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REVISED SHORELINE INVENTORY AND CHARACTERIZATION REPORT for the Cities of Ocean Shores and Westport

Task 5

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Prepared for
City of Ocean Shores

and
City of Westport

Prepared by
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and
AHBL

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REVISED SHORELINE INVENTORY AND CHARACTERIZATION REPORT

FOR THE
CITIES OF OCEAN SHORES AND WESTPORT

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LIMITATIONS

As with any report, there are limitations (inherent or otherwise) that must be acknowledged. This report is limited to the subjects covered, materials reviewed, and data available at the time the report was prepared. The authors and reviewers have made a sincere attempt to provide accurate and thorough information using the most current and complete information available and their best professional judgment. If you have questions regarding the content of this report, please contact the City of Ocean Shores or the City of Westport, depending on the jurisdiction of interest.

GLOSSARY

Aeolian – Typically refers to sediment transport processes affected by wind and sediment deposited by wind.

Accrete (Accretion) – To grow via deposition of sediment over time.

Anthropogenic – Caused either directly or indirectly by human activity.

Brackish (water) – This is water that has more salinity than fresh water, but not as much as seawater.

Drift Cell – A particular reach of marine shore in which littoral drift may occur without significant interruption and which contains any natural sources of such drift and accretion shore forms created by such drift.

Ecological functions or shoreline functions – The work performed or role played by the physical, chemical, and biological processes that contribute to the maintenance of aquatic and terrestrial environments that constitute the shoreline's natural ecosystem.

Ecosystem-wide processes – The suite of naturally occurring physical and geologic processes of erosion, transport, and deposition; and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat and the associated ecological functions.

Fill – The addition of soil, sand, rock, gravel, sediment, earth-retaining structure, or other material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land.

Keystone Species – A keystone species is a species that has a disproportionately large effect on its environment relative to its abundance. Such species are understood to play a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community.

Littoral – The marine shoreline zone where transport is dominated by waves and wind.

Management Area – A management area is an area of shoreline typically distinguished by similar characteristics relating to the relative intensity of land use, the physical landscape and/or critical hydrogeomorphic or biological processes. Management areas are comprised of smaller units called reaches.

Ordinary High Water Mark – On all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that

condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: provided, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining fresh water shall be the line of mean high water.

Planform – The outline of an object (water body) as seen from above.

Prograde (Progradation) – To advance the shoreline seaward via deposition of sediment over time.

Reach – A segment of shoreline that has a similar geomorphic context used for assessment of ecological conditions. Reaches are smaller units that comprise the management areas.

Shoreline Modifications – Those actions that modify the physical configuration or qualities of the shoreline area, usually through the construction of a physical element such as a dike, breakwater, pier, weir, dredged basin, fill, bulkhead, or other shoreline structure. They can include other actions, such as clearing, grading, or application of chemicals.

Swell – Wave energy generated in the open Pacific Ocean. It is typically long period (5 to 10 seconds) and is the dominant form of wave energy in the Pacific Ocean reaches of the cities.

Water-dependent use – A use or portion of a use, which must exist in a location adjacent to the water and which is dependent on the water because of the intrinsic nature of its operations.

Water-enjoyment use – A recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use; or a use that provides for recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and which through location, design, and operation ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment.

Water-related use – A use or portion of a use that is not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a waterfront location because:

(a) The use has a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water; or

(b) The use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers makes its services less expensive and/or more convenient.

Water-oriented use – A use that is water-dependent, water-related, water-enjoyment, or a combination of such uses.

Woody Wetlands – A land cover classification in the National Land Cover Database defined as "Areas where forest or shrubland vegetation accounts for greater than 20 percent of the cover and the soil or substrate is periodically saturated with or covered with water."

List of Acronyms and Abbreviations

CAO	Critical Areas Ordinance
CBPHWG	Chehalis Basin Partnership Habitat Work Group
Cities	Cities of Ocean Shores and Westport
Commerce	Washington State Department of Commerce
DPS	Distinct Population Segment
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FWHCA	Fish and Wildlife Habitat Conservation Areas
GIS	Geographic Information Systems
GMA	Growth Management Act
LWD	Large Woody Debris
NLCD	National Land Cover Data
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
OSMC	Ocean Shores Municipal Code
PCB	Polychlorinated Biphenyl
PHS	Priority Habitats and Species
PUD	Public Utility District

RCW	Revised Code of Washington
RGP	Regional General Permit
SCA	Seashore Conservation Area
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SSURGO	Soil Survey Geographic Database
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WMC	Westport Municipal Code
WRIA	Watershed Resource Inventory Area
WSPRC	Washington State Parks and Recreation Commission

EXECUTIVE SUMMARY

This Shoreline Inventory and Characterization Report supports the comprehensive Shoreline Master Program (SMP) update for the Cities of Ocean Shores and Westport (Cities). Each City is updating its own SMP, but they share this Shoreline Inventory and Characterization Report due to the geomorphic and biological similarities between the two jurisdictions. This work was funded by Washington State Department of Ecology (Ecology) grants to each jurisdiction.

Washington's Shoreline Management Act (SMA) of 1971 and its implementing State Guidelines adopted in 2003 require an update of each City's SMP. The City of Westport's (Westport) SMP was approved in 1976 and codified in 1998. The City of Ocean Shores (Ocean Shores) approved its first SMP in 1974 and subsequently updated it in 1990, 1997, and 1998.

Under these Guidelines, the Cities must base the master program provisions on an analysis of the most relevant and accurate scientific and technical information (Washington Administrative Code (WAC) 173-26-201(3)(c) and (d)). This includes meeting the mandate of "no net loss" of shoreline ecological functions as well as providing mechanisms for restoration of impaired shoreline functions. The Shoreline Inventory and Characterization Report is not a binding regulatory document but is meant to help inform the SMP update process by compiling relevant technical information about existing shoreline conditions.

The Cities' SMP updates are typically multi-year processes, which begin with an inventory and characterization of existing environmental and land use conditions. The report contains an inventory of a variety of elements, including land use, landscape processes, and ecological functions. These elements are spatially catalogued using a Geographic Information System (GIS), where possible, and are presented in two citywide map folios. Together, these elements define existing conditions, help inform the review of current shoreline regulations, and highlight areas where changes may be necessary to meet shoreline management goals for water dependent uses, public access, and the protection of natural resources.

Key information provided in this report includes:

- Characterization of existing ecological functions through an analysis of both physical and biological processes
- An analysis of existing land uses, shoreline modifications, land capacity, public access, and areas under public ownership or preservation holdings
- Preliminary identification of restoration opportunities
- Evaluation of current shoreline environment designations, their purpose and criteria
- Recommendations for the SMP to help meet the State Guidelines for shoreline management

1. INTRODUCTION

1.1. Background and Purpose

The Shoreline Master Program (SMP) update covers the Cities of Ocean Shores and Westport (Cities). The Cities' SMP update requires preparation of a shoreline inventory and characterization report to be used as a foundation for the SMP update process (Washington Administrative Code [WAC] 173-26-201(3)(c) and (d)). This document was prepared to fulfill that requirement and serves to do the following:

- Inform the review of current shoreline regulations required by the update process
- Highlight areas where shoreline resources protection measures and shoreline use designations could be improved to meet shoreline management goals

Information provided includes existing physical conditions as well as data and descriptions of watershed and shoreline attributes that pertain to the shoreline jurisdiction of each City. In addition, existing ecosystem shoreline processes, land uses, and development patterns are characterized. Descriptions of shoreline functions and opportunities for restoration, public access, and shoreline use are also provided.

The Shoreline Inventory and Characterization Report accomplishes the following:

- It provides supporting information for determining updated environmental designations. This includes an analysis of existing ecological functions and a detailed inventory of existing physical and biological conditions per WAC 173-26-201(3)(c).
- Establishes the baseline for "no net loss" of ecological conditions per WAC 173-26-186(8)(b) and thereby informs current and future policy development, land use planning, and regulatory effectiveness.
- Identifies opportunities for protection, improving public access, and supporting water dependent uses.
- Identifies degraded areas and restoration opportunities for incorporation into a separate comprehensive restoration plan.

The overarching goal of the SMP is that over time, the existing condition of shoreline ecological functions should remain the same as when the SMP is implemented. Simply stated, the no net loss standard is intended to halt the introduction of new impacts on shoreline ecological functions resulting from new or redevelopment. Both protection and restoration are tools to achieve no net loss by maintaining or improving shoreline ecological functions.

1.2. Regulatory Framework

This section describes state, federal, and regional regulations relevant to the Cities' SMPs. Additional information on local regulations is within the discussions for each City.

1.2.1. Shoreline Management Act

To manage the shorelines of the state, the state legislature passed the Shoreline Management Act (SMA) in 1971 and citizens of the state adopted it by referendum in 1972. The overarching goal of the SMA is "… to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." There are three basic policy areas comprising the SMA (Revised Code of Washington (RCW) 90.58.020):

- Accommodation of reasonable and appropriate uses of the shoreline
- Environmental protection of shoreline environmental resources
- Protection of the public's right to access and use the state shorelines

Under the SMA, each city and county with shorelines of the state must adopt an SMP, based on state laws and regulations, but tailored to the specific geographic, economic, and environmental needs of the community. Cities and counties are the primary regulators. Washington State Department of Ecology (Ecology) has a predominantly support and review role, but is required to approve certain kinds of permits, such as Shoreline Conditional Use Permits and Variances, and must approve new or amended SMPs.

In 2003, SMP Guidelines were adopted to require that no net loss of shoreline ecological function be the regulatory standard and that mechanisms for restoration of impaired shoreline function are provided. In addition, the guidelines state that when local SMPs are updated, the updated standards, setbacks, and buffers do not apply retroactively to existing agricultural development. Updated SMP requirements will apply, however, to new agricultural activities located in shoreline areas as well as where agricultural activities are converted to other uses. Additionally, the SMP Guidelines allow repair and maintenance of existing structures, subject to requirements imposed by the local jurisdiction. The guidelines were further amended in 2011 to include new provisions for commercial geoduck aquaculture.

1.2.1.1. Shoreline Environment Designations

As outlined in WAC 173-26-191(1)(d),

> *"Shoreline management must address a wide range of physical conditions and development settings along shoreline areas. Effective shoreline management requires that the shoreline master program prescribe different sets of environmental protection measures, allowable use provisions, and development standards for each of these shoreline segments."*

In WAC 173-26-211(2)(a), the SMP Guidelines further direct development and assignment of environment designations "… based on the existing use pattern, the biological and physical character of the shoreline, and the goals and aspirations of the community as expressed through Comprehensive Plans as well as the criteria in this section." The methodology

discussion in Section 2.6 describes how the function analysis scores in this report are a component in assigning preliminary environment designations.

- **Ecology Recommended Classification System**

  For urban areas, the SMP Guidelines recommend the use of five basic environments: Natural, Aquatic, High Intensity, Urban Conservancy, and Shoreline Residential. The purpose and designation criteria of these five environments are as follows:

  1. Natural Environment:

     Purpose: The purpose of the natural environment is to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed in order to maintain the ecological functions and ecosystem-wide processes. Consistent with the policies of the designation, local government should include planning for restoration of degraded shorelines within this environment.

     Designation Criteria: A natural environment designation should be assigned to shoreline areas if any of the following characteristics apply:

     - The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;
     - The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or
     - The shoreline is unable to support new development or uses without significant adverse impacts on ecological functions or risk to human safety.

  2. Aquatic Environment:

     Purpose: The purpose of the aquatic environment is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the OHWM.

     Designation Criteria: Assign an aquatic environment designation to lands waterward of the OHWM. Local governments may designate submerged and intertidal lands with shoreland designations (e.g., high-intensity or urban conservancy) if the management policies and objectives for aquatic areas are met. In this case, the designation system used must provide regulations for managing submerged and intertidal lands that are clear and consistent with the aquatic environment management policies in this section. Additionally, local governments may assign an aquatic environment designation to wetlands.

3. High-intensity Environment:

   Purpose: The purpose of the high-intensity environment is to provide for high-intensity water-oriented commercial, transportation, and industrial uses while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.

   Designation Criteria: Assign a high-intensity environment designation to shoreline areas within incorporated municipalities, if they currently support high-intensity uses related to commerce, transportation, or navigation; or are suitable and planned for high-intensity water-oriented uses.

4. Urban Conservancy Environment:

   Purpose: The purpose of the urban conservancy environment is to protect and restore ecological functions of open space, flood plain, and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.

   Designation Criteria: Assign an urban conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   - They are suitable for water-related or water-enjoyment uses;
   - They are open space, flood plain, or other sensitive areas that should not be more intensively developed;
   - They have potential for ecological restoration;
   - They retain important ecological functions, even though partially developed; or
   - They have the potential for development that is compatible with ecological restoration.

5. Shoreline Residential Environment:

   Purpose: The purpose of the shoreline residential environment is to accommodate residential development and appurtenant structures that are consistent with this section. An additional purpose is to provide appropriate public access and recreational uses.

   Designation Criteria: Assign a shoreline residential environment designation to shoreline areas inside incorporated municipalities, as described in RCW 36.70A.360, if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

The current SMP for Ocean Shores was adopted in 1974 and last amended in 1998. The current SMP for Westport was adopted in 1976 and last amended in 1998. Section 1.2.3 describes the Cities' current SMPs, including a comparison between their existing shoreline designations and Ecology's recommended classification system.

1.2.2. Grays Harbor Estuary Management Plan

In response to the increasing number of demands placed on the Grays Harbor Estuary by an expanding economic base and growing population and the overlapping local, state, and federal plans and regulations that govern the land and water resources of Grays Harbor, the Grays Harbor Regional Planning Commission formed an Estuary Planning Task Force in late 1975. In September 1976, the Task Force, through the Regional Planning Commission and Ecology, received federal funds to prepare a Grays Harbor Estuary Management Plan. The Estuary Management Plan was prepared over an 11-year period by the Estuary Planning Task Force.

The Grays Harbor Estuary Management Plan did not eliminate or modify any of the laws, regulations, or policies, which governed the actions' and decisions of local, state, or federal agencies (Grays Harbor County 1986). The plan improved the interpretation and implementation of those laws and regulations. The plan attempted to meld the authorities and concerns into unified estuary-wide guidelines for both protection and development of the area's economic and natural resources. Since the plan has been prepared by participating local, state, and federal agencies with recognition of legal and policy constraints on each, it helped avoid piecemeal decision making in the permit process.

The area covered by the Estuary Management Plan includes the Grays Harbor Estuary area from the end of the harbor entrance jetties, up the Chehalis River to its junction with the Wynoochee River south of Montesano. The plan area was divided into management units. These management units are used as the basis for the reaches delineated for this analysis in those city areas that are within the plan boundaries.

1.2.3. Shoreline Master Programs

Ocean Shores originally adopted its SMP in 1974 and codified it in the Ocean Shores Municipal Code originally as Title 18. Ocean Shores amended the SMP in 1990 (as Ordinance No. 500), 1997 (as Ordinance No. 611), and in 1998 (as Ordinance No. 629).

Westport SMP was originally adopted in 1976 and was codified into the Westport Municipal Code as Chapter 17.52, Shoreline Management Overlay in 1998 (as Ordinance No. 1146).

Both SMPs utilize a system of four environment designations: Urban, Rural, Conservancy, and Natural. These environment designations are listed in order of decreasing level of intensity and allowed uses.

Tables 1-1 and 1-2 below illustrate how the Cities' existing four primary shoreline designations relate to Ecology's recommended classification system. Each of the City's existing primary shoreline designation is paired with the most comparable Ecology designation. We provide a brief comparison of the two designations. This comparison is

intended to help illustrate whether the City's guidelines currently or could potentially comply with the SMP Guidelines. Note that the SMP Guidelines stipulate "… local governments may establish a different designation system or may retain their current environment designations, provided it is consistent with the purposes and policies of WAC 173-26-211."

1.2.4. Local Comprehensive Plans and Applicable Regulations

The cities in Grays Harbor County are not required to plan under GMA with the exception of regulating protection of critical areas and resource planning.

1.2.4.1. Ocean Shores

Ocean Shores updated and amended its 1998 Comprehensive Plan in 2007. The most recent Comprehensive Plan included several policies supporting the integration of the SMP and the Grays Harbor Estuary Management Plan with the City's other policies. In addition to the Comprehensive Plan, the City adopted a Comprehensive Park and Recreation Plan in 2012 as Resolution No. 661. The Comprehensive Park and Recreation Plan has a variety of shoreline elements, including a range of improvements to public shoreline access points (e.g., Damon Point, etc.).

The City regulates critical areas under Chapter 19.02 of the Ocean Shores Municipal Code (OSMC). OSMC 19.02 addresses critical aquifer recharge areas, wetlands, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservations areas. The City updated its critical areas regulations in 2008 (Ordinance 851). Detailed information on critical areas within each city is under Section 3.7, *Critical Areas and Priority Habitat and Species*.

In general, protection of critical areas is provided through survey, analysis, and reporting requirements; regulating certain activities; requiring buffers, setbacks, and critical area tracks; and by requiring mitigation for unavoidable impacts.

In OSMC 19.02.120, fish and habitat conservation areas include the following:

- Dune protection area delineated in OSMC 18.56 and discussed below
- Marshes and tidelands associated with Grays Harbor between the OHWM and the line of extreme low tide
- Oyhut Wildlife Area
- Duck Lake
- All City-owned land adjacent to and within 200 feet of the OHWM
- All freshwater canals and waterways and all City-owned land adjacent to and within 25 feet of the OHWM

Table 1-1. Comparison of Existing Ocean Shores Shoreline Designations and Ecology's Recommended Classification System.

Existing Shoreline Designation	Summary of Ocean Shores Shoreline Designation Purpose and Criteria from the City SMP, Amended 1998	Comparable Ecology Designation	Summary of Ecology Shoreline Designation Purpose and Criteria (WAC 173-26-211)	Comparison
Urban	**Purpose**: "The Urban Environment should include water dependent industrial, commercial, and residential uses and should encourage maximum provision of public access to shorelines compatible with the shoreline use." **Criteria**: "The amount of Urban Environment designated should be directly related to reasonable long range projections of regional economic need. The Urban Environment should encourage utilization of existing high intensity shoreline sites and not encourage expansion of such uses into presently undeveloped areas unless there is a demonstrated need. Urban Environment designation of presently undeveloped land should give priority to proximity of high intensity development. Existing non-water related commercial and industrial uses should be encouraged to relocate to non-waterfront property and expansion of existing non-water related uses should be located upland of the existing facility. New non-water related commercial and industrial uses should not be encouraged on waterfront property unless the type or design of the use includes unique provisions for public access and enjoyment which might not otherwise be possible if the site were utilized by a water related commercial or industrial use …"	High Intensity	**Purpose**: "to provide for high intensity water-oriented commercial, transportation, and industrial use while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded" **Criteria**: "shoreline areas within incorporated municipalities, … if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses."	Compared to Ecology's High Intensity designation, the City's Urban designation includes a broader scope of uses and less-intense uses (e.g., residential).
Rural	**Purpose**: "The Rural Environment should be employed in those areas where low density development is planned or presently exists. These areas are not planned for extensive roadway systems, or sanitary sewage systems. Soil limitations for septic tank disposal and the desire of residents to live with, rather than dominate, the environment support the lower density." **Criteria**: "The Rural Environment is intended to create stable development conditions so that property owners will not be subjected to speculative forces urging higher development density and thereby causing fluctuations in land values and property taxes. The Rural Environment should include these, areas experiencing resort, seasonal home and recreational development and low intensity water related commercial and industrial activities. These are: the back dunes, the lands above the ordinary high water line in the lower estuary, those areas along the tributary creeks and rivers where low density community development exists or where such waterways pass through the urbanizing area as identified on the Regional Land Use Plan."	Urban Conservancy	**Purpose**: "… to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses." **Criteria**: "… if any of the following characteristics apply … suitable for water-related or water-enjoyment uses; … open space, flood plain or other sensitive areas that should not be more intensively developed; … potential for ecological restoration; … retain important ecological functions, even though partially developed; … potential for development that is compatible with ecological restoration."	The City's Rural and Ecology's Urban Conservancy designations are similar..
Conservancy	**Purpose**: "The Conservancy Environment is intended to be used in areas where man is managing a natural resource but not establishing permanent development and high intensity uses. This includes all prime agricultural land, forest lands, and aquaculture areas." **Criteria**: "Areas of poor drainage, flood danger, unstable earth or simple fragility should also be placed in the Conservancy Environment to limit possible development which would not be compatible with the eco-system. This includes the primary dunes and most of the ocean beaches and the riverine floodplain on the Chehalis. Land uses within the Conservancy Environment should be limited to those which do not adversely impact the renewable resource management system, and permitted activities should take into consideration the ecological factors which must be protected in order to continue utilizing the resource in the future. Conservancy areas are often attractive recreational areas and low intensity recreation can be permitted if it does not adversely affect the management of the resource and other values such as wildlife habitat and scenic amenity."	Urban Conservancy	**Purpose**: "… to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses." **Criteria**: "… if any of the following characteristics apply … suitable for water-related or water-enjoyment uses; … open space, flood plain or other sensitive areas that should not be more intensively developed; … potential for ecological restoration; … retain important ecological functions, even though partially developed; … potential for development that is compatible with ecological restoration."	The City's Conservancy and Ecology's Urban Conservancy designations are similar.

Table 1-1 (continued). Comparison of Existing Ocean Shores Shoreline Designations and Ecology's Recommended Classification System.				
Existing Shoreline Designation	**Summary of Ocean Shores Shoreline Designation Purpose and Criteria from the City SMP, Amended 1998**	**Comparable Ecology Designation**	**Summary of Ecology Shoreline Designation Purpose and Criteria (WAC 173-26-211)**	**Comparison**
Natural	**Purpose**: "The Natural Environment is intended to protect those areas which cannot withstand any substantial invasion by man and which are of particular value, either as essential parts of natural systems, or which have some service, cultural, historical, educational, archeological or scientific value. Natural or societal value or fragility characterize these areas." **Criteria**: "In order to protect the Natural Environment severe restrictions must be imposed and this eliminates most of the economic value of a private owner. Designation as a natural area should entitle a private owner to minimal taxation so that expense does not force him to seek higher intensity utilization. Aquaculture can be compatible with a Natural Environment if the intrusion into the environment is minimal and does not cause significant disruption. The Natural Environment should be used on those portions of the ocean beaches where vehicular traffic is not encouraged, game ranges and wildlife refuges, important habitats, marshes and any other areas of scientific importance."	Natural	**Purpose**: "… to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed …" **Criteria**: "… if any of the following characteristics apply … shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity; … considered to represent ecosystems and geologic types that are of particular scientific and educational interest; … unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety."	The City's Natural and Ecology's Natural designations are similar.

Table 1-2. Comparison of Existing Westport Shoreline Designations and Ecology's Recommended Classification System.

Existing Shoreline Designation	Summary of Westport Shoreline Designation Purpose and Criteria from the City SMP, Amended 1998	Comparable Ecology Designation	Summary of Ecology Shoreline Designation Purpose and Criteria (WAC 173-26-211)	Comparison
Urban	**Purpose**: "The purpose of an urban shoreline is to designate areas in which there is or should be a mix of compatible uses. In general, residential densities will be higher, industrial and commercial uses will be service, natural resource, or community oriented, and public access to the water will be encouraged for recreational purposes." **Criteria**: "Urban shoreline is a designation in areas served by sewer, water, and other City services to enable intensive use and to manage development in order to maintain shorelines for a wide variety of intense uses. Within the urban shoreline environment designation, there are six shoreline use zones: Ocean Beach Residential Zone (OBR); Recreational and Parks (RP); Tourist Commercial (TC); Mixed Use/Tourist Commercial (MUTC); Marine Industrial (MI); Residential (R-1 and R-2)."	High Intensity	**Purpose**: "to provide for high intensity water-oriented commercial, transportation, and industrial use while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded" **Criteria**: "shoreline areas within incorporated municipalities, … if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses."	Compared to Ecology's High Intensity designation, the City's Urban designation includes a broader scope of uses (e.g., residential and parks and recreation). The City's Urban designation also includes less-intense uses (e.g., Ocean Beach Residential, Residential R-1 and R-2 and Recreation and Parks).
Conservancy	**Purpose**: "The conservancy environment is intended to protect areas for purposes that directly use or depend on natural systems. While it is not intended that such areas will be preserved in their natural state, the activities which occur in these areas shall be compatible the natural systems. It is the intent of this classification to allow uses, which depend on the natural ecological system for production of food for recreation, for recognized scientific research, or for public access for recreational uses. Recreation uses will be water-dependent and designed to maintain the quality of the natural elements of the areas." **Criteria**: "Conservancy shoreline is a designation to conserve and protect significant natural resources, including ocean beaches, 200 feet shoreward of the marram grass line including the dune protection zone and estuary wetlands."	Urban Conservancy	**Purpose**: "… to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses." **Criteria**: "… if any of the following characteristics apply … suitable for water-related or water-enjoyment uses; … open space, flood plain or other sensitive areas that should not be more intensively developed; … potential for ecological restoration; … retain important ecological functions, even though partially developed; … potential for development that is compatible with ecological restoration."	The City's Conservancy and Ecology's Urban Conservancy designations are similar.
Natural	**Purpose**: "Natural shoreline is a designation reserved for natural resource areas which areas intended to remain free of human influence." **Criteria**: "The main emphasis of regulation in these areas should be on natural systems and resources which require severe restrictions of intensities and types of uses to maintain them in a natural state. Therefore, activities which may degrade the actual or potential value of this environment should be strictly regulated. Any activity which would bring about a change in the existing situation would be desirable only if such a change would contribute to the preservation of the existing character. The primary determinant for designating an area as a natural environment is the actual presence of some unique natural or cultural features considered valuable in their natural or original condition, which are relatively intolerant of intensive human use. Such features should be defined, identified, and quantified in the shoreline inventory. The relative value of the resources is to be based on local citizen opinion and the needs and desires of other people in the rest of the state."	Natural	**Purpose**: "… to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed …" **Criteria**: "… if any of the following characteristics apply … shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity; … considered to represent ecosystems and geologic types that are of particular scientific and educational interest; … unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety."	The City's Natural and Ecology's Natural designations are similar.

Buffers are based on type of area and land use. Depending upon the type of area, buffer recommendations are sought from the Washington Department of Fish and Wildlife (WDFW) PHS Program, site managers, or on a case-by-case basis with the City coordinating with the WDFW and other state, federal, or tribal experts. Ecology indicated in comment letters to the City dated October 2, 2007; April 25, 2008; and August 27, 2008, that they had concerns about the substance of the critical areas regulations. In Ecology's opinion, the ordinance contains liberal exemptions and exceptions, which would not adequately protect the ecological functions of critical areas.

The City manages public ocean dunes areas under the Ocean Dunes Protection Act, OSMC 18.56 (Ordinance 629, 1998). This act applies to City-owned dunes in portions of Divisions No. 1, 2, 4, 8, 10, 11, 16, 17, 18, 19, and 19A, Ocean Shores Addition to Grays Harbor County, Washington, lying west of the western property line to the mean high tide mark of the Pacific Ocean. The Ocean Dunes Protection Act finds that dunes areas located on City property should be protected and preserved, while allowing for recreational activities.

Ocean Shores adopted the Grays Harbor Estuary Management Plan under OSMC 18.53 (Ordinance 500, 1990); and if its regulations conflict with the adopted SMP, the more restrictive regulations will be followed. The City regulates development in frequently flooded areas under the flood damage prevention section of the municipal code found in OSMC 15.36 (last amended in 2001 by Ordinance 708).

The City provides development guidelines and public works standards that would be applicable to development in the shoreline jurisdiction, such as standards related to storm drainage and surface water in OSMC Title 13. The City adopted a water system plan and a general wastewater plan in 1980 (Ordinance 299 and Ordinance 310, respectively). The City regulates clearing and grading in OSMC 17.50.100 (amended in 2008 by Ordinance 837).

1.2.4.2. Westport

Westport adopted a Comprehensive Development Plan in 1998. Ordinance No. 1538 amended the Plan in 1999 and Ordinance No. 1189 amended the Plan in 2013. As part of the 2013 update, the SMP was moved from Chapter 9 to Appendix C. Chapter 9 discussed the background, application, and requirement for updates to the City's SMP. Future updates and amendments to the SMP will be incorporated in Appendix C, and they will not require a Comprehensive Plan update. The City also adopted a Comprehensive Parks and Recreation Plan in 2004 that includes goals and objectives relating to the City's SMP, including providing a diversity of recreational opportunities and preventing further losses of critical areas.

According to the Washington State Department of Commerce (Commerce), as of February 9, 2015, Westport had not completed the required update of its Critical Areas Ordinance and does not have a Critical Areas Ordinance that designates or regulates critical areas. Currently the City uses the SEPA review process to regulate development that may affect critical areas. The City is updating its critical areas regulations concurrently with its SMP update to address critical areas protection in the shoreline jurisdiction, as well as throughout the city.

The City regulates development in the interdunal areas adjacent to the Pacific Ocean through WMC 17.32.050(I) – Dune Protection Zone (Ordinance 1189 Att. A § 3, 1999;

Ordinance 1146 § 2, 1998). The purpose of the dune protection zone is to regulate development of the ocean dunes between the OHWM and 200 feet landward of the marram grass line. Public access roads, navigation aids, public recreational buildings, public or private footpaths, and shoreline works structures are permitted uses in the dune protection zone. New measures to control erosion require a conditional use permit. Setback for these structures in the dune protection zone is 50 feet from the seasonal high water line. Additionally, no structure may be higher than 15 feet; however, provided navigation aids or public facilities may exceed 15 feet with a conditional use permit.

Westport regulates Flood Damage Prevention in WMC 15.12 (Ordinance 844, 1989, and Ordinance 1441, 2008). The City's storm and surface water management regulations are found in WMC 13.04 and WMC 13.08. The City regulates fill and grade activities through SEPA review.

1.2.5. State Agencies and Regulations

Aside from the SMA, state regulations most pertinent to development in the Cities' shorelines of the state include the State Hydraulic Code, the GMA, the State Environmental Policy Act (SEPA), the Clean Water Act (CWA), tribal agreements and case law, the Watershed Planning Act, Water Pollution Control Act, Ocean Resources Management Act (ORMA), Marine Waters Planning and Management Act, and the Salmon Recovery Act, and the Seashore Conservation Area (SCA). A number of state agencies implement these regulations or may own shoreline areas. In addition to Ecology's oversight of particular aspects of the SMP, other agency reviews of shoreline developments are triggered by in- or over-water work, discharges of fill or pollutants into the water, or substantial land clearing.

Depending on the nature of the proposed development, state regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, or mitigated. During the SMP update, the Cities will consider other state regulations to ensure consistency as appropriate and feasible with the goal of streamlining the shoreline permitting process. A summary of some of the key state regulations and/or state agency responsibilities follows.

1.2.5.1. State Environmental Policy Act

SEPA was adopted in 1971 (Chapter 43.21C RCW) to ensure that environmental values were considered during decision-making by state and local agencies. The environmental review process in SEPA is designed to work with other regulations to provide a comprehensive review of a proposal. Most regulations focus on particular aspects of a proposal, while SEPA requires the identification and evaluation of probable impacts on all elements of the built and natural environment. Combining the review processes of SEPA and other laws reduces duplication and delay by combining study needs; combining comment periods and public notices; and allowing agencies, applicants, and the public to consider all aspects of a proposal at the same time.

1.2.5.2. Section 401 Water Quality Certification

Section 401 of the federal CWA allows states to review, condition, and approve or deny certain federal permitted actions that result in discharges to state waters, including wetlands. In Washington, Ecology is the state agency responsible for conducting that review,

with their primary review criteria of ensuring that state water quality standards are met. Actions within streams or wetlands within the shoreline jurisdiction that require a Section 404 permit also need Ecology's review.

1.2.5.3. State-Owned Aquatic Lands

The Washington Department of Natural Resources (WDNR) is responsible for protecting and managing use of state-owned aquatic lands. Toward that end, water-dependent uses waterward of the ordinary high water mark (OHWM) require review by WDNR to establish whether the project is on state-owned aquatic lands. Certain project activities, such as single-family or two-party joint-use residential piers on state-owned aquatic lands are exempt from these requirements. WDNR recommend that all proponents of a project waterward of the OHWM contact them to determine jurisdiction and requirements.

1.2.5.4. Watershed Planning Act:

The Watershed Planning Act (Chapter 90.82 RCW) was passed in 1998 to encourage local planning of local water resources. It recognizes that there are citizens and entities in each watershed that "… have the greatest knowledge of both the resources and the aspirations of those who live and work in the watershed; and who have the greatest stake in the proper, long term management of the resources."

1.2.5.5. Hydraulic Code

The Hydraulic Code (Chapter 77.55 RCW) gives the WDFW the authority to review, condition, and approve or deny "… any construction activity that will use, divert, obstruct, or change the bed or flow of State Waters." These activities may include stream alteration, culvert installation or replacement, pier and bulkhead repair or construction among others. WDFW can condition projects to avoid, minimize, restore, and compensate adverse impacts.

1.2.5.6. Water Pollution Control Act

The Water Pollution Control Act (Chapter 90.48 RCW) establishes the state's policy "… to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the State of Washington." Ecology is charged with creating and implementing rules and regulations in accordance with this legislation.

1.2.5.7. Ocean Resources Management Act

The ORMA (RCW 43.143) establishes policies and planning criteria for ocean resources and bans leasing of Washington's outer coast waters for oil and gas exploration, development, and production. Local jurisdiction SMPs must be consistent with the Ocean Management Guidelines in WAC 173-26-360. Development and activities proposed in coastal shorelines must be reviewed for ORMA compliance and meet certain criteria to avoid and minimize adverse impacts, in a manner similar to that for development proposals in critical areas.

