection planning, landowner outreach, & technical assistance		IC Planning and Partners (see note)	Marine Shoreline	\$150,000
7.1.1	A.1		nonC		South Camano Nearshore Protection Project - integrated protection planning, landowner outreach, & technical assistance		WCLT and Partners (see note)	Marine Shoreline	\$150,000
7.1.3	A.2		nonC		Synthesis of Geographic Area 1 Nearshore Protection Projects - evaluation of lessons learned		IC Planning and Partners		\$25,000

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1	A.1		nonC		S. Useless Bay Nearshore Protection Project - integrated protection planning, landowner outreach, & technical assistance		Whidbey Watershed Stewards and Partners (see note)	Marine Shoreline	\$150,000
7.1.1	B.2		nonC		Vacant Lot Assessment - evaluation of vacant nearshore parcels in relationship to habitat and nearshore processes		IC Planning		\$75,000
7.2.2, 7.2.3	B.2		nonC		Ala Spit Protection Assessment - habitat and spit sediment process assessment, evaluation of spit protection options, 30% design if enhancement option chosen		IC Planning	Marine Shoreline	\$150,000
7.2.2	B.2		nonC		Skagit Basin Nearshore Assessment - habitat and process assessment of 10 WRIA 6 Skagit Bay pocket estuaries		SRSC	Marine Shoreline	\$150,000
7.2.3	B.2		nonC		Saratoga Passage Pocket Estuary Assessment - evaluation of all pocket estuaries in Saratoga Passage; feasibility assessment for 2 sites		SRSC	Marine Shoreline	\$200,000
7.2.3	B.2		nonC		Lowell Point Feasibility - feasibility assessment of pocket estuary restoration options		SRSC, State Park	Marine Shoreline	\$80,000
7.2.3	B.2		nonC		West Deer Lagoon Feasibility Assessment and Neighborhood Outreach - feasibility assessment of enhancing tidal connectivity and fish passage		WFC, IC Planning	Marine Shoreline	\$100,000
7.2.3	C.2		nonC		Swantown Lake Feasibility Assessment and Neighborhood Outreach - feasibility assessment of enhancing tidal connectivity and fish passage		SLWPG, IC Planning, WFC	Marine Shoreline	\$100,000
7.2.3	C.2		nonC		Crockett Lake Historic Reconstruction & Feasibility - assessment of historic habitat and enhancement options		Ebey's Landing National Historic Reserve	Marine Shoreline	\$75,000
Habitat protection -- monitoring of habitat quality									
7.1.4	F.2, F.3		nonC		Island County Oil Spill Assessment Team - coordination & training of volunteers to identify and assess spills		WSU Beach Watchers		\$30,000
Habitat protection -- participation in policy or regulatory updates									
7.1.1, 7.1.4	A.1, A.4		nonC		Island County Critical Areas Ordinance Update (2005-2007)		IC Planning		\$400,000

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.2, 7.1	A.1, A.4		nonC		Island County Owned Nearshore Protection Project - review & update management plans for county owned lands in and adjacent to the nearshore		IC Planning / Parks		\$140,000
7.1.2, 7.1	A.1, A.4		nonC		WRIA 6 State Owned Nearshore Protection Project - review & evaluate management plans for state owned lands in and adjacent to the nearshore		IC Planning, State Agencies		\$50,000
7.1.2, 7.1	A.1, A.4		nonC		WRIA 6 Federally Owned Nearshore Protection Project - review & evaluate management plans for federally owned lands in and adjacent to the nearshore		IC Planning, Navy		\$50,000
Outreach & Education									
	B.2		nonC		Community Knowledge Assessment - evaluation of citizen knowledge about salmon recovery issues and willingness to participate in recovery projects		IC Planning		\$30,000
Outreach & Education -- stewardship									
7.1.1			nonC		Shoreline Landowner Workshops - outreach in shoreline communities focusing on nearshore functions for salmon, and opportunities for protection and enhancement		Shore Stewards, IC Planning		\$90,000
7.1.1			nonC		Deception Pass SP Salmon Outreach Campaign		State Parks		\$200,000
7.3.1	C.1		nonC		Site Specific Seining Reports - Annual updates summarizing results of juvenile salmon seining for Harrington Lagoon, Race Lagoon, and Elger Bay		IC Planning		\$15,000
7.1.1			nonC		Watershed Stewardship Program - upland link with Shore Stewards program		Whidbey Watershed Stewards		\$70,000
7.1.1			nonC		Booklet: Salmon Swim Amongst Us - telling the story of salmon passing through Island County		Orca Network		\$15,000
7.1.1			nonC		K-12 School Programs - education about watershed and nearshore functions for salmon		Whidbey Watershed Stewards, FEGs, Beach Watchers		\$45,000
Salmon Recovery coordination/implementation									

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.2, 7.1	A.2, A.4		nonC		WRIA 6 Adaptive Management Planning and Implementation - programatic evaluation of projects/programs and ecosystem functions		IC Planning		\$150,000
Habitat Project Monitoring									
7.3.1			nonC		Follow-up Monitoring Crescent Marsh Restoration		Navy, UW		\$75,000
Stock Monitoring Support									
7.3.1	C.1		nonC		Whidbey Basin Nearshore/ Marine Juvenile Salmonid Distribution - assessment of distribution of out-migrating fish <i>[Should be part of regional assessment]</i>		Tribes, NOAA, Beach Watchers		\$450,000
	C.1		nonC		Whidbey Basin Juvenile Salmon Origins - genetic identification of distribution of stocks using Whidbey Basin nearshore <i>[Should be part of regional assessment]</i>		Tribes, NOAA		\$92,000
7.3.1	C.1		nonC		Admiralty Inlet Nearshore/ Marine Juvenile Salmonid Distribution - assessment of distribution of out-migrating fish <i>[Should be part of regional assessment]</i>		Tribes, NOAA, WFC		\$200,000
	C.1		nonC		Admiralty Inlet Juvenile Salmon Origins - genetic identification of distribution of stocks using Admiralty Inlet nearshore <i>[Should be part of regional assessment]</i>		Tribes, NOAA, WFC		\$80,000
	G.3		nonC		Whidbey Basin Trophic Interactions Scoping - evaluation of predator/prey assessments done to date; development of future scope of work		Tribes, WDWF, NOAA		\$20,000
	G.3		nonC		Admiralty Inlet Trophic Interactions Scoping - evaluation of predator/prey assessments done to date; development of future scope of work		Tribes, WDWF, NOAA		\$20,000

ISLAND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
PRIORITY PROJECTS AND PROGRAMS BENEFITTING NON-LISTED SPECIES									
7.2.2	D.3				Whidbey Stormwater Remediation Project - low impact development technical assistance for landowners		Whidbey CD		\$300,000

WCLT = Whidbey Camano Land Trust
 TNC = The Nature Conservancy
 SRSC = Skagit River System Cooperative
 IC = Island County
 MRC = Marine Resources Committee
 WFC = Wild Fish Conservancy
 WADNR = WA Dept of Natural Resources
 CD = Conservation District
 SLWPG = Swan Lake Watershed Preservation Group
 FEG = Fisheries Enhancement Group
 UW = University of Washington
 NWSC = NW Straits Commission

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.5	C.2	Restore salmon habitat	C	Conduct daylighting of the gulch	Daylighting of Japanese Gulch (Map 16)	1 barrier removed, some % mitigation	Port of Everett and/or WSU	marine shoreline	\$3,300,000
7.2.3		Restore salmon habitat	C	Continue restoration	Shoreline restoration at riprapped south end of Jetty island (Map 5)	3,000 feet backshore restored	Port of Everett, USACE	marine shoreline	\$780,000
	B.1	Restore salmon habitat	C	removal of derelict fishing gear	Remove derelict fishing gear (Map 2)	not quantified	SCMRC	marine shoreline	\$50,000
7.2.4	B.6	Restore salmon habitat	C	Conduct demonstration project	Shoreline bioengineering demonstration project (Map 3)	not quantified	Snohomish County, Tulalip Tribes, People for Puget Sound	marine shoreline	\$120,000
7.2.1	C.2	Restore salmon habitat	C	Conduct feasibility study and design for restoration	Quilceda Creek Estuary Restoration (Map 303)	feasibility study and design complete	Tulalip Tribes	estuaries, marine shoreline	\$250,000
7.2.5		Restore salmon habitat	C	Conduct feasibility study and design for restoration	Tulalip Bay nearshore restoration (Map 301)	feasibility study and design complete	Tulalip Tribes	marine shoreline	\$200,000
		Restore salmon habitat	C	Conduct feasibility study and design for restoration	Priest Point Tidal Lagoon (Map 302)	feasibility study and design complete	Tulalip Tribes, Snohomish County	marine shoreline	\$250,000
7.2.1, 7.2.4		Restore salmon habitat	C	Monitor physical and biological performance on beach	Beach restoration demonstration at Mukilteo Tank Farm (Map 6)	1,100 feet beach/backshore restoration	Port of Everett	marine shoreline	\$330,000
7.2.1	C.2	Restore salmon habitat	C	Monitor success of 2007 renourishment, conduct new renourishment of needed	Renourish Existing Jetty Island Berm (Map NEW 738)	Some % mitigation, 19 acres marsh/mudflat created	Port of Everett, USACE	marine shoreline	\$250,000
7.2.3		Restore salmon habitat	C	Feasibility study	Sand Berm at Jetty Island South (Map 4)	2,200 feet beach nourishment, some percent mitigation	Port of Everett, USACE	marine shoreline	\$50,000
7.2.5	B.1, D.3	protect functioning habitat	C	Removal of the tank farm pier	Partial Removal of the Creosote-treated and shadowing Tank Farm Pier (Map 14)	98,000/143,000 sq. ft. to be removed as mitigation	Washington State Ferries	marine shoreline	\$9,690,000
7.2.5	B.1, D.3	protect functioning habitat	C	Removal of the tank farm pier	Full Removal of the Creosote-treated and shadowing Tank Farm Pier (Map 15)	remove remaining 45,00 sq. ft of tank farm pier	Washington State Ferries and/or others	marine shoreline	\$5,000,000

