12. CONCLUSIONS AND RECOMMENDATIONS

12. CONCLUSIONS AND RECOMMENDATIONS

The objective of this study was to provide a reconnaissance-level understanding of the nearshore ecosystem on the eastern shore of central Puget Sound for the purpose of guiding nearshore watershed planning and salmon recovery actions in WRIAs 8 and 9. This summary is the first of its kind, and it provides an opportunity to review multiple and diverse sets of data. Because this was a reconnaissance-level effort, we covered most but not all of the published and unpublished literature on the region. Furthermore, funding limitations and the general lack of nearshore ecosystem data limited our ability to provide a more in-depth review and analysis. However, the section on Elliott Bay (Section 11) provides a fairly well-documented glimpse of how advanced levels of urbanization affect one region within Puget Sound's nearshore environment.

Where necessary, we also incorporated information from sources outside of the study area for the development of a more complete understanding of the nearshore environment. Most of the species, ecosystem processes, habitat types, and stressors found in the study area occur in other areas as well and, in some cases, have been better studied in other areas. Furthermore, the nearshore ecosystem is only a part of a larger landscape that requires looking beyond watershed and geopolitical boundaries for an understanding of how it functions, what influences natural functions, and how that translates into an understanding of ecosystem health.

The conclusions and recommendations sections of this report were developed to summarize and interpret the meaning of this reconnaissance-level assessment and to provide recommended actions that are likely to lead to improved ecosystem health, based on our understanding of the ecosystem and influences of anthropogenic stressors. In order for us to draw conclusions and recommendations from the report, and for interested parties to understand the context, it is important to understand the approach used in preparing the report and the guiding principles and assumptions made in the development of conclusions and recommendations. The approach used is provided in the introductory section of the report. The assumptions used to generate conclusions and recommendations include:

- The development of conclusions and recommendations uses "Best Available Science," defined as a combination of direct studies, professional expertise and experience, and the application of fundamental ecological principles (i.e., the linkages between processes, structure, and functions).
- The nearshore ecosystem is an integral part of the watershed and is influenced by both upland/upriver processes and marine processes (it is viewed as a part of the continuum across the landscape).
- Humans exhibit an increasing power/ability to modify natural ecosystem processes, structure and functions to the detriment of living resources.
- Modification (i.e., introduction of chemical contaminants, habitat alteration, resource extraction) of natural ecosystem processes and structure is likely to result in shifts in species composition, viability, and productivity.
- Improving the nearshore ecosystem is likely to be good for salmon because of their dependence on properly functioning nearshore conditions for feeding, refuge, migration and physiological transition.

- Regional and global-scale factors, such as climate variability, also influence the nearshore ecosystem.

The objectives in developing conclusions and recommendations include the following:

- Elucidate what we know about the nearshore.
- Identify particular communities, populations, or other elements of the ecosystem that require special attention.
- Identify additional information that is needed to improve our understanding of the ecosystem.
- Recommend actions that will preserve, protect, and enhance the nearshore ecosystem.
- Recommend actions that will enhance our understanding of nearshore ecosystem processes, structure, and functions.
- Provide an honest, meaningful and realistic assessment and predictions about the present and future health of the nearshore ecosystem. The assessment and predictions need to be revealing about the potential consequences of our actions and activities, or lack thereof, in light of our current understanding.

This report was written from a technical perspective to provide technical guidance. Therefore, every effort was made to avoid evaluation and interpretation of political, policy, and social considerations in both the report and in the conclusions and recommendations. However, some social values (i.e., human health and safety, commercial value) are identified but were not evaluated in this report. These considerations are the responsibility of other groups that may use this report in their planning and policy deliberations.

Conclusions

- ***The nearshore ecosystem plays a critical role in support of a wide variety of biological resources, many of which are important to the people of the region for commercial, recreational, cultural, aesthetic, and other social values.*** These resources include the physical characteristics as well as numerous species of shellfish, finfishes, birds and other wildlife. Resources such as bivalves are common on beaches and flats. A large number of fish species use nearshore habitats for feeding, refuge, migration, and reproduction. Juvenile salmon preferentially feed on prey produced in the nearshore habitats including subestuaries, flats, beaches, riparian zones, kelp, and eelgrass meadows. These habitats are far removed from salmon spawning areas, which have been the focus of salmon life history and strategies for protection of critical salmonid habitat. However, nearshore habitat clearly plays an important role in the support of these highly migratory species through both direct and indirect mechanisms. For example, the riparian zone bordering the nearshore provides a direct source of prey for salmon and shade that enhances beach conditions for spawning forage fish and other species that use upper intertidal zones.