1.2.5.8. Marine Waters Planning and Management Act

The Marine Waters Planning and Management Act (RCW 43.372) was adopted by Washington State in 2010. Increased pressures on resources in the state's marine areas, conflict among uses, and proposals for new uses such as offshore wind energy production create challenges for coordinated decision-making and planning in overlapping jurisdictions. The law employs Marine Spatial Planning (MSP) as a central tool to develop plans for addressing uses in marine waters. Planning for Washington's Pacific Coast began in 2012 and is expected to be completed by December 2016 (Ecology 2015). The aim of SMP for the outer coast, inland marine waters, and shorelands is to ensure that future developments related to marine activities and uses are appropriately sited, so existing activities and new development can successfully coexist, while maintaining a productive, healthy marine ecosystem. The plan will identify locations where potential new uses should not be sited, could be suitable, or would be preferred.

1.2.5.9. Salmon Recovery Act

Repeated attempts to improve salmonid fish runs throughout the state have failed to avert listings of salmon and steelhead runs as threatened or endangered under the federal Endangered Species Act (ESA) (16 U.S.C. Sec. 1531 et seq.). These listings threaten the sport, commercial, and tribal fishing industries and the economic wellbeing and vitality of vast areas of the state. Therefore, the state legislature began activities required for the recovery of salmon stocks soon in the interest of the citizens of the state.

The Salmon Recovery Act calls for the state to retain primary responsibility for managing its natural resources, rather than abdicating those responsibilities to the federal government. It calls for the state to integrate local and regional recovery activities into a statewide salmon recovery strategy. The legislation specifically requires that salmon habitat restoration be coordinated within a structure that allows for integrated delivery of federal, state, and local assistance to communities for habitat projects that will assist in the recovery and enhancement of salmon stocks.

1.2.5.10. Growth Management Act

The GMA (Chapter 36.70A RCW) was passed in 1990 and has been amended a number of times since. The GMA provides a framework for regional coordination. The jurisdictions in Grays Harbor did not meet the criteria to be required to plan under GMA and have decided not to voluntarily plan under the GMA; so while they are required to plan for resource lands and critical areas, they are not required to prepare Comprehensive Plans that are reviewed by Commerce.

1.2.5.11. Seashore Conservation Areas

The SCA was established by RCW 79A.05.605. The SCA includes state-owned lands between Toke Point and the south jetty on Point Chehalis, and between Damon Point and the Makah Indian Reservation (RCW 79A.05.605); this includes the coastal shoreline in the Cities' jurisdictions that is between the line of ordinary high tide and the line of extreme low tide. The SCA is regulated by the Washington State Parks and Recreation Commission (WSPRC) to provide public recreation and to provide certain recreational and sanitary facilities. According to this law, nonrecreational use of the beach must be strictly limited. Local governments

having a portion of the SCA within their boundaries may, individually or through an agreement with other local governments located on the same ocean beach, adopt a recreation management plan that meets the requirements of RCW 79A.05.600 through 79A.05.695 for that portion of the ocean beach (RCW 79A.05.645). Ocean Shores has a Comprehensive Park and Recreation Plan that does not specifically address the SCA but provides for public access and facilities consistent with the RCW. Westport is currently working on an update to the 2004 Comprehensive Park and Recreation Plan, which should also be reviewed for consistency with applicable state regulations. In 2010, WSPRC adopted the North Beach Area State Parks Management Plan (WSPRC 2010) that includes management approaches for the SCA. One recommendation for the SCA is for WSRCP to pursue potential conservation easements with adjacent land owners, management agreements, and land acquisitions. The WSPRC recommended that local jurisdictions update their recreation management plans due to the following circumstances (WSPRC 2010):

- Fires and garbage continue to be problems.
- The need to plan for changing beach conditions and continued public access.
- Many parking and beach access improvements have been made, but not all. Parties to the plan could re-evaluate old goals, add new ones and seek funding together.
- Shorebird recovery plans need to be added to the plans.
- Tsunami preparation.
- Intergovernmental planning for enforcement, emergency services, and maintenance.

1.2.6. Federal Regulations

Federal regulations most pertinent to development in the shorelines of the Cities include the ESA, Section 404 of the CWA, and Section 10 of the Rivers and Harbors Appropriation Act. The ESA is administered by US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). The US Army Corps of Engineers (USACE) administers Section 404 of the CWA and Section 10 of the Rivers and Harbors Appropriation Act. A review of shoreline development by these agencies would be triggered usually by in- or over-water work, or excavation or discharges of fill or pollutants into the water. Other relevant federal laws include the National Environmental Policy Act, tribal agreements, Anadromous Fish Conservation Act, Clean Air Act, and the Migratory Bird Treaty Act.

Depending on the proposed development, federal regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts on shoreline functions and values are avoided, minimized, and mitigated. During the SMP update, the Cities will ensure they are consistent with federal regulations and with the goal of streamlining the shoreline permitting process. A summary of some of the key federal regulations and federal agency responsibilities follows.

1.2.6.1. Endangered Species Act

The ESA provides for the conservation of species endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they

depend. Section 9 of the ESA prohibits "take" of listed species. Take has been defined in Section 3 as "… harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The take prohibitions of the ESA apply to everyone, so any action that results in a take of listed fish or wildlife would be a violation of the ESA and is strictly prohibited.

Per Section 7 of the ESA, activities with potential to affect federally listed or proposed species and that either require federal approval, receive federal funding, or occur on federal land must be reviewed by the NMFS or USFWS using a process called "consultation." These interagency consultations or Section 7 consultations assist federal agencies in fulfilling their duty to ensure federal actions do not jeopardize the continued existence of a species or destroy or adversely modify critical habitat.

1.2.6.2. Section 404 – Clean Water Act

Section 404 of the CWA establishes a program to regulate the discharge of dredge or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit before dredging or filling within waters of the United States including discharges, unless the activity is exempt from Section 404 regulation, such as certain farming and forestry activities. The USACE can deny or restrict the discharge of materials into a disposal site if it will have unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas (CWA 404(b)). Key agencies with responsibilities include the USACE and the US Environmental Protection Agency (USEPA).

1.2.6.3. Section 10 – Rivers and Harbors Appropriation Act

Section 10 of the Rivers and Harbors Appropriation Act of 1899 provides the USACE with authority to regulate activities that may affect navigation of "navigable" waters. Designated "navigable" waters in the cities are limited to the marine waters of the Pacific Ocean and Grays Harbor. Proposals to construct new or modify existing over-water structures (including bridges); to excavate or fill, or to "… alter or modify the course, location, condition, or capacity of …" navigable waters must be reviewed and approved by the USACE.

1.3. Scope and Organization of the Shoreline Inventory and Characterization

The scope of this inventory and characterization includes all shorelines of the state as defined by RCW 90.58.30. For the Cities, this includes all fresh and marine waters and shorelands:

- Within 200 feet of the OHWM along marine shorelines
- Within 200 feet of the OHWM of lakes and reservoirs greater than 20 acres in area
- In the floodway
- In the contiguous floodplain extending 200 feet landward from the floodway

- Within associated wetlands. A wetland is associated if any part of it lies within the area 200 feet from the OHWM or within the floodplain 200 feet landward of the floodway, or are in proximity to and either influence or are influenced by tidal waters or a lake or stream subject to the SMA.

There are no rivers or streams within Ocean Shores or Westport. The extents of the shoreline jurisdiction within each City are shown on Figure 1 in the SMP Map Folios for Ocean Shores (Appendix A) and Westport (Appendix B).

This report provides information on:

- Study methods (Section 2)
- Overview of the Cities' shoreline ecosystems (Section 3)
- Discussions on individual shoreline planning areas, called management areas, and reaches (Section 4)
- Data gaps that would be helpful to close for future planning (Section 5)
- Recommendations for incorporating the analysis results contained in this report into each City's SMP, specifically shoreline environment designations for each City (Section 4), as well as general policies and regulations for shoreline management applicable to both cities (Section 6).

2. Inventory and Characterization Methods

2.1. Inventory Data and Information Sources

Analysis and conclusions presented in this report are based on a review of existing information including published studies, private and agency authored technical reports and databases, GIS-based information and mapping, and aerial and oblique photography of the cities' shorelines.

Development of a shoreline inventory is intended to record the existing or baseline conditions upon which the development of SMP provisions will be examined to ensure the adopted regulations provide no net loss of shoreline ecological functions. Table 2-1 lists those inventory elements for which data were available and used in this report. It includes all data elements required by WAC 173-26-201(3)(c). Maps depicting many of the inventory elements listed in Table 2-1 are in the map folio for each City; Ocean Shores are found in Appendix A and maps for Westport are found in Appendix B. Note that not all inventory elements listed in Table 2-1 are shown in the map folios.

2.2. Determination of Management Areas and Reaches

In accordance with Ecology guidance, the shoreline planning area may contain a nested system of management areas and reaches (Ecology 2010). Both cities are entirely within WRIA 22 (Lower Chehalis), and the outer Pacific coast. Since each city is geographically small, and hydrogeomorphically similar, we selected management areas based on the Cities' jurisdiction boundary. The Cities are therefore synonymous with management areas.

The shorelines within each city are divided into reaches to inventory shorelines and analyze functions. For consistency, we assigned reaches within the boundaries of the Grays Harbor Estuary Management Plan to the same management units as in the Grays Harbor Estuary Management Plan (Grays Harbor County 1986). For those reaches on the open Pacific Ocean outside of Grays Harbor Estuary Management Plan extents, Ecology guidance regarding existing uses was used to delineate the reaches in each City (Ecology 2010). Note that all of the Pacific Ocean areas are within the same drift cell (i.e., the Columbia River drift cell). The one freshwater lake, Duck Lake, and its associated and interconnected canal system located in Ocean Shores, were grouped into one reach based on association with Duck Lake and similar land use. Table 2-2 provides a list of reaches within each City. Reaches in Ocean Shores are shown on Figure 13 in Appendix A. Reaches in Westport are shown on Figure 14 in Appendix B.

Table 2-1. Required Shoreline Inventory Elements and Data Sources.			
Inventory Element	**Information Used**	**Data Sources**	**Map No.**
Shoreline Jurisdiction			1
100-Year Floodplain and Wetlands	DFIRM, NWI Wetland Layers	FEMA, National Wetlands Inventory (NWI)	2
Water Quality	303(d) List	Washington State Department of Ecology	3
Shoreline Barriers	Known Culverts and Tide Gates	Westport, Ocean Shores	4
Land Cover	Land and Vegetation Cover	USGS GAP Database	5
Parks and Public Land	State Parks Layers, Parks and Recreation Plans	Washington State Parks and Recreation Commission, Westport, Ocean Shores	6
Shellfish Growing Areas	Approved Shellfish Harvest Areas, Known Harvest Locations	Washington Department of Fish and Wildlife	7
Transportation	Roads	Washington State Department of Transportation	No Map
Soils	Soils	USDA NRCS SSURGO Database	8
Shoreline Vegetation	Coastal Atlas Vegetation Layers	Washington State Department of Ecology	9
Shoreline Modification	Armoring percent	Washington State Department of Ecology	10
Geology and Geologic Hazards	Surficial Geology, Liquefaction, Tsunami Hazards	Washington State Department of Natural Resources	No Map
Priority Habitat Wildlife	Priority habitat and species (PHS)	WDFW PHS Database	11
Contaminated Sites		Washington State Department of Ecology	12[a]
Zoning	City Comprehensive Plans	Westport, Ocean Shores	12/13
Reaches			13/14*
Historical and Cultural Resources	Sites and Structures on the Washington State Heritage Register and National Register of Historic Places	Department of Archeology and Historic Preservation	No Map

[a] Westport has contaminated sites, but Ocean Shores does not. Therefore, there is one extra map for Westport.

Table 2-2. List of Management Areas and Reaches.	
Management Area	**Reach Name**
Ocean Shores	Pacific Ocean North Reach
	Pacific Ocean South Reach
	Jetty Reach
	Oyhut Wildlife Recreation Area Reach
	Ocean Shores Marina Reach
	Ocean Shores Residential Reach
	Airport Reach
	Canals Reach
	Duck Lake Reach
Westport	Pacific Ocean South Reach
	Pacific Ocean North Reach
	Half Moon Bay Reach
	Westhaven Reach
	Bayfront North Reach
	Bayfront South Reach

Note: Reach names are ordered geographically within each management area, beginning with the Pacific Ocean coastal reaches and proceeding to adjacent reaches in Grays Harbor. Inland freshwater bodies in Ocean Shores are listed last, after marine reaches.

2.3. GIS Methods

Geographic Information Systems (GIS) analysis of spatial datasets was conducted to analyze shoreline functions and to create the map folio for each City. Shoreline functions are analyzed for the broader shoreline management areas (i.e., the shoreline jurisdiction within each City) and in more detail at the reach scale. Analysis was conducted to determine areas of intersect between reaches and the applicable datasets such as priority habitat species, wetlands, and zoning. Areas of intersection were calculated in acres or linear feet, based on the characteristics of the dataset. The map folios display a wide range of land use, environmental, and ecological conditions along the shoreline jurisdiction. Datasets listed in Table 2-1 were used to create the inventory maps.

2.4. Approach to Characterizing Ecosystem-Wide Processes and Shoreline Functions

Ecosystem-wide processes are the suite of naturally occurring physical and geologic processes of erosion, transport, and deposition as well as the chemical processes that shape landforms within a shoreline ecosystem. These processes determine the types of habitat and the associated ecological functions found in an area (WAC 173-26-020). Ecosystem-wide processes were characterized based on the information provided by reviews of the inventory of data and sources listed in Table 2-1.

In addition to broad scale ecosystem processes, shoreline functions are identified and evaluated as part of this inventory and characterization. Shoreline functions are characterized using the processes and functions described in Ecology's *Comprehensive Process to Prepare or Amend Shoreline Master Programs* (WAC 173-26-201) for marine shorelines, lakes, and wetlands, which are present in the Cities' shoreline jurisdiction. Categories of functions include hydrologic, water quality, and habitat, consistent with the ecological function groups identified in Ecology's SMP Handbook (Ecology 2010). Functions identified for the Cities' shorelines are summarized in Table 2-3.

Table 2-3. Shoreline Functions for Marine and Lake Shorelines.

Hydrologic	Water Quality	Habitat
Floodwater storage/flood protection Support of base flow and groundwater	Maintaining temperature Removing excessive nutrients and toxic compounds Sediment removal and stabilization	Sediment/bank stabilization and shoreline protection Attenuation of wave energy Physical space and conditions to support aquatic and shoreline-dependent species and life history stages; reproduction; resting, hiding and migration Provision and redistribution of woody debris and organic materials Food production and delivery

The constructed canals in Ocean Shores are open to Grays Harbor via gated culverts and are characterized more by lake features than stream features; therefore, only lake and marine shorelines are identified and analyzed in the cities. In the shoreline jurisdiction, wetlands may be associated with marine and lake shorelines, and wetlands occur in a variety of reaches throughout the cities. Wetland presence or absence influences the overall functions of each reach; therefore, wetland functions are scored within the context of the specific coastal, estuarine, and lake reaches in which they occur. This is to avoid double counting the same functional benefit.

We assessed functions based on the ecological processes, structure, conditions, and stressors present within individual reaches. The available information inventoried for the shoreline jurisdiction was used to determine the relative condition of each reach and its potential to provide shoreline functions.

In assessing shoreline functions, it is important to consider different processes associated with different types of water bodies. For example, unlike streams, lakes and wetlands tend to store water and sediment instead of transporting it, as does the open Pacific Ocean. In addition, shoreline physical structure and vegetation may contribute to attenuation of wave energy in lakes, wetlands and estuarine environments, but do not generally influence physical conditions on the energetic Pacific Ocean shorelines of the cities where wave energy and Aeolian (wind driven) processes are factors that are more dominant.

In lake and wetland environments, hydrologic functions include floodwater storage, which provides protection from flooding by reducing peak flows and downstream flood levels. Lakes and wetlands work like a "sponge" in the landscape to support seasonal surface water base flows and groundwater sources. These functions are generally not associated with marine shorelines. However, hydrologic processes including those occurring at the convergence of freshwater and saltwater, and along marine shorelines, have implications for other functions related to water quality and habitat. Hydrologic processes include water and sediment transport or storage, and distribution of wood and other organic material that may be important habitat features or play a role in food production and delivery for a wide range of species.

Water quality functions for all water bodies include removal of excessive nutrients and toxic compounds. Hydrologic conditions and processes such as tidal mixing, and groundwater and surface water exchange, can influence water quality functions. Water transport and storage, including groundwater and surface water exchange, may support vegetation, which in turn also influences water quality. The physical structure of the shoreline and vegetation (the amount and types of plants that are present) influence functions such as the removal of toxic compounds, excessive nutrients, and sediment. Shoreline vegetation also provides shade to moderate and maintain temperature regimes important to a variety of species.

Habitat functions include geomorphic functions that are important to humans as well as fish and wildlife. Geomorphic, hydrologic, water quality, and vegetation conditions influence habitat. Habitat is valued based on the space and conditions to support aquatic and shoreline dependent species and life history stages; reproduction; resting, hiding and migration; and food production and delivery. Depending on the physical processes and shoreline structure, habitat functions along the shoreline include sediment removal or accumulation to provide suitable conditions for various species, as well as bank stabilization that protects shorelines from excessive erosion. Attenuation of wave energy in lake and estuarine shorelines also helps to protect shorelines and maintain habitat. Additional habitat functions include provision of organic material, and food production and delivery.

We evaluated the physical conditions in each reach to determine if the functions they support were present, altered, or impaired and then scored according to the threshold criteria in Table 2-4. Functional assessment results are included in Section 4, *Discussion of Shoreline Management Areas*. The functional assessment threshold criteria establish a framework for identifying the condition of reaches and their potential for development, restoration, or protection. In general, the higher the conditions score, the more functions the reach supports, and the more likely the site is suitable for protection. In contrast, reaches with low function scores, especially where there are minimal alterations to the landscape, are suitable for restoration. Development is typically most suited in areas with many alterations and low function scores.

It is important to note that relatively unimpaired or pristine reaches may not receive a high functions score in each category. Even reaches with undeveloped conditions can have a relatively low score for certain functions, particularly those along the open Pacific Ocean where vegetation and large woody debris (LWD) accumulation are more limited than on Grays Harbor. While a fully functioning shoreline from a physical perspective is possible, the reach

may not have the opportunity to provide some functions, such as storage of water or sediment or habitat for some species due to its position within a landscape and therefore will score lower. This may be the case and even likely for an ecologically rich reach. Owing to the diverse needs of the different priority species, it is unlikely that a reach could be scored perfectly for all conditions.

The threshold criteria and ratings in Table 2-4 are based on conditions (e.g., land cover, vegetation, and shoreline modifications) which are used as surrogate indicators of functions. Shoreline functions are difficult to quantify given the limited data available. Anthropogenic modifications are known to impair certain functions and can be mapped with the existing data. Therefore, anthropogenic modifications represent key parameters in assessing shoreline ecological function. For example, to the extent that armored shorelines lose their natural ability to attenuate flow energy, wind-driven waves, and boat wakes, armoring is used herein as a surrogate for degree of loss of wave attenuation function, which natural shorelines provide.

In addition to the shoreline conditions and geographic position in the landscape influencing shoreline functions, the ecological benefits of a shoreline can be influenced by whether there are stressors present. This is particularly so for water quality related functions. An overall unaltered or unimpaired reach may score relatively high but have a limited opportunity to provide ecological benefit if, for example, there are no existing water quality impairments or development stressors. On the other hand, a reach that scores low due to anthropogenic modifications, impairments, or stressors may have an important role in providing water quality functions, for example, if there are sources of pollution. Similarly, a low scoring reach may retain important habitat functions if it is a migration corridor, contains habitat features, or provides connectivity with other habitats. Recognizing that nearly all shoreline areas, even if substantially developed or degraded, retain key ecological functions, it is important to apply policies and regulations for protecting and restoring functions across all shoreline areas, not just those that remain relatively unaltered.

2.5. Land Capacity Analysis

This section describes the methodology used in the Land Capacity Analysis for Ocean Shores' and Westport's SMP updates. It is based in part on the land capacity analysis methods discussed in the Commerce's *Urban Growth Area Guidebook: Reviewing, Updating and Implementing Your Urban Growth Area* published in 2012.

2.5.1. Geographic and Time Parameters

- **Base Point in Time**: The SMP map inventory using parcel data from June 2012 was used as the baseline for the Land Capacity Analysis.
- **Study Area Boundaries**: The boundaries of the study area was defined as those parcels that are either fully within or intersecting the SMPs shoreline jurisdiction. Parcels that were within associated wetlands but not in the shoreline jurisdiction were excluded.

Table 2-4. Reach-Scale Functional Assessment Threshold Criteria.

Function Category	Function	Criteria	3 (High)	2 (Moderate)	1 (Low)
Hydrologic	Floodwater storage/ flood protection (Freshwater shorelines)	1	Floodplain comprises > 50% of the shoreline area and is unobstructed by flood protection structures such as dikes or levees (< 10% of shoreline length)	Floodplain comprises 20%-50% of the shoreline area or significant portions are obstructed by dikes or levees (10% – 30% of shoreline length)	Floodplain is small (< 20%) or largely disconnected from the floodway by dikes or levees (> 30% of shoreline length)
		2	> 50% cover by wetlands in the reach	25% to 50% cover by wetlands in the reach	< 25% cover by wetlands in the reach
		3	> 75% of reach area is forest Historically forested areas are largely intact	25% to 75% of reach area is forest Historically forested areas have been converted to other uses	< 25% of reach area is forest Historically forested areas have been converted to other uses
		4	< 10% cover by medium to high density development in shoreland area	10% to 25% cover by medium to high density development in shoreland area	> 25% cover by medium to high density development in shoreland area
	Support of base flow and groundwater (Freshwater shorelines)	5	Water body is connected with wetlands or other water bodies through surface or groundwater flow	Water body has limited connectivity with other water bodies	Water body is isolated from other water bodies
Water Quality	Maintaining temperature	6	Dense forest vegetation provides > 75% cover	25 to 75% forest vegetation cover OR Wetlands may be a significant source of cool groundwater discharge to other waters	< 25% forest vegetation cover
	Removing excessive nutrients and toxic compounds	7	Unimpaired water quality 303(d) Category 1, no problems	Moderately impaired water quality 303(d) Category 2, waters of concern OR Suspected sources of water quality concern	Impaired water quality 303(d) Category 4 – Impaired, does not require total maximum daily load (TMDL) OR 303(d) Category 5 – Impaired, requires TMDL
		8	Natural flow, surface and groundwater exchange, tidal exchange, and dilution patterns are present and unimpaired	Natural flow, surface and groundwater exchange, tidal exchange, and dilution patterns may be moderately impaired by shoreline modifications or function is naturally limited	Natural flow, surface and groundwater exchange, tidal exchange, and dilution patterns are significantly impaired by shoreline modifications or hydrologic function is naturally absent from the reach
	Sediment removal and stabilization	9	A broad (> 50 feet wide) band of vegetation is dominated by herbaceous wetland vegetation not separated by dikes or levees	Vegetation is dominated by moderate to dense herbaceous vegetation, but is generally equal to or less than 50 feet wide or separated by dikes or levees	Herbaceous vegetation is sparse to moderate density or is disturbed, or separated by dikes or levees
Habitat	Sediment/bank stabilization and shoreline protection	10	A broad band of dense vegetation separates uplands from shoreline Trees and shrubs stabilize banks In marine shorelines, large patches of eelgrass, salt marsh, or dune grass vegetation is present	A narrow band of dense vegetation or a broad band of sparse vegetation or grass separates uplands from shoreline In marine shorelines, patchy or continuous marginal (i.e., fringe) eelgrass, salt marsh, or dune grass vegetation is present	No vegetation or a narrow band of sparse vegetation separates uplands form shoreline In marine shorelines, eelgrass, saltmarsh, dune grass, and nearshore or riparian vegetation is limited or absent
		11	Roads and shoreline armoring are generally absent (< 10% of shoreline length) Marine shorelines provide natural sediment input and transport patterns, with no significant armoring or levees present in the reach	Vegetation may be disrupted by roadway Marine shorelines provide natural sediment input and transport patterns that are moderately impaired or altered by upstream development, bank armoring, groins, tide gates or jetties	Vegetation is absent or altered by development, agriculture, forestry, or shoreline modifications Natural sediment input and transport patterns in marine shoreline reaches are significantly impaired or altered A majority of the reach may be armored or altered by groins, tide gates, jetties, or other development

Table 2-4 (continued). Reach-Scale Functional Assessment Threshold Criteria.

Function Category	Function	Criteria	3 (High)	2 (Moderate)	1 (Low)
Habitat (continued)	Attenuation of wave energy	12	In lakes: large wetlands or backwaters present in > 50% of area In estuary shorelines: large areas of eelgrass or estuarine emergent vegetation present in >50% of area	In lakes: few (20 to 50%) wetlands or backwaters present In estuary shorelines few (20 to 50%) areas of eelgrass or estuarine emergent vegetation present in area	In lakes: Few (< 20%) wetlands or backwaters present In estuary shorelines: few (< 20%) areas of eelgrass or estuarine emergent vegetation present in area
		13	Majority of the reach is not armored or protected by levees Bank or beach configuration is complex and not altered by shoreline modifications such as docks and piling	Majority of the reach is not armored or protected by levees Bank or beach configuration is moderately complex or simple and may be altered by shoreline modifications	Significant armoring or levees present Bank or beach configuration is simple primarily due to shoreline modifications
	Physical space and conditions to support aquatic or shoreline-dependent species and life history stages; reproduction; resting, hiding and migration	14	Broad band of moderate to dense multi-strata riparian vegetation	Narrow band of dense vegetation or broad band of sparse vegetation	Dense riparian vegetation is absent
		15	Multiple types of nearshore estuarine vegetation (eelgrass, dune grass, salt marsh) are present and cover at least 25% of the shoreline length	At least one type of nearshore estuarine vegetation (eelgrass, dune grass, salt marsh) is present and covers at least 10% of shoreline length	Nearshore estuarine vegetation (eelgrass, dune grass, salt marsh) is generally absent or covers < 10% of shoreline length
		16	High degree of habitat complexity Complex physical structure of intertidal and back beach, or lake shoreline Diverse vegetation communities	Moderate habitat complexity and/or vegetation diversity	Low habitat complexity and/or vegetation diversity
		17	Priority habitat features > 50% of area or multiple species are present Habitats are relatively interconnected with corridors between habitats that are free from shoreline modifications, roads, and other development	Multiple priority species or habitat features are present Shorelines or floodplains exhibit moderate degree of alterations or shoreline modifications, development, or water quality impairments may reduce connectivity between habitats or inhibit habitat use by multiple species	Priority species or habitat features are generally absent or significantly reduced compared to historical presence due to anthropogenic alterations and land use Connections between habitats are generally absent or significantly degraded by barriers, major roads, or other development
	Provision and redistribution of woody debris and organic materials	18	Dense forest vegetation along > 50% of shoreline length	Moderate to dense vegetation 25% to 100% of shoreline length May be comprised of a combination of forest, shrub, and/or grass vegetation	Shoreline is sparsely vegetated or < 25% of shoreline length supports moderate to dense vegetation
		19	Majority (> 75%) of shoreline area is vegetated with dense forest, shrub, or emergent vegetation, and not impaired by bank armoring	Shoreline vegetation is moderate (25% to 75% cover), but majority of shoreline is not impaired by armoring or other development	Shoreline vegetation is limited (< 25% cover) and/or shoreline may be impaired by armoring, bulkheads, altered vegetation types, or other development
		20	Extensive LWD rafts are visually apparent in aerial images	Patchy distribution of LWD is visually apparent in aerial images	Little to no LWD is visually apparent in aerial images

2.5.2. Gross Developable Land Inventory

The following steps were taken to estimate Gross Developable Land within the City's shoreline jurisdiction. All parcels intersecting the shoreline jurisdiction were included. Both public and private lands in the Study Area Boundaries were included since all lands may have shoreline uses. Public or reserved lands were removed after *Deduct Land Set Aside for Conservation Purposes* as needed. Portions of parcels within the shoreline jurisdiction were deducted to account for critical areas, infrastructure and public purposes, and market factors. The gross developable land inventory provides an estimate of land available for development or redevelopment within the next 20 years.

Single-family and Commercial developable land analysis was not conducted for public or reserved lands. Parcels that spanned multiple density designations were assigned to the categories described under (1) *Single-Family Residential Developable Land* and (2) *Multi-Family, Commercial, and Industrial Developable Land* in a case-by-case assessment.

1. Single-Family Residential Developable Land:

   a. Vacant Land That Can Be Subdivided

      Vacant land was defined as parcels with a Grays Harbor County Assessor building value of less than $10,000. This land then had density provisions in the City codes applied after the deductions noted below in order to arrive at future development capacity.

   b. Vacant Land Too Small for Subdivision

      Vacant land was defined as parcels with a Grays Harbor County Assessor building value of less than $10,000. Parcels where the ratio of allowed density to parcel size is more than 0.5 were considered not subdividable. Lots less than 2,500 square feet were not included in this category. After deducting lands as described in the sections below, the remainder of this category was used in *Vacant Lands* under the assumption that these properties have a legal right to develop, despite their non-conformance with density requirements.

   c. Partially-Used Land

      Partially used land was defined as parcels with a Grays Harbor County Assessor building value of greater than or equal to $10,000. Parcels where the ratio of allowed density to parcel size is less than or equal to 0.5 were considered subdividable and defined as only partially used. This land then had density provisions in the City codes applied after the deductions noted below in order to arrive at future development capacity.

2. Multi-Family and Commercial Developable Land:

   a. Under-Utilized

      Multi-Family and commercial designated parcels were defined as "under-utilized" if vacant, occupied by a single-family residential use as indicated by the assessor land use code; or if the ratio of building value to land value is less than 1.0.

      This was applied to the following zones that allow a wider range of commercial uses but are not predominantly single-family residential:

      - **Ocean Shores**: B-1 – Retail Commercial and B-2 – General Commercial
      - **Westport**: MUTC-1 – Mixed-Use Tourist Commercial 1, MUTC-2 – Mixed-Use Tourist Commercial 2, and TC – Tourist Commercial

      In addition, this was applied to the following zones, which allow both multi-family and single-family uses:

      - **Ocean Shores**: R-2 – Duplex, R-3 – Triplex, R-4 – Fourplex, R-5 – Fiveplex and Sixplex, R-6B – Mobile and Manufactured Home, R-6C – Manufactured Home – Double Wide, R-7 – Multi-family Medium Density, and R-8 – Multi-family High Density.
      - **Westport**: R-2 – Medium Density Residential and OBR II – Ocean Beach Residential II.

2.5.3. Deduct Critical Areas

1. Lakes and Wetlands

   Lakes and wetlands were deducted from the gross developable land inventory. Lakes and wetlands were identified in the WDNR wetlands and lakes GIS shape files.

2. Rivers and Streams

   Rivers and streams were deducted from the gross developable land inventory. Rivers and streams were identified in the WDNR rivers and streams GIS shape files.

3. Adopted Floodway

   All land in the adopted floodway, if present.

4. Critical Area Buffers

   Critical area buffers were deducted from the gross developable land inventory based on the following criteria:

   - Critical area buffers were not deducted from residential parcels due to the variety of clustering options available on these parcels.

- Critical area buffers for commercial and industrial parcels were deducted from these areas. Given the lack of data on potential classes of wetlands, buffer distances for Ocean Shores were based on an average of the 150-foot buffers required for Category III wetlands and 50-foot buffer required for Category IV wetlands found in OSMC 19.02.090(D). For Westport, buffer distances were based on an average of the 100-foot buffers required for Class A and 50-foot buffers required for Class B wetlands found in WMC 17.32.065(2)(A).

5. Deduct Land Set Aside for Conservation Purposes

   Identified wildlife conservation areas were deducted from the gross developable land inventory. These included Grays Harbor County Parks, Washington State Parks, WDFW state natural area preserves, natural resource conservation areas managed by the WDNR, and private conservation lands such as owned by Forterra.

2.5.4. Deduct Infrastructure and Public Uses

1. Deduct Lands Identified for Public Purposes

   Lands identified for public purposes such as schools, boat ramps, police and fire stations, water and sewer facilities, port-owned properties, power line easements, and recreation and open space not deducted in *Deduct Land Set Aside for Conservation Purposes*. Parcels with land use codes of "Government services," "Educational services," or "Park" were deducted.

2. Right-of-Way and Other Development Requirements

   A percentage reduction was deducted to account for future right-of-way, public and private vehicular access (including driveways), and other development requirements (i.e., stormwater, utilities, and similar facilities). Most jurisdictions included a deduction in the 5 to 15 percent range. The 8 percent deduction used by this Land Capacity Analysis was within that range and on the slightly lower end because this Land Capacity Analysis considered only the shoreline jurisdiction , where likely fewer new roads and vehicle access would be found.

3. Determine Developable acres by Planned Land Use Category (Zoning District)

   Developable acres (vacant, partially used, and under-utilized with critical area deductions) were calculated by zoning district. This does not include the subtotal in (1) *Deduct Lands Identified for Public Purposes* and (2) *Right-Of-Way and Other Development Requirements*.

2.5.5. Market Factor Deduction

1. Vacant Lands

   A market factor was included to account for vacant lands that do not develop within planning timeframe. A 15 percent market factor was used for vacant residential zones.

2. Partially-Used and Under-Utilized Lands

   A market factor was included to account for partially used and under-utilized lands that do not develop within planning timeframe. A 25 percent market factor was used for vacant residential and commercial/industrial zones.

2.5.6. Determine Development Capacity

1. Development Type

   Development was assumed either as residential or commercial based upon the zoning district. Zones listed as commercial were identified as such in *Multi-Family*, *Commercial*, and *Industrial Developable Land*.