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.4		protect functioning habitat	C	Monitor physical and biological performance	Railroad shoreline improvements (Map 7)	5,000 ft beach nourishment	BNSF or Sound Transit	marine shoreline	\$150,000
7.2.3	C.2	protect functioning habitat	C	Conduct feasibility study, design and construction	Maulsby Swamp Mudflats/Enhanced Connection (Map 1)	not quantified	City of Everett	marine shoreline	41,210,000
7.1.1	B.2	education and outreach	NC	Build landowner capacity for nearshore protection and restoration	Beach Watchers Program	increased landowner capacity for nearshore protection and restoration	Snohomish County, Tulalip Tribes	marine shoreline	\$150,000
7.1.2	B.2	strategic planning	NC	Build capacity for nearshore protection and restoration	Watershed Recovery Plan Implementation	increased capacity for nearshore protection and restoration	Tulalip Tribes	marine shoreline	\$96,123
7.1.2	D.3	protect functioning habitat	C	Remove creosote logs	Creosote log removal	Remove 120 tons of logs	DNR, NWSC, SCMRC	nearshore	\$120,000
7.1.1		education and outreach	C	Conduct feasibility studies, pilots, and workshops	Training workshops for engineers and contractors to build nearshore capacity	Increased capacity among contractors and engineers to conduct projects safe for the nearshore	Puget Sound Partnership	nearshore	\$40,000
7.1.1, 7.2.2	A.1	monitoring and outreach	NC	Train volunteers, volunteers conduct mussel surveys	Volunteer Mussel Survey/Analysis Program to identify pollutant concentration in marine waters	# of volunteers mussels surveyed	SCMRC, NOAA	nearshore	\$47,000
7.1.1, 7.2.2, 7.2.4	A.1, B.2	education and outreach	NC	Continue staffing for program	Sound Stewards Program	program continued	People for Puget Sound, Snohomish County marine Resources Committee	nearshore	\$37, 500
7.1.2	B.6	test hypotheses	C	Conduct scan	Sidescan bathymetric scan of marine shoreline from Mukilteo to Port Susan	Scan completed, data incorporated into hydrodynamic model	Snohomish County, Tulalip Tribes	marine shoreline	\$250,000
7.1.2		test hypotheses	C	Conduct study	Fish Utilization study in Northern Puget Sound	not quantified	WDFW, San Juan County	nearshore	\$2,000,000
7.1.2	C.1	restore pocket estuaries	C	Conduct mapping	Pocket Estuary Mapping	Prioritized List of restoration/protection sites	SCMRC	marine shorelines , estuaries	\$80,000
	C.1	Restore salmon habitat	NC	Fill data gaps for feasibility of nearshore projects	Future habitat project development	not quantified	Snohomish County, Tulalip Tribes	marine shoreline	\$150,000

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
	B.1	Add and restore estuarine habitat	C	Conduct mitigation, restore edge habitat and tidal marsh	Bigelow Creek/Simpson Lee (Map 28)	35 acres tidal marsh, 5,428 edge habitat	City of Everett	estuaries	\$2,200,000
	B.1	Add and restore estuarine habitat	C	Restore tidal marsh	DD6 Cross Dike and Habitat Restoration (Map NEW 739)	40 acres tidal marsh	City of Everett, Snohomish County	estuaries	\$2,900,000
7.1.1	A.1	Protect estuarine habitat	C	Protect riparian area	DD13 & Riparian Restoration Acquisition/Conservation Easement (Map NEW 740)	90 acres protected	Cascade Land Conservancy, DD13, Snohomish County	estuaries	\$500,000
7.2.5	B.1	Add and restore estuarine habitat	C	Install fish-friendly tidegate and pump	Infrastructure upgrade for flood control/drainage and water quality/fish access (Map 36)	15 acres tidal marsh restored	DD13, Snohomish Conservation District	estuaries	\$125,800
	B.1	Add and restore estuarine habitat	C	Restore edge habitat	Edge habitat restoration on earthen dike (Van der Vieren & Roetcisoender property) (Map 37)	3,000 feet edge habitat restored	DD13, Snohomish Conservation District	estuaries	\$40,000
	B.1	Add and restore estuarine habitat	C	Conduct riparian restoration and tidegate improvements	Swan Trail Slough (Map 38)	8 acres riparian habitat restored	DD13, Snohomish Conservation District, Snohomish County	estuaries	\$72,000
7.2.5	B.1	Add and restore estuarine habitat	C	Install fish-friendly tidegates	Install at least two fish-friendly tidegates (Map 775)	Fish friendly tidegates, associated water quality improvements	Diking and drainage districts, Snohomish CD, Snohomish County, others	estuaries	\$150,000
7.2.5	B.1	Add and restore estuarine habitat	C	Conduct fish passage improvements	DD13 fish passage improvements, Phase II (Map NEW 741)	Fish passage improvements, associated water quality improvements	DD13, Snohomish Conservation District	estuaries	\$100,000
	B.1	Add and restore estuarine habitat	C	Restore edge habitat and tidal marsh	Smith Island restoration (Map 27)	475 acres tidal marsh, 10,500 feet edge habitat restored	Snohomish County	estuaries	\$5,500,000

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1	B.1	Add and restore estuarine habitat	C	Acquire lands and design for restoration	North Tip Ebey Island (Map 30)	250 acres acquired, 450 acres tidal marsh restored	Snohomish County	estuaries	\$1,400,000
	B.1	Add and restore estuarine habitat	C	Enhance riparian habitat	North Ebey Island Enhancement (Map 31)	3 riparian acres enhanced	Snohomish County	estuaries	\$3,000
	B.1	Add and restore estuarine habitat	C	Restore riparian and tidal marsh habitat, install log jams	Snohomish Estuary Edge Enhancement Phase I (Map NEW 742)	1 acre tidal marsh and 5 acres riparian areas restored, 20 log jams installed	Snohomish County	estuaries	\$150,000
	B.1	Add and restore estuarine habitat	C	Restore tidal marsh habitat, install log jams	Snohomish Estuary Edge Enhancement Phase II (Map NEW 473)	1 acre tidal marsh restored, 20 log jams installed	Snohomish County	estuaries	\$250,000
	B.1	Add and restore estuarine habitat	C	Conduct dike breaches and improve edge habitat	Improve habitat connectivity (Map NEW 773)	1,000 feet edge habitat improved	Snohomish County	estuaries	\$450,000
	B.1	Add and restore estuarine habitat	C	Assess and improve habitat connectivity	Assess and improve mainstem channel habitat connectivity (Map NEW 774)	not quantified	Snohomish County	estuaries	\$150,000
	B.1	Add and restore estuarine habitat	C	Conduct tidal marsh and edge habitat restoration	Qwuloot Estuary Restoration (Map 304)	360 acres tidal marsh, 5,300 feet edge habitat restored	Tulalip Tribes	estuaries	\$3,200,000
	B.1	Add and restore estuarine habitat	C	Conduct mitigation and restoration	Smith Island/Union Slough Marine Wetland Restoration (Map 29)	Some % mitigation, 100 acres tidal marsh	US Army Corps of Engineers, City of Everett	estuaries	\$500,000
	B.1	Add and restore estuarine habitat	C	Acquire lands and conduct tidal marsh restoration	Acquire 1,600 acres of Ebey Island south of SR2 and restore tidal marsh (Map NEW 744)	not quantified	Washington Department of Fish and Wildlife	estuaries	\$3,860,000
	B.1	Add and restore estuarine habitat	C	Conduct mitigation and restoration	Biringer Farm Estuarine Restoration/Mitigation Bank	Some % mitigation, at least 300 acres tidal marsh restored	Port of Everett, Wildlands of Washington, Inc.	estuaries	\$0
7.1.2		Assurance that recovery actions are effective	NC	Develop a coordinated mitigation/restoration strategy	Salmon Recovery coordination/implementation	More effective use of different types of funding for plan implementation	City of Everett, Port of Everett, Snohomish County, Tulalip Tribes	estuaries	\$5,000
7.3.1		Evaluate the effects of strategies and management actions on nearshore habitats	NC	Perform a feasibility study	Future habitat project development	Results of feasibility study	Snohomish County	estuaries	\$150,000

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.3.2		Test hypotheses about effects of shoreline ecosystems on salmon viability	NC	Conduct monitoring and research	Monitoring and Adaptive Management	Improved understanding of salmon use and habitat preference in estuarine habitats	Tulalip Tribes, NOAA Fisheries	estuaries	\$198,000
7.3.1		Evaluate the effects of strategies and management actions on nearshore habitats	NC	Develop a pilot project	Salmon Recovery coordination/implementation	Pilot results on measures to improve habitat connectivity and edge habitat	Utilities, transportation agencies	estuaries	\$100,000

KEY:

- BNSF
- TNC The Nature Conservancy
- USFS U.S. Forest Service
- WDFW Washington Department of Fish and Wildlife
- SCMRC Snohomish County Marine Resources Committee
- PSAT Puget Sound Action Team
- WSU Washington State University
- NOAA National Oceanic and Atmospheric Administration
- USACE US Army Corp of Engineers
- DNR Department of Natural Resources

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

KING (WRIA 8)

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.2	A.1	engage citizens	nonC	conduct outreach and education	Outreach and education	informed citizenry	MS and W8	all	\$711,000
7.1.3	A.1	improve regulations	nonC	increase regulatory flexibility	Integration of regulatory flexibility to benefit salmon	increased options for landowners	MS and W8	all	\$117,000
7.1.3	A.1	improve regulations	nonC	increase incentives	Increase incentive programs	increased options for landowners	MS and W8	all	\$159,000
7.1.3	A.1	improve regulations	nonC	find innovative approaches	Increase innovative approaches to stormwater and shoreline management	increased options for landowners	MS and W8	all	\$246,000
7.1.3	A.1	improve regulations	nonC	disseminate BMP	Increase Best Management Practices (BMPs)	increased options for landowners	MS and W8	all	\$57,000
7.1.1	A.1	improve regulations	nonC	enforce regulations	Support existing regulations that benefit salmon	improved habitat protection	MS and W8	all	\$231,000
	A.1	prevent entrainment in locks	C	maintain locks	Operational Improvements to Improve Juvenile and Adult Chinook Survival (M204)	add/replace strobe lights to locks to deter smolts and prevent entrainment)	COE	estuary	\$150,000
7.3.1		assess sediment supply	C	study sediment supply	Nearshore feasibility assessment	identify future project options	KC	marine	\$100,000
7.2.3, 7.2.4	C.2	restore salmon habitat	C	restore pocket estuary and improve culvert	Big Gulch Pocket Estuary (M222)	restore system connectivity and improve sediment transport	Mukilteo	small streams	\$2,000,000
7.2.3, 7.2.5	C.2	restore salmon habitat	C	remove overwater structures and armoring, restore vegetation	Salmon Bay Natural Area Restoration (M247)	increase rearing and refuge area	Seattle and GNW		\$250,000

Key

MS = Multiple Stakeholders
W8 = WRIA 8
COE = US Army Corps of Engineers
KC = King County
GNW = Groundswell Northwest