  Temporal and spatial variability in habitat structure are controlled by a number of processes in the nearshore ecosystem. Similarly, nearshore biological resources are dependent upon a

set of processes that regulates the abundance, diversity, and productivity of the various habitats that the resources use. For example, substrate composition plays a critical role in the abundance and distribution of infaunal bivalve populations and forage fish spawning. If sediment structure is significantly modified, bivalves and forage fish will no longer use these areas. Physical processes, such as erosion and deposition of sediments, are forced by wave and current energies that regulate sediment composition in an area. Modification of these force factors and other conditions will necessarily result in a modification of substrate and the species that utilize a particular habitat, or substrate type.

- ***The interactive effect of human-caused changes and natural variability on processes and resources has not been studied.*** Consideration and documentation of natural versus human-induced stressors on the nearshore ecosystem are sorely needed. The underlying causes of poorly understood phenomena, such as widespread declines in herring stocks and reductions in salmon body size, may become clearer through such studies. The fact that both human and climate-related factors may play a role is only speculative at this time. In many circumstances, we lack the mechanistic understanding to judge what is natural versus what is not natural in forcing variations we see in the nearshore ecosystem.

  Although generally not proven yet, natural variations in climate and water properties may have a strong influence on nearshore processes and resources. For example, the 1982-1983 El Niño produced dramatically different plant and animal species composition in the Seahurst area. This was documented only because there was an intensive baseline study under way at the time related to the siting of a new sewage outfall in the region. This study provided evidence that the nearshore ecosystem in Puget Sound is subject to broader factors, and that these factors may not be detectable without prolonged baseline monitoring in place.

- ***The viability of the nearshore system processes that support these resources has been damaged and continues to be threatened by a wide variety of human-induced changes.*** The essential habitat-forming and many fundamental ecological processes have been severely damaged throughout much of the study area. Factors that have contributed include overwater structures, dredging, filling, shoreline armoring, shoreline vegetation removal, chemical and bacteria contamination, organic matter and nutrient loading, resource extraction (i.e., sport and commercial harvest, logging activities, mining), land-use practices (i.e., commercial and residential development, roads, bridges, transportation facilities), commercial activities (i.e., shipping, wastewater disposal), and recreational activities and support (i.e., boating, marinas). Major losses because of dredging and filling have occurred in Elliott Bay and Shilshole Bay, but losses have occurred in other areas as well as a result of development and land use practices. In many cases, multiple stressors are affecting shoreline areas. For example, Lincoln Park suffers from beach erosion caused by a seawall, but is also subjected to heavy clam harvesting and fecal contamination.

  Shoreline modifications have occurred over an exceedingly high percentage of WRIAs 8 and 9 nearshore habitats, and represent one of the larger impacts on the nearshore ecology of the region. Numerous studies and reports have identified anthropogenic causes of habitat loss and degradation, species declines, and the needs for improving resource management

and ecosystem health. While improvements have been made in some areas, the general condition of the nearshore environment continues on a downward trend due to a lack of attention, inadequate resources, and inadequate response to warnings and recommendations for improvement.

- ***The cumulative effects of multiple stressors, or individual stressors over various temporal and spatial scales, on the nearshore system are unstudied in a systematic way***. Despite a good foundation for conceptual approaches and an understanding of the links between shoreline structural alteration, physical processes, and biological functions, there is a surprising gap in our documentation of ecological changes (Thayer et al. 1975). Furthermore, neither historical baseline nor current monitoring data provide the basis for understanding the magnitude of this change or threshold for cumulative impacts (Canning and Shipman 1995). In order to restore nearshore systems, it is essential to better understand the interaction of multiple stressors on the ecosystem.