2. Determine Total Dwelling Units Capacity by Zone

   The net acres of developable land in each zone were multiplied by assumed density of each zone to determine total dwelling units of capacity. Existing dwelling units were subtracted if they exist. If the number of existing dwelling units exceeded capacity within a zoning district, no dwelling units were added to the total capacity. Comprehensive Plan densities as identified on the Comprehensive Plan Official maps were applied for shoreline and upland portions of parcels. Use data was found in available GIS layers provided by the county.

3. Number of Vacant Parcels

   The subtotal of number of vacant parcels that cannot be subdivided by zoning district was included from *Vacant Land Too Small for Subdivision*.

2.6. Shoreline Environment Designation Methodology

The intent of an environment designation is to preserve and enhance shoreline ecological functions and to encourage development that will improve the present or desired future character of the shoreline jurisdiction. The SMP Guidelines (WAC 173-26-211(2)(a)) require that the Cities classify and map the area within their shoreline jurisdiction into environment designations based on these four criteria:

- **Existing land-use patterns** – What land uses have developed in the shoreline jurisdiction to date, as documented in the Shoreline Inventory and Characterization and the SMP Map Folio.
- **Biological and physical character of the shoreline jurisdiction** – The range of ecological characteristics and functions identified in the shoreline jurisdiction as documented in the Shoreline Inventory and Characterization report.
- **The goals and aspirations of the Cities as expressed through their Comprehensive Plans** – The Comprehensive Plans' goals and policies, land use designations, its various elements, as well as its development code and zoning code, and the Parks and Recreation Plan.
- **Specific criteria for each environment designation found in WAC 173-26-211(5)**.

In general, the SMP Guidelines criteria will be used and further informed by the following conditions:

- Current land use
- Planned land use
- Ownership
- Wetlands
- Floodplains
- Vegetation
- Impervious surface
- Ecological function scores

For large parcels, vegetation and impervious surface data may be a better gauge of alteration in the shoreline jurisdiction, as well as the ecological function scores. For this reason, parcels that have a current or planned land use of residential (or other designation allowing alteration) may ultimately have a Conservancy environment designation within the shoreline jurisdiction. The parcel can still accommodate the residential use, perhaps even in the shoreline jurisdiction, and satisfy the WAC requirements for consistency between the environment designations and the Comprehensive Plan (see WAC 173-26-211(3) for additional detail about consistency requirements). In areas with smaller parcel sizes, current land use will be more strongly correlated with level of alteration and the resulting environment designation because more often the entire parcel or a large portion of the parcel is in the shoreline jurisdiction.

The following are the general guidelines that will be used by each City for assigning various shoreline designations. There may be opportunities to propose custom shoreline designations that respond to a particular set of unique conditions that the standard environment designations do not properly address:

- **Aquatic** will be the recommended designation for all the shoreline jurisdiction areas that are waterward of the OHWM.
- In general, **Natural** will be the recommended designation where impervious surface percentages are very low; where wetlands and/or floodplain percentages are high; where vegetation is primarily forest, scrub-shrub or various types of wetlands; and when the function score is high.
- **High-intensity** will be applied to urban areas of intensive development. Current land use, and a low function score correlate strongly with appropriate assignment of this designation.

- The **Shoreline Residential** designation might be applied in areas of urban residential development. This designation is driven primarily by existing and planned land use, as outlined in the Ecology criteria above.
- **Urban Conservancy,** similar to Shoreline Residential, might be applied in urban areas that are consistent with the Ecology criteria and where impervious surface percentages are low (often less than 10 percent); where wetlands and floodplain percentages are low to moderate (absence of these does not indicate alteration or poor function); where vegetation is primarily forest, scrub-shrub or various types of wetlands; and when function scores are typically above average.

3. ECOSYSTEM-WIDE CHARACTERIZATION

3.1. Regional Overview

The cities in this report are in Water Resource Inventory Area (WRIA) 22, the lower Chehalis watershed. The Chehalis River is the main tributary of Grays Harbor. The cities are located around the outlet of the harbor, where it enters the open Pacific Ocean. However, the shoreline jurisdiction also includes Duck Lake and its associated canals within Ocean Shores.

Grays Harbor is a large estuary, approximately 15 miles long and 13 miles wide. The estuary is a bar-built estuary that formed by the combined processes of sedimentation and erosion influenced by both the Chehalis River and the Pacific Ocean. Historically, sediment accumulated during low flows in the Chehalis River to form a bar across a portion of the estuary mouth. At mean lower low water (MLLW), 58 percent of the harbor is mudflat (Loehr and Collias 1981). The harbor has two channels (north and south). The primary navigation channel is the north channel which the USACE dredges annually (FHWA and WSDOT 2010, NMFS 2010). The south channel is an historical channel that is no longer maintained.

Both cities are within the Columbia River drift cell, which is a description of the shoreline between Tillamook Head, Oregon and Point Grenville, Washington. The drift cell comprises the geographic extent of modern Columbia River sediment deposits along the Pacific Ocean shoreline (Kaminsky et al. 2010). The 100-mile drift cell includes two large estuaries to the north of the Columbia River mouth: Grays Harbor and Willapa Bay. Both of these estuaries also collect sediment from the Columbia River. Wave energy in these areas exposed to the open Pacific Ocean is intense with large winter storms producing energetic physical conditions (in terms of both waves and wind) and frequently generating significant geomorphic change.

3.1.1. General Shoreline Description

There are similarities and differences between the cities. Both the cities are sited on large barrier beach complexes that form peninsulas that shelter Grays Harbor. They each have exposed Pacific Ocean coasts on their west side, dominated by relatively unaltered dune ecological communities, with quiescent harbor shorelines on the east. The harbor shorelines are typically fringed by estuarine marshes with varying degrees of development. Each City's shoreline has been affected in a significant way by the jetties that maintain the entrance to Grays Harbor. However, their histories are different, which has ultimately affected the physical conditions and use of the Cities' shorelines. Westport is an older, maritime, industrial-based community, while Ocean Shores is a relatively new, planned retirement community with less industry and more tourism.

The entire shoreline in Westport is marine. The exposed Pacific Ocean shoreline is virtually undeveloped in the northern half of the city and is comprised primarily of two state parks. There is some modest development set several hundred feet landward of the beach in the south. The City has an industrial waterfront in the Westhaven Reach, which spans the estuary mouth to inner Grays Harbor. The interior harbor shorelines have scattered development, but

also have large intact fringing estuarine wetlands. In Grays Harbor, dense eelgrass beds historically dominated vegetation in the intertidal region. Poor water quality in the estuary, likely originating from the inner harbor and tributary rivers, was considered the primary bottleneck for salmon in the Chehalis Basin. However, recent advances in water quality treatment are thought to have improved this condition (CBPHWG 2008). These suggestions have not been empirically confirmed and many studies continue to focus on habitat and species in the harbor.

The estuary is generally considered to be in fair condition. Currently 70 percent of the historically available estuary habitat is considered intact (CBPHWG 2008). The majority of land that has been converted from the historical cover is now dominated by urban development.

Ocean Shores has large areas of freshwater or more appropriately brackish shoreline, in addition to the marine shoreline that circles the city. These brackish shorelines are overwhelmingly in private ownership. Residential development also surrounds Duck Lake, a freshwater lake that provides recreational boating and fishing opportunities. Like Westport, Ocean Shores' marine shorelines have an energetic open coast, with a more quiescent harbor side. One unique feature to the Ocean Shores peninsula is Damon Point, though the point is not within the city limits. Ordinance No. 728 released Damon Point from the city limits.

3.2. Key Physical Controls

3.2.1. Climate

The climate of the cities is called maritime or Mediterranean, with mild, wet winters and cool, dry summers. For example, in Grayland, the nearest long-term National Weather Service Cooperative Observer weather station (with 65 years of records) indicates that the average summertime high temperature is 65 degrees Fahrenheit and the average wintertime low temperature is 37 degrees Fahrenheit (Western Regional Climate Center 2014). Precipitation is high by comparison with other parts of the state, with 73 inches of accumulation observed in Grayland. Nearly all of that precipitation falls as rain. Snow is rare in the cities; there is less than an inch of accumulation per year on average in nearby Grayland (Western Regional Climate Center 2014).

3.2.2. Expected Future Climate

The Wild Fish Conservancy recently completed an analysis of climate change for Grays Harbor (Sandell and McAninch 2013). Their analysis reviewed recent climate change literature relevant to the area and found that there will be increases in stream temperatures particularly in the summertime (Mantua et al. 2010), compromised habitat restoration success (Battin et al. 2007), hydrologic change of stream basins (Elsner et al. 2010), increased wave energy (Allan and Komar 2006; Bromirski et al. 2013) and higher sea level (Canning 2005; Mote et al. 2008). While some of the climatic responses discussed in these works are expected to be negligible in the cities (i.e., the reduction in snowmelt and other freshwater thermal and hydrologic changes), others, such as increased wave energy and heightened sea levels, are likely to have significant impacts on the cities.

3.2.2.1. Oceanographic

There are two impacts on oceanographic conditions from climate change: increased wave energy and sea level rise. These impacts may potentially interact and compound one another (Bromirski et al. 2013), with higher sea levels allowing more wave energy to penetrate further inland. These interactions are not well understood from a stochastic (probability of occurrence) point of view, therefore each effect will be described separately. Sea level will be discussed first.

Sea level rise is produced by the combined effects of global sea level rise and local factors, such as vertical land deformation (e.g., tectonic movements) as well as seasonal water surface elevation changes due to atmospheric circulation effects (Mote et al. 2008). In the case of the cities, there is very little if any tectonic motion (Verdonck 2006; Central Washington University 2014), which means that sea levels primarily reflect eustatic (global) changes (Canning 2005; Mote et al. 2008). This explains the relatively modest sea level rise observed at Toke Point, the nearest gage to be able to estimate sea level rise in the twentieth century (1.60 mm/year: NOAA 2014).

However, recent work has shown that late twentieth century sea level rise has been suppressed by Pacific Ocean basin-scale oceanographic processes, the reversal of which may trigger acceleration of local sea level rise in the near future (Bromirski et al. 2011). While it has recently been established that the suppression is a result of changing tropical Pacific wind patterns (Moon et al. 2013; Thompson et al. 2014), it remains unclear whether these conditions will change in the future and to what extent (Thompson et al. 2014). Therefore, forecasting sea level rise is difficult and of questionable import, particularly in light of erosion that is generally much larger in magnitude effects than sea level rise (Kaminsky et al. 2010), as will be discussed in Section 3.2.3, *Topography*.

Sandell and McAninch (2013) modeled future sea level rise in the cities with a mobile bed model in hopes of simulating both changes simultaneously. Their model is capable of simulating not only changes in marine inundation over time, it also can predict in a simplified way, shoreline geomorphic change. However, as the authors themselves note, their modeling was preliminary in nature. As a result, it did not incorporate levees or other shoreline hardening, including the jetties that constrain and maintain the opening to Grays Harbor. It has been documented that the jetties are the most important factor regulating sediment deposition patterns in the cities (Burch and Sherwood 1992; Kaminsky et al. 2010), thus rendering the model results largely hypothetical. However, future improvements to the model that incorporate the mechanics of sediment transport around the jetties could make it a valuable planning tool for predicting future shoreline change and inundation extents.

Another aspect of oceanographic climate change in the cities is the well-documented historical increases in wave energy (Allan and Komar 2006; Ruggiero et al. 2010; Bromirski et al. 2013). These changes are related to the same basin-scale dynamics that drive regional changes in sea level rise, though they do have their own internal patterns, which can often dominate the larger overall trend (Bromirski et al. 2013). It is unclear how these changes will interact with sea level, but it is likely that they will exacerbate erosion at both jetties, unless proactive actions are taken (e.g., placement of dredge spoils as nourishment).

3.2.2.2. Atmospheric

Meteorological changes from climate change to the Cities' shorelines are modest in comparison to the expected oceanographic changes. Considerable work has been performed on precipitation and streamflow (Rosenberg et al. 2010) that could affect the performance of stormwater infrastructure, particularly those structures that would also be affected by tidal action and sea level changes. However, it is not clear how applicable these studies, which typically use Puget Sound area data and models, are to the cities. Thermal changes are expected to be smaller still, given the moderate temperatures expected to persist in the area.

3.2.3. Topography

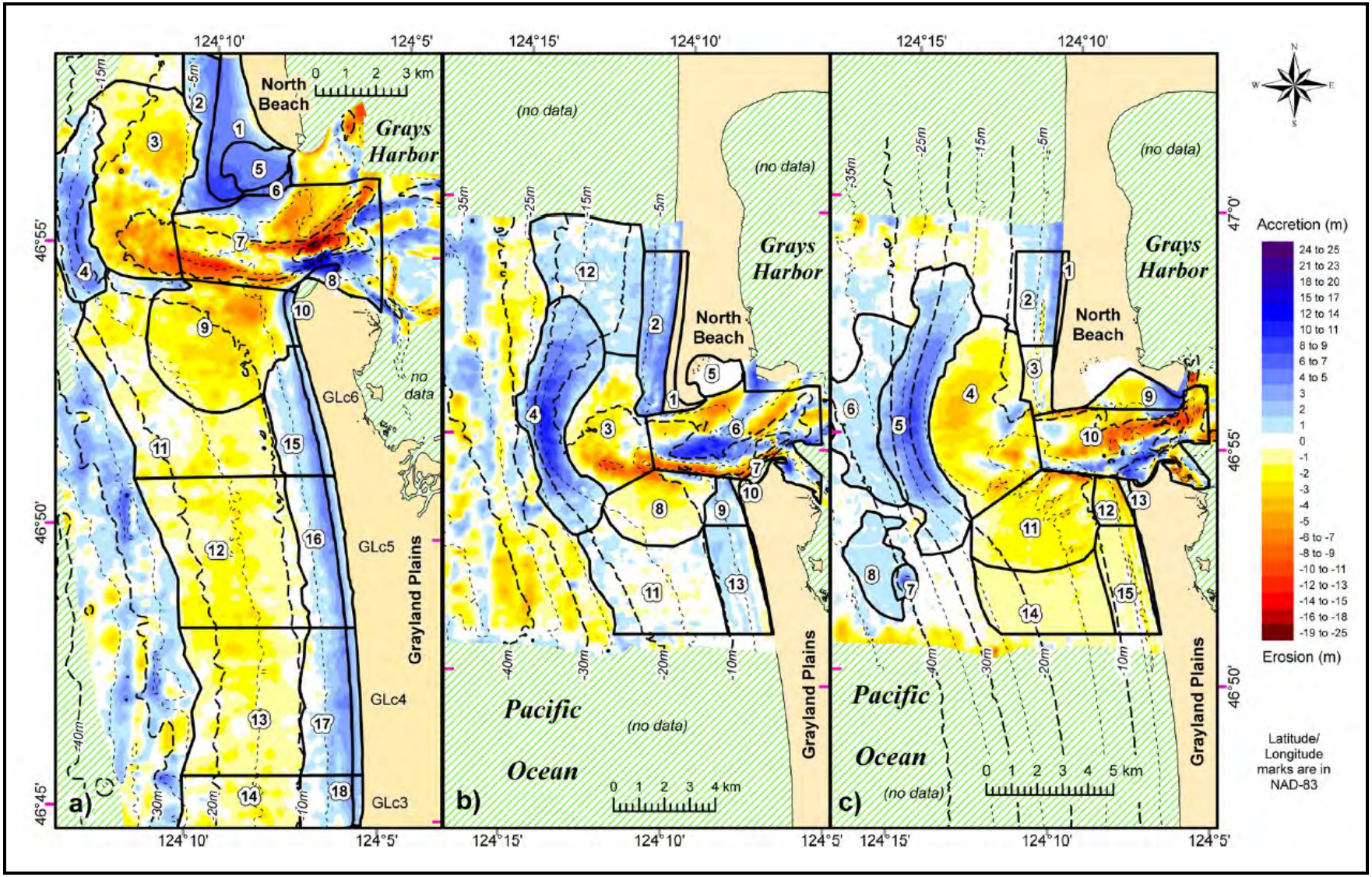
The topography of the cities is largely a reflection of past littoral sediment transport, human activities (i.e., the construction of the jetties), and their interaction (Burch and Sherwood 1992; Buijsman et al. 2003; Kaminsky et al. 2010). Significant change in the topography of the cities was common in the past and should be expected to continue to occur in the future (Figure 1-1).

Figure 1-1 shows the historical topographic change of the Cities' shoreline. The figure includes three boxes illustrating the changes in topography in three different historical times. The first box reflects change between 1893 and 1926, while the second shows change between 1926 and 1954, and the third shows change between 1954 and 1999. As can be seen in Figure 1-1, the historical change in the landscape has been on the order of feet (0.3 meters) per year, making change larger here than nearly any other location in the state. Changes in (vertical) elevation of more than 25 feet (8 meters) have occurred since the area was settled at the end of the nineteenth century. Also important is that change has lessened in recent years. Much of the shoreline jurisdiction was in subtidal waters in the earliest maps of the area (US Coast Survey 1862, Figure 1a; US Coast and Geodetic Survey 1890). Areas exposed to swell from the Pacific Ocean are expected to remain dynamic places, where erosion can occur at any time. Although topographic change has been large in the past, as can be seen in Figure 1-1, shoreline hardening and gradual equilibration has meant that change has diminished in recent years (though not disappeared, see furthest right box of Figure 1-1).

Shorelines along interior portions of Grays Harbor will change much more slowly. Because there is a net influx of Columbia River and Chehalis River sediment, it is expected that these shorelines are largely stable. They may even accrete (grow) over time. Erosion has occurred in places, particularly in Ocean Shores near the mouth of the estuary. Adjacent armoring and other human activities (e.g., dredging) likely cause some of this erosion.

3.2.4. Geology and Soils

The geology and soils of the area is simple. Both of the cities are accretionary shoreforms within the Columbia River drift cell (Kaminsky et al. 2010). The only exception occurs in less than a few acres of Westport and is a post-glacial terrace deposit. Nevertheless, this small area has similar characteristics to the geology of the rest of the cities (i.e., sandy and gravelly deposits deposited by a combination of waves and streamflow).



Source: Kaminsky et al. (2010), after Figure 4.

Figure 1-1. Historical Topographic Change of the Cities' Shoreline.

The core of each city is also the oldest portion of each city. Both are located on geologic features that existed prior to development and that likely were at least partially forested. These areas are the most geologically stable portions of each city, but they are generally outside of the shoreline jurisdiction. Unlike the cores of the cities, the shorelines are made up of recent (only decades old) deposited sediment that is neither consolidated nor compact. The topography within the shorelines changes daily, particularly intertidal areas of the open Pacific Ocean. This makes these shorelines highly deformable both from erosion of adjacent water bodies and liquefaction from earthquakes.

Because the geology is dominantly from marine deposition, soils are strongly dependent on their depositional setting (e.g., foreshore, back beach, or open harbor). For those areas that are dominated by beach deposition on the open Pacific Ocean, beach sand and dune land are common soil types (Figure 8 in Appendices A and B). These are typically fairly well drained soils comprised predominantly of sand. They are typically nutrient poor. Vegetation in beach sand is rare, whereas in dune land it is dependent on a variety of factors (Brooks 1996). Hydric soils (e.g., Ocosta silty clay loam) are common on the Grays Harbor side of both cities. These soils are common in less disturbed areas of intact estuarine wetlands.

There is a significant amount of fill (i.e., the Udipsamments unit) in the cities, although it is typically highly localized. Fill in the cities is often locally derived disturbed dune sand or dredged sediments, but could originate from other adjacent, more hydric units such as the Ocosta silty clay loam. Within Westport, the Westhaven reach is almost entirely fill that was placed since the 1950s, as evidenced in comparisons of historic photographs and maps (US Army Corps of Engineers 1941; US Coast and Geodetic Survey 1952b). In Ocean Shores, the cause of fill is harder to determine. From historical maps (USACE 1941; US Coast and Geodetic Survey 1952a), it is known that many shoreline areas were constructed and filled as a part of early development activities in the city in the 1960s. Because rapid accretion occurred at this same time (Figure 1-1), it is unclear how much of this was rearranged, naturally accreted dune sand and how much was excavated, dredged or imported fill.

3.3. Key Ecosystem Processes

Ecosystem processes are the dynamic physical, chemical, and biological interactions that form and maintain natural landscapes. Ecosystem-wide processes are "… the suite of naturally occurring physical and geologic processes of erosion, transport, and deposition; and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat and the associated ecological functions" (WAC 173-26-020(12)). In the Cities' shoreline jurisdiction, ecosystem-wide processes influence, and are influenced by the ecosystem structure such as beach form, wetland presence, and vegetation communities. This in turn, affects the functions within each city or reach considered in this characterization report.

Processes and functions in the Cities' shoreline jurisdiction are related to the Grays Harbor estuary and outer coast present in each city, Duck Lake and canals in Ocean Shores, and associated wetlands that are present throughout the cities. Table 3-1 provides an overview of the relationships between ecosystem processes and functions within the cities. A more

comprehensive list of functions considered in this inventory and characterization is provided in Section 2.4.

Table 3-1. Overview of Ecosystem Processes and Associated Functions.

Ecosystem Process	Associated Functions
Hydrologic – Movement of surface and subsurface water, erosion, and sediment transport and deposition	Water quantity functions; storage of surface water in floodplains and depressional wetlands
Energy and nutrient cycling – Movement of sediment, toxics, nutrients and pathogens	Water quality functions; removal/replenishment of sediment, toxics, nutrients and pathogens through dispersion and sequestration
Habitat development – Vegetation development and succession; movement of water, sediment and large woody debris	Habitat functions; aquatic habitat for invertebrates, native fish, amphibians, birds, and mammals; development of structure that supports vegetation communities which, in turn, support water quantity and water quality functions on a landscape scale

Ecosystem processes are characterized by the physical constraints described previously (Section 3.2, *Key Physical Controls*) including variables such as climate topography, geology, and soils. Additionally, ecosystem processes are influenced by variables such as land use (e.g., residential, commercial, industrial and preservation), and land cover including dominant vegetation community, impervious surface, and development or other disturbances that, in turn, affect the structure and functions associated with a specific shoreline in the landscape.

Ecosystem processes are dependent on natural and anthropogenic controlling factors or ecosystem stressors, some occurring within the shoreline jurisdiction and some occurring upstream and outside the shoreline jurisdiction, such as dredging, agriculture, and forestry. In a properly functioning ecosystem, the controlling factors occur within the naturally occurring range under which the ecosystem evolved, and the ecosystem in turn provides the suite of naturally occurring associated functions. Ecological processes considered in the characterization and assessment of shoreline functions in the cities include, for example:

- Flow and movement of water
- Erosion, and sediment transport and deposition
- Vegetation development and succession
- Energy and nutrient cycling

Within the cities, primary ecosystem processes are associated with the flow and movement of water and sediment originating from the Columbia River, Chehalis River, and inner harbor, and the tidal interactions that form the estuary, as well as oceanic wind and wave energy exposure along the outer coast. This contributes to estuary and beach form (i.e., structure) to support associated functions. As stated earlier, dynamic interactions between process and structure are both naturally and human caused. For example, the ecological impacts of flow

control and water quality and quantity can significantly influence salmon population success and production. Salmon, in turn, have an indirect relationship with the entire food web and ecosystem processes through biofeedback (i.e., movement of nutrients) and related consequences for vegetation production and success of other water dependent populations of species. As a "keystone" species, salmon populations that occur in Grays Harbor, an important migration and rearing area that includes shorelines in the cities, have an important role, and perhaps a disproportionate influence on other species, in the ecosystem (Knight 2009).

Ecosystem processes and the associated functions can be influenced or impaired by stressors including the following:

- Ground clearing or excavation
- Shoreline filling and armoring
- Channel or bank alteration (e.g., dredging and armoring)
- Impervious surface creation
- In-water and over-water structures installation
- Hatchery and aquaculture operations
- Point source pollution
- Non-point source pollution
- Riparian vegetation removal
- Vegetation alteration including the introduction of invasive species
- Freshwater sources elimination, withdrawal, and flow control

Fisheries activities are also stressors and important factors in resource management and the protection of sensitive species. Activities such as development and operation of hatcheries, aquaculture, and related facilities, as well as certain restoration activities, are considered in shoreline planning and development regulations. Other aspects of fisheries management such as harvest regulation are not a component of shoreline planning in the context of the SMA.

Key impairments to ecological processes in the cities are likely associated with development (e.g., shoreline filling and impervious surfaces creation) along the shoreline, which can alter the flow and movement of water and sediment; and vegetation alteration associated with development. Controlling or altering the transport of sediment with engineered, hard shoreline structures impairs the natural development of diverse ecological communities. Residential or other types of development, shoreline modifications (e.g., tide gates, armoring, and overwater structures), and lake management activities can impair natural processes and reduce the suitability of habitats for a variety of aquatic and shoreline-dependent species.

However, as described previously, natural processes have historically altered the physical shape and form of the shorelines in the present-day cities. The construction of large jetties and filling, either intentionally or over time due to accretion, combined with the physical processes that shape the landscape, have resulted in the shoreline forms present in the cities today. Their present form is a testimony to the dynamic relationships between natural processes, human-induced modifications, and shoreline functions.

3.4. Land Use and Land Cover

Section 4 describes land-use patterns within each city. Examining land-use patterns and existing public access opportunities are important considerations in the SMP analysis because such examinations can identify opportunities for preferred uses, especially water-dependent, water-oriented and water-enjoyment uses. Land uses adjacent to the water are also a determinant in assigning environment designations to specific sections of the shoreline. Additionally, an analysis of land use conditions is necessary to determine potential land use changes and their effect on shorelines with respect to SMA objectives. The proposed environment designation boundaries and provisions must be mutually consistent with the Comprehensive Plans of each City.

3.4.1. General SMA Requirements

This section reviews current and planned land use in the shoreline jurisdiction. The intent is to provide the basis for establishing a compatible use pattern over the 20-year planning period of the SMP. It is also intended to identify current or planned preferred uses in the shoreline jurisdiction that should be protected or promoted to meet SMA goals for water-oriented uses, shoreline access, and ecological protection. Duck Lake, Grand Canal, and the fresh waterway system in Ocean Shores are considered shorelines of the state. In addition, the SMA establishes the Pacific Ocean coast and the Grays Harbor estuary as shorelines of statewide significance where the following preferences apply:

1. Recognize and protect the statewide interest over local interest
2. Preserve the natural character of the shoreline
3. Provide for long-term benefits over short-term benefits
4. Protect the resources and ecology of the shoreline
5. Increase public access to publicly owned areas of the shorelines
6. Increase recreational opportunities for the public in the shoreline
7. Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary

Existing land cover, zoning designations, and aerial imagery provide a baseline for the types of land use found within the shoreline jurisdiction. Future land use and current zoning data for the area covered by the shoreline jurisdiction for the Cities were obtained from the Cities and existing land cover data were derived from the National Land Cover Database. These data sets are shown on the inventory maps (Figure 5 in Appendices A and B).

3.4.2. Water-Oriented Uses

According to Ecology's SMP Guidelines (WAC 173-26-020), water-oriented use means a use that is water-dependent, water-related, water-enjoyment, or a combination of such uses. The SMA promotes uses that are "unique to or dependent upon use of the state's shoreline" as well as:

> "… ports, shoreline recreational uses including but not limited to parks, marinas, piers, and other improvements facilitating public access to shorelines of the state, industrial and commercial developments which are particularly dependent on their location on or use of the shorelines of the state and other development that will provide an opportunity for substantial numbers of the people to enjoy the shorelines of the state." (RCW 90.58.020)

Definitions and examples of water-oriented uses are included in Table 3-2 below. Water-oriented uses are described for each City in Section 4.

Table 3-2. Water-Oriented Uses Definitions and Examples.

Water-Oriented Use Definitions	Water-Oriented Use Examples
"Water-dependent use" means a use or portion of a use which cannot exist in a location that is not adjacent to the water and which is dependent on the water by reason of the intrinsic nature of its operations. (WAC 173-26-020(36))	Examples of water-dependent uses may include ship cargo terminal loading areas, ferry and passenger terminals, barge loading facilities, shipbuilding and dry-docking, marinas, aquaculture, float plane facilities, and sewer outfalls.
"Water-related use" means a use or portion of a use which is not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a waterfront location because: a) The use has a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water; or b) The use provides a necessary service supportive of the water dependent uses and the proximity of the use to its customers makes its services less expensive and/or more convenient. (WAC 173-26-020(40))	Examples of water-related uses may include warehousing of goods transported by water, seafood processing plants, hydroelectric generating plants, gravel storage when transported by barge, oil refineries where transport is by tanker, log storage, and potentially agriculture.
"Water-enjoyment use" means a recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use; or a use that provides for recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and which through location, design, and operation ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water enjoyment use, the use must be open to the general public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment. (WAC 173-26-020 (37))	Primary water-enjoyment uses may include, but are not limited to, parks, piers and other improvements facilitating public access to the shorelines of the state; and general water-enjoyment uses may include, but are not limited to restaurants, museums, aquariums, scientific/ecological reserves, and resorts/hotels.

3.5. Historical and Cultural Resources

3.5.1. Native American History

The pre-European histories of both cities are similar and intertwined. Native American travelers from the Columbia River routinely visited the area to avoid dangerous river bars in both the Columbia River and Grays Harbor by traversing swales and river systems to the South Beach Peninsula of Grays Harbor. They would cross the bay, portage along the narrow back of Point Brown Peninsula Swale, and continue their northward Pacific Ocean journeys to visit coastal Olympic Peninsula and Canadian tribes (Woodwick 2010). Native tribes called the Point Brown long peninsula where Ocean Shores now stands Oyehut, the place of crossing over, and many of the 32 Native American tribes that were present in Grays Harbor and Pacific counties used it.

The area was the home of the largest permanent camp of the Chehalis people (specifically the Copalis Tribe). It was the usual and accustomed ground of those that became the Consolidated Tribes of the Quinault Nation and for the northern Oregon Chinook people who had a provisioning camp there (Woodwick 2010). The area was rich with all species of salmon as well as 23 other fish species that were trade items. Shellfish, particularly the razor clam, were abundant. The land supported a vast array of game birds and animals as well as important plants such as cedar, yew, and grasses used by tribal peoples for making baskets and clothing (Woodwick 2010).

The Chehalis ate fish as a diet staple, and constructed longhouses with one end open to the water for easy salmon collection. When non-Indians started arriving, diseases such as smallpox and malaria spread. However, it was not until the mid-1850s that disease truly devastated the Chehalis Tribe. A smallpox outbreak originating from a boat in Neah Bay was referred to as the Big Sick (Woodwick 2010). Thousands of Chehalis died, and the village was all but abandoned.

During the 1850s, new settlers trickled into what would become both cities. The new arrivals made themselves at home while the remaining Chehalis found themselves pushed out. In 1855, on behalf of the United States government, Isaac Stevens (1818-1862) asked the Quinault, Queets, Cowlitz, Shoalwater, and Chehalis tribes to cede rights to their land and settle onto a reservation. The "offer" contained a serious caveat that the reservation was not a guaranteed location on their native land. The Chehalis refused and they were labeled a "non-treaty" tribe, meaning that non-Indian settlers continued claiming Chehalis land, and the Indians received no compensation from the government (McCausland 1998). The Chehalis were eventually granted a parcel of land in the southeastern corner of what is now Grays Harbor County.

3.5.2. Euro-American Settlement

3.5.2.1. Ocean Shores

On May 7, 1792, Captain Robert Gray sailed into the bay and named the area Bullfinch Harbor. Later, Captain George Vancouver renamed the area after Captain Gray, now called Grays Harbor. The first white established settler on Point Brown (the site of Ocean Shores) was Matthew McGee, who settled in the early 1860s. He sold the southern portion of the

peninsula to A.O. Damon in 1878 for a trading supply center whose dock extended into the Oyehut channel. A.O. Damon took over the entire peninsula from McGee with the land passed along to his grandson, Ralph Minard, who used the area as a cattle ranch from 1929 until he sold to the Ocean Shores Development Corporation in 1960 for $1,000,000 (Wikipedia 2014).

At the time, the Washington State legislature was considering legalizing some forms of gambling. In expectation of a large casino development, the Ocean Shores Development Corporation began selling lots and soon the word spread (Wikipedia 2014).

By December 1960, 25 miles of canals were planned, along with a golf course, shopping mall, and marina; these opened in 1963. The city grew and in 1969, Ocean Shores was declared the "Richest Little City" with an assessed valuation of $35 million and 900 permanent residents. The following year the city was incorporated and a planning commission was formed. However, thereafter the town struggled during the 1970s through many setbacks brought on mainly by the state's economic recession. By the 1980s, the slump was over and construction of homes and businesses increased (Wikipedia 2014). Today, Ocean Shores is a thriving community of just under 5,600 people that relies heavily on tourism and service industries.

No properties or locations in Ocean Shores are listed on the Washington State Heritage Register or the National Register of Historic Places.

3.5.2.2. Westport

The first permanent non-native American residents of Point Chehalis where Westport now stands were Glen and Jane Peterson, along with their 3-year-old son, Frank. During the Peterson's first few years, the area was called Point Chehalis, but by 1879, the town of Chehalis (southwest of Olympia) had already been designated and thus Point Chehalis sought differentiation. The town took on the name of Peterson, named for the first long-standing non-Indian settlers. In 1891, the name was changed to Westport (McCausland 2014).

One of the most enduring additions to Westport came because of the formation of the national Life-Saving Service in 1871. Several stations along the Washington coast were established to help troubled boats at sea. In 1897, a station, called Grays Harbor Lighthouse, was created at what would become Westport (Table 3-3). The Grays Harbor lighthouse was visible 23 miles on a clear day (McCausland 2014). By 1917, the Lifesaving Station had been taken over by the United States Coast Guard, which took over lighthouse duties in 1939. Listed on the National Register of Historic Places in 1977, ownership of the lighthouse was transferred to the Westport-South Beach Historical Society (operating as the Westport Maritime Museum) in 2004.