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

KING (WRIA 9)

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1, 7.2.2, 7.2.3, 7.2.5	B.1, B.3	restore salmon habitat in transition zone	C	create off-channel habitat, plant native species	North Wind's Weir Shallow Water Habitat Rehabilitation at RM 6.3 (Duw-10)	create 2 acres of off-channel, shallow water habitat	KC	estuary	\$2,145,000
7.2.1, 7.2.3, 7.2.5	B.1, B.3	restore salmon habitat	C	create new cove and buffer	Shallow Water Habitat Creation (DUW-11)	create 0.36 acres nearshore habitat and 2.1 acres vegetated buffer	Seattle	estuary	?
7.2.1, 7.2.3, 7.2.5	B.1, B.3	restore salmon habitat	C	create off-channel habitat	Duwamish Gardens Shallow Water Habitat Creation at RM 7.0 (DUW-7)	acquire 2.2 acres, create off-channel habitat	Tukwila	estuary	\$1,700,000
7.2.1, 7.2.3, 7.2.5	B.1, B.3	restore salmon habitat	C	create off-channel shallow water/marsh habitat with native vegetation	Shallow Water Habitat Creation at RM 7.0-5.5 (DUW-7)	restore 1 acre upstream of RM 5.5	Tukwila	estuary	\$1,500,000
7.2.1, 7.2.3, 7.2.5	B.1, B.3	restore river bank	C	set back and restore river bank	Bank Restoration and Revetment Setback at RM 6.6-5.5 (DUW-7, DUW-9, DUW-11)	restore 1 mile bank layback and revegetation	Tukwila & KC	estuary	\$500,000
7.2.1, 7.2.3, 7.2.5	B.1, B.3	preserve future opportunities	C	acquire 5 acres	Shallow Water Habitat Creation at RM 7.0-5.5 (DUW-7)	enable 2010 restoration	MS	estuary	\$6,100,000
7.2.1, 7.2.3, 7.2.5	B.1, B.3	restore salmon habitat	C	create shallow-water habitat and restore shoreline within Lower Duwamish Superfund cleanup area	Shallow Water Habitat Creation (DUW-11)	create shallow-water habitat	MS	estuary	TBD
7.2.3, 7.2.5	C.2	restore salmon habitat	C	create shallow-water habitat	Olympic Sculpture Park Tidal Embayment and Shallow Water Habitat Rehabilitation (NS-3)	create 0.64-acre embayment and an 800x15 foot habitat bench	Seattle	marine	\$3,114,000
7.2.4, 7.2.5	C.2	restore processes	C	remove shoreline armoring, restore beach, plant natives	Seahurst Park Shoreline Restoration, Phase II (NS-5)	reconnect sediment supply, restore natural beach habitat	Burien	marine	?
7.2.4, 7.2.5	C.2	restore processes	C	purchase and restore undeveloped feeder bluffs	Beaconsfield-on-the-Sound (NS-11)	reconnect sediment supply, restore natural bluff habitat	NP	marine	\$500,000
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	purchase site	Functioning Nearshore Habitat Protection: Foss Property (NS-17)	protect functioning habitat	NP	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	purchase site	Functioning Nearshore Habitat Protection: Camp Kilworth (NS-17)	protect functioning habitat	FW	marine	\$3,116,000

KING (WRIA 9)

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	restore pocket estuary	C	acquire and restore salt marsh	Ellis Creek Saltmarsh Protection and Restoration (NS-10)	recreate salt marsh	KC	marine	\$348,000
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Lost Lake (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Maury Island Marine Park (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Inspiration Point (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Point Robinson (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Dockton (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Neill Point (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Manzanita (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Northall (Piner West) (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Raab's Lagoon (NS-17)	protect functioning habitat	KC	marine	Adequate funding secured
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	restore pocket estuary	C	work with landowners and neighbors	Evaluate How to Improve Habitat Value of Raab's Lagoon/Pocket Estuary (NS-14)	find locally acceptable way to restore habitat	KC	marine	?

KING (WRIA 9)

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.2, 7.2.3, 7.2.4, 7.2.5	C.2	protect functioning habitat	C	acquire site	Functioning Nearshore Habitat Protection: Christensen Creek (NS-17)	protect functioning habitat	KC	marine	?
7.2.2, 7.2.3	C.2	restore pocket estuary	C	improve fish passage and conditions	Camp Sealth Fish Passage Improvements (NS-9)	restore fish passage and habitat in pocket estuary	KC	marine	\$100,000 to \$200,000
7.2.2, 7.2.3	C.2	restore pocket estuary	C	improve fish passage and conditions	Mileta Creek Fish Passage Improvements (NS-9)	restore fish passage and habitat in pocket estuary	KC	marine	\$100,000 to \$200,000
7.2.2, 7.2.3	C.2	restore pocket estuary	C	improve fish passage and conditions, clean up hydrocarbons	Ellisport Creek Fish Passage Improvements (NS-9)	restore fish passage and habitat in pocket estuary	KC and/or VMILT	marine	\$1,020,000
7.2.4	C.2	restore processes	C	remove bulkhead	Sandford Point Feeder Bluff Restoration (NS-18)	restore sediment supply	KC	marine	\$195,000
7.1.1, 7.2.3, 7.2.4	A.1	promote voluntary restoration	nonC	create stock or model habitat designs/techniques	Nearshore Habitat Toolbox (N-1)	make restoration easier	KC	marine	\$250,000
7.1.1, 7.2.2	A.1	protect water quality	nonC	provide incentives to fix failing OSS	Create Incentives Program to Remove Failing OSS on Vashon/Maury Island (N-4)	make repairing OSS easier	KC	marine	?
7.1.2	?	engage citizens	nonC	?	Project Management and Public Outreach	?	WRIA staff	all	?
7.1.2	?	engage citizens	nonC	?	Stewardship and Educational Outreach	?	WRIA staff	all	?
7.1.1	A.1, C.2	promote water conservation	nonC	expand water conservation programs	Water Conservation Incentive Programs (WW-2)	save water	MS	all	?
7.1.3	A.1	?	nonC	?	Support Shorelines Exemption for Properties Affected by Salmon Habitat (IN-2)	?	MS	all	?
7.1.1, 7.2.5	C.2	promote voluntary restoration	nonC	promote planting of native trees	Promote Planting of Native Trees (WW-5)	increase voluntary restoration	MS	all	?
7.1.1	A.3	preserve future opportunities	nonC	identify natural areas for protection	Develop a Coordinated Acquisition Program for Natural Areas (WW-15)	improved coordination and prioritization of open space acquisitions	KC	all	?
7.1.1	A.1, D.3	protect water quality	nonC	educate citizens and professionals	Increase/Expand Natural Yard Care Programs (WW-3, WW-4)	improved voluntary habitat and water-quality protection	MS	all	?
7.1.2, 7.2.3, 7.2.4, 7.2.5	A.1, C.2	protect and restore salmon habitat	nonC	educate landowners	Conduct Shoreline Stewardship Workshops and Outreach (WW-1)	improved voluntary habitat and water-quality protection	MS	all	?
7.1.3, 7.2.4	A.1, C.1	promote voluntary restoration	nonC	provide technical assistance and cost-sharing	Create Soft Armoring Tech Assist/Cost Share (N-2)	voluntary removal of shoreline armoring	KC	marine	?
7.1.3, 7.3.1	A.2	monitor forage fish spawning areas	nonC	create volunteer monitoring program	Citizen Volunteer Forage Fish Monitoring Program (N-5)	fill data gap and educate citizens	MS	marine	?
7.1.1	A.1, D.3	protect water quality	nonC	provide carwash kits and promote use of coupons	Promote Better Volunteer Carwash Practices (WW-6)	keep soapy and oily water out of Puget Sound	MS	all	?

KING (WRIA 9)

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1	A.1	protect functioning habitat	nonC	educate citizens about recreating gently	Increase Public Awareness about What Healthy Streams and Rivers Look Like and How to Enjoy Recreating on Them (WW-7)	protect riparian and spawning habitat	MS	all	?
7.1.1, 7.1.3	A.1	promote voluntary restoration	nonC	improve access to incentive programs	Expand/Improve Incentives Programs (WW-11)	make habitat protection and restoration easier for landowners	MS	all	?
7.1.1, 7.1.3	A.1	protect water quality	nonC	promote infiltration for stormwater control	Increase Use of Low Impact Development and Porous Concrete (WW-13)	protect water quality and reduce stormwater volumes	MS	all	?
7.1.1, 7.1.3	A.1, C.2	promote voluntary restoration	nonC	create tools for farmers	Develop Salmon Restoration Tools Consistent with Agricultural Land Use (WW-16)	protect habitat and agriculture	MS	all	?
7.3.1	A.4	test hypotheses	C	monitor restoration project	Olympic Sculpture Park Post-Construction Monitoring	increase knowledge of restoration efficacy	Seattle	marine	\$77,000
?	E.1?	?	C	?	Water supply coordination	?	MS	all	\$50,000

Key

FW = Federal Way

KC = King County

MS = multiple stakeholders

NP = Normandy Park

VMILT = Vashon-Maury Island Land Trust

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

PUYALLUP / WHITE

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	C.2	restore salmon habitat	C	restore forage fish habitat restore shoreline	Puget Creek Estuary restoration	remove contaminated sediment, restore eelgrass, sand lance spawning habitat	Pierce	marine	\$1,450,000
7.2.5	C.2	restore nearshore habitat	C	restore intertidal vegetation	Pierce County Eelgrass restoration	Pilot project, evaluation, application to new areas - eelgrass restoration	Pierce	marine	\$400,000
7.2.2	B.1 B.4	restore salmon habitat	C	restore estuary	NRDA Nearshore Restoration mitigation	construct nearshore restoration on Hylebos Cr	Port of T	estuarine	\$1,000,000
7.2.5	B.4 C.2	restore salmon habitat	C	restore shoreline	Hylebos Mouth Restoration	Revegetation of tidal mud flats	FoTH	estuarine	\$100,000
7.2.3	B.1 B.4	restore salmon habitat	C	restore salt marsh	Olympic View Triangle - Commencement Bay	restoration of salt marsh habitat	DNR	marine	\$900,000
7.1.3	B.6	project effectiveness monitoring	nonC	protect migration corridors	Nearshore project effectiveness monitoring	adaptive management of projects	SPSSEG	marine	\$300,000
7.1.4	D.3	identification of pollution	nonC	identify and correct toxic problems	Citizens for a Healthy Bay Pollution Hotline	correction of pollution problems	CHB	marine	\$30,000
7.1.4	B.3	citizen involvement in protection of shoreline	nonC	water patrol of shoreline	Citizens for a Healthy Bay Bay Watcher program	citizen involvement and protection of shorelines	CHB	marine	\$60,000
7.3.1	C.2	future habitat project development	nonC	develop nearshore projects	Nearshore Project Development	develop prioritized action list	SPSSEG	marine	\$10,000
7.2.2	B.4 B.1	restore salmon habitat	C	create intertidal habitat	Acquisition Nearshore Restoration	creation of intertidal habitat	Port of T	marine	\$1,000,000
7.2.2	B.1 B.4	restore salmon habitat	C	create intertidal habitat	Hauff Property Acquisition	creation of intertidal habitat	FoTH	marine	\$3,500,000