- ***Monitoring the performance of restored systems and baseline studies in reference areas are critical to the development of appropriate restoration strategies.*** Although not a topic of this report, restorative actions are resulting in improvements to the nearshore ecosystem. Simenstad and Cordell (2000) summarize a limited, but important data set that proves restoration can yield positive results with regard to juvenile salmon. However, in general, restoration and enhancement monitoring have been inadequate for providing guidance on appropriate techniques and long-term successes. Few restoration and enhancement projects have been designed and monitored at the appropriate temporal and spatial scales. Furthermore, few projects integrate the full suite of ecosystem functions and processes into design and monitoring. This is often the result of inadequate information, funding, and an opportunistic approach to restoration. The end result is that the success and value of restoration efforts remains in question. Monitoring programs must be rigorous, set within the proper context and scale, and coordinated between agencies and other parties, and their results must be disseminated.

- ***There are numerous data gaps in our understanding of the nearshore ecosystem that directly inhibit or weaken our ability to make informed decisions regarding management and restoration of the system. Monitoring programs are limited and have been inadequate for providing the level of scientific information necessary for informed resource management decisions.*** Resource monitoring is the responsibility of multiple entities that are often not adequately funded, or well coordinated. Gaps in our understanding are numerous and are detailed in the body of the report and summarized in the Appendix. We cannot accurately assess what might be termed a "properly functioning estuarine or nearshore system" without filling many of the data gaps. Studies to refine metrics in an integrative way are decades behind efforts in freshwater streams and rivers. Recent work initiating the use of models (i.e., Ecosystem Diagnosis and Treatment model) for assessing the role of the nearshore system in the life history of salmon has revealed substantial uncertainties in our knowledge base. There is a clear need to conduct more studies on the use of nearshore systems by juvenile salmon and improve our understanding of how the nearshore integrates with freshwater, upland, and oceanic systems.

Specific information is necessary in developing habitat management plans and restoration projects. For example, while we have some understanding of the functions, we have no direct studies on the importance of large woody debris in the nearshore system, a topic of extensive study in stream and river ecosystems in recent years. Hence, there is limited information for generating recommendations on the restoration and management of backshore areas where woody debris is found. Additionally, in the Northwest, very little empirical information has been collected on the functions of riparian vegetation in estuarine and other nearshore areas. As a result, the related roles of LWD, shading, organic and litter recruitment, prey production, sediment and water filtration, and microclimates in the survival and growth of juvenile salmonids and other nearshore-dependent species have not been well defined.

- ***There is a general lack of coordination in the collection, analysis, and dissemination of nearshore data.*** Nearshore data must be coordinated and disseminated. Although a number of research and monitoring programs are being carried out (i.e., WDFW, PSAMP, various Tribes, and the University of Washington have collected data sets for nearshore fish species), there is rarely any synthesis and may be little coordination among components of the program. Sometimes data are collected and not analyzed. In other cases where data have been collected and analyzed, information dissemination to other resource agencies is often lacking, and accessibility and retrieval may be difficult. We cannot point to an integrated ecosystem monitoring program in WRIAs 8 and 9 at this time. A conceptual model has been developed for Puget Sound (PSAMP 2000) that does include part of the nearshore system, but is lacking important elements of the upper intertidal and the terrestrial/aquatic interface (i.e., beaches, backshore, bluffs, and riparian areas). Furthermore, this model, along with other conceptual models, needs to be expanded and refined for describing the various elements and ecological relationships within the system. Such models, in conjunction with a larger management framework, are essential for developing monitoring and assessment programs. Most recently, the Nearshore PRISM working group has been developing a numerical model. This model, if developed fully, will greatly aid in our understanding and management of the nearshore system.

- ***The nearshore system of Puget Sound needs more focused attention with funded research.*** Basic information on ecology and population trends of many fish and invertebrate species is lacking, as is good historical baseline information on habitat conditions. Many scientists complain that they are pressed to answer very large and important questions about salmon recovery, but they lack the data to provide defensible responses due to a lack of context and availability of sufficient data. It is clear that until more attention is placed on the nearshore, there is a real risk that mistakes will be made in terms of management and the expenditure of funds for habitat restoration and salmon recovery.