Around the turn of the twentieth century, Westport was already being billed as a destination for summer recreation. On June 16, 1914, the residents of Westport voted to incorporate.

Westport became known as a center for whaling during the 1920s. One June 1920 Seattle Times article counts 54 whales caught by the Grays Harbor whaling fleet in a little under two months. Fishing in general was huge commerce in Westport throughout its early history, and in 1937 commercial tuna fishing began taking place off the coast. In 1943, one schooner reported a load of shark livers worth a whopping $16,000 from one trip (Kershner 2014).

Table 3-3. Properties Listed on State and National Historic Registers for Westport.					
City	Resource Name	Address	Listing Status	Date Built	Within Shoreline Jurisdiction?
Westport	Old Westport Coast Guard Station	2201 Westhaven Drive	WHR	1939	Yes
	Grays Harbor Light Station	1020 West Ocean Avenue	WHR and NRHP	1898	No

Source: Washington State Department of Archaeology and Historic Preservation (DAHP 2014).
NRHP = National Register of Historic Places
WHR = Washington Heritage Register

However, as the 1970s began, commercial and sport fishing was hit hard. The reality became even starker in the 1990s when a ban on ocean salmon fishing took place for a year in 1994 as a response to dwindling salmon runs. Westport and other marine-centric towns scrambled to find an economic replacement for the salmon haul. As the upheaval of the 1990s fishing controversies simmered to a close in the 2000s, Westport began to see a spark of hope in new development. As the population exceeded 2,000, Westport's charter boats began finding new fish resources to fish including rockfish, lingcod, tuna, and even shrimp and crab fishing began to act as replacements (Kershner 2014). More recently, other new industries are taking root in Westport, as surfers now flock to the waves and wildlife enthusiasts seek charters for whale and bird watching. At the 2010 census, Westport had 2,099 residents (Kershner 2014).

Both the Old Westport Coast Guard Station, built in 1939, and the Grays Harbor Light Station, constructed in 1898, are on the Washington Heritage Register and the Grays Harbor Light Station is on the National Register of Historic Places (DAHP 2014).

3.6. Shoreline Modifications

The most significant shoreline modifications within the cities are the jetties that secure the opening of Grays Harbor (Burch and Sherwood 1992). They were initially constructed in the early twentieth century, but have been reinforced on numerous occasions since (Buijsman et al. 2003). These reinforcements have generally expanded their footprint and geomorphic impact. The jetties have been documented to cause erosion by separating the peninsulas and allowing wave energy to penetrate the entrance, particularly on the south side of the entrance (in Westport in the Half Moon Bay Reach) (Burch and Sherwood 1992). Erosion has been mitigated effectively by the placement of dredge spoils in erosion-prone areas in Westport (Buijsman et al. 2003). Even though erosion is much less at the North Jetty in Ocean Shores, recent aerial photographs and anecdotal accounts indicate that erosion has increased within the last 5 years and has necessitated the placement of a riprap revetment to protect existing development.

Along with the construction of jetties, ongoing dredge operations have kept the harbor open to ship traffic. Although the dredging does not directly initiate erosion, the deeper water created by dredging in the entrance channel does allow greater wave energy into areas like Half Moon Bay and Damon Point that are then exposed to large swell.

In addition to the harbor opening, there are many other smaller revetments in the cities. These smaller revetments are usually made of rock or wood that is placed to eliminate bank erosion when it threatens property or infrastructure. Revetments tend to reduce the structural complexity of shorelines, and by design eliminate their ability to exchange sediment to the adjacent water body. Smaller revetments are common in Ocean Shores in the Canals Reach and along the inside of Grays Harbor, particularly at the south end. The only significant revetment in Westport is the rock revetment that secures Westhaven and the industrial core of the city.

Fill is common throughout the cities. Unlike other locales (e.g., Seattle, Aberdeen, Hoquiam), the precise extents of fill are less apparent, particularly in Ocean Shores. The fill generally has less of a geomorphic impact than elsewhere because it is mostly locally derived and highly mobile if not protected by a revetment. In addition, the ecological communities commonly found in the areas where fill is placed are generally adapted to disturbance; however, this is not the case where invasive species (e.g., Scot's broom) have taken hold.

Culverts, sometimes with attached tide gates, regulate the flow of runoff and tidal inundation. They are common in modified areas and under roads. Culverts can be perched, which is when there is an elevation change at the downstream side of the culvert that acts as a barrier to migrating fish. Culverts can also be undersized, in which case peak flows back up behind them. Culverts and associated fill can limit ocean water flow and cause unnatural jumps in salinity and temperature along the watercourse, which can be harmful to fish and other estuarine organisms.

3.7. Critical Areas and Priority Habitat and Species

This section describes critical areas and priority habitat and species (PHS) of state and local concern including instream habitat, wetlands, riparian habitat, fish, and other wildlife dependent on water and shoreline environments in the shoreline jurisdiction. Critical areas within the shoreline jurisdiction include:

- Wetlands
- Fish and wildlife habitat conservation areas (FWHCA)
- Geologically hazardous areas
- Frequently flooded areas
- Critical aquifer recharge areas

Critical areas and PHS are described and their general locations within the cities in the following sections.

3.7.1. Wetlands

Wetlands are present throughout the Cities' shoreline jurisdictions. Wetlands and wetland buffers are designated critical areas in Ocean Shores and are included as a regulated fish wildlife habitat conservation area. They are also designated as a priority habitat by WDFW.

Mapped wetlands in the shoreline jurisdiction include those that are identified in the National Wetland Inventory (NWI), PHS database, and National Land Cover Database (NLCD). In Ocean Shores, wetland habitat is found along the majority of the inner harbor shoreline, estuarine intertidal along the northern coastline of Grays Harbor, marine intertidal along the entire outer coast shoreline, and freshwater wetland habitat in isolated inland pockets.

In Westport, estuarine wetlands are found along the inner shoreline of Grays Harbor, marine intertidal along the outer coastline. Freshwater wetlands are found within Westport Light State Park and in various inland pockets.

Coastal nearshore wetlands and freshwater wetlands are described further in the next section on FWHCAs.

3.7.2. Fish and Wildlife Habitat Conservation Areas

FWHCAs typically include WDFW designated PHS. FWHCAs in Ocean Shores, which are designated critical areas in OSMC, Section 19.02.120, include the following:

- The dune protection area as delineated in the Ocean Dunes Protection Act (OSMC Chapter 18.56) and the beaches associated with the Pacific Ocean between the OHWM and the line of extreme low tide (city limit line)
- The marshes and tidelands associated with Grays Harbor between the OHWM and the line of extreme low tide (city limit line)
- The Oyhut Wildlife Area
- Duck Lake and all City-owned land adjacent to and within 200 feet of the OHWM
- All of the other freshwater canals and waterways and all City-owned land adjacent to and within 25 feet of the OHWM

Ocean Shores adopts by reference the WDFW “priority habitats and species list” as best available science for FWHCAs (OSMC 19.02.120(C)). However, it is unclear in the code whether those species and habitats are expressly designated as FWHCAs. For certain types of development, the code requires measures to identify sensitive species and habitats; evaluate effects; and provide measures to avoid, minimize, or mitigate impacts.

The current Westport municipal code does not provide for critical areas designation or protection, including FWHCAs.

FWHCAs contribute to the state's biodiversity and occur on both publicly and privately owned lands. Designating these areas is an important part of land use planning for appropriate development densities, open space corridors, and incentive-based land conservation and stewardship programs (WAC 365-190-130). Other FWHCAs that are typically regulated by local jurisdictions in the state include the following, consistent with WAC 365-190-130:

(a) Areas where endangered, threatened, and sensitive species have a primary association

(b) Habitats and species of local importance, as determined locally (may include all state designated priority species and habitats potentially occurring in the cities)

(d) Kelp and eelgrass beds, and herring, smelt, and other forage fish spawning areas

(e) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat

(f) Waters of the state

(g) State natural area preserves, natural resource conservation areas, and state wildlife areas

Although these areas or features are not specifically included in the current City codes, they are typically considered in the development of SMPs. The five FWHCAs designated by Ocean Shores are generally consistent with those identified in WAC 365-190-130. Some wetlands within the Ocean Shores shoreline jurisdiction may not be designated FWHCAs due to their geographic locations, although they are still managed and protected as critical areas (i.e., wetlands) in accordance with OSMC 19.02. The broader categories of potential FWHCAs identified in the WAC and listed above are discussed within the context of PHS in this section.

In accordance with state requirements for amending SMPs, WAC 173-26-201(3)(c) and 173-26-221, this section focuses on species that are listed as endangered, threatened, or sensitive, as well as priority habitats that are primarily associated with the shoreline and aquatic environment. However, the state code requires that critical areas, including fish and wildlife conservation areas, be considered in managing shorelines. Therefore, all species and habitat considered priority by WDFW and identified as locally important according to OSMC 19.02.120 should be considered in shoreline planning to the extent that they are present in the shoreline jurisdiction. The species and habitats for which PHS data were available are therefore included in the functional assessment for this characterization and reach level functional assessment. However, not all PHS are described in detail in this section due to their lower listing status or lack of association with the shoreline environment. The species and habitats identified by WDFW as priority should be evaluated on a site-specific scale during individual project review.

The following sections provide a general background on the species and habitats that are present or potentially present in the Cities' shorelines. Specific locations are described where clarification is necessary due to limited presence or use of the shoreline. Where data are available, specific locations are included in the SMP Map Folio (Appendix A and Appendix B) and summarized in the *Physical and Biological Characterization* section for each city. Where site-specific data are limited or unavailable for individual species or habitats, their general locations in the outer coast and Grays Harbor are described in the following sections.

3.7.2.1. Coastal Nearshore

General SMP provisions (WAC 173-26-221) include principles and standards for protection of critical saltwater habitats. Critical saltwater habitats include coastal nearshore areas such as kelp beds and eelgrass beds; spawning and holding areas for forage fish, such as herring, smelt, and sand lance; subsistence, commercial and recreational shellfish beds; mudflats,

intertidal habitats with vascular plants, and areas with which priority species have a primary association (WAC 173-26-221).

Priority coastal nearshore habitat includes "relatively undisturbed" nearshore estuaries of Washington's outer coast including Grays Harbor. Relatively undisturbed means any nearshore habitats that retain some essential elements or functions important to the maintenance of native species use (e.g., native eelgrass for herring spawning) (WDFW 2008). It includes the marine riparian zone, intertidal, and subtidal areas of the nearshore, which are present along the marine reaches in the Cities' shoreline jurisdiction. Coastal nearshore areas also contain wetlands, designated critical areas (OSMC Chapter 19.02).

Much of the coastal nearshore area, particularly in the reaches along Grays Harbor, is estuarine wetland. Estuarine wetlands are tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed or sporadic access to open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from land. Estuaries create a rich nursery environment for salmon and other species, and are among the most biologically productive ecosystems on earth. Estuaries serve as buffers, protecting shorelines from erosion and flooding. They also filter pollutants, improving water quality.

Coastal nearshore areas provide important habitat elements for a variety of sensitive species discussed in this section. FWHCAs that are closely associated with coastal nearshore areas include eelgrass and nearshore vegetation that provide habitat where sensitive species have a primary association, shellfish areas, and forage fish spawning areas. These FWHCAs are described in separate sections below. Other species such as salmon and bird species also use nearshore habitat but might also occur in other shoreline environments. Those are also addressed later in this report under separate headings.

3.7.2.2. Freshwater Wetlands and Deepwater

WDFW designates wetlands and fresh deepwater as priority aquatic habitats in the state. Wetlands are also designated critical areas. WDFW defines freshwater wetlands and deepwater priority habitats as follows:

- **Freshwater Wetlands –** Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

- **Fresh Deepwater –** Permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. The dominant plants are hydrophytes; however, the substrates are considered non-soil because the water is too deep to support emergent vegetation. These habitats include all underwater structures and features (e.g., woody debris, rock piles, and caverns).

Freshwater wetlands (see Section 3.7.1, *Wetlands*) are found throughout the shoreline jurisdiction, but are predominantly associated with Duck Lake. There are also a large number of more isolated depressional wetlands.

3.7.2.3. Riparian Habitat

Riparian habitat is the area adjacent to flowing or standing aquatic systems. It encompasses the area beginning at the OHWM and extends to that portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic ecosystem. For example, hyporheic zones associated with riparian habitats can influence the vegetative structure and subsequently affect food production and food web interactions for fish and other aquatic organisms.

In riparian systems, the vegetation, water tables, soils, microclimate, and wildlife inhabitants of terrestrial ecosystems are often influenced by perennial or intermittent water. Simultaneously, adjacent vegetation, nutrient and sediment loading, terrestrial wildlife, as well as organic and inorganic debris influence the biological and physical properties of the aquatic ecosystem.

Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to marine or freshwater. Therefore, it is present throughout the entire shoreline jurisdiction of both Cities, albeit at various levels of development and functional quality or value.

Morrison and Smith (2007) identified native riparian vegetation within the Westport Light State Park that might be typical of undisturbed areas in the vicinity. Observed vegetation included shore pine (*Pinus contorta*), slough sedge (*Carex obnupta*), evergreen huckleberry (*Vaccinium ovatum*), and dune willow (*Salix hookeriana*). Dune grass, eelgrass, and saltmarsh vegetation communities are also important riparian communities found throughout the shoreline jurisdiction.

3.7.2.4. Snags and Logs

Snags and logs are habitat features and may be present in other designated priority habitats to the extent that those habitats support trees or the transport of large wood through the aquatic system. Prior to most development, snags were common throughout Grays Harbor and its many river mouths (US Coast and Geodetic Survey 1910). Many of these snags have been removed over time to improve navigation.

Priority snag and log habitat includes individual snags and/or logs, or groups of snags and/or logs of exceptional value to wildlife due to their scarcity or location in a particular landscape. Areas with abundant, well-distributed snags and logs are also considered priority snag and log habitat. Examples include large, sturdy snags adjacent to open water, remnant snags in developed or urbanized settings, and areas with a relatively high density of snags.

Priority snags have a diameter at breast height of greater than 51 cm (20 inches) in western Washington and are greater than 2 meters (6.5 feet) in height. Priority logs are greater than 30 cm (12 inches) in diameter at the largest end, and greater than 6 meters (20 feet) long.

3.7.2.5. Federally Listed Species

The Cities' shorelines and associated estuaries and wetlands provide good habitat for marine mammals, shorebirds, seabirds, raptors, and other waterfowl. Listed fish species are addressed under *Salmon and Trout* (Section 3.7.2.8) and *Other Priority Fish* (Section 3.7.2.9). Listed marine mammals and bird species are discussed under *Marine Mammals* (Section 3.7.2.10) and *Birds* (Section 3.7.2.11).

3.7.2.6. Kelp and Eelgrass

Intertidal and subtidal substrates along the shoreline of Grays Harbor, and the cities support large patches of eelgrass (*Zostera marina*) (Mumford 2007; Thom 1984). Kelp is rare in Grays Harbor and the cities, but a patchy distribution is documented in Westhaven Cove in Westport (Figure 9 in Appendix B), the sole location where it is known to occur in Grays Harbor. Nearshore aquatic vegetation provides important habitat function for sensitive species including salmon, forage fish, crab, and shrimp. Eelgrass provides both physical structure and trophic support for the biological community by creating shelter and food. Eelgrass is nursery habitat for many sensitive species including salmon and rockfish, and is an important spawning substrate for Pacific herring (Bostrom et al. 2006; Murphy et al. 2000; Penttila 2007; Plummer et al. 2013).

Kelp and eelgrass are carbon fixers, making them important to nearshore primary production, as they generate nutrients and a substrate that provides a base of the food chain for other culturally and economically important species. Kelp and eelgrass provide important refuge microhabitats from current and wave energy, protect juvenile salmon from predation, and attract organisms that are important food sources for many species of fish, shellfish, and nearshore birds.

Kelp

Kelp prefers high-energy environments with rocky substrate in lower intertidal or subtidal zones where currents renew available nutrients and prevent sediment from covering the plants. Most kelp occurs in the shallow subtidal zone from MLLW to about 65 feet (20 meters) below MLLW (Mumford 2007). Kelp forests are comprised of both floating and non-floating species, of which only non-floating kelp are found in Grays Harbor (Westport). Non-floating kelp require solid substrate for growth, including rocks, bedrock, and artificial substrate such as floats, docks, mooring buoys and chains.

Eelgrass

Eelgrass commonly grows in low to moderately high-energy intertidal and shallow subtidal areas having a muddy or sandy substrate. Typically, eelgrass beds form near MLLW and extend to depths from about 6.5 feet (2 meters) above MLLW to 30 feet (9 meters) below MLLW. In the cities, eelgrass grows in persistent patchy beds along most of the Grays Harbor shoreline. Eelgrass is an important indicator of the overall health of a shoreline, and an increase in eelgrass abundance in the nearshore would have strong direct and indirect ecological benefits (Plummer et al. 2013).

3.7.2.7. Shellfish Resources

The cities' shorelines and waters provide habitat for numerous shellfish species including crabs (Dungeness – *Cancer magister* and red rock – *Cancer productus*), razor clam (*Siliqua patula*), spot shrimp (*Pandalus platyceros*), and various other oyster and clam species. Use of these resources is both commercial and recreational. In general, shellfish depend on specific sediment compositions (such as grain size, amount of different grain and gravel sizes, and organic content). For example, shellfish such as littleneck clam (*Protothaca staminea*) and butter clam (*Saxidomus gigantean*) prefer sediment mixed with gravel and cobble (Dethier 2006).

Dungeness Crab

Adult Dungeness crab are found in nearshore, shallow-water habitats off the coasts of the cities (Armstrong et al. 1989), and use the sandflats to incubate eggs (Fisher and Velasquez 2008). Grays Harbor provides important nursery habitat for settlement and growth of juvenile Dungeness crab (Armstrong et al. 1989). Juveniles are closely associated with cover in the intertidal consisting of shells, eelgrass (*Zostera* species), gravel-sand substrates, or macroalgae (Fisher and Velasquez 2008). These habitat features provide cover and refuge from predators (Eggleston and Armstrong 1995). Intertidal habitats are critical for juvenile feeding as those areas can have prey densities higher than subtidal habitats (Fisher and Velasquez 2008).

Red Rock Crab

Red rock crabs are not exploited commercially and are therefore often more abundant in the intertidal than Dungeness crabs (Dethier 2006). The red rock crab is fished recreationally, but not commercially. They are most abundant in rocky habitats and reefs at depths less than 164 feet (55 meters) (Carroll and Winn 1989), but are also found in sandy, muddy, and gravelly bays, especially where there is eelgrass (Dethier 2006).

Spot Shrimp

Spot shrimp are the largest shrimp on the West Coast, and fished almost exclusively commercially due to their relative inaccessibility to recreational fishermen. Spot shrimp preferred habitat ranges from 20 to 40 miles offshore in depths from 130 to 600 feet (40 to 183 meters: Wargo et al. 2013). They aggregate largely along the rocky edge of Gray's Canyon, offshore of Grays Harbor, and opportunistically forage on other shrimp, plankton, small mollusks, worms, and sponges (Wargo et al. 2013). The location of preferred habitat for adults, more than 20 miles offshore, suggests that they are unlikely to occur in the Cities' shoreline jurisdiction, which extends 3 miles off shore. However, juveniles may concentrate in shallow inshore areas and migrate off shore as they mature.

Clams and Oysters

Razor clams can reach high densities, approaching 1,500 per square foot (16,150 per square meter) on the sandy beaches of the outer Washington coast (Lassuy and Simons 1989). Adults are usually 1 foot beneath the surface of the sand, and have limited lateral mobility (Lassuy and Simons 1989). Large razor clams are densest in the lower intertidal zone, but are commonly found subtidal up to depths of 20 feet (6 meters) (Lassuy and Simons 1989). There

is a commercial razor clam harvest area within the Pacific Ocean North Reach in Ocean Shores.

Aside from the large razor clam recreational fishery, there are several other species of clams harvested recreationally in the cities: native littleneck clam (*Protothaca staminea*), introduced manila clam (*Venerupis philippinarum*), butter clam (*Saxidomus gigantea*), Macoma clam (*Macoma nasuta* and *M. brota*), and cockle (*Clinocardium nuttallii*). These hard shell clams are found on beaches of mixed sand, gravel, and mud. The distribution of each species is not well documented along the cities, but these species are found along the open ocean beaches (WDFW 2014a).

The native Olympic oyster (*Crassostrea conchaphila*) is often found on mud-gravel flats, in tide pools with freshwater seepage, and from intertidal zones to depths of 165 feet (50 meters). They are found in patchy distribution in Grays Harbor and are harvested recreationally (WDFW 2014a).

3.7.2.8. Salmon and Trout

All salmonid species are important based on WDFW listing status as priority species (Table 3-4). There is known spawning habitat in the Chehalis and Humptulips River by eight stocks of Chinook salmon (*Oncorhynchus tshawytscha*), one stock of chum salmon (*O. keta* – Humptulips Fall chum), seven stocks of coho salmon (*O. kisutch*), and eight stocks of steelhead (*O. mykiss*) (WDFW 2014b, 2014c). All these populations use the nearshore in Grays Harbor and marine waters off its coast for rearing, feeding, and migration, making these areas an essential part of salmon recovery (WDFW 2014b). The nearshore zone also provides valuable direct or indirect functions for other salmon species known to move through the marine waters during their outmigration from many rivers and streams that do not enter Grays Harbor.

Table 3-4. Priority Salmon and Trout Presence in Cities' Shoreline Jurisdiction.

Species	Endangered Species Act Unit[a]	Federal Listing Status	State Listing Status	PHS Criteria[b]
Chinook (*Oncorhynchus tshawytscha*)	Washington Coast ESU	None	Candidate	#1, #2, #3
Coho (*O. kisutch*)	Southwest Washington ESU	None	None	#2, #3
Steelhead and Rainbow Trout (*O. mykiss*)	Southwest Washington DPS	Undetermined	Candidate	#3
Chum (*O. keta*)	Pacific Coast ESU	None	Candidate	#1, #2, #3
Bull Trout (*Salvelinus confluentus*)	Olympic Peninsula RU	Threatened/ designated critical habitat	Candidate	#1, #2, #3
Coastal Resident Cutthroat Trout (*O. clarki clarki*)	Not Applicable	Species of Concern	None	#3

[a] ESU is Evolutionarily Significant Unit. DPS is Distinct Population Segment. RU is Recovery Unit.

[b] Criterion 1 = State-Listed and Candidate Species; Criterion 2 = Vulnerable Aggregations; Criterion 3 = Species of Recreational, Commercial, and/or Tribal Importance (WDFW 2008).

Grays Harbor within the Cities' shoreline jurisdiction is designated under the ESA as critical habitat for bull trout (75 FR 63898). Grays Harbor provides marine foraging, migration, and overwintering habitat outside of the Hoh, Queets, and Quinault core areas where breeding populations occur, and is an important migration corridor to other designated critical habitat areas in the Chehalis Basin. Marine waters in the shoreline jurisdiction that support Chinook or coho salmon are considered "essential fish habitat" (EFH) protected by the Magnuson-Stevens Fishery Conservation and Management Act under the jurisdiction of NMFS.

Grays Harbor provides vital feeding and transitional habitat for salmonids when juveniles leave the rivers to enter saltwater, and when adults return to the rivers to spawn (Smith and Wegner 2001). The various habitat types (e.g., sand flat, mudflat, gravel/sandy beach, and aquatic vegetation bed habitats) are utilized differently by each species. Sandell et al. (2013) found that juvenile Chinook salmon were captured at highest densities in sand flats. Juvenile coho salmon counts were extremely high in stream channels adjacent to forest and shrub habitats, generally located in the upper portions of the estuary. Few juvenile coho were found in other habitat types, and none was found at sites dominated by sand flats (Sandell et al. 2013). Juvenile chum salmon show a strong preference for aquatic vegetation beds, but they are also found off gravel/sandy beach sites and mudflats (Sandell et al. 2013). Cutthroat trout were rarely seen in Grays Harbor, but were found in low numbers along shoreline segments dominated by shrub vegetation and also along forested sites, as well as along shoreline areas with high emergent vegetation (Sandell et al. 2013).

The outer coast nearshore environment is characterized by long stretches of fine-sand beaches with low-lying dunes (Strickland and Chasan 1989). No kelp beds have been found in the nearshore stretch from Kalaloch to the Columbia River (Van Wagenen 1989). Due to the lack of habitat features and strong tidal and wave activity on the beaches, only the offshore habitat is used on the outer coast by migrating salmonids.

3.7.2.9. Other Priority Fish

Table 3-5 summarizes non-salmonid priority fish species that occur in the shoreline jurisdiction. These species include forage fish, groundfish, rockfish, sturgeon, lamprey, and mudminnow described in the following sections.

Forage Fish Spawning Areas

Forage fish species play a critical role in the functioning of nearshore marine ecosystems in the state. At least eight species of forage fish occur in Grays Harbor. Priority forage fish species include Pacific Eulachon (*Thaleichthys pacificus*), Pacific herring (*Clupea harengus pallasi*), surf smelt (*Hypomesus pretiosus*), longfin smelt (*Spirinchus thaleichthys*), and Pacific sand lance (*Ammodytes hexapterus*) (Table 3-5). Northern anchovy (*Engraulis mordax*), whitebait smelt (*Allosmerus elongatus*), and American shad (*Alosa sapidissima*) are present as well.

The most common forage fish found spawning in Grays Harbor include Pacific herring, surf smelt, and sand lance (WDFW 2014e). While much of the spawning occurs in various substrate, eelgrass is also important habitat for forage fish species as it provides refuge (Penttila 2007). Grays Harbor is designated EFH for northern anchovy (PFMC 1999). Forage fish spawning areas are one FWHCA that must be considered for classification and designation as a

critical area (WAC 365-190-130). Herring spawning areas are mapped in the Ocean Shores Marina Reach, and in Westhaven Cove and the Bayfront North Reach in Westport. Smelt spawning is documented in the Pacific Ocean North Reach in Westport (WDFW 2014e). Other locations in the cities that may provide suitable spawning habitat for forage fish are not yet mapped.

Table 3-5. Other Priority Fish Presence in Cities' Shoreline Jurisdiction.

Species Group	Priority Area	Federal Listing Status	State Listing Status	PHS Criteria[a]
Smelt – Pacific Eulachon (*Thaleichthys pacificus*)	Regular concentrations	Threatened	Candidate	#1, #2, #3
Smelt – longfin smelt (*Spirinchus thaleichthys*), surf smelt (*Hypomesus pretiosus*), Pacific Sand Lance (*Ammodytes hexapterus*)	Breeding areas, regular concentrations	None	None	#2, #3
Pacific Herring (*Clupea pallasi*)	Breeding areas, regular concentrations	Species of Concern	Candidate	#1, #2, #3
Groundfish – English sole (*Pleuronectes vetulus*) Rock sole (*Lepidopsetta bilineata*)	Breeding Areas, regular concentrations	None	None	#3
Rockfish (*Sebastes* spp.)	Regular concentrations, any occurrence for some species	Various (None, Species of Concern, Threatened or Endangered[b])	Candidate	#1, #2, #3
Green Sturgeon (*Acipenser medirostris*)	Any occurrence	Threatened	None	#1, #2, #3
White Sturgeon (*Acipenser transmontanus*)	Any occurrence	None	None	#2, #3
Pacific Lamprey (*Entosphenus tridentate*)	Any occurrence	Species of Concern	None	#3
River Lamprey (*Lampetra ayresi*)	Any occurrence	Species of Concern	Candidate	#1
Olympic Mudminnow (*Novumbra hubbsi*)	Any occurrence	None	Sensitive	#1

[a] Criterion 1 = State-Listed and Candidate Species; Criterion 2 = Vulnerable Aggregations; Criterion 3 = Species of Recreational, Commercial, and/or Tribal Importance (WDFW 2008).

[b] Puget Sound populations of Bocaccio rockfish (*Sebastes paucispinis*), canary rockfish (*Sebastes pinniger*), and yelloweye rockfish (*Sebastes ruberrimus*) are federally listed, and individuals could potentially migrate into the Cities' shorelines. However, presence is unlikely.

Southern Pacific Eulachon

Pacific eulachon are a small anadromous fish that use estuarine, marine, and stream habitat along the Washington coast, including a limited number that use Grays Harbor (Gustafson et

al. 2010). NMFS listed Pacific eulachon as threatened in 2010 (75 FR 13012). The southern DPS includes populations spawning in rivers south of the Nass River in British Columbia, Canada, to the Mud River in California including the major production area or core population of eulachon associated with the Fraser River (74 FR 10857). Critical habitat was designated in October 2011 but it does include shorelines or waters within the cities (76 FR 65323).

Details of their movement and habitat requirements in salt water are largely unknown (Gustafson et al. 2010), but surveys have shown concentrations off Vancouver Island (Willson et al. 2006), occurrences up the Elwha River (Shaffer et al. 2007), extensive spawning reaches in the Columbia River (Clarke et al. 2007), and eulachon are commonly found in Grays Harbor and Willapa Bay on the outer Washington Coast (Gustafson et al. 2010). However, spawning grounds are typically in the lower reaches of larger rivers fed by snowmelt (Hay and McCarter 2000). The Columbia River basin is the origin of most Pacific Eulachon in the continental United States. Preferred spawning habitat consists of course, sandy substrates (WDFW and ODFW 2001; NMFS 2013a) and the Cities' shoreline jurisdiction does not contain habitat suitable for spawning.

Pacific Herring

At least 18 stocks spawn inside Puget Sound, two additional stocks spawn on the Washington coast in Willapa Bay and Grays Harbor (WDFW 2014d). The Puget Sound stocks are assessed annually; however, no stock assessment information or data are available for the outer Washington coast stocks.

Pacific herring use the nearshore environment for all life-history stages. Herring primarily use eelgrass and marine algal turf as a spawning substrate (Penttila 2007). In Grays Harbor, the primary spawning habitat is the outer edges of native salt-marsh beds, also using macroalgae beds as spawn deposition substrate (Penttila 2007; WDFW 2014e). Herring spawning beaches are documented in both cities.

Surf Smelt

Although little is known about the life history of surf smelt away from their spawning grounds, it is thought that they reside near the shoreline in the general area of their spawning sites for all life-history stages (Penttila 2007). Surf smelt spawning is limited by the amount of available appropriately textured spawning substrate (sand-gravel mix) at a certain tidal elevation along the shoreline (Penttila 2007). One spawning population has been identified on the outer coast in Westport (WDFW 2014e). Surf Smelt spawning areas are not documented in Ocean Shores.

Sand Lance

Little is known about the life history and biology of the Pacific sand lance apart from its spawning sites. Sand lance spawn in finer substrate than surf smelt, preferring sandy beaches to the larger gravel (Penttila 2007), although surf smelt and sand lance spawning habitat may overlap. One spawning population of sand lance has been identified on the inner bay of Grays Harbor near South Arbor (WDFW 2014e). Sand Lance spawning areas are not documented in the cities.

Groundfish and Rockfish

There are numerous species of groundfish and rockfish that are state priority species and may be present in Grays Harbor (WDFW 2008, 2014c). As with Pacific salmon, marine shorelines in Grays Harbor are designated EFH for English sole (*Pleuronectes vetulus*) and black rockfish (*Sebastes melanops*) (PFMC 1999). Thirteen species of rockfish are designated state priority fish. Presence of adult rockfish is likely limited in the shallow estuarine shorelines of the Cities' shoreline jurisdiction due to the silt and mud character and the species' habitat preferences. In Grays Harbor, groundfish and rockfish are most likely to use deepwater habitat in the outer harbor and offshore areas including the cities' shorelines. During their larval stage, rockfish distribute by marine currents, often using drifting algae as habitat before maturing and migrating to deeper water. Juveniles could be present in the Cities' shoreline jurisdiction during this stage.

Sturgeon

Habitat in the Grays Harbor estuary is used by green sturgeon (*Acipenser medirostris*) and white sturgeon (*Acipenser trensmontanus*), which are long-lived species that spawn several times during their life. They migrate seasonally along the West Coast, congregating in bays and estuaries such as Grays Harbor during the summer and fall. Green sturgeon is listed as threatened under the ESA (71 FR 17757). Green sturgeon use Grays Harbor for rearing, feeding, and holding, although no spawning is known to occur in Grays Harbor or the Chehalis River. Threats to the species related to shoreline development or activities that could occur in the Cities' shoreline jurisdiction include entrainment of juveniles by in-water projects, introduction of exotic species, migration barriers, and exposure to contaminants (71 FR 17757, NMFS 2010).

Lamprey

Both Pacific lamprey (*Entosphenus tridentate*) and river lamprey (*Lampetra ayresi*) are state priority species and federal species of concern. River Lamprey is a state candidate species. There are limited data regarding the presence, distribution, and habitat use of these species in waterbodies that include the Cities' shoreline jurisdiction. Pacific lamprey is anadromous, using both fresh water and saltwater environments. Ocean dwelling adults are parasitic, feeding on the blood and bodily fluids of marine mammals and fish. They return to fresh water streams such as the Chehalis River to spawn. Therefore, juveniles and returning adults likely use the cities' shorelines for migration.