		Puyallup/White WRIA 10		Chub= Citizens for a Healthy Bay	Port of T = Port of Tacoma FoTH = Friends of the Hylebos	SPSSEG= South Puget Sound Salmon Enhancement Group Pierce= Pierce County DNR = Wa. Dept. of Natural Resources			
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3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

SOUTH SOUND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1	B.1 B.5	restore salmon habitat	C	restore estuary	Nisqually Refuge Estuary Restoration	remove dike	Nisq.Tr.	estuary	\$10,000,000
7.2.1	B.1 B.5	restore salmon habitat	C	restore estuary	Red Salmon Slough Estuary	remove dike	Nisq.Tr.	estuary	\$475,000
7.2.3	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Titlow Beach Pocket Estuary Restoration	replace tide gate	SPSSEG	shoreline	\$700,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	Scott Estuary restoration	restore pocket estuary	NLT	marine	\$50,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	So Puget Sound Nearshore (WRIA 12)	restore pocket estuaries	SPSSEG	marine	\$1,500,000
7.2.1 7.2.3	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Simmons Creek Estuary restoration	restore tidal function	SPSSEG	marine	\$120,000
7.2.4 7.2.3	C.2	restore forage fish habitat	C	restore shoreline	WRIA 13 bulkhead removal	remove 5 bulkheads	SPSSEG	marine	\$840,000
7.2.3	C.2	restore salmon habitat	C	protect shoreline	Gull Harbor Acquisition	protect migration corridor	CLT	marine	\$1,200,000
7.2.3	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Butler Cove Acquisition	restore estuary	SPSSEG	marine	\$125,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	Eastbay Nearshore Revegetation	restore shoreline	PFPS	marine	\$125,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	West Bay Restoration	restore shoreline	CoO	marine	?
7.2.3	C.2	restore forage fish habitat	C	restore shoreline	Mud Bay bulkhead removal	restore shoreline	SPSSEG	marine	\$75,000
7.2.3	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Beachcrest restoration	restore tidal function	SPSSEG	marine	\$178,000
7.2.3	C.2	restore salmon habitat	C	restore connectivity restore shoreline	TESC (Snyder Creek) Restoration	restore shoreline, fish passage	WFC	marine	\$258,000
7.2.3	C2	restore salmon habitat	C	restore shoreline	Young's Cove	remove boat ramp and pond	SPSSEG	marine	\$100,000
7.1.1	A.1	acquire high quality habitat	C	acquire intact shoreline	Taylor Bay Acquisition	protect conservancy shoreline, pocket estuary, 39 acres uplands	KPPD	marine	\$1,500,000
7.1.1	A.1	acquire high quality habitat	C	acquire intact shoreline	McLane Creek estuary acquisition	protect 35 acres of estuary	CLT	marine	\$600,000
7.2.3	C.2	restore forage fish habitat	C	restore shoreline	Arcadia Point bulkhead removal	remove bulkhead, demonstration next to boat ramp	SIT	marine	\$50,000
7.2.3	C.2	restore salmon habitat	C	restore connectivity restore salt marsh	East Oro Bay Dam Removal	Remove tide gate and dike	Pie. Co.	marine	\$350,000
7.3.1	C.1	habitat modeling for nearshore	nonC	understand nearshore processes	Habitat Modeling for South Sound	employ Ecopath and Ecoism for nearshore modeling	SIT	marine	\$75,000
7.3.1	C.1	habitat assessment	nonC	understand habitat stressors	Woodard Bay Habitat Assessment	feasibility to assess effects of log dump	DNR	marine	?
7.2.5	B.2 C.2	engage shoreline owners	nonC	protect migration corridors	Shoreline Community Outreach	engage shoreline owners in conservation measures	SPSSEG	marine	\$60,000
7.1.3	B.6	project effectiveness monitoring	nonC	protect migration corridors	Nearshore Project monitoring	adaptive management of projects	WFC	marine	?
7.3.1	C.1	track movements of salmon	C	understand migration patterns	Tacoma Narrows Bridge Modification	install acoustic telemetry receivers	SIT	marine	\$72,500

SOUTH SOUND

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
		South Sound		COE =US Army Corps of Engineers KPPD =Key Peninsula Park District DNR =Dept. of Natural Resources	NLT = Nisqually Land Trust CLT = Capitol Land Trust PFPS = People for Puget Sound WFC = Wild Fish Conservancy SIT = Squaxin Indian Tribe	SPSSEG = South Puget Sound Salmon Enhancement Group Pie.Co. = Pierce County Nisq. Tr. = Nisqually Tribe CoO = City of Olympia			

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

WEST SOUND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Barker Creek culvert replacement	restore tidal function improve fish passage	MSFEG	marine	\$1,000,000
7.2.3 7.2.4 7.2.5	C.1 C.2	restore salmon habitat	C	restore connectivity restore shoreline	Carpenter Creek Estuary Restoration	remove tide gate restore tidal function to coastal lagoon intensively monitor estuarine restoration	COE	marine	\$3,472,000
7.2.5	C.2	restore salmon habitat	C	restore shoreline	Strawberry Plant Park Restoration	Remove fill and debris, restore intertidal. estuarine and marsh habitat, restore riparian forest	CoBI	marine	\$850,000
7.2.4	C.2	restore forage fish habitat	C	restore shoreline	Pritchard Park East Bluff	restore feeder bluff functions	CoBI	marine	\$335,000
7.2.3	C.2	restore salmon habitat	C	restore estuary/salt marsh	Indianola Waterfront Preserve	replace culvert with bridge, remove fill from estuary habitat	MSFEG	marine	\$466,000
7.2.3	C.2	restore salmon habitat	C	restore estuary/salt marsh	Harper Estuary restoration	restore pocket estuary tidal flow	MSFEG	marine	\$560,000
7.2.5	C.2	restore salmon habitat	C	restore estuary	Donkey Creek restoration	daylight creek, restore riparian and estuary areas	CoGH	marine	\$4,550,000
7.1.1	A.1	acquire high quality habitat	C	acquire intact shoreline	Pilot Point Acquisition	protect high quality marine shoreline, 2 streams, 40 acres uplands	Kit.Co.	marine	\$4,025,000
7.3.1	D.3	restore water quality	nonC	improve water quality via oyster filtration	Eagle Harbor Oyster Gardening	experimental oyster culture, improve water quality remove nutrients borne in stormwater	CoBI	marine	\$60,000
7.2.2	E.1	restore water quantity	C	implement stormwater infiltration plans	Stormwater Infiltration Projects	improve ground water flows	Kit.Co.	small streams	\$250,000
7.2.2	E.1	restore water quantity	C	implement water reuse plans	Water Reuse Projects	conserve ground water flows	Kit.Co.	small streams	\$300,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	Blakely Harbor Park Restoration	design project to restore shoreline	CoBI	marine	\$320,000
7.3.1	D.3	restore water quality	nonC	improve water quality via oyster filtration	Miller Bay Shellfish Gardening	experimental oyster and mussel culture, improve water quality	FOMB	marine	\$50,000
7.2.5	C.2	engage shoreline owners	nonC	protect migration corridors	Bainbridge Is. marine riparian initiative	engage shoreline owners in conservation measures	BILT	marine	\$210,000
7.2.5	C.2	engage shoreline owners	nonC	protect migration corridors	Port Madison marine riparian initiative	engage shoreline owners in conservation measures	Suq.Tr.	marine	\$150,000
7.2.1 7.2.4	C.2	restore salmon habitat	C	restore connectivity restore shoreline	Chico Estuary Restoration	acquire shoreline in anticipation of WSDOT Hwy3 bridge construction	Kit.Co.	marine	\$450,000
7.3.1	C.2	future habitat project development	nonC	inventory, assess shorelines	East Kitsap Nearshore Assessment	conduct nearshore assessment, develop prioritized action list, BAS	Kit.Co.	marine	\$400,000
7.3.1	B.6	monitor forage fish stocks	nonC	monitor forage fish trends	Suquamish Tribe Forage Fish surveys	gauge, monitor condition of forage fish	Suq.Tr.	marine	\$35,000
7.2.2	E.1	monitor water quantity	nonC	coordinate stream monitoring	Stream Flow Monitoring Coordination	coordinate and report water quality and flow	Kit.Co.	small streams	\$70,000
7.1.1	A.1	restore forage fish habitat	nonC	restore shoreline	soft bank bulkhead program	update Public Benefit Rating Program to encourage bulkhead removal	Kit.Co.	marine	\$80,000
7.3.1	C.1	monitor salmonid usage of shoreline	nonC	monitor salmonid use	Beach seine research	DNA, CWT, collection data processing	Suq.Tr.	marine	\$300,000

WEST SOUND

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
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		West Sound Watersheds (East Kitsap chapter)		COE =US Army Corps of Engineers Kit.Co. = Kitsap County	MSFEG = Mid Sound Fish Enhancement Group FOMB = Friends of Miller Bay	SPSEG = South Puget Sound Salmon Enhancement Group Pie.Co. = Pierce County			
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3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