- ***The nearshore must be addressed from an ecosystem perspective.*** The nearshore environment is influenced by a plethora of factors, both natural and anthropogenic, due to its placement in the larger landscape. Factors that effect oceanic, freshwater and terrestrial systems individually, all come together in a "great mixing bowl" to create a unique

environment in the Puget Sound nearshore. Understanding all of the unique characteristics and complexities is a tremendous task that will take many years of dedicated, well-coordinated research and analysis. However, this will require a shift from our approach of single-species, or single-habitat management to an integrated ecosystem approach. For example, we need to understand that land-use practices along our shorelines have direct and indirect influences on the nearshore ecosystem (i.e., loss of vegetation, changes in sedimentation, water quality, and hydrology). These influences result in changes such as habitat structure, food supply and other elements that can reduce the viability of multiple species within the system. Other factors, such as dams and water withdrawals, geographically far removed from the nearshore, can dramatically influence sediment supply and salinity in subestuaries, which in turn changes vegetation communities, habitat structure and species composition. The nearshore is therefore not only part of an individual watershed, but is also the thread that binds together multiple watersheds. Thus, it is imperative that we not only understand the nearshore ecosystem as a unique "marine" system, but that we also look across the landscape to determine how the nearshore interacts with influences from other distinct ecosystems.

- ***Action is needed in the nearshore.*** Numerous studies and reports have previously identified the problems facing the nearshore environment (i.e., PSWQA 1988a,b; Shreffler and Thom 1993; West 1997; WADOE 1994; Broadhurst 1998; Lynn 1998; PSWQAT 1998; WADNR 2000; PSWQAT 2000), and have drawn conclusions similar to this report. Yet, while state and federal agencies, tribes, and other stakeholders have long recognized the importance of Puget Sound resources and the effects of anthropogenic impacts, the response to previous recommendations for improved protection of resources has been lacking. Protection, restoration and recovery actions have lagged while the human population and development have increased dramatically. The lack of appropriate and adequate levels of protection has led to significant declines of nearshore species and habitats. The most obvious signs of loss include the Endangered Species Act listings of Hood Canal Summer Chum salmon, Puget Sound Chinook salmon, Bull trout, a petition to list Coho salmon and 18 marine fishes, and a proposal to list the system's top predator, the orca whale.

- ***Particular attention and protective standards need to focus on communities, populations, or other elements of the ecosystem that require special attention.*** Salmon populations are only one example. While salmon have become the major driver for our recent planning and assessment work, due to regulatory (i.e., ESA) and social demands, they are certainly not the only indicator of ecosystem health and may or may not be the best indicator. They may, however, be a useful indicator due to their complex life history and utilization of the landscape. While freshwater reproduction and rearing is critical to their survival, it is also important to emphasize that most Pacific salmon are marine fishes that are dependent upon good estuarine and marine habitat conditions and prey resources. This dependency requires us to pay particular attention to other elements in the ecosystem. For example, forage fishes (i.e., surf smelt, sand lance, herring) are important prey for salmon and a multitude of other marine species, yet we have no population data for surf smelt and sand lance and do little to protect their spawning habitat. Likewise, it has been suggested that harpacticoid copepods, another primary prey item of juvenile salmonids, may be an ecologically

meaningful organism for determining environmental quality in nearshore environments (Cordell and Simenstad 1988).

Other examples of nearshore ecosystem elements that play important roles and should be protected include: eelgrass and macroalgae, which provide critical habitat functions for multiple species; natural erosion of banks and bluffs, a critical habitat forming process; and crab, clam, and other invertebrate populations or communities that play important roles in the nearshore ecosystem, for which species composition and life history data are limited. These are but a few examples and, as in the rest of this report, are not intended to be exclusive of other species, populations, communities, and other elements of the ecosystem. As stated above, establishing more baseline monitoring and assessment, understanding ecosystem linkages, and understanding impacts of anthropogenic influences are critical to identifying the most important elements of the ecosystem and providing recommendations for protection. In other words, the selection of particular elements within the ecosystem, or other actions, must be made in the proper context.

Recommendations

Based on the findings and conclusions of this study, it is apparent that there are a number of general and specific actions that need to be taken to better understand and protect individual elements within the ecosystem and the nearshore ecosystem as a whole. For example, it is clear that a number of anthropogenic influences are responsible for habitat loss and species declines. Yet, we lack adequate levels of scientific investigation to fully understand and describe all of the complex ecosystem linkages to provide specific remedies for maintaining or restoring "proper functioning conditions" for all elements, at all levels within the ecosystem. Therefore, it is imperative that we identify and prioritize the most critical data gaps, habitats, species, and ecosystem processes for in-depth analysis. This will require the development of criteria and protocols for evaluating each of these elements prior to analysis. In addition, it is also imperative that we take early actions to prevent further harm and not wait as additional scientific information is generated. Early actions come in many forms and range from the development of a coordinated technical framework and conceptual models to conservation, restoration, and protection actions or standards. It is apparent that historical protection measures have been inadequate. Therefore, protection is the most important early action that can be taken, for without it, degradation will continue and future restoration, scientific investigation, and other efforts to understand and restore the ecosystem will likely not reach recovery goals. Furthermore, the cost of protection, in terms of biological and economic costs, is low relative to the cost of restoration. This is a particularly important concern because restoration methodologies are not well studied and costly restoration projects are poorly monitored for success. Monitoring and adaptive management must be integral elements of both short-term and long-term action agendas to allow for the integration of new information.