Olympic Mudminnow

Olympic mudminnow (*Novumbra hubbsi*) is a species endemic to Washington where it is listed as sensitive, meaning it is native to Washington, is vulnerable or declining, and is likely to become endangered or threatened in a significant portion of its range without cooperative management or removal of threats (WAC 232-12-297). Within their range, which includes all of the cities' freshwater shorelines, they would potentially be found in wetlands, ponds, ditches, or canals with muddy substrate, still or slow moving water, and abundant aquatic vegetation. Olympic mudminnow presence is not well documented in the Cities' shoreline jurisdiction. Locations in the shoreline jurisdiction are not documented in the PHS dataset. General locations of known presence in the county were illustrated by Mongillo and Hallock

(1999) and WDFW (2013). The highest densities of detections geographically are in the lower Chehalis River valley and coastal streams north of Grays Harbor, indicating a slight potential for presence in the Cities' shoreline jurisdiction to the extent that suitable habitat is present. However, suitable freshwater habitat is likely rare in the cities. Population decline in Washington is attributed to wetland habitat loss (Mongillo and Hallock 1999; WDFW 2013). Wetland protection is considered essential for the conservation of the species (WDFW 2013).

3.7.2.10. Marine Mammals

Grays Harbor supports a variety of marine mammals. NMFS (2010) found that southern resident killer whales (*Orcinus orca*) and humpback whales (*Megaptera novaeangliae*) are unlikely to occur in the Grays Harbor navigation channel. However, these federally listed species, as well gray whales (*Eschrichtius robustus*), which are designated sensitive in the state, have been observed offshore and in the outer harbor near the cities' shorelines. Stellar sea lions (*Eumetopias jubatus*), protected under the 1972 Marine Mammal Protection Act, are infrequently observed in Grays Harbor and may migrate through the Cities' shoreline jurisdiction. Harbor seals (*Phoca vitulina richardsi*) are also common in the Grays Harbor Estuary and frequently forage in the nearshore areas of the Cities' shoreline jurisdiction. Sea otters (*Enhydra lutris*) may also be rare visitors in the shoreline jurisdiction. On a broad scale, shoreline conditions and habitat such as eelgrass beds in the cities' shorelines are interrelated and contribute to the primary food production and food chain interactions that are important to marine mammals.

Additional information on priority marine mammals that are likely to occur along shoreline habitats in Grays Harbor County is provided in the following sections.

Southern Resident Killer Whale

The Southern Resident DPS of killer whales was listed as endangered on February 16, 2005 (70 FR 69903). Critical habitat was designated for this species on November 29, 2006 (71 FR 69054). The Southern Resident population consists of three pods that numbered 87 whales in 2007 (NMFS 2008).

The pods reside for part of the year in the inland waterways of the state and British Columbia, principally from late spring through summer to early fall, and visit coastal sites off Washington and Vancouver Island (NMFS 2008). Although the outer Washington coast and Grays Harbor do not lie within ESA-designated critical habitat for the Southern Resident killer whales, the whales are frequently spotted off the coast of the cities using the coastline while foraging and traveling.

Gray Whale

The Eastern North Pacific population of gray whales was delisted from endangered status under ESA in 1994, but they are still considered "sensitive." NMFS completed a status review in 1999 (Rugh et al. 1999) and retained the unthreatened status of the population based on population trends (Rugh et al. 1999). In October 2010, NMFS was petitioned to conduct a status review of the Eastern North Pacific population to determine whether to list the population as "depleted" under the Marine Mammal Protect Act (75 FR 68756).

Gray whales travel annually between feeding grounds in Alaska and breeding grounds in Mexico. They migrate north along the Pacific coast typically between mid-February and May, and return to their breeding grounds in the fall (Rugh et al. 1999). Summer feeding grounds are primarily located offshore of Northern Alaska and the Bering Sea, but there are indications that the gray whale population may be expanding its summer range in search of alternative feeding grounds. Gray whales are increasingly sighted in the inland waters of Washington and British Columbia, usually during their migration north in the spring (Rugh et al. 1999). Gray whales often pass within sight of the cities during their migration to their feeding grounds.

Humpback Whale

Humpback whales were listed as endangered on June 2, 1970 (35 FR 8491). Critical habitat has not been designated for this species. Humpback whales migrate from their breeding grounds in Hawaii or Mexico to Alaska during the summer to feed. The Washington coast is a corridor for their annual migration (NMFS 1991). Humpback whales remain in offshore waters, from the continental shelf and seaward (NMFS 1991), although they have been occasionally seen in coastal bays and can be seen from shore in Westport or Ocean Shores.

Steller Sea Lion

Steller sea lion was listed as threatened on April 10, 1990 (62 FR 30772). Critical habitat was designated for Steller sea lions on March 23, 1999 (64 FR 14051); however, all designated critical habitat lies outside the state. Although there is no federally designated critical habitat along the outer coast of Washington, habitat that is considered "essential to the conservation of the Steller sea lion" includes the "physical and biological habitat features that support reproduction, foraging, rest, and refuge" (58 FR 45269). On April 18, 2012, a proposal to delist the Eastern DPS of the Steller sea lion was submitted (77 FR 23209) with the petitioners citing unpublished WDFW data showing increasing Steller sea lion haul out areas and increased sightings of Steller sea lion pups, although there are no active rookeries (NMFS 2013b). The proposal was passed and the Eastern DPS of Steller sea lion was delisted on November 4, 2013 (78 FR 66139).

There are no recorded Steller sea lion haul-out areas in Grays Harbor or the cities' shoreline (Jeffries et al. 2000, WDFW 2008). The offshore habitat off the coast of the cities may be used as feeding grounds or migration between haul out/rookery locations spread from California to Alaska (NMFS 2013b).

California Sea Lion

California sea lions (*Zalophus californianus*) are another species protected under the 1972 Marine Mammal Protection Act and are frequently sighted in Grays Harbor including the Westport boat basin. Only the mails migrate to the northwest, while females remain close to their breeding rookeries in California and Mexico. They use haulout sites around the outer coast such as jetties, offshore rocks and islands, logbooms, marina docks, and navigation buoys, although documented sites are offshore away from most shoreline development (WDFW 2000).

Harbor Seal

Harbor seals are the most abundant marine mammal along the Washington coast. The harbor seal is the only pinniped species found year-round and breeds in Washington waters. Although curious, they are shy animals and prefer quiet, unpopulated areas to haul out.

Seals haul out on protected beaches, spits, bars, rocks, and log rafts to bask in the sun and sleep. Harbor seals often haul out at low tide to digest food, rest, give birth, or nurse young. Pupping occurs in mid-April through June in coastal estuaries (Columbia River, Willapa Bay, and Grays Harbor) (WDFW 2000). Numerous harbor seal haul-out sites are located on intertidal mudflats and sand bars throughout Grays Harbor. Nursery areas are located in the areas around Whitcomb Flats, Mid-Harbor Flats, Sand Island shoals, Sand Island, Goose Island, Chenoise Creek channels, and in North Bay (WDFW 2000).

Sea Otter

Sea otter abundance has increased overall since 1989 with a mean growth rate of 8.2 percent; the population was documented at 743 in 2004 (Jameson and Jeffries 2004). Historical distribution extended along the entire Washington outer coast to the Columbia River; however, current sea otter distribution is limited to the coastal area from Destruction Island to Pillar Point, and hasn't dispersed far from this main range since their reintroduction in the 1970s (Lance et al. 2004). On December 12, 1999, however, two sea otters were sighted approximately 16 km off Grays Harbor (Lance et al. 2004). Throughout their range, sea otters use a variety of shallow coastal habitats, and are mostly associated with rocky substrates supporting kelp beds.

3.7.2.11. Birds

Many species of sea birds, raptors, and waterfowl use the beach, nearshore, intertidal, estuarine wetlands, freshwater streams and lakes, and deeper marine waters within and surrounding the cities. Birds use these habitats for cover, perching, foraging, feeding, and nesting.

Many shorebirds migrate thousands of miles every year, flying between South America and Alaska or Canada. During the spring and late summer, migrating shorebirds are usually seen resting and feeding on beaches. Bald eagles or peregrine falcons may perch on trees or LWD in estuaries and feed in the marine waters along each cities' shoreline. Bird species commonly associated with shorelines and listed by federal or state agencies as endangered, threatened, or sensitive and regularly occur in Grays Harbor include marbled murrelet, snowy plover, bald eagle, and peregrine falcon. Each of these species is discussed in the following sections.

Other bird species, and breeding or non-breeding concentrations, are also considered priority species. Although they are not listed as endangered, threatened, or sensitive, these important species are considered protected under state and local regulations.

Marbled Murrelet

The marbled murrelet (*Brachyramphus marmoratus*) was Federally listed as threatened under the Endangered Species Act in Washington, Oregon, and California on September 28, 1992 (57 FR 45328). Critical habitat was established on September 12, 2006. Critical habitat

generally consists of trees with potential nest platforms, or that are used for roosting. The cities do not contain critical habitat for marbled murrelet. A recovery plan for Washington, Oregon, and California populations is in effect (USFWS 1997).

Adults are found year round in coastal areas throughout Washington. The southern Washington coast is also considered an important wintering area (USFWS 1997). During the breeding season, they are present along Puget Sound and the northern part of the outer coast, concentrated in areas with abundant food and nearby nesting habitat (USFWS 1997). Adults fly between the sheltered marine waters where they forage on fish and small marine invertebrates and their nesting habitat in old-growth forests. Marbled murrelet use marine and estuary waters off the cities for foraging, feeding on marine fish and invertebrates.

Snowy Plover

The Pacific coast population of the western snowy plover (*Charadrius nivosus nivosus*)was federally listed as threatened under the Endangered Species Act on March 5, 1993 (58 FR 12864). Critical habitat was designated along the coasts of California, Oregon, and Washington on June 19, 2012 (77 FR 36728). A recovery plan was published in 2007 that identified six recovery units for the listed population (USFWS 2007).

Nests typically occur in flat, open areas with sandy or saline substrates (USFWS 2007). Western snowy plovers exhibit nesting site fidelity, returning to the same breeding area in subsequent breeding seasons. In Washington, western snowy plovers formerly nested at five coastal locations, and three of these sites have had active nesting in recent years, as well as a new site discovered in 2006 (USFWS 2007). The Westport Spit historically held low numbers of western snowy plovers, and a single nest was reported in 1983. Although the habitat at Westport Spit is considered poor for nesting (USFWS 2007), there are recent reports of nesting sites in the area, for instance, near Damon Point on the north side of the harbor entrance.

Bald Eagle

Beginning in 1978, the bald eagle (*Haliaeetus leucocephalus*) was federally listed as threatened under the Endangered Species Act (WAC 232-12-014); however, following the dramatic recovery, they were delisted in July of 2007. They are still protected by the USFWS Bald and Golden Eagle Protection Act (16 USC 668-668d), and remains classified by WDFW as a State Sensitive species.

Bald eagles are commonly associated with shorelines where they are often attracted by the presence of live or dead fish and other prey items. They nest in tall trees (generally greater than 85 feet in height) usually within 0.25 mile of shorelines. Several nesting sites have been identified in the cities.

Peregrine Falcon

The peregrine falcon (*Falco peregrinus*) similarly suffered a dramatic decline in the 1960s and was listed as an endangered species by USFWS in 1970 (35 FR 6069); due to the dramatic recovery, the peregrine falcon was delisted on August 25, 1999 (64 FR 46541). Similar to bald eagles, peregrine falcon is a state-listed sensitive species. Although they use a wide variety of open habitats, peregrine falcons are associated with lake and open water shorelines where

waterfowl concentrate and provide foraging opportunities. Peregrine falcons have nesting sites in both cities.

Other Shorebirds and Freshwater Waterfowl

Priority habitat in the Cities' shoreline jurisdiction includes regular concentrations and breeding areas for numerous bird species. Nonbreeding concentrations of shorebirds are also a designated priority habitat. Common in the Grays Harbor region, shorebird concentrations are mapped throughout most of the Cities' shoreline jurisdiction.

Cavity nesting ducks and waterfowl concentrations are also commonly associated with freshwater shorelines. Breeding areas of cavity nesting ducks are a priority area designated by WDFW and include breeding areas for the following species:

- Barrow's Goldeneye (*Bucephala islandica*)
- Common Goldeneye (*Bucephala clangula*)
- Bufflehead (*Bucephala albeola*)
- Hooded Merganser (*Lophodytes cucullatus*)

Waterfowl (family *Anatidae*) concentrations including significant breeding areas and regular winter concentrations are also designated priority areas. Regular concentrations of Canada goose are excluded from the priority area designation.

Although individuals may be present on occasion, priority-breeding areas of cavity nesting ducks are not mapped within the Cities' shoreline jurisdiction.

3.7.3. Geologic Hazard Areas

Areas that are susceptible to one or more of the following types of hazards are classified as geologically hazardous areas (WAC 365-190-120):

- Erosion hazard
- Landslide hazard
- Seismic hazard
- Tsunami hazard

The cities have erosion, seismic and tsunami hazards, but there are no slopes sufficient to generate landslides. Erosion hazards are related to changing nearshore sediment transport patterns that are not necessarily predictable and described in detail in Section 3.2.3, *Topography*. Because of the level of modification associated with the jetties that provide the entrance to Grays Harbor and the dredged channel in between, these changes generally result from human actions. Erosion is concentrated at the jetties themselves, where these hard structures prevent exchange of sediment across the harbor mouth as occurred prior to development. Away from the structures, there is accumulation of sediments primarily derived from the Columbia River (Kaminsky et al. 2010). Inside the harbor, erosion problems are typically only related to previously placed fill or adjacent armoring.

The other two geologic hazards (seismic and tsunami hazards) are linked – a catastrophic rupture of the Cascadia subduction zone would likely generate large amount of seismicity and generate a large tsunami. Local surface faulting is non-existent in the cities (Rau 1986) unlike in areas of Puget Sound, so the seismic hazard is almost exclusively from events associated with the Cascadia subduction zone such as large offshore landslides (Goldfinger et al. 2000), or a subduction-zone-wide rupture (Venturato et al. 2007). A subduction-zone-wide rupture slightly to the west of the cities would generate a large (greater than 8.0 on the Richter scale) earthquake event. The worst-case rupture is oftentimes called the Scenario 1A event. This event inundates all of the shorelines in both cities. The Scenario 1A event magnitude is 9.1 (Venturato et al. 2007).

Given the loose sandy soils present throughout the cities, shaking and liquefaction associated with a Scenario 1A event would be significant. Destruction of buildings not designed for seismic activity would be vulnerable to collapse. However, like most recent large subduction earthquakes (e.g., 2004 Boxing Day Earthquake in Indonesia and the 2013 Tohoku Earthquake in Japan), most of the death and destruction associated with these events is associated with the resulting tsunami.

Tsunami risk to the cities is well documented (Wood and Soulard 2008). Initial and early work has focused on a plate-wide slip of Cascadia subduction zone, typified by the Scenario 1A event (Venturato et al. 2007). This large event would inundate all of the cities' shoreline. In fact, this tsunami would inundate nearly all developed land in the cities (Wood and Soulard 2008).

Despite the severity of the worst-case scenario, research that is more recent has suggested a wider range of tsunami behavior from the Cascadia subduction zone, with partial ruptures that increase in frequency as one approaches Cape Mendocino (Priest et al. 2014). These partial ruptures would produce much more modest tsunamis throughout the cities, typically fewer than 2 meters in height (Priest et al. 2014). Further, they would reduce stress accumulation along the southern portions of the subduction zone, making a future plate-wide rupture less likely. Depending on the timing of the waves from a partial rupture, these events could inundate the lowest, most exposed areas of the shoreline, but inundation would be far less than with the Scenario 1A event. Tsunamis that originate from distant points along the Pacific Ocean margin, such as the 2011 Tohoku event in Japan, also could produce tsunamis in the cities. These waves are typically even smaller. For example, the recent Tohoku event produced an approximately 1-meter wave at Westport (Allan et al. 2012), which is generally comparable to the atmospheric perturbations affecting tides (Mojfeld 1992). However, partial rupture and distant events are more likely than a Scenario 1A event and should therefore be considered in any shoreline planning.

Finally, an important consideration of the tsunami hazard as it applies to risk within the cities' shorelines is the existing level of preparedness. Assessments of loss of property and life incurred from recent past tsunamis has described important features of tsunami preparedness (Dengler and Preuss 2003) and many of these recommendations have already been implemented in the cities. Education is a key component of preparedness, and the cities and other state and federal agencies have made numerous efforts to keep the public informed of tsunami hazards. Evacuation routes have been established and are signed throughout the

cities. Fact sheets have been printed and distributed widely (Washington Department of Natural Resources 2014a, 2014b). As the science of tsunamis evolves, it is important to continue to educate the public about the latest research. This is particularly important concerning recent work on smaller tsunami events from distant and partial-rupture Cascadia events, which are more limited in inundation extent, but are more likely to occur.

3.7.4. Flood Hazard Areas

Flood hazard areas are present throughout the majority of the marine shorelines of the cities (Figure 2 in Appendices A and B). The island in Ocean Shores' Canals Reach is in the floodway. Duck Lake and most other areas of the Canals Reach are not mapped as flood hazard areas.

3.7.5. Aquifer Recharge Areas

Both Cities rely on groundwater as their primary water supply. Westport has identified critical recharge areas around their wellheads and established wellhead protection zones (City of Westport 2013). However, all of these zones are outside of the shoreline jurisdiction. Ocean Shores uses County guidance, which identifies the entire city as a critical recharge area.

3.8. Water Quality

Ecology's 303 (d) list was used as the primary source for water quality conditions. The 303(d) list assigns a category to each water body based on its condition as evidenced by water quality or biological data. There are five different categories included in the list. Water bodies or reaches that are listed under Category 1 by Ecology are those for which there are no known water quality problems. Those listed as Category 2 are waters of concern; indicating there may be some threat to water quality or some evidence of possible deterioration but they are not considered polluted. Category 3 waters have insufficient data to make a determination. Category 4 waters are known to be polluted but there is a plan or program in place to address the problem. Last, Category 5 waters are known to be polluted but no plan or program is yet in place to address the problem.

The next section, *Discussion of Shoreline Management Areas*, includes a description of water quality in each city as part of the physical and biological characterizations. The discussion of water quality is focused on those reaches that are known to be polluted (Category 4 and 5 waters) and those for which there is some concern or threat (Category 2 waters).

4. Discussion of Shoreline Management Areas

The following sections discuss conditions and characteristics of each city with respect to physical processes, the presence of shoreline use patterns, shoreline modifications and existing and potential public access, and shoreline functions. A reach assessment for each city is provided, and identification of known restoration projects and general restoration opportunities. It should be noted that the presence of pollutants and the potential to mobilize them, should be studied before implementing any of the recommended restoration actions. This is particularly important in areas with 303d listed waters for chemical pollutants.

Tables in the sections describing each city provide summaries of physical characteristics, area and map location of shoreline reaches, geologic hazards, comprehensive plan land-use designations, current land use, zoning, and shoreline modifications. Both cities have priority species present.

Tables showing the percentages of geologic hazards within each city are provided in the discussion. In these tables, entries in the left-hand column represent the proportion of the entire shoreline jurisdiction that is mapped as a given geologic hazard. Entries are provided only for those geologic hazards that have the potential to affect shorelines through watershed-scale ecosystem processes (for example, erosion hazard areas may affect sediment delivery to streams thus affecting specific reaches). The right hand column lists the reaches within the shoreline jurisdiction that could be affected by each type of mapped geologic hazard.

Table 4-1 provides a summary of shoreline characteristics for each city, including physical and biological conditions directly related to habitat function.

The following discussions cover both the conditions scored in the reach assessment and results from the ecosystem-wide characterization applicable to each city. The discussions of critical and priority habitat and species, including salmonids rely primarily on available PHS data on species presence that are included in each appendix. To avoid cumbersome redundancy throughout the sections, we do not cite these in each case. However, where other sources are referenced, citations are provided.

The reach assessment for each city used the shoreline inventory to evaluate the specific physical and biological conditions of individual shoreline segments. Based on the rating of the function (low to high), a numerical rating was applied to each function (low = 1, moderate = 2, high = 3) to arrive at a total score within a possible range of 12 to 36 for each reach. Note that not all functions are applicable to each reach due to the type of water body present (i.e., freshwater, estuarine, coastal). These data were then analyzed and summarized for each city in terms of the total score for ecological functions and the primary reasons for the range of scores in individual reaches. The functional assessment results are summarized for each city in the following sections.

Table 4-1. Summary of Shoreline Characteristics.					
Management Area	**Number of Reaches** **Shoreline Length** **Shoreline Area**	**Land Ownership**	**Dominant Land Cover (excludes open water)**	**Shoreline Modifications, Water Quality Impairments, Invasive Species**	**Critical Areas**
Ocean Shores	9 71 miles 3,495 acre s	80% Private 16% City 4% State < 1% County	27% Developed/Human Use 14% Herbaceous 13% Barren Land 12% Emergent Herbaceous Wetland 5% Woody Wetland	Shoreline armoring in Marina and Jetty reaches, and south end of Pacific Ocean South Reach Levees, overwater structures, and tide gates Phosphorus in Duck Lake Invasive aquatic plants in Duck Lake and Canals European green crab in Grays Harbor	**Habitat Conservation Areas | Priority Habitat and Species** Chinook, Coho, Chum, and Steelhead Salmon Bull Trout, Coastal Resident Cutthroat, Rainbow Trout Herring Spawning Areas Shorebird Concentrations Marine Mammals Sensitive Vegetation Communities (Dune Grass, Eelgrass, Saltmarsh) **Geologic Hazards** Tsunami, Erosion and Liquefaction **Frequently Flooded Areas** **Wetlands**
Westport	6 23 miles 647 acres	41% Private 15% State 12% Port 4% City < 1% Federal < 1% County	41% Emergent Herbaceous Wetlands 25% Barren Land 10% Herbaceous 6% Woody Wetland 6% Developed/Human Use	Shoreline armoring in Westhaven Bacteria (Category 2) in Westhaven Dieldrin accumulation in shellfish tissue in Westhaven European green crab in Grays Harbor	**Habitat Conservation Areas | Priority Habitat and Species** Chinook, Coho, Chum, and Steelhead Salmon Bull Trout, Coastal Resident Cutthroat Trout Herring and Smelt Spawning Areas Shorebird Concentrations Peregrine Falcon Marine Mammals Sensitive Vegetation Communities (Dune Grass, Eelgrass, Kelp, Saltmarsh) **Geologic Hazards** Tsunami, Erosion and Liquefaction **Frequently Flooded Areas** **Wetlands**

4.1. Ocean Shores

There are nine reaches in Ocean Shores (Table 4-2). Ocean Shores has a diversity of shoreline types, though there are no natural streams within the city. The canals will be treated as a lake for the purposes of this inventory, recognizing they are an entirely constructed feature. The dominant shoreline type is marine, but there are significant lengths of freshwater shorelines on Duck Lake and the canal system.

Table 4-2. Ocean Shores Shoreline Reaches.

Reach Name	Shoreline Area (acres)	Shoreline Length (miles)
Pacific Ocean North	888	11.4
Pacific Ocean South	348	6.4
Jetty	65	3.1
Oyhut Wildlife Recreation Area	631	8.4
Ocean Shores Marina	38	1.5
Ocean Shores Residential	56	5.1
Airport	184	4.9
Duck Lake	765	20.5
Canals	521	9.8

4.1.1. Physical and Biological Characterization

This section discusses characteristic aspects of physical and biological conditions in Ocean Shores. Refer to Section 3 for an overview of the physical and ecological processes that influence shorelines in Ocean Shores.

Sediment transport within the city has been studied extensively (Burch and Sherwood 1992; Buijsman et al. 2003; Kaminsky et al. 2010). Burch and Sherwood (1992) determined that the most dominant modification of sediment transport was the construction of the North Jetty that secures the opening of Grays Harbor. Away from the jetty, accretion along the Pacific Ocean is common. Accumulation rates increase to the north, with recent seaward shoreline migration rates in excess of 10 feet per year at the north end of the city being common.

LWD is highly variable along the shorelines within Ocean Shores. Most of this variability reflects natural patterns of accumulation. Along Grays Harbor shorelines, LWD is typically plentiful, though not necessarily as much as existed prior to development in other areas in the harbor (such as Hoquiam). There is little LWD in the Pacific Ocean reaches and the Jetty and Ocean Shores Marina reaches. The Pacific Ocean reaches are likely naturally devoid of LWD due to the energetic and highly mobile conditions. Armoring in the Jetty and Ocean Shores Marina reaches precludes LWD in those reaches.

Table 4-3 summarizes known geologic hazard critical areas for the Ocean Shores shoreline jurisdiction and lists the shoreline reaches in which land subject to each hazard is found. The dominant hazard types are tsunami and liquefaction hazards, which extend throughout the

City's shoreline jurisdiction (WDNR 2014a). Erosion is concentrated near the North Jetty. It is expected that erosion will persist in this area in the future due to the relative sediment starvation caused by the jetty.

Table 4-3. Geologic Hazards in Ocean Shores.

Hazard Type	Percentage of Total Area	Reaches Affected
Tsunami	100	All
Erosion	Unknown	Pacific Ocean South, Jetty, Oyhut Wildlife Recreation Area
Seismic/Liquefaction[a]	100	All

[a] Moderate to High Liquefactions Susceptibility
N/A Exact numbers are not available

All of the species and habitats described in Section 3.7.2 are present or potentially present along shorelines in Ocean Shores. The local physical processes and conditions determine species and habitat in specific reaches. The outer coast is dominated by a dense distribution of dune grass, and it supports a variety fish, shellfish, birds, and marine mammals. Sparse to dense eelgrass beds are a more dominate feature along Grays Harbor, but the reaches along the harbor contain a variety of dune grass and salt marsh vegetation communities (Figure 9 in Appendix A).

Nearly all of the marine shoreline provides important shorebird habitat (Figure 11 in Appendix A). Habitat used by peregrine falcons is documented along the Airport Reach and northern tip of Duck Lake. The majority of marine shorelines are also important shellfish growing areas (Figure 7 in Appendix A) or managed for wildlife oriented recreational use. Species use of Duck Lake and the Canal reaches may be more limited compared to the marine reaches in the city due to access constraints (tide gates) and limited connectivity with other habitats. However, these reaches support a variety of freshwater dependent species, and provide fishing and other recreational and aesthetic water enjoyment opportunities.

Duck Lake is a 303d listed water body for both invasive species and phosphorus (Category 2). Duck Lake has had a history of aquatic invasive species, including Brazilian elodea (*Egeria densa*) and Eurasian water milfoil (*Myriophyllum spicatum*) (Northwest Aquatic Eco-Systems 2007). The Canals Reach also suffers from the same invasive species issues that Duck Lake has due to its proximity and interconnectedness (Northwest Aquatic Eco-Systems 2010). In addition, European green crab (*Carcinus maenas*) has been found in the Airport, Ocean Shores Residential, Oyhut Wildlife Recreation Area, and Ocean Shores Marina reaches of Grays Harbor. There is regular monitoring of water quality by Ecology throughout the city due to the large areas of recreational and commercial shellfish harvest.

4.1.1.1. Shoreline Use Analysis

Shoreline land uses within Ocean shores are varied and they include commercial uses, low density and high-density residential uses, public recreation areas, and natural, undeveloped areas. Zoning designations within the shoreline jurisdiction include Retail Commercial, General Commercial, Dune Areas, Private Recreational, Public Recreational, Single Family

Residential zones, Multiple Family Residential zones (Duplexes, Triplexes, Fourplexes, Fiveplexes, and Sixplexes), Mobile and Manufactured Homes, and Medium, High and Ultra-High Density Residential zones (Figure 12 in Appendix A). The shoreline jurisdiction includes a mixture of land covers, as defined by the National Land Cover Database, including open water, woody wetlands, emergent herbaceous wetlands, low intensity development, and barren land[1] (Figure 5 in Appendix A).

Based on a review of land cover and zoning maps, the current use categories that are considered most likely to contain or support water-oriented uses are as follows:

- Dune Area
- General Commercial
- Private Recreational
- Public Recreational

Pacific Ocean North Reach and Pacific Ocean South Reach both consist of Dune Areas and they are primarily used for water-enjoyment and recreational purposes. Jetty Reach is zoned for General Commercial, and Multi-family High Density Residential uses Private Recreational and Public Recreational uses that include public access to the beach. The wastewater treatment plant falls within this reach and is a water-related use. Oyhut Wildlife Recreation Area Reach consists of Public Recreational areas. This reach is primarily used for water-enjoyment and wildlife viewing. Ocean Shores Marina Reach is comprised entirely of water-dependent and water-enjoyment uses. Canals Reach and Duck Lake Reach consist primarily of Single Family residential zoned land and include areas for the public to enjoy the shoreline. Duck Lake Reach includes two boat launches as well as other recreational facilities and areas to view wildlife.

4.1.1.2. Existing Land Use Patterns

Land Use patterns for Ocean Shores as defined by the National Land Cover Database are tabulated in Table 4-4. Zoning designations for the City are shown in Table 4-5. Existing land use patterns are discussed in detail by reach in Sections 4.1.2 through Section 4.1.10.

4.1.1.3. Projected Land Use and Shoreline Land Capacity Analysis

The shoreline jurisdiction in Ocean Shores contains 3,199 parcels. Of these parcels, 51 percent are vacant and it appears approximately 3 percent of the parcels are protected from development by public or conservation group ownership, conservation easements, or similar mechanisms. It was not possible to determine what percent of parcels have a non-conforming structure.

[1] Barren Land is defined as areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15 percent of total cover.

Table 4-4. Current Land Use Patterns in the Shoreline Jurisdiction of Ocean Shores.	
Current Land Use Patterns	**Percentage of Shoreline Area**
All Other Residential Not Elsewhere Coded (Bare Land Platted and Outside Plats and Sheds in City Limits)	29%
Household, Single Family Units	24%
Undeveloped Land	17%
Water Areas	12%
Commercial Land	10%
Aircraft Transportation	3%
Commercial Land with Single Family Residence	1%
Marine Craft Transportation	1%
Recreational Activities – RV Parks	1%
Unclassified land use	1%
Amusements	< 1%
Commercial Land – with a Shed, Warehouse etc.	< 1%
Contract Construction Services	< 1%
Cultural Activities and Nature Exhibitions	< 1%
Finance, Insurance, and Real Estate Services	< 1%
Hotels/Motels	< 1%
Household, 2-4 Units	< 1%
Household, Multi-Units (5 or more)	< 1%
Institutional Lodging	< 1%
Miscellaneous Services – Churches	< 1%
Other Cultural, Entertainment, and Recreational	< 1%
Other Retail Trade	< 1%
Other Transportation, Communication, and Utilities not Classified Elsewhere – Water Systems	< 1%
Parks	< 1%
Personal Services	< 1%
Professional Services	< 1%
Public Assembly	< 1%
Retail Trade – Food	< 1%
Retail Trade – General Merchandise	< 1%
Utilities	< 1%

Table 4-5. Current Zoning Designations in the Shoreline Jurisdiction of Ocean Shores.			
Designation	**Symbol**	**Typical Uses**	**Percentage of Shoreline Area**
Retail Commercial	B-1	This district is intended for retail commercial uses and providing day-to-day goods and services. Permitted uses include: one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental and other uses of a similar nature, and on-site hazardous waste treatment and storage facilities.	1%
General Commercial	B-2	This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include: One-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, and other uses and structures of a similar and compatible nature and on-site and off-site hazardous waste treatment and storage facilities.	6%
Dune Area	DA	Dune areas are identified to protect and preserve the ocean dunes while also allowing for recreational activities.	14%
Private Recreational	PR-1	This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.	< 1%
Public Recreational	PR-2	This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.	19%
Duplex	R-2	This district is intended for low-density, single-family, and two-family dwellings. Permitted uses include single-family residences, manufactured homes, and two-family dwellings.	< 1%
Single Family	R-1	This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.	20%

Table 4-5 (continued). Current Zoning Designations in the Shoreline Jurisdiction of Ocean Shores.			
Designation	**Symbol**	**Typical Uses**	**Percentage of Shoreline Area**
Triplex	R-3	This district is intended for moderate density, one-, two- and three-family dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; three-family dwellings.	< 1%
Fourplex	R-4	This district is intended for moderate density, one-, two-, three-, and four-family dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; three-family dwellings; four-family dwellings.	< 1%
Fiveplex and Sixplex	R-5	This district is intended for moderate single-family and multifamily dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings including three, four, five, and six dwelling units per structure.	< 1%
Mobile and Manufactured Home	R-6B	This district is intended for low density, long-term mobile, and manufactured home occupancy as single-family dwellings. Permitted uses include single-family residences; manufactured homes; singlewide or doublewide single-family mobile homes and manufactured homes.	< 1%
Manufactured Home – Double Wide	R-6C	This district is intended for low density, long-term, doublewide, or larger manufactured home occupancy as single-family dwellings. Permitted uses include single-family residences; manufactured homes.	< 1%
Multi-Family Medium Density	R-7	This district is intended for medium density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.	1%
Multi-Family High Density	R-8	This district is intended for high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.	< 1%
Multi-Family Ultra High Density	R-9	This district is intended for ultra-high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.	< 1%

The City's shoreline is designated primarily for urban land uses. City zoning designations in the shoreline jurisdiction include Retail Commercial (B-1), General Commercial (B-2), Dune Area (DA), Single Family (R-1), Duplex (R-2), Triplex (R-3), Fourplex (R-4), Fiveplex and Sixplex (R-5), Mobile and Manufactured Home (R-6B), Manufactured Home – Double Wide (R-6C), Multi-Family Medium Density (R-7), Multi-Family High Density (R-8), and Multi-Family Ultra High Density (R-9).

Most of new residential development capacity in shoreline jurisdiction (188 acres) exists in the R-1 Single Family Residential land use designation on vacant lots that are too small to subdivide. Twenty-three percent of the residential development capacity in the shoreline jurisdiction occurs on lots that can be subdivided per the City's code. This represents a significant amount of potential development. Projected land use is discussed in detail in reach-specific sections.