HOOD CANAL

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.1 7.2.5	B.1 B.5	restore salmon habitat	C	restore floodplain	Lower Dosewallips floodplain/estuary restoration	improve riparian conditions, tidal inundation, floodplain connection	WFC	estuary	\$735,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline	Right Smart Cove acquisition and restoration	acquire and restore coastal lagoon, marine riparian vegetation	WFC	marine	\$1,400,000
7.2.3	C.2	restore salmon habitat	C	restore salt marsh	Wolcott Slough Fishtrap removal	remove USFWS fishtrap, regrade salt marsh and tidal channels	HCSEG	marine	\$90,000
7.2.1	B.1 B.5	restore salmon habitat	C	plan for retrofit of Hwy 101	SR101 Causeway Replacement Duckabush River estuary	feasibility studies for retrofit, alternatives and costs for causeway over Duckabush River	COE?	estuary	\$500,000
7.2.1	B1	restore salmon habitat	C	restore floodplain, remove invasive species	Robinson Road levee removal Duckabush River estuary	Obliterate levee on WDFW property, remove exotic plant species	HCSEG	estuary	\$150,000
7.2.3	C.2	restore salmon habitat	C	restore tidal inundation fish passage	Pierce Creek culvert at Shorewood Road	improve tidal inundation and fish passage under Shorewood Road	Jeff. Co.	marine	\$275,000
7.2.1	B.1,B.5	restore salmon habitat	C	Restore connectivity	Hama Hama Estuary Restoration	restore connectivity - N. distributary and levee breach below Hwy. 101	HCSEG	estuary	\$500,000
7.2.1	B.1,B.5	restore salmon habitat	C	Restore connectivity	Skokomish Nalley Island Estuary Restoration	obliterate levees, ditches, tidegates on Nalley Island	COE MCD	estuary	\$4,355,000
7.2.1	B.1,B.5	restore salmon habitat	C	Restore connectivity	Skokomish Eastshore 6 acre fill removal	remove fill in eastern cell of lower Skokomish estuary	Skok. Tr.	estuary	\$400,000
7.2.3	C.2	restore salmon habitat	C	restore salt marsh	Potlatch State Park Restoration	re-route Potlatch Cr.,investigate fill removal, revegetate shoreline	Skok. Tr WSP	marine	ask tribe
7.2.3	C.2	restore salmon habitat	C	restore shoreline	Snow/Salmon Estuary and shoreline restoration	Remove abandoned railroad fill naturalize shoreline, etc.	NOSC	marine	\$1,200,000
7.2.3	C.2	restore salmon habitat	C	restore pocket estuary	Fairmount Marsh Restoration	remove causeway - restore pock est. replace bulkhead	JCD	marine	\$300,000
7.2.5	C.2	restore salmon habitat	C	restore shoreline	Chimicum Estuary Restoration Ph.2	remove fill and replant shoreline	NOSC	marine	\$200,000
7.2.6	C.2	restore tidal and fish passage	C	restore tidal inundation fish passage	Scow Bay Culvert Replacement	replace culverts with bridge Marrowstone access to Scow Bay for all salmonids	NOSC WSDOT	marine	\$2,000,000
7.2.3 7.2.5	C.2	restore salmon habitat	C	acquire land for protection	Tarboo/Dabob Bay Protection	protect and restore Tarboo-Dabob Bay	NWWI	marine	\$2,100,000
7.2.3 7.2.5	C.2	restore salmon habitat	C	restore shoreline	Oak Head Salt Marsh Restoration	restore and replant tidal lagoon	NWWI	marine	\$200,000
7.2.3	C.2	restore salmon habitat	C	restore shoreline remove toxic material	Dabob Bay Creosote Bulkhead removal	remove 400 ft long creosote bulkhead	NWWI	marine	\$40,000
7.2.1	B.1	restore salmon habitat	C	restore salt marsh	Quilcene Wetlands Restoration	obliterate levees, restore salt marsh &tidal channels	HCSEG	estuary	\$800,000
7.2.1	B.1	restore salmon habitat	C	restore connectivity	WDFW Abandoned Wildlife Pond	remove levees at the mouth of Quilcene R	HCSEG	estuary	\$160,000
7.2.1	B.1	restore salmon habitat	C	Restore connectivity	Big & Little Quilcene delta cone removals	remove delta cones to restore hydraulic linkages	HCSEG	estuary	\$410,000
7.2.1	C.2	restore salmon habitat	C	Restore connectivity	Little Quilcene Estuary restoration	additional funds to remove aggraded cone	HCSEG	estuary	\$1,665,000
7.2.1	B.1	restore salmon habitat	C	restore salt marsh	Union River Salt Marsh Restoration	breach levees, revegetate backshore	HCSEG	estuary	\$2,000,000

HOOD CANAL

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	C.2	restore salmon habitat	C	restore salt marsh	Klingel Estuary Restoration	remove levees and tide gate	GPC	estuary	\$150,000
7.2.3	C.2	restore forage fish habitat	C	restore shoreline	Twanoh Falls bulkhead removal	Help Community Club remove 225 feet of bulkhead rip rap with sloping beach	HCSEG	marine	\$200,000
7.2.1	C.2	restore salmon habitat	C	restore complexity	Dewatto Estuary	remove levees, fill dredge hole, replant	HCSEG	estuary	\$400,000
7.2.5	B.2 C.2	engage shoreline owners	non C	protect migration corridors	Marine riparian initiative	protect and restore riparian corridors, engage shoreline owners in conservation measures.	HCCC	marine	\$2,000,000
7.2.6	C.2	stop unwanted harvest	non C	stop derelict gear "fishing"	Derelict Gear Removal	inventory marine subtidal areas, set up process for continued removal of pots and nets	HCSEG	marine	?
7.3.1	C.1	future habitat project development	non C	inventory, assess shorelines	Nearshore Inventory and Assessment	incorporate nearshore assessments, develop prioritized action list, BAS	HCCC	marine	\$300,000
7.1.2	A.1	assess hypothesis about build-out	non C	land use database tracking	Land use Permit Tracking	Continue land use database for summer chum recovery plan	HCCC	?	?
7.3.4	C.1	assess hypothesis for eelgrass protection	non C	effectiveness monitoring	Anchor Exclusion Eelgrass monitoring	monitor the effectiveness of anchor exclusion zone to protect eelgrass	MRC	marine	\$30,000
7.3.1	C.1	monitor salmonid usage	non C	monitor salmonid use	Juvenile Salmonid Research	conduct research on salmonid habitat use	HCCC	marine	\$830,000
7.2.6	B.6	manage conservation strategies	non C	develop strategy database	Conservation Strategy Database	develop conservation strategy database	HCCC	marine	?
7.3.1	G.4	harvest management	nonC	determine harvest impacts	Population Analysis and Modeling	develop harvest management models	WDFW	marine	\$130,000

		Hood Canal		<p>COE=US Army Corps of Engineers Jeff. Co. = Jefferson County JCD=Jeff Conservation Dist. MRC= Marine Resource Committee</p>	<p>HCCC= Hood Canal Coor. Council WSP =Washington State Parks WFC = Wild Fish Conservancy HCSEG= Hood Canal SEG NWWI = NW Watershed Institute</p>	<p>NOSC= North Olympic Salmon Coalition MCD=Mason Conservation District Skok. Tr.=Skokomish Tribe WSDOT= Wash. Dept. of Transportation GPC=Great Peninsula Conservancy</p>			
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3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat Capital Projects									
7.1.1, 7.1.2	A.1, A.2		C		Sequim Bay Protect coastal feeder bluffs within the Travis and Paradise Cove Spit drift cells Purchase conservation easements. Assure that CAO and SMP properly protects these habitat forming processes. Protects approximately 6,500 linear feet of important spit habitat, including approximately 115 acres of shallow water habitat.		Jamestown S'Klallam Tribe	Estuary	2,015,000
7.2.3	C.2		C		Pit Ship Point Pocket Estuary Restoration. Replace undersized culvert with a bridge to restore salt marsh connection. Work with City of Sequim and landowner to improve and restore approx 4 acres of estuarine/marsh habitat. Habitat is 3.3 miles from Jimmycomelately Creek.		Jamestown S'Klallam Tribe	Estuary	80,000
7.1.1, 7.1.2	A.1, A.2		C		Washington Harbor Protection Project. Acquire or purchase easements on property in and immediately adjacent to Washington Harbor. Fee-simple purchase or purchase conservation easements. Assure CAO and SMP sufficiently protect this habitat. Protects approximately 156 acres of estuarine and spit habitat. This estuary has long been recognized as providing very high quality fish and wildlife habitat and must be protected		NOLT/Jamestown S'Klallam Tribe	Estuary	1,020,000

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	C.2		C		Washington Harbor Tidal Flow Restoration Restore unrestricted tidal flow and flushing to the north end of Washington Harbor including removal of culvert and dikes. Work with City of Sequim and private landowner to develop and implement the most workable restoration option. Restores approximately 33 acres of unvegetated and vegetated tide flat and estuarine salt marsh habitat. Estuarine habitat is approximately 5 miles from Jimmycomelately Creek mouth and approximately 7.5 miles from Dungeness River mouth		Jamestown s'Klallam Tribe/Conservation District	Estuary	140,000
7.2.2, 7.2.4, 7.2.5	C.2, D.3		C		A-frame removal PA Harbor. remove 420 piles and restore 550 of shoreline of Ediz Hook in Port Angeles Harbor. Site in proximity to sandlance spawning beach and eelgrass beds. Piling removal, riprap and debris removal, placement of beach material revegetating The site is in proximity to highly functioning nearshore and adjacent to 1800 feet of restored shoreline. Project identified in NOPLS nearshore strategy.		WDFW/Ewha Tribe/Port of PA/DNR	Estuary	475,000
7.2.2			C		Investigate the causes of and solutions to the water quality issues of the area, and identify strategies for protection and restoration. Work with landowners and technical workgroup to develop action plan. Develop restoration and protection strategies for 3 streams and their associated estuarine habitats, educate landowners on stewardship practices for protecting water quality in Dungeness Bay		Clallam Conservation District	Estuary	20,000
7.2.4			C		Dungeness Bay Drift Cell Protection Project (including Greenpoint protection and 'The Bluffs' restoration and protection. Purchase conservation easements and/or property along feeder bluffs to permanently insure recruitment of sediment into the drift cell. Acquire conservation easements along all feeder bluffs within this drift cell. Protects approximately 5,200 acres of spit and estuarine habitat.		Jamestown S'Klallam Tribe	Estuary	520,000

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	C.2		C		Elwha River Estuary Restoration. Elwha ecosystem restoration via dike restoration on east and west levee work. Two components: The east levee removal/setback and estuary restoration. The west levee Easement that will in the long term result in removal/setback of various channel restrictions, including the 500' Place Road dike on the west side of the estuary. Dam removal alone will not restore the rivers ecosystem. Restoration actions, being developed bypartners including the Lower Elwha Tribe , Clallam County, and WDFW in the lower part of the river, must be completed to prepare the river for dam removal. Work with Clallam County, Lower Elwha Tribe and others to develop a conservation easement with a long term goal of restoring approximately 8.5 acres of estuarine habitat on the west side of the river mouth and (very roughly) 52 acres of estuary/floodplain on the east side of the river mouth. Estuary restoration via dike modification listed as a priority in NOPLS nearshore strategy and Elwha recovery plan.		Elwha Tribe/Clallam County/WDFW	Estuary	1,320,000
7.2.3	C.2		C		Bulkhead removal N of John Wayne Marina in Sequim Bay		Unk.	Estuary	120,000
7.2.3	G.1		C		Knot weed removal across WRIA. Knotweed Assess/remove		Noxious Weed Control Board	Estuary	60,000
7.2.3	C.2		C		Salt Creek Salt Marsh Reconnection . Restore the connection between the 20+ acre salt marsh and the tidal-influenced reaches of Salt Creek that are disconnected by a dike/road. Work with landowners to determine the most workable restoration option. Rplace two failed road culverts with allow fish access to 15 acrese of estuary; Restores approximately 15 acres of estuarine habitat		WDFW/Elwha Tribe/CCD	Estuary	95,000