The following action recommendations are divided into specific, non-prioritized categories. Many of these actions may be, and should be, taken simultaneously to restore the nearshore ecosystem. Although this report was written for a specific geographic area, many of these recommendations apply elsewhere and will require coordination and implementation on a larger scale to restore nearshore ecosystem conditions.

Monitoring and Research

- Develop, fund, and implement a coordinated monitoring and research program for the nearshore. This will require careful resource considerations (i.e., staff and funding at appropriate levels) and participation from entities outside of King County to address issues at the appropriate temporal and spatial scales.
- Develop a technical framework for understanding how the nearshore fits into the landscape of WRIAs 8 and 9 and Puget Sound as a whole.
- Establish/support the development of a consortium of entities concerned with the nearshore environment and develop a long-term funding source for nearshore research and projects.
- Develop criteria and protocols for monitoring and assessment that may be used at various temporal and spatial scales that are widely accepted and may be used for research, protection, preservation, enhancement and restoration.

Habitat Protection, Enhancement, and Restoration

- Protect existing undeveloped shoreline areas in WRIAs 8 and 9 from development practices that would be detrimental to the nearshore ecosystem. Develop protection, acquisition, and incentive strategies for lands that would contribute to maintaining or restoring ecosystem processes and functions to the benefit of nearshore ecosystem health.
- Protect eelgrass and macroalgae beds from the adverse effects of shoreline modifications such as dredging, filling, overwater structures, armoring, and pollution.
- Protect and enhance marine riparian vegetation. In the development of standards for protection, restoration, and enhancement, consider multiple functions.
- Protect forage fish spawning areas and other upper intertidal habitats and species. Concentrate restoration and enhancement efforts on areas with shoreline armoring and other development practices that reduce ecological processes and functions that support habitat quality.
- Develop a restoration strategy for the WRIA 8 and 9 nearshore that takes an ecosystem perspective within the landscape and helps to build our knowledge of the nearshore environment. Ensure that restoration projects and studies build upon a technical framework developed for the nearshore.
- Identify critical areas for protection, restoration, and enhancement in WRIAs 8 and 9. Then protect, restore, and enhance them. Considering that the shorelines of Vashon and Maury Islands are the least developed, concentrate protection efforts on them first, but don't exclude the mainland.
- Recreate intertidal acreage such as marshes, flats, and other habitats.
- Restore and recover estuarine intertidal flat and marsh habitat. Initial considerations should focus on appropriate salinity regimes and elevations, but should also consider other ecosystem processes in developing a functional design. Places to start include the Duwamish River estuary and subestuaries such as Miller Creek.

Reduction of Shoreline Modifications

Shoreline Armoring

- Reduce the amount of existing shoreline armoring in WRIAs 8 and 9, and prevent new installations of shoreline armoring.
- Restore natural physical and biological processes lost as a result of shoreline armoring and other bank stabilization practices.
- Determine and restore natural drift cell processes, specifically sediment budgets (i.e., rates, volumes, distribution). Feeder areas are particularly important. Where sediment supply is unimpeded, protect it. Where it is impeded, restore or enhance it at the appropriate temporal and spatial scale. Prevent the loss of sediment supply from armoring and other structures (i.e., jetties, groins) within the drift cell.
- Develop and implement technical guidance for alternatives to traditional shoreline armoring that maintain natural shoreline processes and functions.

Filling

- Reduce the amount of existing shoreline fill that has resulted from shoreline development practices and shoreline armoring.
- Prevent new fill in the nearshore.
- Where existing fill is removed, restore the area to low-gradient habitats such as flats, marshes, beaches, and backshore.