4.1.1.4. Public Access Analysis

In its 2012–2017 Comprehensive Park and Recreation Plan, Ocean Shores outlines goals and objectives for improving and maintaining the City's park and recreation areas. The City conducted an inventory of its park and recreation system and identified improvements needed for existing parks.

Existing Public Access

Ocean Shores offers many ways for its residents to access the shoreline. Seven parks or future parks provide access to the shoreline. They include North End Grand Canal Park, Limpet Park, North Bay Park, Chinook Park, Texmar Park, Future Gunderson Park, and South End Grand Canal Park. The beach is accessible via car from several intersections along Ocean Shores Boulevard Northwest as well as Sand Dune Avenue Northwest. Residents may also access the beach by foot at several access points along the marine shoreline and the harbor. Public fishing is allowed at several points along the shoreline. West of the marina, residents can enjoy the wildlife from the wildlife viewing area. Public access opportunities for each reach are discussed in Sections 4.1.2 through 4.1.10.

Potential Gaps and Public Access Opportunities

Within its Comprehensive Park and Recreation Plan, the City has identified opportunities for expanding and improving public access to the shoreline. The City has a systemwide goal for providing sufficient recreation opportunities to satisfy the needs of the city's population. Public Access opportunities are discussed further in the individual reach sections. The Grays Harbor County Public Health and Social Services Department is currently drafting an Active Transportation Plan titled *Connect Grays Harbor*. The plan has identified several priorities for the county relating to shoreline access including the Rails to Trails program. Throughout the public input process, the desire to add a trail from Hoquiam to Ocean Shores along Burrows Road has been repeatedly mentioned and is under consideration.

4.1.1.5. Reach Functional Assessment Overview

The shoreline functional assessment for Ocean Shores is summarized in Table 4-6.

Shoreline reaches in Ocean Shores scored between 18 points and 36 points. The highest scoring reaches included the Oyhut Wildlife Recreation Area, Pacific Ocean reaches, and Airport Reach, suggesting a relatively high level of unimpaired functions in these reaches, and indicative of the relative levels of protection provided in these reaches. The higher function scores are primarily associated with habitat for wildlife. Tidal and wave energy and the movement of water, sediment, and organic materials are key processes contributing to the development of regionally unique habitat conditions that support shorebirds, shellfish, and other wildlife either directly or indirectly. These processes result in a suite of conditions that allow a diverse range of vegetative communities, and habitat structure suitable for a variety of species. Reaches with lower scores are generally impaired by shoreline armoring or other modifications that reduce habitat complexity and habitat related functions.

Invasive species were identified in six reaches including Duck Lake, the Canals, and all of the reaches along Grays Harbor. Duck Lake and the Canals, as well as the Jetty and Ocean Shore Marina reaches, exhibit impaired or moderately impaired functions related to vegetation. In these reaches, vegetative conditions have been modified by disturbance or shoreline development in many locations. Vegetation in the Pacific Ocean reaches and less disturbed harbor reaches is mostly intact, supporting many of the functions that depend on healthy native vegetation communities and the physical structure and habitat that they provide.

4.1.1.6. Recommended Environment Designations

Environment Designations for Ocean Shores are shown in Appendix A. For all portions of the City's shoreline jurisdiction, lands that are waterward of the OHWM are designated Aquatic. The location of the OHWM will be determined on a case-by-case basis at the time of development. Other proposed shoreline environment designations, including the criteria used to determine the designation based on SMP Guidelines in WAC 173-26-211(2)(a), are described for various portions of the shoreline jurisdiction in the reach-specific sections below.

4.1.1.7. Restoration Opportunities Overview

Since most development within the city has taken place since the 1950s, restoration opportunities in the city are limited due to the relatively young age of most development. Typically, restoration projects involve the removal of relict development, which there is very little of in the city. The exception is the Weatherwax property, which was purchased by the City in 1999 to preserve the one last large undeveloped parcel within the city limits. The City has begun to make the property a wetland bank. Most of the property has never been developed and is an excellent example of predevelopment conditions on the Point Brown peninsula (Bridges 2010). However, a portion of the property on the natural shoreline of Duck Lake was deforested (i.e., the "Point") and could be enhanced by planting and removing invasive vegetation (Bridges 2010).

Table 4-6. Functions Assessment for Ocean Shores Reaches.

	Hydrologic Functions					Water Quality Functions				Habitat Functions											
	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Support of base flow and groundwater (Freshwater shorelines)	Maintaining temperature	Removing excessive nutrients and toxic compounds	Removing excessive nutrients and toxic compounds	Sediment removal and stabilization	Sediment/bank stabilization and shoreline protection	Sediment/bank stabilization and shoreline protection	Attenuation of wave energy	Attenuation of wave energy	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Provision and redistribution of woody debris and organic materials	Provision and redistribution of woody debris and organic materials	Provision and redistribution of woody debris and organic materials	Total Score
Function Criteria Number[a]	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	
Reach Name																					
Pacific Ocean North Reach	N/A	N/A	N/A	N/A	N/A	N/A	2	3	1	3	3	N/A	3	3	2	3	3	2	2	2	32
Pacific Ocean South Reach	N/A	N/A	N/A	N/A	N/A	N/A	2	3	1	3	3	N/A	3	3	2	3	3	2	2	2	32
Jetty Reach	N/A	N/A	N/A	N/A	N/A	N/A	2	3	1	1	1	1	1	2	1	1	2	1	1	0	18
Oyhut Wildlife Recreation Area Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	3	3	2	3	2	2	3	3	3	2	2	2	36
Ocean Shores Marina Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	2	1	2	1	2	1	1	3	2	1	1	2	0	22
Ocean Shores Residential Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	2	2	3	2	2	2	1	3	2	2	1	2	2	29
Airport Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	2	3	3	2	3	2	2	3	3	2	2	2	2	34
Canals Reach	1	3	1	1	2	1	3	1	2	1	1	3	2	1	N/A	1	1	1	1	0	27
Duck Lake Reach	1	3	1	1	2	1	2	1	2	1	2	3	2	1	N/A	2	2	1	1	0	29

[a] Criteria are described in Table 2-4 for each corresponding number (1-20).

Not applicable (N/A) is assigned to shorelines if the function or indicator of function is naturally absent from the shoreline due to the type of water body or geography.

A score of "0" is given to shorelines that are modified to a degree that the function or indicator of function is absent.

4.1.2. Pacific Ocean North Reach

4.1.2.1. Existing Land Use Pattern

The zoning designations and land cover for Pacific Ocean North Reach are shown in Table 4-7. The reach is primarily undeveloped beach and dune area. The publicly owned dune areas in this reach have accreted over time. As a result, the beach area has increased in size. Figure 6 in Appendix A shows that a portion of the dune area in this reach is part of the SCA managed by WSPRC. Additionally, OSMC 18.56 – Ocean Dunes Protection Act regulates the City-owned dune areas in this reach. OSMC 18.56 is designed to protect the ocean dune areas while allowing for recreational activities. The dune protection areas are defined as that portion of Division Nos. 1, 2, 4, 8, 10, 11, 16, 17, 18, 19, and 19A, Ocean Shores Addition to Grays Harbor County, Washington lying west of the western property line to the mean high tide mark of the Pacific Ocean. The Dune Protection area is shown in Figure 12 in Appendix A.

Existing land use within the reach includes a portion of a hotel. Approximately 60 percent of land cover is herbaceous vegetation that includes dune grass, and the remaining land cover is either barren or covered with wetlands or shrub/scrub vegetation.

Table 4-7. Pacific Ocean North Reach.

Zoning	Percentage of Reach
Dune Area	100%
Retail Commercial	< 1%
Land Cover	
Herbaceous	61%
Barren Land	31%
Emergent Herbaceous Wetlands	6%
Shrub/Scrub	2%
Woody Wetlands	< 1%
Developed, Low Intensity	< 1%

4.1.2.2. Projected Land Use

The Pacific Ocean North Reach is designated for Parks and Recreation (630 acres) and Resort Tourist Commercial/General Commercial (3 acres) use. Most of the reach is undevelopable beach land in public ownership that is used for recreational purposes. However, part of a hotel and restaurant fall within the northeastern corner of the reach. Other than this one pre-existing use, the entire reach will remain undeveloped and utilized as a public beach.

4.1.2.3. Public Access

There are at least eight public points to access the Pacific Ocean beach in this reach, including five vehicular and eight pedestrian access points. The beach can be reached by vehicle, bicycle, or on foot. Figure 6 in Appendix A displays the areas of this reach that are within the SCA managed by the WSPRC. The SCA is open to the public for recreation and enjoyment.

4.1.2.4. Shoreline Modifications

The Pacific Ocean North Reach does not contain any known shoreline modifications.

4.1.2.5. Reach Functional Assessment

The Pacific Ocean North Reach scored moderate or high for most water quality and habitat functions. Hydrologic Functions are naturally absent from the reach due to the geography of the coastal beach. The reach contains an extensive dune grass community along its margin, which is an important locally unique and protected habitat. Although it is an herbaceous vegetation, typically indicative of sediment removal and stabilization functions to support water quality, dune grass does not naturally provide this function, therefore the reach scored low for this function due to naturally limiting conditions rather than development or a human induced impairment. The extensive dune grass provides a high level of function for sediment stabilization along the beach. The dune area has expanded due to gradual accretion along the beach, which benefits numerous shoreline dependent species. Extensive use by shorebirds, a patchy distribution of LWD, and relatively intact and well connected habitats throughout the majority of the reach also indicate good habitat function.

4.1.2.6. Recommended Environment Designations

Urban Conservancy and High Intensity

Criteria for determining the proposed Urban Conservancy environment designation for most of the Pacific Ocean North Reach include the following:

1. The existing land use is primarily recreational, consisting of a public beach.
2. Four public access points existing within this reach that allow pedestrians and motorists to access the shoreline.
3. The Comprehensive Plan designations for the reach are:
    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.
4. The adopted zoning districts in the reach are:
    a. **Dune Areas (DA)** – Dune areas are identified to protect and preserve the ocean dunes while also allowing for recreational activities.
5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:
    a. They are suitable for water-related or water-enjoyment uses

b. They are open space, flood plain, or other sensitive areas that should not be more intensively developed

c. They have potential for ecological restoration

d. They retain important ecological functions even though partially developed

e. They have the potential for development that is compatible with ecological restoration.

Criteria for determining the proposed High Intensity environment designation for a portion of the Pacific Ocean North Reach include the following:

1. The existing land uses are high intensity commercial and include portion of a large hotel.

2. The Comprehensive Plan designations for the reach are:

   a. **Resort Tourist Commercial** – This classification is intended for those uses that serve the lodging, shopping, recreational, and other needs of tourists and provide for High Density Residential use to serve both visitors and residents in Ocean Shores. Uses that make pedestrian movement hazardous, that break up the efficiency of resort tourist areas, or that diminish their attractiveness or create excessive traffic movement should either be excluded or allowed only on a conditional basis when these adverse impacts can be minimized through design or operational requirements.

   b. **General Commercial** – This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

      In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.

3. The adopted zoning districts in the reach are:

    a. **Retail Commercial (B-1)** – This district is intended for retail commercial uses and to provide day-to-day goods and services. Permitted uses include one-family, two-family, and multifamily dwellings; grocery and drug stores; hardware stores; hotels; motels; restaurants; cafes; taverns; cocktail lounges; banks; professional offices; general offices; specialty shops; jewelry shops; child-care centers; light equipment rental; and other uses of a similar nature; and on-site hazardous waste treatment and storage facilities.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a high-intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

4.1.2.7. Restoration Opportunities

Due to this area being naturally accreting and that condition likely to continue into the future, emphasis should be on conservation of newly accreted public lands. Conservation could take the form of reducing invasive species, such as European beachgrass, so as to improve habitat for shorebirds (e.g., snowy plover).

4.1.3. Pacific Ocean South Reach

4.1.3.1. Existing Land Use Pattern

The Pacific Ocean South Reach is composed of primarily of ocean beach and the associated dune areas. Zoning and land cover designations for this reach are shown in Table 4-8. There are single-family residences and a resort located in the southern portion of the reach. Overall, developed land is approximately 2 percent of the total reach area.

As stated in Section 4.1.1.1, the shoreline in the Pacific Ocean South reach directly north of the North Jetty has experienced erosion over the past decade. Currently wave bumpers and geotubes protect homes from continued erosion. Ocean Shores, in partnership with Ecology and other federal agencies, is currently exploring alternatives to protect existing residential development. The beach in the northern portion of this reach has not experienced erosion to the extent that has occurred in the southern portion of the reach. Rather, the beach has accreted over the last several decades and has expanded in size.

Figure 6 in Appendix A shows that a portion of the dune area in this reach is part of the SCA. This area is managed by the WSPRC. Additionally, the City-owned dune areas in this reach are regulated by OSMC 18.56 – Ocean Dunes Protection Act. OSMC 185.56 is designed to protect the ocean dune areas while allowing for recreational activities. The dune protection areas are defined as that portion of Division Nos. 1, 2, 4, 8, 10, 11, 16, 17, 18, 19, and 19A, Ocean Shores Addition to Grays Harbor County, Washington lying west of the western property line to the mean high tide mark of the Pacific Ocean. The Dune Protection area is shown in Figure 12 in Appendix A.

Table 4-8. Pacific Ocean South Reach.	
Zoning	**Percentage of Reach**
Dune Area	84%
Single Family	7%
Multifamily Ultra High Density	5%
Fourplex	2%
Private Recreational	< 1%
Public Recreational	< 1%
Land Cover	
Barren Land	42%
Herbaceous	39%
Open Water	7%
Shrub/Scrub	6%
Emergent Herbaceous Wetlands	3%
Developed, Low Intensity	1%
Developed, Medium Intensity	1%

4.1.3.2. Projected Land Use

The Pacific Ocean South Reach is designated for Parks and Recreation (234 acres) and Resort Tourist Commercial/High Density Residential (14 acres). A small portion is designated for High Density Residential (21 acres) and Moderate Density Residential (6 acres). This reach includes mostly beach areas as well as portions of parcels that are developed with high-density residential uses. Some undeveloped parcels exist within this reach and they may be developed as high-density residential buildings, provided concerns about coastal erosion can be addressed.

4.1.3.3. Public Access

There are nine public access points to the Pacific Ocean beach in this reach, including nine pedestrian and one vehicular access points. Residents and visitors heavily use the beach. Figure 6 in Appendix A displays the areas of this reach that are within the SCA. The SCA is open to the public for recreation and enjoyment.

4.1.3.4. Shoreline Modifications

Most of the shoreline in this reach is unarmored, with the exception of a 850-foot long riprap revetment just north of the North Jetty at the south end of the reach, installed around 2010. North of the riprap revetment is a geotube installation, which is slightly older dating from the late 1990s. The reach is also bounded to the south by the North Jetty, which secures the navigation channel.

4.1.3.5. Reach Functional Assessment

The Pacific Ocean South Reach has similar characteristics as the northern portion of the outer coast, Pacific Ocean North reach, and scored the same for functions in the assessment

(Table 4-6) based on those similar conditions (see Section 4.1.2.5). Notable differences however are a higher level of shoreline modification (Figure 10 in Appendix A), and the encroachment of residential development into the beach along the majority of the reach, from approximately Marine View Drive SW to the southern end of the reach. This encroachment compared to vegetated areas in the northern reach is visible in aerial images (see figure 13 in Appendix A) and has resulted from a combination of accelerated erosion in the South Reach and gradual accretion further north. These factors suggest a relatively higher level of impairment in the reach, despite equal scores and overall level of function provided by the Pacific Ocean North and South reaches.

4.1.3.6. Recommended Environment Designations

Shoreline Residential/Urban Conservancy

Criteria for determining the proposed Shoreline Residential environment designation for a portion of the Pacific Ocean South Reach include the following:

1. The existing land is planned at platted for residential use. There are many pre-existing residential single-family and multi-family structures, and the areas in the northern portion of the reach are not experiencing coastal erosion at the rate of the southern portion of the reach.

2. Residential development would be required to meet the standards in WAC 173-26-231(3)(a)(iii)(A) which state:

    a. New development should be located and designed to avoid the need for future shoreline stabilization to the extent feasible. Subdivision of land must be regulated to assure that the lots created will not require shoreline stabilization in order for reasonable development to occur using geotechnical analysis of the site and shoreline characteristics. New development on steep slopes or bluffs shall be set back sufficiently to ensure that shoreline stabilization is unlikely to be necessary during the life of the structure, as demonstrated by a geotechnical analysis. New development requiring shoreline stabilization could cause significant impacts to adjacent or down-current properties and shoreline areas and it should not be allowed. The regulations in the SMP and in the critical areas regulations in the shoreline jurisdiction will ensure that new development will need to demonstrate that it will address any concerns regarding beach loss, not require additional shoreline stabilization, and that the SMP's no not loss standard will be met.

3. Several public access points are located within the reach providing access to the shoreline. Most of this reach landward of the OHWM consists of high-density residential developments that are located adjacent to the beach.

4. The Comprehensive Plan designations for the reach are:

    a. **Low Density Residential** – These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

b. **Moderate Density Residential** – This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure), with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.

c. **High Density Residentia**l – This designation should be comprised of densities ranging from one unit per 700 square feet to one unit per 1,800 square feet.

5. The adopted zoning districts in the reach are:

   a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

   b. **Fourplex (R-4)** – This district is intended for moderate density, one-, two-, three-, and four-family dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; three-family dwellings; four-family dwellings.

   c. **Multi-family Ultra High Density (R-9)** – This district is intended for ultra-high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for the rest of the Pacific Ocean South Reach include the following:

1. The existing land use is primarily recreational, consisting of a public beach.

2. The Comprehensive Plan designation for the reach are:

   a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. The adopted zoning districts in the reach are:

   a. **Dune Areas (DA)** – Dune areas are identified to protect and preserve the ocean dunes while also allowing for recreational activities.

   b. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses,

playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.

c. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   a. They are suitable for water-related or water-enjoyment uses

   b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

   c. They have potential for ecological restoration

   d. They retain important ecological functions, even though partially developed

   e. They have the potential for development that is compatible with ecological restoration.

4.1.3.7. Restoration Opportunities

There is an opportunity to improve conditions immediately north of the North Jetty. Currently a riprap revetment, built sometime around 2010, exists to protect a multi-unit time-share development. There are also geotubes that also serve as a hardened shoreline. Flanking of the riprap revetment is already occurring and the geotubes have failed in places, due to the rapid rates of erosion in the area. However, as has been proven effective in Westport, beach nourishment using dredge spoils can be an effective erosion mitigation measure that has less environmental impact over the long term, as compared to riprap revetments (Ecology 2014a). Much of the dredge spoils derived from excavating the entrance channel on an annual basis are wasted to deep water (Buijsman et al. 2003), and could be used instead to supply the North Jetty area with sand lost from the jetty placement. Other sources of beach nourishment may also be available.

4.1.4. Jetty Reach

4.1.4.1. Existing Land Use Pattern

Jetty Reach has intermittent development on lands within the shoreline jurisdiction. Zoning designations and land cover are shown in Table 4-9. As the name implies, this reach contains the Grays Harbor North Jetty. The jetty extends west into the Pacific Ocean from the southwest corner of the Ocean Shores peninsula. The reach includes the jetty, medium, and high-density residential development, vacant lots with development potential, and the City's

wastewater treatment plant, which is zoned general commercial. The entire shoreline in this reach is heavily modified, which inhibits direct access to the shore.

Table 4-9. Jetty Reach.

Zoning	Percentage of Reach
Public Recreational	28%
General Commercial	25%
Multifamily High Density	20%
Private Recreational	19%
Multifamily Medium Density	8%
Multifamily Ultra High Density	< 1%
Land Cover	
Barren Land	49%
Herbaceous	25%
Developed, Low Intensity	11%
Open Water	9%
Shrub/Scrub	4%
Developed, Medium Intensity	2%
Emergent Herbaceous Wetlands	< 1%

4.1.4.2. Projected Land Use

Comprehensive Plan designations in the Jetty Reach include Parks and Recreation (18 acres), General Commercial (9 acres), Resort Tourist Commercial (8 acres), and High Density Residential (3 acres). The reach is largely composed of public beaches and is used for recreational purposes; however, it does include the wastewater treatment plant. Future development within this reach will likely include residential development on vacant lots and any improvements the City enacts on the wastewater treatment plant.

4.1.4.3. Public Access

Public access to the shoreline is possible at one pedestrian access point. However, this provides to the Pacific Ocean beach and not the Grays Harbor channel that constitutes the majority of shoreline area in the reach. Direct access to the channel is not possible due to shoreline armoring.

4.1.4.4. Shoreline Modifications

The most significant shoreline modification in the city is the North Jetty that secures the opening of Grays Harbor (Burch and Sherwood 1992). It has initiated significant accretion throughout the city for most of the twentieth century and affects conditions well beyond this reach (Kaminsky et al. 2010). The Jetty is maintained and maintenance dredging along it is conducted by the USACE.

4.1.4.5. Reach Functional Assessment

The Jetty Reach scored low for many of the ecological functions potentially present. The most significant factor influencing the low functional assessment scores is the highly altered and unvegetated condition associated with extensive armoring. The entire length of the shoreline is characterized by the armored breakwater that effectively eliminates a functioning intertidal beach structure and reduces habitat quality and quantity for many species. The armoring prohibits the development of important shoreline vegetation communities (Figure 9 in Appendix A). Additional armoring surrounds the water treatment facility on the eastern end of the reach. A more natural beach structure with accumulations of LWD is present north of the jetty, and may be an important conservation area despite the presence of a parking area that accommodates beach access. The narrow strip of undeveloped land between the rock armor and East Ocean Shores Boulevard SW should also be considered for conservation since it could be an important habitat connection between the ocean beach and the Oyhut Wildlife Recreation Area inside the harbor.

4.1.4.6. Recommended Environment Designations

Urban Conservancy/Shoreline Residential

Criteria for determining the proposed Shoreline Residential environment designation a portion of the Jetty Reach include the following:

1. The land is platted and planned for residential development. Many of the lots are developed and only a small portion of the lot area is located within the shoreline jurisdiction.

2. The Comprehensive Plan designations for the reach are:

    a. **High Density Residential** – This designation should be comprised of densities ranging from one unit per 700 square feet to one unit per 1,800 square feet.

3. The adopted zoning districts in the reach are:

    a. **Multi-family Medium Density Residential (R-7)** – This district is intended for medium density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

    b. **Multi-family High Density Residential (R-8)** – This district is intended for high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for most Jetty Reach include the following:

1. This portion of the reach contains the City's wastewater treatment plant.
2. This portion of the reach is undeveloped save the portion of the jetty that is landward of the OHWM and the wastewater treatment plant.
3. The Comprehensive Plan designations for the reach are:
    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.
    b. **General Commercial** – This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

        In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.
4. The adopted zoning districts in the reach are:
    a. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.
    b. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

c. **General Commercial (B-2)** – This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, other uses and structures of a similar and compatible nature, and on-site and off-site hazardous waste treatment and storage facilities.

5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   a. They are suitable for water-related or water-enjoyment uses

   b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

   c. They have potential for ecological restoration

   d. They retain important ecological functions, even though partially developed

   e. They have the potential for development that is compatible with ecological restoration.

4.1.4.7. Restoration Opportunities

There are no identified restoration opportunities in the Jetty Reach due to its being a maintained navigational channel shoreline.

4.1.5. Oyhut Wildlife Recreation Area Reach

4.1.5.1. Existing Land Use Pattern

This reach is dominated by the Oyhut Wildlife Recreation Area, which is predominantly undeveloped wetlands comprised of forested, scrub-shrub, emergent, and estuarine vegetation. Zoning designations are found in Table 4-10. While a portion of the reach (9 percent) is zoned for commercial uses, the existing land uses in this reach are predominantly residential. The reach also includes a small portion of a property near the Quinault Marina that is used for tent camping.

Table 4-10. Oyhut Wildlife Recreation Area Reach.	
Zoning	**Percentage of Reach**
Public Recreational	85%
General Commercial	9%
Multifamily Medium Density	4%
Multifamily High Density	< 1%
Duplex	< 1%
Single Family	< 1%
Multifamily Ultra High Density	< 1%
Land Cover	
Emergent Herbaceous Wetlands	41%
Barren Land	20%
Open Water	20%
Woody Wetlands	14%
Herbaceous	3%
Developed, Low Intensity	1%
Shrub/Scrub	1%
Developed, Open Space	< 1%

4.1.5.2. Projected Land Use

Oyhut Wildlife Recreation Area Reach is currently designated primarily for Parks and Recreation use (542 acres), although some of the reach is designated for General Commercial (56 acres), High Density Residential (25 acres), and Resort Tourist Commercial (4 acres) land uses. Due to the presence of associated wetlands in this area, this reach extends into some developed areas including existing single-family homes. This reach could see future development of low-density residential or commercial uses in the areas outside the Oyhut Wildlife Recreation Area.

4.1.5.3. Public Access

Public Access to Grays Harbor is possible through the 683-acre Oyhut Wildlife Recreation Area. There are four pedestrian access points to the wildlife area within the reach. The wildlife area is maintained by WDFW as a waterfowl habitat area and a recreation area. It provides important habitat functions, as it is one of the few snowy plover nesting sites in the state. It is open to the public for fishing and passive recreation except for certain areas that are restricted snowy plover nest sites.

4.1.5.4. Shoreline Modifications

Rock breakwater extends from the jetty reach to the marina, but the shoreline is otherwise unmodified.

4.1.5.5. Reach Functional Assessment

The Oyhut Wildlife Recreation Area Reach ranks moderate to high for each ecological function present within the reach (Table 4-6). Despite a highly modified (leveed) shoreline, the reach is mostly characterized by a natural estuarine habitat and mud flats seaward of the levee and undeveloped freshwater emergent, scrub-shrub, and forested wetlands landward of the levee, partly because the levee reduces wave energy there. The presence of invasive European green crab may reduce habitat quality, yet the reach provides important habitat used by shorebirds, and also contains diverse estuarine and freshwater vegetation communities (Figure 2 and Figure 9 in Appendix A) that provide habitat structure and water quality functions. Sediment and bank stabilization may be moderately impaired by the levee. However, because it is set back and is vegetated on both sides, the impairment is limited compared to reaches with a more abrupt transition (such as the Jetty reach) and it has less adverse effect on functions such as attenuation of wave energy. Roads and existing and planned residential development within the mapped wetland east of the state-owned Wildlife Recreation Area (see Figure 6 in Appendix A) may impact habitat and water quality functions in that location if wetland protection measures are not adequate.

4.1.5.6. Recommended Environment Designations

High Intensity/Shoreline Residential/Natural/Aquatic

Criteria for determining the proposed High Intensity environment designation for the small portion of the Oyhut Wildlife Recreation Area Reach include the following:

1. A portion of this reach has been designated in the Comprehensive Plan as a General Commercial Areas. In addition, it is zoned for commercial use.

2. The Comprehensive Plan designations for the reach are:

    a. **General Commercial** – This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

    In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.

3. The adopted zoning districts in the reach are:

    a. **General Commercial (B-2)** – This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, other uses and structures of a similar and compatible nature, and on-site and off-site hazardous waste treatment and storage facilities.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a high-intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Shoreline Residential environment designation for a portion of the Oyhut Wildlife Recreation Area Reach include the following:

1. The reach includes a small amount of residential development located on the edges of the wetland. The lots are platted and planned for development.

2. The Comprehensive Plan designations for the reach are:

    a. **High Density Residential** – This designation should be comprised of densities ranging from one unit per 700 square feet to one unit per 1,800 square feet.

    b. **Low Density Residential** – These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

3. The adopted zoning districts in the reach are:

    a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

    b. **Multi-family Medium Density Residential (R-7)** – This district is intended for medium density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

c. **Multi-family High Density Residential (R-8)** – This district is intended for high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

d. **Multi-family Ultra High Density Residential (R-9)** – This district is intended for ultra-high density, multiple-family dwelling structures. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Natural environment designation for most of the Oyhut Wildlife Recreation Area Reach include the following:

1. This reach includes the Oyhut Wildlife Recreation Area. The property is maintained as a waterfowl habitat and is used for recreational purposes. It is also one of four remaining snowy plover nesting sites in the state.

2. The Oyhut Wildlife Area is owned and managed by WDFW. There are no plans to construct structures or use the land for any purpose other than the existing waterfowl habitat use. Maintenance of existing vegetative screening is a priority in this area. Additionally, WDFW plans to remove and control invasive species as required when funding is available.[2]

3. The Comprehensive Plan designations for the reach are:

   a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

4. The adopted zoning districts in the reach are:

   a. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

[2] Based on phone conversation with Jim Gerchak, WDFW Johns River Wildlife Area Manager, February 3, 2015.

5. Specific designation criteria in WAC 173-26-211(5)(a)(iii): Assign a Natural environment designation to shoreline areas if any of the following characteristics apply:

    a. The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;

    b. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or

    c. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.

    d. Such shoreline areas include largely undisturbed portions of shoreline areas such as wetlands, estuaries, unstable bluffs, coastal dunes, spits, and ecologically intact shoreline habitats. Shorelines inside or outside urban growth areas may be designated as natural.

Areas of the reach waterward of the OHWM are designated aquatic. The location of the OHWM will be determined at the time of development.

4.1.5.7. Restoration Opportunities

Restoration opportunities with the Oyhut Wildlife Recreation Area Reach are limited due to limited past development. Much of the area is also permanently conserved. It may be possible to remove some portion of the remnant jetty that extends throughout this reach, though analysis would need to be performed to ensure that doing would not have deleterious consequences to the area or adjacent shorelines.

4.1.6. Ocean Shores Marina Reach

4.1.6.1. Existing Land Use Pattern

Ocean Shores Marina Reach is zoned primarily for General Commercial, as shown in Table 4-11. Commercial zoning includes the Quinault Marina and RV Park and a private retirement community. The portion of the reach zoned Private Recreational contains a private recreation club. The marina is the dominant land use in the Ocean Shores Marina Reach, although it has not been maintained for commercial use. The ferry that transported passengers between the cities was discontinued in 2008 due to sand and silt accumulation in the marina. Sand and silt accumulation prevent full use of the marina and there are no plans to dredge to provide passage for larger ships. Currently, the marina is used by one commercial fishing vessel and a small number of recreational fishermen.

Table 4-11. Ocean Shores Marina Reach.	
Zoning	**Percentage of Reach**
General Commercial	94%
Private Recreational	5%
Retail Commercial	< 1%
Single Family	< 1%
Land Cover	
Open Water	40%
Herbaceous	32%
Barren Land	13%
Developed, Low Intensity	7%
Developed, Medium Intensity	5%
Emergent Herbaceous Wetlands	3%

4.1.6.2. Projected Land Use

Comprehensive Plan designations in Ocean Shores Marina Reach include General Commercial (34 acres), Parks and Recreation (2 acres), and less than 1 acre each High Density Residential, and Resort Tourist Commercial. Uses within this reach include the marina and some high-density residential developments. Future development within this reach would likely be confined to commercial uses relating to the marina. The marina is owned by the Quinault Indian Nation, and their plans for redevelopment are unknown at this time.

4.1.6.3. Public Access

Public access to Grays Harbor exists at the Quinault Marina and at the Ocean Shores Interpretive Center. There has been little investment in the marina over the last several years, and there is the opportunity to transform it into an amenity for the community.

4.1.6.4. Shoreline Modifications

There are many shoreline modifications in this reach. The remnants of the original North Jetty bound the southern end of the reach, which includes a portion of the former roadway that accessed Damon Point. The roadway is within the ordinary high water mark and has been incrementally eroded away over time. This area includes an RV Park, where consolidated gravel surfaces are also eroding into the harbor. Further north a riprap revetment extends the length of the reach. In the marina itself, a decaying, overwater wooden walkway also lines the shoreline. The reach includes the outlet of Duck Lake, which is completely engineered and artificial.

4.1.6.5. Reach Functional Assessment

Ocean Shores Marina Reach ranks low or moderate for most functional assessment criteria that are applicable to the reach. Although there are no documented water quality concerns, the shoreline is highly modified to protect the marina. Limited vegetation cover in combination with shoreline uses including the boat ramp, boat moorage at the marina slips,

and parking areas likely reduce the reach's capacity to provide water quality functions. The shoreline modifications also alter natural sediment transport patterns and may represent maintenance concerns and habitat degradation over the long term due to gradual sediment accumulation. Herring spawning is documented on both sides of the marina breakwaters (Figure 11 in Appendix A). This is the only reach where spawning is documented in Ocean Shores, indicating it is a unique and important habitat niche in the city. The reach ranked high for habitat function (criteria number 15) because multiple types of nearshore vegetation (eelgrass and dune grass) are present within the harbor and along the shoreline north of the breakwater (Figure 9 in Appendix A). However, shoreline vegetation is highly disturbed by formal and informal access roads throughout the reach, parking areas, and the RV park. Habitat complexity and quality is limited by these disturbances and the armored shoreline.

4.1.6.6. Recommended Environment Designation

High Intensity/Urban Conservancy

Criteria for determining the proposed High Intensity environment designation for Ocean Shores Marina Reach include the following:

1. The existing land uses in the High Intensity area of the reach are water-oriented and water-enjoyment commercial uses.

2. The Comprehensive Plan designations for the reach are:

    a. **General Commercial** – This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

    In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.

    b. **Resort Tourist Commercial** – This classification is intended for those uses that serve the lodging, shopping, recreational, and other needs of tourists and provide for High Density Residential use to serve both visitors and residents in Ocean Shores. Uses that make pedestrian movement hazardous, that break up the efficiency of resort tourist areas, or that diminish their attractiveness or create

excessive traffic movement should either be excluded or allowed only on a conditional basis when these adverse impacts can be minimized through design or operational requirements.