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.1.1	A.1		C		Crescent Bay/Agate Beach. Protection of nearshore habitat via acquisition/easement. Work with landowners. Protects approximately 1.4 miles of juvenile salmonid migratory corridor and forage fish beach spawning habitat.		Clallam County/NO LT	Estuary	4,010,000
7.2.3, 7.2.4	C.2		C		Twin Rivers Nearshore Restoration a) 4 acres of intertidal habitat, b) the shallow-water migration corridor, and c) longshore sediment transport by removing the 600-foot long gravel pit pier. Stabilize the Hwy 112 landslide. development. 2) Restore estuarine habitat by a) removing fill and dredge spoils from approximately 20 acres of historic estuarine marsh and b) modify the adjacent road where it impacts the estuary.		WDFW/N OSC/NOL T	Estuary	570,738
7.2.3	C.2		C		Neah Bay Remove pontoons		Makah Tribe	Estuary	520,000
7.2.2, 7.2.3	C.2, D.3		C		Neah Bay Creosote removal		Makah Tribe	Estuary	200,000
7.2.3	C.2		C		Neah Bay Breach base of breakwater for fish passage (harbor)		Makah Tribe	Estuary	400,000
7.2.3	G.1		C		Clallam Bay Sequoia mouth of Hoko Knotweed Assess/Remove		DNR/Beach watchers/	Estuary	60,000
TOTAL NON-CAPITAL NEED:									
7.2.2	D.3		nonC		All WRIA water quality assessment including nutrient analysis. This project provides funding for Streamkeepers and WDFW to continue important water quality monitoring of Central Strait nearshore		Streamkeepers/WDFW	Estuary	240,000
7.3.1	C.1		nonC		All WRIA but esp. WRIA 19 west of Elwha (Salt Creek, Pysht, Clallam River). Fish use assessment (juvenile) including genetic stock ID. Project is listed as a high priority in the NOPLS nearshore strategy, Elwha recovery plan and nearshore restoration strategy. Genetic id is matched project		WDFW/Elwha tribe	Estuary	350,000

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	B.2, B.6		nonC		Central and Western Strait. Model habitat future function and define restoration priorities. As outlined in nearshore strategy, integrate fish use data from above project with habitat information and generate future conditions. Based on predicted future conditions define and prioritize habitat restoration priorities. Upcoming restoration of large scale sediment processes provide a partial restoration to the nearshore of the central and western Strait. Modeling is needed to define what additional nearshore actions are to occur (and in what sequence) to optimize the upcoming ecosystem restoration event.		WDFW/Elwha Tribe	Estuary	200,000
	C.1		nonC		Genetic stock ID. Emphasis on chum, chinook, steelhead		Elwha Tribe	Estuary	150,000
7.2.2	C.2, D.3		nonC		Conduct a comprehensive and regular assessment of eelgrass and Ulva presence where increasing Ulva presence is documented. This study should look not only at the conversion area, but also the local conditions that appear to favor conversion to Ulva. Minimize the growth of Ulva (spp) by eliminating point and non-point source nutrient delivery to the Dungeness Bay to Jamestown Shoreline, a shallow embayment with limited tidal flushing. Ulvoid mats may be replacing critical eelgrass habitat in this bay. See the Dungeness Bay: Eelgrass to Ulva Assessment Project. Work with Dungeness Clean Water Workgroup and others to develop an assessment that investigates the impact of nutrients on Ulvoid growth and eelgrass habitat. Assesses the impact on 5,700 acres of shallow water habitat that contains vegetated and unvegetated substrate.		WDFW/Jamestown's Klallam tribe	Estuary	90,000
	G.3		nonC		All WRIA Forage fish surveys-include lower river		WDFW	Estuary	80,000

NORTH OLYMPIC PENINSULA

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.3	G.1		nonC		Possible knotweed issues		Noxious Weed Control Board	Estuary	70,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

DUNGENESS

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat Capital Projects									
			C		Rivers End floodplain recovery		Jamestown S'Klallam, Clallam County	RM 0.5	\$75,000
7.2.1, 7.2.4	B.1, C.2		C		Rivers End saltmarsh recovery Phase II		Jamestown S'Klallam, Clallam County	Estuary	\$100,000
Stock Monitoring Support									
			nonC		Population Monitoring and Analysis		WDFW/JSKT		\$129,250
7.3.1			nonC		Biological Monitoring Project		WDFW/JSKT		\$825,800

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

NORTH OLYMPIC PENINSULA NON-CAP

Ch 15	Ch 6	Goal Objective Action	capital/non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat protection -- monitoring of habitat quality									
7.3.3			nonC		Intesively Monitored Watersheds-placeholder		Lead entity		
			nonC		12 Rivers channel migration zone assessment 1. McDonald 2. Siebert 3. Morse 4. Salt 5. Lyre 6. East Twin 7. West Twin 8. Deep 9. Pysht 10. Clallam 11. Hoko 12. Sekiu		JSKT/EKT/Makah/Clallam		\$300,000
Habitat protection -- monitoring of regulatory programs									
7.1.1, 7.1.3	A.1, A.4		nonC		Increased compliance: ordinance, codes		WDFW/Tribes		\$900,000
7.1.2	A.2		nonC		Monitor and report regulated activities		Clallam Co., PA, Sequim		\$100,000
Habitat protection -- participation in policy or regulatory updates									
7.1.1, 7.1.3	A.1, A.4, D.3		nonC		Update stormwater management program		Clallam Co., PA, Sequim		\$600,000
7.1.1, 7.1.3	A.1, A.4		nonC		Update Shoreline Master Program		Clallam Co., PA, Sequim		\$600,000
7.1.1, 7.1.3	A.1, A.4		nonC		Increased compliance: ordinaces, codes		Clallam Co., PA, Sequim		\$360,000
7.1.1, 7.1.3	A.1, A.4		nonC		Create stable-funded incentive programs		Clallam Co.		\$300,000
Outreach & Education									
7.1.1			nonC		Education and outreach		Lead entity		\$180,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

WRIA 18

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Habitat Project Monitoring									
7.2.3	C.2		nonC		Ennis Creek Estuary Restoration		Elwha Tribe, WDFW & NOSC	Estuaries	\$100,000

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

WRIA 19

Ch 15	Ch 6	Goal Objective Action	capital/ non-capital	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
Instream Flow protection									
7.2.1, 7.2.2, 7.2.4	B.2		nonC		Assessment of Clallam River Mouth geomorphology		Makah, Elwha, WDFW, Clallam county	Estuaries	\$200,000
			nonC		Investigation of off-channel water storage options for Hoko River		Makah, Clallam PUD, Elwha	Mainstem	\$100,000
Salmon Recovery coordination/implementation									
7.2.2	B.1, C.2		nonC		Pysht River Estuary Restoration Planning		Elwha, Merrill and Ring, WDFW	Estuaries	\$200,000
PRIORITY PROJECTS AND PROGRAMS BENEFITING NON-LISTED SPECIES									
			nonC		Culvert replacement on Sail River		Makah	Mainstem	\$400,000

Washington Department of Fish and Wildlife Puget Sound Nearshore Project Priorities

Addendum #1
Issued: November 30, 2007

The following consists of Addendum #1 to the above-referenced document issued by the Washington Department of Fish and Wildlife. The items below clarify or modify the original document as follows and in the sections noted:

Basis for Comparison

- Delete in its entirety: Table 4
- Replace with modified: Table 4

A. Protection of key habitats and freshwater and saltwater processes from physical or biological disruptions

- A1. Improve existing protection programs and continue implementation through local, state, tribal and federal governments.
- A2. Evaluate the effects of existing protection programs and their contribution to salmon recovery.
- A3. Coordinate protection actions at the subbasin or appropriate scale to ensure levels of protection needed for salmon recovery are met.
- A4. Implement, evaluate and change strategies and actions where necessary.

B. Creation of additional estuarine habitat and processes in the major river deltas

- B1. Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater
- B2. Conduct further technical assessments and/or build public support where local communities are not ready for restoration
- B3. In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies
- B4. Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.
- B5. Preserve future opportunities in all major river deltas
- B6. Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines

C. Restoration of marine shorelines (including freshwater inputs) outside of major deltas where there is a significant benefit for population/ ESU viability

- C1. Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability
- C2. Restore habitats (where processes are intact) or key processes where such restoration is linked to a likely population response

D. Protection and restoration of fresh- and saltwater quality

- D1. Implement protection and restoration strategies in areas prone to low dissolved oxygen levels
- D2. Implement protection and restoration strategies in areas prone to high temperatures
- D3. Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas

E. Protection and restoration of freshwater quantity

- E1. Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity

F. Reduction of the risk and damage from catastrophic events

- F1. Prevent Oil Spills
- F2. Prepare for Oil Spills
- F3. Response to Oil Spills
- F4. Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response

G. Reduction of the risk and damage from non-indigenous species and other alterations to food webs

Below is a list of issues that should be studied scientifically over time to determine their impact on recovery. With that information, appropriate management strategies can then be developed and implemented. In the long-term we will need to better understand ecological functions to integrate recovery for the Puget Sound Chinook ESU and salmon recovery with other Puget Sound ecosystem restoration efforts.

- G1. Non-native species impact on habitats and food webs used by salmon
- G2. Hatchery fish inputs that impact salmon through competition, predation and alterations in community structures
- G3. Relationship between key food web species and salmon
- G4. Fish and shellfish harvest effects on community structures that affect salmon

Changes from the first publishing of this table include: strategy B4 became B5, strategy B5 became B6 and a new strategy B4 was inserted into the table. This table now corresponds correctly with the tables in Appendix A and Appendix B and the crosswalk tables in Appendix C. However, it should be noted that in Chapter 6 of Shared Strategy's Draft Puget Sound Salmon Recovery Plan, the strategy we are identifying here as B4 is in fact a more specific objective of strategy B5. In the Recovery Plan, both of these strategies are identified as B4.