Overwater Structures

- Protect and enhance light penetration in the nearshore, including areas under existing overwater structures.
- Reduce the amount of existing overwater and in-water structures.
- Eliminate the use of construction materials and construction practices that may release environmental contaminants into the aquatic environment (i.e., treated wood products such as pilings and other structural components of docks and piers).
- Remove existing sources of environmental contaminants (i.e., treated piles and old floats).
- Eliminate obstructions to migratory corridors in the nearshore, including both in-water and overwater structures.

Water Quality

- Identify and control non-point pollution sources.
- Reduce, or preferably, eliminate point-source contaminants.
- Develop innovative methods of stormwater treatment, such as projects that use plantings of native vegetation to filter stormwater and retain sediments while improving fish and wildlife habitat.

Non-native Species

- Monitor and prevent the introduction and spread of non-indigenous and invasive species. Identify and eliminate sources of introductions.

Recreational Impacts

- Eliminate habitat impacts associated with the harvest of nearshore species and other recreational uses of nearshore habitats.

As a final note, the ability to improve nearshore ecosystem health and address the recommendations contained in this report will require a number of changes in the way we as residents and stewards live in this system. Recognizing and acknowledging the influences that we have on the processes, structure and functions of this ecosystem are critical to the development of meaningful avoidance and protection standards. Providing adequate resources and a framework for the development of new information, management strategies, restoration, and preservation will require a large-scale, coordinated effort that integrates various management efforts and crosses jurisdictional boundaries. Taking an ecosystem approach to understanding and managing nearshore resources is essential. These are but a few of the necessary elements that are needed to improve the quality of the nearshore ecosystem for all that depend on it.

Despite the fact that there have been changes in regulatory and management practices, and our level of scientific knowledge has increased in recent years, the effects of urbanization have continued to take a toll on nearshore resources. It is revealing to review environmental regulations, or mitigation actions and compare them to the level of protection they have actually provided in the nearshore environment. Considering the levels of habitat loss and degradation in the nearshore, they have proven to be inadequate. These concerns are not new, as are most of the conclusions and recommendations found in this report. For example, upon review of past proceedings of Puget Sound Research Conferences (1988; 1991; 1995; 1998; 2001), these issues surface time and time again. Likewise, reports from the Puget Sound Water Quality Authority (1990), Puget Sound Water Quality Action Team (i.e., Broadhurst 1998; West 1997; Lynn 1999), Puget Sound/Georgia Basin Task Force (1994), WADNR (2000), and WDFW White Papers (i.e., Williams et al., in prep.; Nightengale and Simenstad, in prep.), identify habitat losses and causes of habitat degradation. Interestingly, the problems, findings and recommendations contained in PSWQA (1990) apply just as much today as they did then. The list of problems and findings from this report are listed below:

Problems

1. There is no systematic fish and wildlife habitat inventory for Puget Sound basin.
2. Habitat protection in Puget Sound is frequently limited by gaps in interagency coordination and program integration.
3. We lack an ecosystem approach to habitat management in the Puget Sound basin.
4. We lack state and local goals and policies for habitat protection in Puget Sound with incentives to achieve that protection.

5. The public lacks awareness, understanding, and involvement in habitat protection issues and programs.
6. Enforcement of existing habitat protection laws in Puget Sound is inconsistent.
7. We lack funding for current and new programs that protect fish and wildlife habitat in Puget Sound.

Findings

1. We lack clear state and local goals and policies for habitat protection in Puget Sound.
2. A number of problems need to be jointly addressed and solved by a number of agencies, governments, tribes, organizations, and individuals currently involved in actions affecting the management and protection of fish and wildlife habitat.
3. Agencies responsible for managing fish and wildlife habitats in Puget Sound do not have sufficient authority to adequately protect these habitats.
4. The public lacks awareness and understanding of habitat protection issues and programs in the Puget Sound area.
5. We lack adequate public involvement in issues relating the protection of fish and wildlife habitat in Puget Sound.
6. The resources for staffing adequate habitat review, inventory, monitoring, enforcement, and education efforts are currently inadequate.

Hopefully, the integration of nearshore environments into watershed plans, the recent petitions to list marine species under the ESA, and the recent listings of salmonids (chinook salmon, summer chum salmon, and bull trout) under the ESA will bring additional attention, resources, and efforts to preserving, protecting, and restoring the nearshore ecosystem.