3. The adopted zoning districts in the reach are:

    a. **General Commercial (B-2)** – This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, other uses and structures of a similar and compatible nature, and on-site and off-site hazardous waste treatment and storage facilities.

    b. **Retail Commercial (B-1)** – This district is intended for retail commercial uses that provide day-to-day goods and services. Permitted uses include one-family, two-family, and multifamily dwellings; grocery and drug stores; hardware stores; hotels; motels; restaurants; cafes; taverns; cocktail lounges; banks; professional offices; general offices; specialty shops; jewelry shops; child-care centers; light equipment rental; and other uses of a similar nature; and on-site hazardous waste treatment and storage facilities.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a high-intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Urban Conservancy environment designation for Ocean Shores Marina Reach include the following:

1. The existing land use is private recreation.

2. The Comprehensive Plan designations for the reach are:

    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. The adopted zoning districts in the reach are:

    a. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

    c. They have potential for ecological restoration

    d. They retain important ecological functions, even though partially developed

    e. They have the potential for development that is compatible with ecological restoration.

4.1.6.7. Restoration Opportunities

The decaying overwater walkway could be removed. Removal could have both habitat and public safety benefits (currently it is dangerous and likely an attractive nuisance). There are also several undeveloped portions of land that are protected by riprap. In these areas, the riprap could be removed without endangering existing development. At a minimum, a soft shore approach could replace the hardened shoreline. See the following reach for more details about soft shore protection of harbor shorelines.

4.1.7. Ocean Shores Residential Reach

4.1.7.1. Existing Land Use Pattern

As the name implies, the Ocean Shores Residential Reach is largely zoned for Single Family residential development, as shown in Table 4-12. The majority of residential lots in this reach are developed, although there is potential for further development on the remaining vacant lots. Other land uses in the reach include undevelopable sand areas, and public and private recreational areas, many of which are associated with residential developments. A small portion of land in the reach is zoned for high-density residential use, although it is developed with single-family residences.

Table 4-12. Ocean Shores Residential Reach.	
Zoning	**Percentage of Reach**
Single Family	68%
Private Recreational	6%
Public Recreational	5%
Fiveplex and Sixplex	3%
Land Cover	
Developed, Low Intensity	45%
Herbaceous	21%
Barren Land	10%
Shrub/Scrub	8%
Emergent Herbaceous Wetlands	6%
Developed, Medium Intensity	5%
Developed, Open Space	2%
Open Water	1%
Woody Wetlands	1%
Evergreen Forest	< 1%

4.1.7.2. Projected Land Use

Ocean Shores Residential Reach is designated for High Density Residential (29 acres), Parks and Recreation (12 acres), and Moderate Density Residential (1 acre). Most of the area is built out with single-family homes; however, some platted land does exist and could be subject to future development.

4.1.7.3. Public Access

There are two pedestrian access points to the Grays Harbor Estuary and a wildlife viewing area in this reach. In addition, the City's future Gunderson Park is an unimproved neighborhood park near North Bay located in this reach.

4.1.7.4. Shoreline Modifications

Shoreline modifications are moderate (5 to 35 percent) in the northern part of the reach (see Figure 10 in Appendix A). The lower portion is less modified but there are several segments of rock armor protecting structures along the shoreline. Most of the shoreline armoring protect past fill placed during the construction of the city. Portions of unaltered shoreline do not require protection, and are therefore not armored currently.

4.1.7.5. Reach Functional Assessment

Ocean Shores Residential Reach ranked moderate for most functional assessment criteria. Like most of the marine reaches in Ocean Shores, the Residential Reach includes important habitat for shorebirds. It also contains a harbor seal nursery area on the tide flat shoals along the channel (Figure 11 in Appendix A). No known water quality impairments and a mixture of salt marsh and dune grass communities, and extensive eelgrass, along the reach resulted in high rankings for some functional assessment criteria. The extensive nearshore vegetation indicates, for example, a high level of function for sediment stabilization and shoreline protection in this reach. Low scores (criteria numbers 14 and 18) relate to the density of riparian vegetation, reduced by residential development in the reach, and indicate potential impairments to habitat quality for a variety of species. Although the reach was ranked low for those criteria, there are important habitats including the nearshore vegetation communities mentioned above, as well as habitat features such as large wood, tidal channels, and the shoal. Estuarine wetlands such as those fringing the existing residential development along Chinook Place and Wakina Loop (see Figure 2 in Appendix A) are particularly important habitats due to their unique conditions and functions they provide.

4.1.7.6. Recommended Environment Designations

Shoreline Residential/Urban Conservancy

Criteria for determining the proposed Shoreline Residential environment designation for most of the Ocean Shores Residential Reach include the following:

1. The existing land use pattern is primarily residential. Land is platted and planned for residential development.

2. Many single family residences exist along the bay and occupy a significant portion of this reach. This shoreline is highly modified and protected from erosion by riprap.

3. The Comprehensive Plan designations for the reach are:

    a. **Low Density Residential** – These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

    b. **Moderate Density Residential** – This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure), with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.

    c. **High Density Residential** – This designation should be comprised of densities ranging from one unit per 700 square feet to one unit per 1,800 square feet.

4. The adopted zoning districts in the reach are:

    a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

    b. **Fiveplex and Sixplex (R-5)** – This district is intended for moderate single-family and multifamily dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings including three, four, five, and six dwelling units per structure.

5. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for a portion of the Ocean Shores Residential Reach include the following:

1. The existing land uses are public and private recreation.

2. The Comprehensive Plan designations for the reach are:

    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. The adopted zoning districts in the reach are:

    a. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.

    b. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

    c. They have potential for ecological restoration

    d. They retain important ecological functions, even though partially developed

    e. They have the potential for development that is compatible with ecological restoration.

4.1.7.7. Restoration Opportunities

A program could be developed to encourage alternative means of protecting vulnerable residences in this reach. The need for armoring is related to protection of past fill. Natural shorelines in the reach do not require protection. Because the shoreline over geologic time is accreting, protection is limited to storm events and slope stability issues related to past fill slopes. These are ideal conditions for soft shore armoring approaches, such as beach nourishment and secured wood placement. These approaches could replace existing riprap revetments (the most common type of armoring currently) or could be employed on currently unarmored shorelines that are vulnerable from high-water-level-induced (sea-level-rise-induced) erosion.

4.1.8. Airport Reach

4.1.8.1. Existing Land Use Pattern

The Airport Reach is predominantly undevelopable Sand Area, as shown in Table 4-13. This term refers to the estuarine wetlands associated with Grays Harbor. Airport Reach contains the Ocean Shores Municipal Airport, and the runway is located entirely within the shoreline jurisdiction. The majority of land in this reach is owned by WDFW and is used for public recreation and for fish and wildlife conservation. A small portion of residential development is located in the western and northern portions of the reach. The land cover shown in Table 4-13 reflects the large percent of land in this reach that is covered by wetlands. These are estuarine wetlands of high ecological quality and diversity. A very small portion of this reach is developed, or approximately 5 percent.

Table 4-13. Airport Reach.	
Zoning	**Percentage of Reach**
General Commercial	30%
Single Family	2%
Manufactured Home Double Wide	1%
Land Cover	
Emergent Herbaceous Wetlands	63%
Woody Wetlands	21%
Developed, Open Space	5%
Herbaceous	3%
Developed, Low Intensity	3%
Open Water	2%
Shrub/Scrub	2%
Barren Land	1%
Developed, High Intensity	< 1%
Developed, Medium Intensity	< 1%
Evergreen Forest	< 1%

4.1.8.2. Projected Land Use

The Airport Reach is designated for Parks and Recreation (160 acres), General Commercial (71 acres), Low Density Residential (5 acres), and Mobile Home and Manufactured Home (2 acres) land uses. The reach includes the airport as well as some single-family residences at the western and northern ends of the reach. Future residential development within this reach is possible, albeit at a limited scale as the area is mostly developed. Future development related to the airport could occur in the future.

4.1.8.3. Public Access

The Grays Harbor Estuary is accessible to the public through the Ocean Shores Airport Unit, 185 acres of land owned by WDFW. This area is maintained in a natural state. Visitors can bird watch year round and hunt waterfowl during hunting season. There is parking and restrooms available for visitors.

4.1.8.4. Shoreline Modifications

According to the Ecology database, the shoreline has been modified in the vicinity of the airport. This may refer to some combination of fill and rock placed to protect the airport. Because the airport is set back a fairly large distance from the wrack line, the impacts of these modifications are primarily in the footprint of the placed fill and do not extend the beyond the current development of the facility.

4.1.8.5. Reach Functional Assessment

Except where it has been filled and altered to accommodate the airport, the Airport Reach is characterized by an extensive state-owned salt marsh that transitions into eelgrass bed (Figure 9 in Appendix A). The natural condition of a significant portion of the reach contributes to high scores for several functional assessment criteria in this reach. Most criteria were ranked moderate and none were ranked low, indicating a moderate to high level of ecological functions for in this reach. It also reflects a high value for fish and wildlife conservation. Much of the reach is relatively undisturbed habitat for shellfish, a variety shorebirds, and peregrine falcons. North of the airport there are several residential structures that contribute to a somewhat fragmented riparian forest cover. Although the estuarine wetland narrows in this location compared to the broader wetlands next to the airport, it contains valuable habitat features such as large wood, vegetation, and a relatively unaltered shoreline that contribute to the overall level of ecological function in the reach.

4.1.8.6. Recommended Environment Designations

High Intensity/Shoreline Residential/Natural/Aquatic

Criteria for determining the proposed High Intensity environment designation for the Airport Reach include the following:

1. This reach includes the Ocean Shores Municipal Airport, containing one 3,100 foot long and 55-foot wide runway. The portion of the reach proposed to contain the High Intensity designation includes only the parcels on which the airport is located. The airport is an existing high intensity use related to commerce and transportation.

2. The Comprehensive Plan designations for the reach are:

    a. **General Commercial** – This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

    In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.

3. The adopted zoning districts in the reach are:

    a. **General Commercial (B-2)** – This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, other uses and structures of a similar and compatible nature, and on-site and off-site hazardous waste treatment and storage facilities.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a high-intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Shoreline Residential environment designation for the Airport Reach include the following:

1. This portion of the shoreline jurisdiction contains lots platted and planned for residential development. The majority of lots contain residential structures, and the City has identified these areas as suitable for residential development in the Comprehensive Plan.

2. The Comprehensive Plan designations for the reach are:

    a. **Low Density Residential** – These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

    b. **Mobile Home and Manufactured Home** – These areas should be comprised of mobile homes and manufactured homes for use as both vacation and permanent housing units at densities equal to the low density residential designation. Recreational vehicles and trailers are permitted in specified areas on lots smaller than 7,200 square feet. In this instance, manufactured homes are permitted if certain conditions are met. However, mobile homes are not allowed in this reach.

3. The adopted zoning districts in the reach are:

    a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

b. **Manufactured Home (R-6C)** – This district is intended for low-density, long-term, doublewide, or larger manufactured home occupancy as single-family dwellings. Permitted uses include single-family residences; manufactured homes.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Natural environment designation for the Airport Reach include the following:

1. The shoreline area managed by WDFW is undeveloped to the east of the airport. Several species reside within the shoreline including Dusky Canada Geese, Peregrine Falcons, and other shorebird concentrations.

2. The Comprehensive Plan designations for the reach are:

   a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. Specific designation criteria in WAC 173-26-211(5)(a)(iii): Assign a Natural environment designation to shoreline areas if any of the following characteristics apply:

   a. The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;

   b. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or

   c. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.

   d. Such shoreline areas include largely undisturbed portions of shoreline areas such as wetlands, estuaries, unstable bluffs, coastal dunes, spits, and ecologically intact shoreline habitats. Shorelines inside or outside urban growth areas may be designated as natural.

Areas of the reach waterward of the OHWM are designated aquatic. The location of the OHWM will be determined at the time of development. Aquatic areas may include estuarine wetlands if it is determined through a site analysis that the wetlands are located waterward of the OHWM.

4.1.8.7. Restoration Opportunities

There are no restoration opportunities in the Airport Reach.

4.1.9. Canals Reach

4.1.9.1. Existing Land Use Pattern

Canals Reach predominantly zoned for residential uses, as shown in Table 4-14. A small percent of the total area is zoned for commercial and public recreational land uses in the reach. The reach contains a mixture of developed and vacant lots. The undeveloped lots have the potential to develop with single-family homes over the next several decades. Land cover in the reach is dominated by the fresh waterways and developed, low-density single-family homes.

Table 4-14. Canals Reach.

Zoning	Percentage of Reach
Single Family	83%
Retail Commercial	6%
Fiveplex and Sixplex	5%
Public Recreational	5%
General Commercial	< 1%
Fourplex	< 1%
Triplex	< 1%
Land Cover	
Developed, Low Intensity	64%
Open Water	14%
Developed, Open Space	9%
Developed, Medium Intensity	6%
Woody Wetlands	2%
Evergreen Forest	2%
Herbaceous	1%
Emergent Herbaceous Wetlands	1%
Shrub/Scrub	1%

4.1.9.2. Projected Land Use

Comprehensive Plan designations in the Canals Reach include Low Density Residential/Mobile Home and Manufactured Home (360 acres), Parks and Recreation that includes the canal acreage (207 acres), Moderate Density Residential (24 acres), General Commercial (2 acres), and Resort Tourist Commercial (28 acres). This reach includes the canals, which are highly developed around with single-family residences. Much of this reach is built-out; however, there is still significant land available for single-family residential development. Future development in this reach is very likely.

4.1.9.3. Public Access

There are a number of public access and recreation opportunities in the Canal Reach. South End Grand Canal Park provides a boat docking facility, fishing pier, bird watching, and wildlife viewing. Texmar Park is a mostly unimproved neighborhood park that has a hand launch area for watercraft. A bicycle path runs parallel to the Grand Canal and provides recreation opportunities.

The City's Capital Improvement Plan will be used to implement any improvements identified within the Park and Recreation Plan. In Year 3, the City plans to add a dock and boat landing to North End Grand Canal Park.

4.1.9.4. Shoreline Modifications

There are numerous small-scale (single residence) revetments protecting past fill and residential structures. They are typically for aesthetic or slope stability purposes only because energy of the water body is effectively zero.

Reach Functional Assessment

The shoreline in the Canals Reach exhibits a moderate level of impairment with low rankings for many (12 out of 20) functional assessment criteria. Low levels of function are primarily associated with lack of both the types and amount of shoreline vegetation that would support water quality and habitat functions. Due to their constructed form within the landscape and lack of substantial floodplain or connected wetlands, the canals provide low levels of hydrologic functions. They do, however, provide some floodwater storage capacity for the City. Due to their disconnect from the marine waters around the city by a tide gate at the Ocean Shores Marina, the canals do not provide good habitat that would generally be suitable for sensitive species. The canals are also impacted by invasive species described previously (Section 4.1.1), which reduces the shoreline's habitat function in terms providing the space and conditions to support shoreline-dependent species.

4.1.9.5. Recommended Environment Designations

High Intensity/Shoreline Residential/Urban Conservancy

Criteria for determining the proposed High Intensity environment designation for the Canals Reach include the following:

1. Portions of the reach support existing commercial development and are planned for commercial uses.

2. The Comprehensive Plan designations for the reach are:

    a. **General Commercial –** This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the city. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery

stores, food services, pharmacies, laundromats, and beauty shops as well as low intensity commercial and professional uses.

In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted outside, such as offices and storage for construction firms or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.

3. The adopted zoning districts in the reach are:

    a. **General Commercial (B-2)** – This district is intended for a wide variety of commercial uses including those requiring outdoor activity and storage. Permitted uses include one-family, two-family and multifamily dwellings, grocery and drug stores, hardware stores, hotels, motels, restaurants, cafes, taverns, cocktail lounges, banks, professional offices, general offices, specialty shops, jewelry shops, child care centers, light equipment rental, light manufacturing, storage, equipment rental or sales, auto, truck and recreational vehicle sales, fuel storage, repair shops, kennels, marinas, boat repair and storage, other uses and structures of a similar and compatible nature, and on-site and off-site hazardous waste treatment and storage facilities.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a High-Intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Shoreline Residential environment designation for the Canals Reach include the following:

1. The majority of current land use and planned land use in this reach exclusive of the waterway is residential uses. Lots are planned and platted for residential development. The area is suited for residential development. Flooding and erosion are not issues as they are in other parts of the city.

2. The Comprehensive Plan designations for the reach are:

    a. **Low Density Residential** – These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

    b. **Moderate Density Residential** – This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure),

with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.

3. The adopted zoning districts in the reach are:

    a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

    b. **Fourplex (R-4)** – This district is intended for moderate density, one-, two-, three-, and four-family dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; three-family dwellings; four-family dwellings.

    c. **Fiveplex and Sixplex (R-5)** – This district is intended for moderate single-family and multifamily dwellings. Permitted uses include single-family residences; manufactured homes; two-family dwellings; multifamily dwellings including three, four, five, and six dwelling units per structure.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for the Canals Reach include the following:

1. This portion of the reach includes public and private recreational areas adjacent to 185 acres of fresh water canals.

2. The Comprehensive Plan designations for the reach are:

    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. The adopted zoning districts in the reach are:

    a. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.

    b. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses,

playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

    c. They have potential for ecological restoration

    d. They retain important ecological functions, even though partially developed

    e. They have the potential for development that is compatible with ecological restoration.

4.1.9.6. Restoration Opportunities

There is an opportunity to convert many of the hardened structures on the Canals to softer, vegetated shorelines. These structures are not needed to protect the shoreline from erosion, since the canals have little flow or wave energy. Rather most of these structures prevent slumping of the shoreline and serve as largely aesthetic features, and could be decreased in size in many instances. These restoration projects would necessarily be small in scope and effect, but implementation of a large number of projects could have a substantive impact on shoreline ecological health and productivity.

4.1.10. Duck Lake Reach

4.1.10.1. Existing Land Use Pattern

Duck Lake reach is zoned for single-family residential development, as shown in Table 4-15. There is a small percent of land zoned for public recreation. The Weatherwax Property located in this reach is zoned R-1 Single Family although it is a public recreation use, therefore the total area of public recreation land is not represented by the zoning designations in Table 4-15. Open Water and developed land dominate land cover. A small portion of the reach is composed of forest, wetlands, and other undeveloped land. Ocean Shores owns a significant amount of land in this reach, including the Weatherwax property, Duck Lake, and land directly adjacent to the water's edge. Because the City owns the land directly adjacent to the water's edge, residents with waterfront property must obtain a lease from the City to build docks with access to Duck Lake.

Table 4-15. Duck Lake Reach.	
Zoning	**Percentage of Reach**
Single Family	92%
Public Recreational	4%
Mobile and Manufactured Home	3%
Manufactured Home Double Wide	< 1%
Private Recreational	< 1%
Land Cover	
Open Water	44%
Developed, Low Intensity	37%
Developed, Open Space	9%
Developed, Medium Intensity	3%
Evergreen Forest	3%
Woody Wetlands	3%
Emergent Herbaceous Wetlands	1%
Barren Land	1%
Shrub/Scrub	< 1%

4.1.10.2. Projected Land Use

The Duck Lake Reach is designated for Parks and Recreation (275 acres), and Low Density Residential/Mobile Home and Manufactured Home (193 acres) land uses. Duck Lake is used for recreational purposes. The City owns portions of the lake that are undeveloped and open to the public. The rest of the reach is largely developed with single-family residences and mobile/manufactured homes. Future development within this reach is likely on vacant lots zoned for residential uses.

4.1.10.3. Public Access

Duck Lake reach contains a number of shoreline public access points. North Bay Park is a 7.1-acre park with frontage on Duck Lake. It includes a boat launch, fishing dock, and other recreational facilities such as baseball/softball fields, tennis courts, and basketball courts. Residents can also enjoy bird watching and wildlife viewing at North Bay Park. Chinook Park is located on the east side of Duck Lake. Public access to the lake is provided by a boat launch and fishing dock. Limpet Park is an unimproved lot on the northeast side of Duck Lake. The site provides access to the water for hand-launch boats.

Within its Comprehensive Park and Recreation Plan, the City has identified opportunities for expanding and improving public access to the shoreline. The City has a system-wide goal for providing sufficient recreation opportunities to satisfy the needs of the city's population. In order to achieve this goal, the City has identified an opportunity at North Bay Park to provide public access opportunities to the fresh waterway system.

The City is also looking to secure capital improvement grant funding for the North Bay Park and Chinook Park. The City plans to upgrade the heavily used ball field at North Bay Park. The City will also upgrade restroom facilities, boat launch ramps, and playground equipment.

The City's Capital Improvement Plan will be used to implement any improvements identified within the Park and Recreation Plan. In Year 2, the City plans to upgrade the boat launch at North Bay Park, resetting the ramp to parallel, and replacing and treating wood. In Year 3, the City plans to add a dock and boat landing to North End Grand Canal Park.

There is also an opportunity within Ocean Shores at Duck Lake. In 1999, the City acquired a 91.4-acre property (the Weatherwax property), which is located at the central section of Duck Lake (see Figure 6 in Appendix A). This property is the largest contiguous open-space site in Ocean Shores. The site is currently in review by the City and state agencies as a future wetland mitigation bank site. It remains undeveloped except for hiking trails.

4.1.10.4. Shoreline Modifications

Duck Lake is not entirely a natural feature and much of its shoreline is armored with a wide variety of revetments. These revetments are diverse and often primarily aesthetic features, particularly since flow and wave energy is negligible.

4.1.10.5. Reach Functional Assessment

The Duck Lake shoreline suffers from some of the same impediments as the Canals Reach including lack of significant riparian vegetation and presence of invasive aquatic plants. The reach ranked the same as the canals for many of the functional assessment criteria but had higher (moderate) ranks for several criteria related to habitat. Moderate levels of function for habitat are related to a relatively complex habitat structure, presence of habitat features, and mapped trumpeter swan habitat. Like the canals in the city, Duck Lake has limited potential to provide hydrologic functions, but it does provide flood water storage. The lake is listed on the 303(d) list as a waterbody of concern for total phosphorous. This may indicate that shoreline functions for maintaining water quality are impaired by adjacent development or land use practices. It also suggests that Duck Lake is an important factor for maintaining water quality downstream in Grays Harbor. Forested parcels along the shoreline that are owned by the City (Weatherwax property) likely provide a higher level of function compared to the reach overall, due to their vegetated condition. The parcels may warrant special consideration during shoreline planning in order to preserve and possibly improve their functional value. Since the City's shoreline jurisdiction generally lacks significant forested areas, these parcels provide a unique riparian habitat niche within the city.

4.1.10.6. Recommended Environment Designations

Shoreline Residential/Urban Conservancy/Natural

Criteria for determining the proposed Shoreline Residential environment designation for Duck Lake Reach include the following:

1. Single-family residences surround the majority of Duck Lake. Lots are platted and planned for residential development. Erosion and flooding are not critical issues in this reach.

2. The Comprehensive Plan designations for the reach are:

   a. **Low Density Residential** These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

   b. **Moderate Density Residential** – This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure), with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.

   c. **Mobile Home and Manufactured Home** – These areas should be comprised of mobile homes and manufactured homes for use as both vacation and permanent housing units at densities equal to the low density residential designation. Recreational vehicles and trailers are permitted in specified areas on lots smaller than 7,200 square feet. In this instance, manufactured homes are permitted if certain conditions are met. However, mobile homes are not allowed in this reach.

3. The adopted zoning districts in the reach are:

   a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes.

   b. **Moderate Density Residential** – This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure), with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.

   c. **Mobile and Manufactured Home (R-6B)** – This district is intended for low density, long-term mobile, and manufactured home occupancy as single-family dwellings. Permitted uses include single-family residences; manufactured homes; singlewide or doublewide single-family mobile homes and manufactured homes.

      d. **Mobile and Manufactured Home (R-6C) –** This district is intended for low density, long-term, double-wide or larger manufactured home occupancy as single-family dwellings in order to assure adequate light, air, open space, privacy, and the protection of property values while providing opportunity for affordable housing. Other uses should only be allowed if they are compatible with these values and consistent with the overall public interest.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for Duck Lake Reach include the following:

1. Portions of this reach include public recreation areas such as North Bay Park and Chinook Park. There are also private recreation areas that provide access to the shoreline.

2. The Comprehensive Plan designations for the reach are:

    a. **Parks and Recreation** – This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental may be compatible with this designation.

3. The adopted zoning districts in the reach are:

    a. **Private Recreational (PR-1)** – This zone is for lands intended as private walkways held in common private ownership or for private or community club lands such as private golf courses or bridle trails. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, ball fields, boat launches, and other facilities needed for various recreational activities are permitted.

    b. **Public Recreational (PR-2)** – This zone is for lands owned by the City or other public entities and intended for recreational uses such as municipal parks or municipal golf courses. Structures such as swimming pools, clubhouses, playgrounds, tennis courts, boat launches, and other facilities needed for various municipal recreational activities are permitted.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

    c. They have potential for ecological restoration

    d. They retain important ecological functions, even though partially developed

    e. They have the potential for development that is compatible with ecological restoration.

Criteria for determining the proposed Natural environment designation for Duck Lake Reach include the following:

1. The proposed Natural area in Duck Lake reach is limited to the Weatherwax property, which is a public recreation area and planned wetland mitigation bank owned by the City, and the uninhabited islands owned by the City.

2. The Comprehensive Plan designation for the Natural portion of the reach does not reflect current conditions as it is:

    a. **Low Density Residential** These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character.

3. The adopted zoning districts in the reach are:

    a. **Single Family (R-1)** – This district is intended for low-density, detached, single-family dwellings. Permitted uses include single-family residences; manufactured homes. Other uses should only be allowed if they are compatible with these values and consistent with the overall public interest.

4. Specific designation criteria in WAC 173-26-211(5)(a)(iii): Assign a Natural environment designation to shoreline areas if any of the following characteristics apply:

    a. The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;

    b. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or

    c. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.

    Such shoreline areas include largely undisturbed portions of shoreline areas such as wetlands, estuaries, unstable bluffs, coastal dunes, spits, and ecologically intact shoreline habitats. Shorelines inside or outside urban growth areas may be designated as natural.

4.1.10.7. Restoration Opportunities

There is an opportunity to convert many of the hardened structures along Duck Lake to softer, vegetated shorelines. These structures are not needed to protect the shoreline from erosion, since Duck Lake has little flow or wave energy. Rather most of these structures prevent slumping of the shoreline and serve as largely aesthetic features, and could be decreased in size in many instances. These restoration projects would necessarily be small in scope and effect, but implementation of a large number of projects could have a substantive impact on shoreline ecological health and productivity.

In addition, the Weatherwax property, which was purchased by the City in 1999 to preserve the one last large undeveloped parcel within the city limits. The City has begun to make the property a wetland bank. Most of the property has never been developed and is an excellent example of predevelopment conditions on the Point Brown peninsula (Bridges 2010). However, a portion of the property on the natural shoreline of Duck Lake was deforested (i.e., the "Point") and could be enhanced by planting and removing invasive vegetation (Bridges 2010).

Table 4-16. Comprehensive Plan Designations Representing Planned Land Use in the Shoreline Jurisdiction of Ocean Shores.

Land Use Designation	Use Description	Percentage of Shoreline Area
Low Density Residential	These areas should be comprised primarily of detached single-family dwelling units. Though flexibility in dwelling type may be allowed through the planned development process, overall density should not exceed six units per acre or significantly diverge from an overall single-family character:	20%
Moderate Density Residential	This designation should consist primarily of lower intensity types of multifamily residential structures (up to six units per structure), with densities ranging from one unit per 4,000 square feet to one unit per 2,100 square feet based on gross lot size.	< 1%
High Density Residential	This designation should be comprised of densities ranging from one unit per 700 square feet to one unit per 1,800 square feet.	1%
Mobile Home and Manufactured Home	These areas should be comprised of mobile homes and manufactured homes for use as both vacation and permanent housing units at densities equal to the low-density residential designation. Recreational vehicles and trailers are permitted in specified areas on lots smaller than 7,200 square feet.	21%
Resort Tourist Commercial	This classification is intended for those uses that serve the lodging, shopping, recreational, and other needs of tourists and provide for High Density Residential uses that serve both visitors and residents in Ocean Shores. Uses that make pedestrian movement hazardous, that break up the efficiency of resort tourist areas, or that diminish their attractiveness or create excessive traffic movement should either be excluded or allowed only on a conditional basis when these adverse impacts can be minimized through design or operational requirements.	2%
General Commercial	This category should contain the full range of uses that serve the retail, service, and commercial needs of both residents and visitors to the City. Especially suitable are those uses that do not require the complementary relationship with neighboring uses to be fostered in the Resort Tourist Commercial designation. Space should be available with adequate parking facilities for those uses that are designed primarily for single-stop automobile access. Public buildings and uses that provide direct services to residents and visitors or that require access on arterials or collectors should be considered compatible. Appropriate neighborhood commercial uses to serve the needs of surrounding residents include grocery stores, food services, pharmacies, laundromats and beauty shops as well as low intensity commercial and professional uses. In General Commercial areas, residential uses as adjuncts to specific businesses or in the upper floors of commercial or professional structures should be considered-compatible with this designation. Heavier commercial uses such as warehousing, or those that are usually conducted out-of-doors, such as offices and storage for construction firm or used car lots, or those associated with machinery and automobile sales and repair are also intended for this category. In the areas around the existing marina and in other areas with access to undeveloped saltwater frontage, marine-related commercial activities are preferred.	7%
Parks and Recreation	This designation should include areas used or designated for use as recreation or open space. Such areas should include beaches, parks, wildlife preserves, golf courses, playgrounds, swimming pools, and open spaces, but should not be limited to these. Some commercial recreation activities such as bicycle or kayak rental should be considered compatible with this designation.	69%

Note: Multiple designations may be appropriate for some areas of the shoreline jurisdiction.

4.2. Westport

There are six reaches in Westport (Table 4-17). Westport's shoreline has exclusively marine shoreline. Because of varying exposure to the Pacific Ocean, there is a wide range of shoreline types, primarily associated with changing wave energy.

Table 4-17. Westport Shoreline Reaches.

Primary Water Body	Shoreline Area (acres)	Shoreline Length (miles)
Pacific Ocean South	66	2.3
Pacific Ocean North	106	4.8
Half Moon Bay	66	4.2
Westhaven	55	3.8
Bayfront North	194	6.0
Bayfront South	160	4.0

4.2.1. Physical and Biological Characterization

This section discusses characteristic aspects of physical and biological conditions in Westport. Refer to Section 3 for an overview of the physical and ecological processes that influence shorelines in Westport.

All of the waters within the City's shoreline jurisdiction are tidally influenced. Many of the interactions between freshwater and marine water are mediated by tide gates and other hydraulic control structures, some of which are likely not cataloged and are therefore not mapped in the SMP Map Folio (Figure 4 in Appendix B).

Sediment transport in Westport has been studied extensively (Burch and Sherwood 1992; Buijsman et al. 2003; Kaminsky et al. 2010). The Pacific Ocean reaches are the most dynamic, though Half Moon Bay and Westhaven are also occasionally exposed to large amounts of swell. Changes in shoreline position of 10 to 100 feet per year are common (Kaminsky et al. 2010). In response to these changes, significant amounts of dredged sediment (on the order of a million cubic meters per year) have been placed by the USACE in the Half Moon Bay and Pacific Ocean North reaches, beginning in about 1990 (Buijsman et al. 2013). The Bayfront reaches are less active and predominantly depositional. It is likely that the Grays Harbor shorelines will gradually prograde (advance harborward) very slowly over time, owing to the net flux of Columbia River sediments into the harbor (Kaminsky et al. 2010). The Westhaven Reach is entirely armored and therefore static.

Current levels of LWD along the shorelines are low, even in the more quiescent Bayfront reaches. These low levels of LWD may be a natural occurrence. The undeveloped Elk River Estuary has relatively little LWD and these low levels extend throughout the Bayfront reaches of the city. The Pacific Ocean reaches have small amounts of driftwood, and these accumulations are typically ephemeral. There is also a limited local supply of large trees available in the area and that is partly a natural occurrence too. In Grays Harbor, numerous

snags have been removed over time (US Coast and Geodetic Survey 1911), so that may exacerbate natural limitations.

Geological hazards in Westport are summarized in Table 4-18. Westport is one of the most susceptible communities to tsunamis in the state, even though there are elevated portions of the city outside the tsunami inundation zone (WDNR 2014b). Evacuation routes are planned and are well signed. Liquefaction susceptibility due to a Cascadia Subduction Zone is also high throughout the city. Erosion hazard is primarily concentrated in the Half Moon Bay and Pacific Ocean North reaches.

Table 4-18. Geologic Hazards in Westport.

Hazard Type	Percentage of Management Area	Reaches Affected
Tsunami	100	All
Erosion	N/A	Pacific Ocean North and South, Half Moon Bay, Westhaven[b]
Seismic/Liquefaction[a]	100	All

[a] Moderate to High Liquefactions Susceptibility
[b] Erosion is a risk, but is likely mitigated because of existing protection.
N/A Exact numbers are not available

All six reaches in Westport support a variety of salmon and trout species (Appendix B). Rearing habitat for coho is present in most of the protected (non-Pacific Ocean) reaches. All of the reaches in the city support a variety of nearshore vegetation, except the Westhaven Reach, including dune grass and salt marsh communities (Appendix B). Brown pelicans can be found in Half Moon Bay and snowy plover and other shorebirds can be found in the Bayfront reaches.

Water quality testing in the Westhaven Reach reported in Ecology's 303(d) list for the state indicate that various pollutants, including several PAHs, mercury, nickel, and PCBs meet state water quality standards. Water in the Westhaven Reach is listed as Category 2 (water of concern) for bacteria. In 2008, Dieldrin, an ingredient in insecticides, was found accumulated in the tissue of shellfish at levels exceeding federal and state standards (Category 5). Ecology's 303(d) list includes water body impairments that are not related to pollutants but are caused by other factors such as invasive species. European green crab, an invasive crustacean, has been found throughout Grays Harbor including the reaches in the cities.