APPENDIX A

- Delete in their entirety: tables related to Snohomish (pages 55 and 56)
- Replace with modified: Snohomish tables (2 pages)

APPENDIX B

- Delete in its entirety
- Replace with modified

APPENDIX C

- Delete in their entirety: tables related to Snohomish (page 94, 95 and 96)
- Replace with modified: Snohomish tables (5 pages)

Several projects in the nearshore of the Snohomish lead entity's area were omitted from the original analysis. These projects have now been included into Appendix A, B, and C.

END OF ADDENDUM – revised Appendix pages to follow

NEARSHORE STRATEGY SUMMARIES

SNOHOMISH

Strategy	Description	# of items identified in work plan	Notes
Chapter 15 (Regional Nearshore Chapter)			
7.1.1	Implement existing voluntary and regulatory protection programs to maintain functions and water quality for salmon and bull trout	6	
7.1.2	Evaluate effectiveness of existing programs	4	
7.1.3	As needed, design and implement refinements (including voluntary and regulatory innovations) to achieve protection of functions and water quality	1	
7.1.4	Regionally-focused organizations and local communities should collaborate to prevent catastrophic events and/or protect nearshore habitat features from catastrophic events	0	
7.2.1	Pursue and implement locally acceptable projects to improve tidal exchange processes in river mouth estuaries	1	
7.2.2	Analyze water and sediment quality issues in impaired areas and implement sediment and water quality cleanup activities – focused on control or elimination of sources or restoration of natural hydrology – to achieve water quality standards and ensure conditions support viable salmon and bull trout populations	1	
7.2.3	Pursue and implement locally acceptable projects to improve the function of marine shorelines, particularly pocket estuaries, eelgrass beds, and other shallow, low velocity, fine substrate habitats adjacent to major estuaries	5	
7.2.4	Pursue and implement locally acceptable projects to improve sediment delivery from sources such as feeder bluffs, river and creek discharges, and sediment transport processes to support habitat formation and function	3	
7.2.5	Pursue and implement locally acceptable projects to improve marine riparian functions related to water quality, food production, and refuge	7	
7.2.6	Facilitate the development and implementation of restoration programs and projects to support improvements in all subbasins of Puget Sound		
7.3.1	Conduct studies and collect information to test hypotheses about nearshore and marine ecosystem processes and to evaluate the effects of strategies and management actions on nearshore and marine ecosystems	3	
7.3.2	Designate and initiate studies of an intensively monitored shoreline to focus and organize efforts to test hypotheses about effects of shoreline ecosystems (and shoreline restoration) on salmon viability	1	
7.3.3	Use the intensively monitored Skagit Delta to organize studies to test hypotheses about effects of estuaries (and estuary restoration) on salmon viability		
7.3.4	Conduct studies to test hypotheses about the effects of stressors/threats on salmon individuals, life history types, and populations	1	
7.3.5	Convene management conference to refine hypotheses and adapt strategies and actions	0	

Strategy	Description	# of items identified in work plan	Notes
Chapter 6 (Regional Habitat Strategies Chapter)			
A.1	Improve existing protection programs and continue implementation through local, state, tribal and federal governments.	3	
A.2	Evaluate the effects of existing protection programs and their contribution to salmon recovery.	0	
A.3	Coordinate protection actions at the sub-basin or appropriate scale to ensure levels of protection needed for salmon recovery are met.	0	
A.4	Implement, evaluate and change strategies and actions where necessary.	0	
B.1	Add significant new estuarine habitat and restore processes in and near estuarine deltas where salmon populations first encounter tides and saltwater.	21	
B.2	Conduct further technical assessments and/or build public support where local communities are not ready for restoration.	3	
B.3	In highly urbanized deltas, target short-term investments in actions that support ESU recovery by providing migratory corridors. Determine long-term restoration goal and subsequent strategies.	0	
B.4	Define the potential of the Puyallup/White delta and nearby shorelines to support a low risk White River and an improving Puyallup population. Preserve future opportunities.	0	
B.5	Preserve future opportunities in all major river deltas.	0	
B.6	Use new scientific information to improve restoration strategies in the deltas and adjacent shorelines.	2	
C.1	Improve our understanding of what are 'enough' places and the 'right' places to restore outside of major deltas in order to support ESU viability.	2	
C.2	Restore habitats (where processes are intact) or key processes (where habitats are intact) where benefits to salmon are expected.	4	
D.1	Implement protection and restoration strategies in areas prone to low dissolved oxygen levels.	0	
D.2	Implement protection and restoration strategies in areas prone to high temperatures.	0	
D.3	Implement strategies that prevent toxic chemicals, including those borne in stormwater, from entering Puget Sound, and restore contaminated areas.	3	
E.1	Use Department of Ecology's Instream Flow program and other processes to protect and restore freshwater quantity	0	
F.1	Prevent Oil Spills	0	
F.2	Prepare for Oil Spills	0	
F.3	Response to Oil Spills	0	
F.4	Determine expected results from existing efforts for hazardous waste and nonhuman catastrophic event response.	0	
G.1	Non-native species impact on habitats and food webs used by salmon.	0	
G.2	Hatchery fish inputs that impact salmon through competition, predation, and alterations in community structures	0	
G.3	Relationship between key food web species and salmon	0	
G.4	Fish and shellfish harvest effects on community structures that affect salmon.	0	

SOUND-WIDE NEARSHORE STRATEGY SUMMARIES

	Whatcom	San Juan	Skagit	Stilla- guamish	Island	Sno- homish	King WRIA 8	King WRIA 9	Puyallup / White	South Sound	West Sound	Hood Canal	N. Olympic Peninsula	Totals
Strategy	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan
Chapter 15 (Regional Nearshore Chapter)														
7.1.1	3	16	3	2	15	6	1	12	0	2	2	0	9	71
7.1.2	1	2	0	4	4	4	1	5	0	0	0	1	3	25
7.1.3	3	12	2	2	5	1	4	6	1	1	0	0	5	42
7.1.4	0	5	1	0	1	0	0	0	2	0	0	1	0	10
7.2.1	3	0	9	3	0	1	0	4	0	3	2	12	2	39
7.2.2	0	6	1	6	4	1	0	6	3	1	3	1	7	39
7.2.3	1	6	5	7	11	5	2	12	2	15	4	11	14	95
7.2.4	0	2	2	8	3	3	1	10	0	1	3	0	5	38
7.2.5	1	3	1	9	2	7	1	13	2	1	5	5	1	51
7.2.6	0	0	0		0				0	0	0	3	0	3
7.3.1	3	14	5	2	5	3	1	2	1	3	5	1	2	47
7.3.2	0	0	0	1	0	1	0	0	0	0	0	0	1	3
7.3.3	0	0	0		0								0	0
7.3.4	0	2	0	1	0	1	0	0	0	0	0	1	0	5
7.3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOUND-WIDE NEARSHORE STRATEGY SUMMARIES

	Whatcom	San Juan	Skagit	Stilly	Island	Snoho	WRIA8	WRIA9	Puyallup	S.Sound	W.Sound	Hood	NOPL	Totals
Strategy	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan	# of items identified in work plan
Chapter 6 (Regional Habitat Strategies Chapter)														
A.1	3	11	2	2	10	3	7	14	0	2	2	1	8	65
A.2	1	1	0	0	2	0	0	1	0	0	0	1	2	8
A.3	0	2	0	2	0	0	0	1	0	0	0	1	0	6
A.4	3	2	2	1	5	0	0	1	0	0	0	1	5	20
B.1	3	0	10	11	0	21	0	4	4	2	0	10	2	67
B.2	0	1	0	1	7	3	0	0	0	1	0	1	2	16
B.3	0	0	0	0	0	0	0	4	1				0	5
B.4	0	0	0	0	0	0	0	0	5				0	5
B.5	2	0	0	1	0	0	0	0	0	2	0	5	0	10
B.6	2	0	0	0	0	2	0	0	1	1	1	1	1	9
C.1	0	15	3	1	6	2	0	0	0	3	2	3	2	37
C.2	3	9	14	1	8	4	2	14	4	16	12	17	14	118
D.1	0	0	0	0	0	0	0	0	0	1	0	1	0	2
D.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D.3	0	7	0	1	0	3	0	3	1	0	2	0	5	22
E.1	4	4	0	0	1	0	0	0	0	0	3	0	0	12
F.1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
F.2	0	3	0	0	1	0	0	0	0	0	0	0	0	4
F.3	0	3	0	0	1	0	0	0	0	0	0			4
F.4	0	2	1	0	0	0	0	0	0	0	0	0	0	3
G.1	0	3	1	5	0	0	0	0	0		0	0	3	12
G.2	0	2	0	0	0	0	0	0	0	0	0	0	0	2
G.3	0	2	2	0	2	0	0	0	0	0	0	0	1	7
G.4	0	1	0	0	0	0	0	0	0	0		1	0	2

3-YEAR PROJECT LIST

CROSSWALK WITH NEARSHORE STRATEGIES

SNOHOMISH

Ch 15	Ch 6	Goal Objective Action	C/ NC	Activity	Project Name	Results	Potential Sponsor (lead)	Primary Habitat	Approx. total cost 2007-09
7.2.5	C.2	Restore salmon habitat	C	Conduct daylighting of the gulch	Daylighting of Japanese Gulch (Map 16)	1 barrier removed, some % mitigation	Port of Everett and/or WSU	marine shoreline	\$3,300,000
7.2.3		Restore salmon habitat	C	Continue restoration	Shoreline restoration at riprapped south end of Jetty island (Map 5)	3,000 feet backshore restored	Port of Everett, USACE	marine shoreline	\$780,000
	B.1	Restore salmon habitat	C	removal of derelict fishing gear	Remove derelict fishing gear (Map 2)	not quantified	SCMRC	marine shoreline	\$50,000
7.2.4	B.6	Restore salmon habitat	C	Conduct demonstration project	Shoreline bioengineering demonstration project (Map 3)	not quantified	Snohomish County, Tulalip Tribes, People for Puget Sound	marine shoreline	\$120,000
7.2.1	C.2	Restore salmon habitat	C	Conduct feasibility study and design for restoration	Quilceda Creek Estuary Restoration (Map 303)	feasibility study and design complete	Tulalip Tribes	estuaries, marine shoreline	\$250,000
7.2.5		Restore salmon habitat	C	Conduct feasibility study and design for restoration	Tulalip Bay nearshore restoration (Map 301)	feasibility study and design complete	Tulalip Tribes	marine shoreline	\$200,000
		Restore salmon habitat	C	Conduct feasibility study and design for restoration	Priest Point Tidal Lagoon (Map 302)	feasibility study and design complete	Tulalip Tribes, Snohomish County	marine shoreline	\$250,000
7.2.1, 7.2.4		Restore salmon habitat	C	Monitor physical and biological performance on beach	Beach restoration demonstration at Mukilteo Tank Farm (Map 6)	1,100 feet beach/backshore restoration	Port of Everett	marine shoreline	\$330,000
7.2.1	C.2	Restore salmon habitat	C	Monitor success of 2007 renourishment, conduct new renourishment of needed	Renourish Existing Jetty Island Berm (Map NEW 738)	Some % mitigation, 19 acres marsh/mudflat created	Port of Everett, USACE	marine shoreline	\$250,000
7.2.3		Restore salmon habitat	C	Feasibility study	Sand Berm at Jetty Island South (Map 4)	2,200 feet beach nourishment, some percent mitigation	Port of Everett, USACE	marine shoreline	\$50,000
7.2.5	B.1, D.3	protect functioning habitat	C	Removal of the tank farm pier	Partial Removal of the Creosote-treated and shadowing Tank Farm Pier (Map 14)	98,000/143,000 sq. ft. to be removed as mitigation	Washington State Ferries	marine shoreline	\$9,690,000
7.2.5	B.1, D.3	protect functioning habitat	C	Removal of the tank farm pier	Full Removal of the Creosote-treated and shadowing Tank Farm Pier (Map 15)	remove remaining 45,00 sq. ft of tank farm pier	Washington State Ferries and/or others	marine shoreline	\$5,000,000

SNOHOMISH

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7.2.4		protect functioning habitat	C	Monitor physical and biological performance	Railroad shoreline improvements (Map 7)	5,000 ft beach nourishment	BNSF or Sound Transit	marine shoreline	\$150,000
7.2.3	C.2	protect functioning habitat	C	Conduct feasibility study, design and construction	Maulsby Swamp Mudflats/Enhanced Connection (Map 1)	not quantified	City of Everett	marine shoreline	41,210,000
7.1.1	B.2	education and outreach	NC	Build landowner capacity for nearshore protection and restoration	Beach Watchers Program	increased landowner capacity for nearshore protection and restoration	Snohomish County, Tulalip Tribes	marine shoreline	\$150,000
7.1.2	B.2	strategic planning	NC	Build capacity for nearshore protection and restoration	Watershed Recovery Plan Implementation	increased capacity for nearshore protection and restoration	Tulalip Tribes	marine shoreline	\$96,123
7.1.2	D.3	protect functioning habitat	C	Remove creosote logs	Creosote log removal	Remove 120 tons of logs	DNR, NWSC, SCMRC	nearshore	\$120,000
7.1.1		education and outreach	C	Conduct feasibility studies, pilots, and workshops	Training workshops for engineers and contractors to build nearshore capacity	Increased capacity among contractors and engineers to conduct projects safe for the nearshore	Puget Sound Partnership	nearshore	\$40,000
7.1.1, 7.2.2	A.1	monitoring and outreach	NC	Train volunteers, volunteers conduct mussel surveys	Volunteer Mussel Survey/Analysis Program to identify pollutant concentration in marine waters	# of volunteers mussels surveyed	SCMRC, NOAA	nearshore	\$47,000
7.1.1, 7.2.2, 7.2.4	A.1, B.2	education and outreach	NC	Continue staffing for program	Sound Stewards Program	program continued	People for Puget Sound, Snohomish County marine Resources Committee	nearshore	\$37, 500
7.1.2	B.6	test hypotheses	C	Conduct scan	Sidescan bathymetric scan of marine shoreline from Mukilteo to Port Susan	Scan completed, data incorporated into hydrodynamic model	Snohomish County, Tulalip Tribes	marine shoreline	\$250,000
7.1.2		test hypotheses	C	Conduct study	Fish Utilization study in Northern Puget Sound	not quantified	WDFW, San Juan County	nearshore	\$2,000,000
7.1.2	C.1	restore pocket estuaries	C	Conduct mapping	Pocket Estuary Mapping	Prioritized List of restoration/protection sites	SCMRC	marine shorelines , estuaries	\$80,000
	C.1	Restore salmon habitat	NC	Fill data gaps for feasibility of nearshore projects	Future habitat project development	not quantified	Snohomish County, Tulalip Tribes	marine shoreline	\$150,000

SNOHOMISH

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	B.1	Add and restore estuarine habitat	C	Conduct mitigation, restore edge habitat and tidal marsh	Bigelow Creek/Simpson Lee (Map 28)	35 acres tidal marsh, 5,428 edge habitat	City of Everett	estuaries	\$2,200,000
	B.1	Add and restore estuarine habitat	C	Restore tidal marsh	DD6 Cross Dike and Habitat Restoration (Map NEW 739)	40 acres tidal marsh	City of Everett, Snohomish County	estuaries	\$2,900,000
7.1.1	A.1	Protect estuarine habitat	C	Protect riparian area	DD13 & Riparian Restoration Acquisition/Conservation Easement (Map NEW 740)	90 acres protected	Cascade Land Conservancy, DD13, Snohomish County	estuaries	\$500,000
7.2.5	B.1	Add and restore estuarine habitat	C	Install fish-friendly tidegate and pump	Infrastructure upgrade for flood control/drainage and water quality/fish access (Map 36)	15 acres tidal marsh restored	DD13, Snohomish Conservation District	estuaries	\$125,800
	B.1	Add and restore estuarine habitat	C	Restore edge habitat	Edge habitat restoration on earthen dike (Van der Vieren & Roetcisoender property) (Map 37)	3,000 feet edge habitat restored	DD13, Snohomish Conservation District	estuaries	\$40,000
	B.1	Add and restore estuarine habitat	C	Conduct riparian restoration and tidegate improvements	Swan Trail Slough (Map 38)	8 acres riparian habitat restored	DD13, Snohomish Conservation District, Snohomish County	estuaries	\$72,000
7.2.5	B.1	Add and restore estuarine habitat	C	Install fish-friendly tidegates	Install at least two fish-friendly tidegates (Map 775)	Fish friendly tidegates, associated water quality improvements	Diking and drainage districts, Snohomish CD, Snohomish County, others	estuaries	\$150,000
7.2.5	B.1	Add and restore estuarine habitat	C	Conduct fish passage improvements	DD13 fish passage improvements, Phase II (Map NEW 741)	Fish passage improvements, associated water quality improvements	DD13, Snohomish Conservation District	estuaries	\$100,000
	B.1	Add and restore estuarine habitat	C	Restore edge habitat and tidal marsh	Smith Island restoration (Map 27)	475 acres tidal marsh, 10,500 feet edge habitat restored	Snohomish County	estuaries	\$5,500,000

SNOHOMISH

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7.1.1	B.1	Add and restore estuarine habitat	C	Acquire lands and design for restoration	North Tip Ebey Island (Map 30)	250 acres acquired, 450 acres tidal marsh restored	Snohomish County	estuaries	\$1,400,000
	B.1	Add and restore estuarine habitat	C	Enhance riparian habitat	North Ebey Island Enhancement (Map 31)	3 riparian acres enhanced	Snohomish County	estuaries	\$3,000
	B.1	Add and restore estuarine habitat	C	Restore riparian and tidal marsh habitat, install log jams	Snohomish Estuary Edge Enhancement Phase I (Map NEW 742)	1 acre tidal marsh and 5 acres riparian areas restored, 20 log jams installed	Snohomish County	estuaries	\$150,000
	B.1	Add and restore estuarine habitat	C	Restore tidal marsh habitat, install log jams	Snohomish Estuary Edge Enhancement Phase II (Map NEW 473)	1 acre tidal marsh restored, 20 log jams installed	Snohomish County	estuaries	\$250,000
	B.1	Add and restore estuarine habitat	C	Conduct dike breaches and improve edge habitat	Improve habitat connectivity (Map NEW 773)	1,000 feet edge habitat improved	Snohomish County	estuaries	\$450,000
	B.1	Add and restore estuarine habitat	C	Assess and improve habitat connectivity	Assess and improve mainstem channel habitat connectivity (Map NEW 774)	not quantified	Snohomish County	estuaries	\$150,000
	B.1	Add and restore estuarine habitat	C	Conduct tidal marsh and edge habitat restoration	Qwuloot Estuary Restoration (Map 304)	360 acres tidal marsh, 5,300 feet edge habitat restored	Tulalip Tribes	estuaries	\$3,200,000
	B.1	Add and restore estuarine habitat	C	Conduct mitigation and restoration	Smith Island/Union Slough Marine Wetland Restoration (Map 29)	Some % mitigation, 100 acres tidal marsh	US Army Corps of Engineers, City of Everett	estuaries	\$500,000
	B.1	Add and restore estuarine habitat	C	Acquire lands and conduct tidal marsh restoration	Acquire 1,600 acres of Ebey Island south of SR2 and restore tidal marsh (Map NEW 744)	not quantified	Washington Department of Fish and Wildlife	estuaries	\$3,860,000
	B.1	Add and restore estuarine habitat	C	Conduct mitigation and restoration	Biringer Farm Estuarine Restoration/Mitigation Bank	Some % mitigation, at least 300 acres tidal marsh restored	Port of Everett, Wildlands of Washington, Inc.	estuaries	\$0
7.1.2		Assurance that recovery actions are effective	NC	Develop a coordinated mitigation/restoration strategy	Salmon Recovery coordination/implementation	More effective use of different types of funding for plan implementation	City of Everett, Port of Everett, Snohomish County, Tulalip Tribes	estuaries	\$5,000
7.3.1		Evaluate the effects of strategies and management actions on nearshore habitats	NC	Perform a feasibility study	Future habitat project development	Results of feasibility study	Snohomish County	estuaries	\$150,000

SNOHOMISH

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7.3.2		Test hypotheses about effects of shoreline ecosystems on salmon viability	NC	Conduct monitoring and research	Monitoring and Adaptive Management	Improved understanding of salmon use and habitat preference in estuarine habitats	Tulalip Tribes, NOAA Fisheries	estuaries	\$198,000
7.3.1		Evaluate the effects of strategies and management actions on nearshore habitats	NC	Develop a pilot project	Salmon Recovery coordination/implementation	Pilot results on measures to improve habitat connectivity and edge habitat	Utilities, transportation agencies	estuaries	\$100,000

KEY:

- BNSF
- TNC The Nature Conservancy
- USFS U.S. Forest Service
- WDFW Washington Department of Fish and Wildlife
- SCMRC Snohomish County Marine Resources Committee
- PSAT Puget Sound Action Team
- WSU Washington State University
- NOAA National Oceanic and Atmospheric Administration
- USACE US Army Corp of Engineers
- DNR Department of Natural Resources