4.2.1.1. Shoreline Use Analysis

Shoreline land uses within Westport are comprised of Government, Marine Industrial, Mixed-Use/Tourist Commercial, Ocean Beach Residential, Low and Medium Density Residential, Recreation and Parks and Tourist Commercial (Figure 13 in Appendix B). The marina is the most intensive use within the shoreline jurisdiction. The shoreline jurisdiction includes a mixture of land covers, consisting primarily of emergent herbaceous wetlands, barren land, open water, herbaceous vegetation, and woody wetlands (Figure 5 in Appendix B).

Based on a review of land cover and zoning maps, the current use categories that were considered most likely to meet the definition of water-oriented uses are as follows:

- Marine Industrial
- Mixed-Use/Tourist Commercial 1
- Mixed-Use/Tourist Commercial 2
- Recreation and Parks

Pacific Ocean South Reach and Pacific Ocean North Reach both consist of Mixed-Use Tourist Commercial and they are primarily used for water-enjoyment purposes. Half Moon Bay Reach is zoned for Recreation and Parks and is used for water-enjoyment purposes. Westhaven Reach is zoned for Marine Industrial uses as well as Mixed-Use/Tourist Commercial. This reach includes water-dependent and water-related uses and contains a public boat launch in addition to the marina. Bayfront North Reach is zoned for Marine Industrial. Water-dependent and water-related uses could be developed within this reach. Bayfront South Reach is designated for Mixed-Use Tourist Commercial and Recreation and Parks land uses. The reach is used for water-enjoyment purposes.

Land use patterns for each reach are discussed in detail in Section 4.2.2 through Section 4.2.7.

4.2.1.2. Existing Land Use Patterns

Overall land use patterns in Westport are tabulated in Table 4-19. Zoning designations are described in Table 4-20. Land use patterns by reach are discussed in Section 4.2.2 through Section 4.2.7. Existing land use patterns are discussed in detail by reach in Section 4.2.2 through Section 4.1.7.

4.2.1.3. Projected Land Use and Shoreline Land Capacity Analysis

Planned land use categories in Westport are tabulated in Table 4-21.

The shoreline jurisdiction in Westport contains 259 parcels. Of these parcels, 61 percent are vacant and it appears approximately 22 percent of the parcels are protected from development by public or conservation group ownership, conservation easements, or similar mechanisms. It was not possible to determine what percent of parcels have a non-conforming structure.

The City's shoreline is designated primarily for urban land uses. City land use designations in the shoreline jurisdiction include Government (GOV), Marine Industrial (MI), Mixed-Use Tourist Commercial 1 (MUTC-1), Mixed-Use Tourist Commercial 2 (MUTC-2), Ocean Beach Residential 1 (OBR I), Ocean Beach Residential II (OBR II), Low Density Residential (R-1), Medium Density Residential (R-2), Recreation and Parks (RP) and Tourist Commercial (TC).

Most of the new development capacity in shoreline jurisdiction (257 acres) exists in underutilized commercial land. Underutilized land is subject to redevelopment pressure. Eleven percent of the residential development capacity in the shoreline jurisdiction occurs on lots that can be subdivided per the City's code.

Table 4-19. Current Land Use Patterns in the Shoreline Jurisdiction of Westport.	
Current Land Use Patterns	**Percentage of Shoreline Area**
All Other Residential Not Elsewhere Coded (Bare Land Platted and Outside Plats and Sheds in City Limits)	28%
Parks	25%
Commercial Land	15%
Open Space Land Classified Under RCW 84.34	10%
Food and Kindred Products	9%
Household, Single Family Units	6%
Aircraft Transportation	1%
Governmental Services	1%
Hotels/Motels	1%
Undeveloped Land	1%
Automobile Parking – Parking Lots	< 1%
Business Services	< 1%
Commercial Land – with a Shed, Warehouse etc.	< 1%
Commercial Land with Single Family Residence	< 1%
Finance, Insurance, and Real Estate Services	< 1%
Household, 2-4 Units	< 1%
Household, Multi-Units (5 or more)	< 1%
Industrial Land	< 1%
Miscellaneous Services – Churches	< 1%
Other Cultural, Entertainment, and Recreational	< 1%
Other Retail Trade	< 1%
Personal Services	< 1%
Recreational Activities – RV Parks	< 1%
Retail Trade – Eating and Drinking – Restaurants	< 1%
Retail Trade – Food	< 1%
Retail Trade-Auto, Marine Craft, Aircraft, and Associated-Gas Stations	< 1%
Wholesale Trade	< 1%

Table 4-20. Current Zoning Designations in the Shoreline Jurisdiction of Westport.			
Designation	**Symbol**	**Typical Uses**	**Percentage of Shoreline Area**
Government	GOV		2%
Marina water			< 1%
Marine Industrial	MI	The following uses shall be permitted in the MI district subject to the provisions of this chapter and the applicable requirements of this title: Fish and seafood handling, storage, processing, packing, preserving and canning; Fish and seafood wholesaling and retail sales; Ice manufacturing, storage and sales; Boatyards, ship, boat or barge building, construction and repair, and dry-docks; Ship and boat sales; Marine equipment sales and service; Marine fuel sales; Marinas, moorage, docks, port terminals, ferry terminals, passenger terminals, ship berthing, barge berthing, boathouses, boat, ship, barge, assembly and structure launching facilities; and navigation aids; Barge and ship cargo receiving, handling and storage areas; The fabrication, manufacturing, and/or assembly of drilling towers, support platforms, modules, marine assemblies or marine structures within or outside of a building; Offices accessory to an allowed use; Eating and drinking places; Breakwaters, bulkheads, groins and jetties; Landfalls or access corridors for submerged cable, sewer line, waterline, or other pipeline crossings; Stormwater and wastewater outfalls; Public and semi-public uses including Coast Guard facilities, helipads, airports, public offices, police and fire stations, transmission lines, utility substations, pollution control plants, parks, public access facilities and public service facilities; The rearing of fish or shellfish by public agencies or nonprofit organizations for release; Equipment sales, rental, repair and servicing; Machine shops, welding shops and metal and structural composite fabrication within a building; Truck terminals; Hotel and motel complexes; Marine Aquatic Recreational Park Center.	26%
Mixed-Use/ Tourist Commercial 1	MUTC-1	Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; 1 General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics; Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.	24%
Mixed-Use Tourist/ Commercial 2	MUTC-2	Uses permitted in the MUTC-2 district are as follows: All uses permitted in the MUTC-1 zone, except that: Retail sales on sites over 5 acres in size may be up to 65,000 square feet; and/or Buildings may be constructed up to 50 feet high or five stories, whichever is less.	7%

Table 4-20 (continued). Current Zoning Designations in the Shoreline Jurisdiction of Westport.			
Designation	**Symbol**	**Typical Uses**	**Percentage of Shoreline Area**
Ocean Beach Residential 1	OBR-1	Site-built, new-designated manufactured, or modular single-family dwellings and duplex dwellings and associated uses and structures of a residential nature; day use recreation and associated uses necessary for the safety and convenience of the public; and public access to publicly owned shorelines, private recreational access, recreational uses and navigation aids.	3%
Low Density Residential	R-1	Site-built, new-designated manufactured, or modular single-family detached dwellings; townhouses at not more than four units per building; duplexes; home occupations; fishing equipment storage and repair incidental to an off-premises commercial fishing business, provided such uses are screened or fenced with a 6-foot screen or fence; multifamily units less than four units per building; day care facilities as an accessory use with six or fewer children; planned developments, subject to the provisions of WMC 17.36.110.	5%
Medium Density Residential	R-2	Site-built, new-designated manufactured, or modular single-family detached dwellings; townhouses; duplexes; home occupations; multifamily units; planned developments subject to the provisions of WMC 17.36.110; public and semi-public uses as provided in WMC 17.36.050; day care facilities as an accessory use with six or fewer children; fishing equipment storage and repair incidental to off-premises commercial fishing businesses, provided such uses are screened or fenced with a 6-foot screen or fence.	2%
Recreation and Parks	RP	The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public access ways and public viewpoints; Outdoor recreational activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets and parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.	25%
Tourist Commercial	TC	The tourist commercial district is designed to provide for a master planned destination tourist resort which may include: Residential uses, including one or more hotels, motels, condominiums, apartments, and other forms of residential use for short-term, intermediate-term and long-term residential uses; Recreational and gaming facilities, including conference centers, movie and theater facilities, golf courses and other places of public and recreation consistent with state laws and licensing regulations; Tourist service commercial, including restaurants, lounges, professional and personal services, commercial retail, and service uses developed in conjunction with the primary uses identified in this section.	6%

Table 4-21. Comprehensive Plan Designations Representing Planned Land Use in the Shoreline Jurisdiction of Westport.		
Land Use Designation	**Use Description**	**Percentage of Shoreline Area**
Residential	The single-family residential districts are residential zones requiring a low to medium density of population and providing protection from hazards, objectionable influences, building congestion, and lack of light, air, and privacy.	7%
Ocean Beach Residential	This designation is intended to provide flexibility and control over the development of presently undeveloped areas in the southwestern parts of the City, to encourage innovative design of major residential development, and to prevent premature or inefficient provision of City facilities in presently undeveloped residential areas. This designation should allow low-density urban residential development of up to six units per acre, as well as recreational uses. The "ocean beach residential" designation should be applied to areas where land is available for residential development.	3%
Mixed-Use/ Tourist Commercial	It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and residential above, or uses which mix commercial and residential structures in the same or neighboring parcels. Individual projects may be single purpose or mixed use.	31%
Tourist Commercial	The tourist commercial zone is intended to provide a zoning designation for a large tract of land, which has previously been identified as an ideal location for a large planned development to include a diverse amount of commercial, recreational, and residential uses.	6%
Marine Industrial	The marine industrial designation is intended to allocate space for the development of industrial uses and related activities, which can benefit from Westport's marine location and character, and is intended to encourage the continued development of marine-oriented activities, protected from incompatible uses. Marine-related ferry, transport and storage, processing, construction, repair, and distribution activities are all encouraged. Shoreline areas and access should be reserved for water or marine-dependent activities.	26%
Recreation and Parks	The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.	25%
Government Lands	The purpose of the Government lands zoning district is to designate lands owned by the Federal Government, which are not regulated under Westport land use jurisdiction.	2%

4.2.1.4. Public Access Analysis

Westport identifies in its 2004 Comprehensive Park and Recreation Plan goals and objectives for improving public access to the shoreline and parks and recreation facilities. The one drawback with this plan is that it is 10 years old, and most of the recommendations should be implemented by now. The City is currently working on an update to the 2004 Comprehensive Park and Recreation Plan, which is expected to be completed in 2015.

The Grays Harbor County Public Health and Social Services department is currently working on an Active Transportation Plan titled *Connect Grays Harbor*. The plan has identified several project priorities relating to shoreline access including the Rails to Trails program. The Westport Rails to Trails project is a new proposed paved bike path beginning at the Bishop Athletic Complex in South Aberdeen and ending at the Westport Winery in Markham, Washington.

Public Shoreline Access

Within Westport, residents may access the shoreline through beach access points provided at Hancock Street as well as Ocean Avenue. Residents can fish in the harbor off Float 20 as well as the Westhaven Marina. Pacific Avenue Park provides an additional access to the waterfront, and residents can get quality views of the Pacific Ocean and Grays Harbor from the Port Park viewing tower and the Westhaven Marina Observation Platform. Westhaven State Park also provides access to the shoreline and other activities such as fishing, beachcombing, scuba diving, and surfing.

4.2.1.5. Reach Functional Assessment Overview

The shoreline functions assessment for Westport is summarized in Table 4-22.

Most reaches in Westport scored relatively high (32 to 36 points) for functions, primarily related to diverse habitats, habitat features, and wetland presence, an important feature for providing water quality functions. Relatively undeveloped reaches provide key habitats for a variety of species due to their regionally unique habitat structure. Hydrologic and water quality functions are naturally absent from many of the City's marine shorelines, although a patchy distribution of salt marsh and eelgrass along the Bayfront reaches likely contribute to shoreline accretion, maintaining good water quality, protecting the shoreline from erosion, as well as providing important habitat structure for numerous species. Reach-specific functional assessments are discussed in Section 4.2.2 through Section 4.2.7.

4.2.1.6. Recommended Environment Designations

Environment Designations for Westport are shown in Appendix A. For all portions of the City's shoreline jurisdiction, lands that are waterward of the OHWM are designated Aquatic. Other proposed shoreline environment designations, including the criteria used to determine the designation based on SMP Guidelines in WAC 173-26-211(2)(a), are described for various portions of the shoreline jurisdiction in the sections below. Environment designations for each reach are described in detail in Section 4.2.2 through Section 4.2.7.

4.2.1.7. Restoration Opportunities Overview

Westport has relatively few restoration opportunities because of the relatively young age of most development in the city and the relatively high level of land protection on the Pacific Ocean reaches. One past activity that is restorative is the nourishment placed in and around the South Jetty. Although primarily done to waste dredge materials and protect upland areas from further erosion, the resupply of the beaches is a sustainable method of shoreline protection and should be encouraged throughout the city, possibly in other erosion-prone areas that require protection.

Within the confines of Grays Harbor, in the Bayfront North Reach, a tide gate leads to a wetland located between Pacific Avenue East and Elizabeth Avenue East. This tide gate is currently not fish passable (Figure 4 in Appendix B). Relatively intact, forested conditions fringe the marsh, although the channel has been straightened and subsequently incised. However, the presence of the intact riparian vegetation and the lack of development represent a valuable opportunity to restore lost estuarine habitat within the city limits.

4.2.2. Pacific Ocean South Reach

4.2.2.1. Existing Land Use Pattern

Pacific Ocean South Reach is zoned for Ocean Beach Residential 1 (5 acres) and Mixed-Use/Tourist Commercial 1 (0.5 acres). The reach is primarily barren land (60 percent) and herbaceous vegetation (37 percent) as well as open water (3 percent) and less than 1 percent high intensity development. Figure 6 in Appendix B illustrates that the entirety of the dune area in this reach is part of the SCA. This area is managed by the WSPRC and is available for public use. This area is regulated under WMC 17.32.050(I) – Dune Protection Zone. Currently limited uses are permitted within 200 feet of the marram grass line, and structures are not permitted within 50 feet of the seasonal high water line of any year-round body of water.

4.2.2.2. Projected Land Use

The Pacific Ocean South Reach is currently designated for Ocean Beach Residential (5 acres) and Mixed-Use/Tourist Commercial (0.5 acres) use. Most of the reach is undeveloped beach and is used for recreational purposes. However, the reach does encompass portions of some single family and multi-family residences within 200 feet of the OHWM of the Pacific Ocean.

Table 4-22. Functions Assessment for Westport Reaches.

	Hydrologic Functions					Water Quality Functions				Habitat Functions											
	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Floodwater storage/flood protection (Freshwater shorelines)	Support of base flow and groundwater (Freshwater shorelines)	Maintaining temperature	Removing excessive nutrients and toxic compounds	Removing excessive nutrients and toxic compounds	Sediment removal and stabilization	Sediment/bank stabilization and shoreline protection	Sediment/bank stabilization and shoreline protection	Attenuation of wave energy	Attenuation of wave energy	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Physical space and conditions; reproduction; resting, hiding and migration	Provision and redistribution of woody debris and organic materials	Provision and redistribution of woody debris and organic materials	Provision and redistribution of woody debris and organic materials	Total Score
Function Criteria Number[a]	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	
Reach Name																					
Pacific Ocean South Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	1	3	3	N/A	3	3	2	3	3	2	2	1	**32**
Pacific Ocean North Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	1	3	3	N/A	3	3	2	3	3	2	2	2	**33**
Half Moon Bay Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	1	3	2	N/A	2	3	2	3	2	1	1	2	**28**
Westhaven Reach	N/A	N/A	N/A	N/A	N/A	N/A	2	2	1	1	1	1	1	1	2	1	1	1	1	0	**16**
Bayfront North Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	3	3	2	3	2	2	3	3	3	2	3	1	**36**
Bayfront South Reach	N/A	N/A	N/A	N/A	N/A	N/A	3	3	3	3	2	3	2	1	3	3	3	2	3	1	**35**

[a] Criteria are described in Table 2-4 for each corresponding number (1-20).

Not applicable (N/A) is assigned to shorelines if the function or indicator of function is naturally absent from the shoreline due to the type of water body or geography.

A score of "0" is given to shorelines that are modified to a degree that the function or indicator of function is absent.

4.2.2.3. Public Access

The public can access the beach at access points at Ocean Avenue, Hancock Avenue, and Lila Avenue. The beach is available for public use within the SCA. In the City's 2004 Comprehensive Park and Recreation Plan, the City recommends several improvements to existing park facilities. Public Access to the beach at Hancock Avenue was identified as an opportunity to improve shoreline access. Restrooms and parking were to be added to the site to encourage public use of the beach. Parking was recently added to the site to encourage public use of the beach.

4.2.2.4. Shoreline Modifications

There are no shoreline modifications within this reach.

4.2.2.5. Reach Functional Assessment

Westport's Pacific Ocean South Reach scored moderate or high for most water quality and habitat functions. Hydrologic functions are naturally absent from the reach due to the geography of the coastal beach. The reach contains an extensive dune grass community along its margin, which is unique habitat of local importance. Although it is an herbaceous vegetation, typically indicative of sediment removal and stabilization functions to support water quality, dune grass does not naturally provide this function, therefore the reach scored low for this function (criteria number 9) due to natural conditions rather than development or a human induced impairment. The extensive dune grass provides a high level of function for sediment stabilization in terms of habitat and shoreline protection (criteria number 10). The shoreline provides habitat for snowy plover and a variety of shorebirds. Most residential structures and roads are located outside the shoreline jurisdiction in this reach, allowing for high level of habitat function based on a high degree of habitat complexity, vegetation diversity, and species use. The vegetation communities are in most cases only interrupted by walking paths leading from residences and street ends onto the beach.

4.2.2.6. Recommended Environment Designations

High Intensity/Shoreline Residential/Urban Conservancy

Criteria for determining the proposed High Intensity environment designation for Pacific Ocean South Reach include the following:

1. This portion of the reach is predominantly public beach, however it includes a portion of a high-density beachfront condominium development.

2. There is a public beach access point at Ocean Avenue West.

3. The Comprehensive Plan designation for this portion of the reach is:

    a. **Mixed-Use/Tourist Commercial** – It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and residential above, or uses which mix commercial and residential structures in the

same or neighboring parcels. Individual projects may be single purpose or mixed use.

4. The adopted zoning district in this portion of the reach is:

    a. **Mixed-Use Tourist Commercial 1 (MUTC-1)** – Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics; Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.

5. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a High-Intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Shoreline Residential environment designation for Pacific Ocean South Reach include the following:

1. This portion of the reach includes public beach and beachfront residential properties. This area is planned and platted for residential development. Many undeveloped residential lots have the potential to develop in the future.

2. Public access to the beach is provided at Hancock Avenue.

3. The Comprehensive Plan designation for this portion of the reach is:

    a. **Ocean Beach Residential** – This designation is intended to provide flexibility and control over the development of presently undeveloped areas in the southwestern parts of the city, to encourage innovative design of major residential development, and to prevent premature or inefficient provision of City facilities in presently undeveloped residential areas. This designation should allow low-density urban residential development of up to six units per acre, as well as recreational uses. The “ocean beach residential” designation should be applied to areas where land is available for residential development.

4. The adopted zoning district in this portion of the reach is:

    a. **Ocean Beach Residential (OBR-1)** – Site-built, new-designated manufactured, or modular single-family dwellings and duplex dwellings and associated uses and structures of a residential nature; day use recreation and associated uses necessary for the safety and convenience of the public; and public access to publicly owned shorelines, private recreational access, recreational uses and navigation aids.

5. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for Pacific Ocean South Reach include the following:

1. This portion of the reach is undeveloped public beach and dune area. The single private lot located in this portion of the reach belongs to a residential homeowners association.

2. Public access to the beach is located at Lila Avenue.

3. The Comprehensive Plan designation for this portion of the reach is:

    a. **Ocean Beach Residential** – This designation is intended to provide flexibility and control over the development of presently undeveloped areas in the southwestern parts of the city, to encourage innovative design of major residential development, and to prevent premature or inefficient provision of City facilities in presently undeveloped residential areas. This designation should allow low-density urban residential development of up to six units per acre, as well as recreational uses. The "ocean beach residential" designation should be applied to areas where land is available for residential development.

4. The adopted zoning district in this portion of the reach is:

    a. **Ocean Beach Residential (OBR-1)** – Site-built, new-designated manufactured, or modular single-family dwellings and duplex dwellings and associated uses and structures of a residential nature; day use recreation and associated uses necessary for the safety and convenience of the public; and public access to publicly owned shorelines, private recreational access, recreational uses and navigation aids.

5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

c. They have potential for ecological restoration

d. They retain important ecological functions, even though partially developed

e. They have the potential for development that is compatible with ecological restoration.

4.2.2.7. Restoration Opportunities

There are no immediate restoration opportunities in this reach. However, given that some of the shoreline has been eroding in the recent past, the USACE nourishment program should be considered for expansion to these areas to prevent future shoreline modification.

4.2.3. Pacific Ocean North Reach

4.2.3.1. Existing Land Use Pattern

Pacific Ocean North Reach is zoned for Recreation and Parks (9 acres) and Tourist Commercial (1 acre). The reach is primarily barren land (45 percent), but does include open water (28 percent), herbaceous vegetation and herbaceous wetlands (19 percent), shrub/scrub (7 percent), and medium intensity development (1 percent). The shoreline jurisdiction intersects a 300-acre privately owned and undeveloped parcel in the middle of Westport. Figure 6 in Appendix B illustrates that nearly all of the dune area in this reach is part of the SCA. This area is managed by the WSPRC and is available for public use. This area is regulated under WMC 17.32.050(I) – Dune Protection Zone. Currently limited uses are permitted within 200 feet of the marram grass line, and structures are not permitted within 50 feet of the seasonal high water line of any year-round body of water.

4.2.3.2. Projected Land Use

The Pacific Ocean North Reach is designated for Recreation and Parks (9 acres) and Tourist Commercial (1 acre). This contains very little development and is open to the public with several access points within the reach. This reach could see future commercial, recreational, or residential development compatible with the Tourist Commercial designation.

4.2.3.3. Public Access

Public access to the Pacific Ocean beach in this reach is available at Ocean Avenue and Westhaven State Park. The Westport Light Trail, also known as the Dune Trail, travels through this reach. The trail is approximately 2.5 miles of paved trail. It travels the Pacific Ocean coast from Westhaven State Park to the Westport Light House.

4.2.3.4. Shoreline Modifications

There are no known shoreline modifications in this reach, other than the South Jetty, which bounds the north end of the reach.

4.2.3.5. Reach Functional Assessment

The Pacific Ocean North Reach ranks similarly to the Pacific Ocean South Reach for functions. The shoreline jurisdiction contains healthy vegetation communities that are mostly intact and disrupted only by trails and public use associated with the parks and SCA. Unlike the Pacific

Ocean South Reaches, shorebird concentrations are not mapped within the Pacific Ocean North Reach (although they are commonly observed in the reach). The reach provides a high level of habitat function with a diverse arrangement of native vegetation communities, habitat connectivity with potentially associated interdunal wetlands that are outside the mapped shoreline jurisdiction (Figure 1 in Appendix B), and complex habitat structure. The reach provides important physical space and conditions to support a variety of shoreline-dependent species including smelt, which are known to spawn on the beach (see Figure 11 in Appendix B). Moderate scores for some functional assessment criteria are associated with the natural absence of features such as forest cover and LWD. These moderate rankings do not indicate an altered or impaired condition but rather a natural limitation of habitat function based on the specific criteria used in the assessment.

4.2.3.6. Recommended Environment Designations

Urban Conservancy

Criteria for determining the proposed Urban Conservancy environment designation for Pacific Ocean North Reach include the following:

1. The existing land use is primarily recreational, consisting of a public beach and a portion of Westhaven State Park.
2. Most of the reach is zoned for recreation and parks. However, some areas are zoned Tourist Commercial and Mixed-Use tourist Commercial and future development could occur on these parcels.
3. The Comprehensive Plan designations for the reach are:
    a. **Recreation and Parks** – The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.
    b. **Tourist Commercial** – The tourist commercial zone is intended to provide a zoning designation for a large tract of land, which has previously been identified as an ideal location for a large planned development to include a diverse amount of commercial, recreational, and residential uses.
4. The adopted zoning districts in the reach are:
    a. **Recreation and Parks (RP)** – The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public accessways, and public viewpoints; Outdoor recreational activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets, and

parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.

b. **Tourist Commercial (TC)** – The tourist commercial district is designed to provide for a master planned destination tourist resort which may include: Residential uses, including one or more hotels, motels, condominiums, apartments, and other forms of residential use for short-term, intermediate-term and long-term residential uses; Recreational and gaming facilities, including conference centers, movie and theater facilities, golf courses and other places of public and recreation consistent with state laws and licensing regulations; Tourist service commercial, including restaurants, lounges, professional and personal services, commercial retail, and service uses developed in conjunction with the primary uses identified in this section.

5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   a. They are suitable for water-related or water-enjoyment uses

   b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

   c. They have potential for ecological restoration

   d. They retain important ecological functions, even though partially developed

   e. They have the potential for development that is compatible with ecological restoration.

4.2.3.7. Restoration Opportunities

There are no restoration opportunities in this reach.

4.2.4. Half Moon Bay Reach

4.2.4.1. Existing Land Use Pattern

Half Moon Bay Reach is zoned for Recreation and Parks (26 acres) and Tourist Commercial (5 acres). The current land use in this reach includes Westhaven State Park. It is comprised mostly of barren land (69 percent) as well as open water (12 percent), herbaceous vegetation

and wetlands (18 percent), and shrub/scrub (2 percent). Half Moon Bay Reach contains the Grays Harbor South Jetty, which is managed by the USACE.

4.2.4.2. Projected Land Use

The Half Moon Bay Reach is currently designated for Recreation and Parks (26 acres) and Tourist Commercial (5 acres). The reach is largely undeveloped and contains a portion of a parking lot for those visiting the beach or Westhaven State Park. The reach is used for recreational purposes and it will continue to be used for recreational purposes unless a change in the adopted zoning were to occur.

4.2.4.3. Public Access

Public access is available through Westhaven State Park, which is a 79-acre park with access to Half Moon Bay and the Pacific Ocean. Visitors can surf and fish at the park.

4.2.4.4. Shoreline Modifications

The South Jetty dominates the west end of this reach. Also beach nourishment is placed in this reach as a part of the USACE Grays Harbor dredge program.

4.2.4.5. Reach Functional Assessment

Half Moon Bay Reach scored moderately high for functions (28 points) but exhibits some impaired functions primarily associated with the jetty and altered beach structure. However, the reach supports an important dune grass community, provides habitat for shorebirds, and is likely an important transitional area for migrating fish including salmon.

4.2.4.6. Recommended Environment Designations

High Intensity/Urban Conservancy

Criteria for determining the proposed High Intensity environment designation for the Half Moon Bay Reach include the following:

1. The area designated as High Intensity is not part of Westhaven State Park. This portion of the reach is a USACE stockpile that has been previously filled with dredge spoils from harbor dredging.

2. The reach supports an important dune grass community, provides habitat for shorebirds, and is likely an important transitional area for migrating fish including salmon.

3. The Comprehensive Plan designation for this portion of the reach are:

    a. **Tourist Commercial** – The tourist commercial zone is intended to provide a zoning designation for a large tract of land, which has previously been identified as an ideal location for a large planned development to include a diverse amount of commercial, recreational, and residential uses.

4. The adopted zoning district in this portion of the reach is:

    a. **Tourist Commercial (TC)** – The tourist commercial district is designed to provide for a master planned destination tourist resort which may include: Residential uses, including one or more hotels, motels, condominiums, apartments, and other forms of residential use for short-term, intermediate-term and long-term residential uses; Recreational and gaming facilities, including conference centers, movie and theater facilities, golf courses and other places of public and recreation consistent with state laws and licensing regulations; Tourist service commercial, including restaurants, lounges, professional and personal services, commercial retail, and service uses developed in conjunction with the primary uses identified in this section.

    a. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a High-Intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Urban Conservancy environment designation for the Half Moon Bay Reach include the following:

1. The existing land use in Half Moon Bay is recreational, home to good beachcombing and surfing.

2. The reach supports an important dune grass community, provides habitat for shorebirds, and is likely an important transitional area for migrating fish including salmon.

3. The Comprehensive Plan designations for the reach are:

    a. **Recreation and Parks** – The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.

    b. **Tourist Commercial** – The tourist commercial zone is intended to provide a zoning designation for a large tract of land, which has previously been identified as an ideal location for a large planned development to include a diverse amount of commercial, recreational, and residential uses.

4. The adopted zoning districts in the reach are:

    a. **Recreation and Parks (RP)** – The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public accessways, and public viewpoints; Outdoor recreational

activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets, and parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.

b. **Tourist Commercial (TC)** – The tourist commercial district is designed to provide for a master planned destination tourist resort which may include: Residential uses, including one or more hotels, motels, condominiums, apartments, and other forms of residential use for short-term, intermediate-term and long-term residential uses; Recreational and gaming facilities, including conference centers, movie and theater facilities, golf courses and other places of public and recreation consistent with state laws and licensing regulations; Tourist service commercial, including restaurants, lounges, professional and personal services, commercial retail, and service uses developed in conjunction with the primary uses identified in this section.

5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   a. They are suitable for water-related or water-enjoyment uses

   b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

   c. They have potential for ecological restoration

   d. They retain important ecological functions, even though partially developed

   e. They have the potential for development that is compatible with ecological restoration.

4.2.4.7. Restoration Opportunities

There are no restoration opportunities in this reach.

4.2.5. Westhaven Reach

4.2.5.1. Existing Land Use Pattern

Westhaven Reach is zoned for marine and recreational uses, as shown in Table 4-23. The majority of this reach is developed with water-oriented and water-related commercial and industrial uses.

Table 4-23. Westhaven Reach.

Zoning	Percent of Reach
Mixed-Use/Tourist Commercial 2	36%
Marine Industrial	29%
Mixed-Use/Tourist Commercial	21%
Government	11%
Recreation and Parks	4%
Land Cover	
Barren Land	39%
High Intensity Development	25%
Medium Density Development	23%
Open Water	7%
Developed, Low Intensity	4%
Herbaceous	< 1%
Scrub/shrub	< 1%

4.2.5.2. Projected Land Use

The Westhaven Reach serves many purposes and it is designated for Marine Industrial (9 acres), Mixed-Use/Tourist Commercial (15 acres), Tourist Commercial (3 acres), Government Lands (3 acres), and Recreation and Parks (1 acre). The marina is the most intense use within this reach, and most of the commercial uses in this reach rely upon the marina. Future development within this reach would likely be water-oriented uses.

4.2.5.3. Public Access

The Westhaven Marina provides restrooms, moorage for 900 vessels, and launching for commercial, charter, and sport fishing vessels. The Westport Boat Launch consists of three paved launch lanes and parking for over 120 vehicles and trailers.

In the City's 2004 Comprehensive Park and Recreation Plan, the City recommends several improvements to existing park facilities. The City recommends that improvements be made to the Westport Marina Boat Launch, augmenting the water end of the launch and eliminating the large holes that exist. It appears that the City did make improvements to the boat launch since the 2004 implementation of the Parks and Recreation Plan.

4.2.5.4. Shoreline Modifications

Shoreline modifications in the Westhaven reach are extensive. The entire area in the reach is placed fill protected by riprap.

4.2.5.5. Reach Functional Assessment

Westhaven Reach scored the lowest for functions (16 points) primarily due to impairments associated with shoreline modifications and developed conditions that restrict the development of natural habitats. The amount of impervious surface is estimated at 51 percent based on moderate and high-density development land cover, and land use may represent a potential water quality concern if adequate measures are not in place to reduce the potential for pollutants to enter the water. The shoreline in this reach is close to shellfish harvest areas (Figure 7 in Appendix B) but does not likely provide suitable conditions for shellfish. However, the reach provides suitable habitat for floating kelp (Figure 9 in Appendix B), a relatively unique habitat locally.

4.2.5.6. Recommended Environment Designations

High Intensity

Criteria for determining the proposed High Intensity environment designation for the Westhaven Reach include the following:

1. The existing land use in this reach is most intensive in the city. The reach includes the marina and other water-related services that support it. Shoreline modifications and the developed conditions of the reach restrict the development of natural habitats and limit its potential for ecological functions.

2. At the southern end of the marina, a public boat launch provides access to the water with three lanes and two boarding floats.

3. The Comprehensive Plan designations for the reach are:

    a. **Government Lands** – The purpose of the Government lands zoning district is to designate lands owned by the Federal Government, which are not regulated under Westport land use jurisdiction.

    b. **Marine Industrial** – The marine industrial designation is intended to allocate space for the development of industrial uses and related activities, which can benefit from Westport's marine location and character, and is intended to encourage the continued development of marine-oriented activities, protected from incompatible uses. Marine-related ferry, transport and storage, processing, construction, repair, and distribution activities are all encouraged. Shoreline areas and access should be reserved for water or marine-dependent activities.

    c. **Mixed-Use/Tourist Commercial** – It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and

residential above, or uses which mix commercial and residential structures in the same or neighboring parcels. Individual projects may be single purpose or mixed use.

d. **Recreation and Parks** – The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.

e. **Tourist Commercial** – The tourist commercial zone is intended to provide a zoning designation for a large tract of land, which has previously been identified as an ideal location for a large planned development to include a diverse amount of commercial, recreational, and residential uses.

4. The adopted zoning districts in the reach are:

a. **Government Lands (GOV)** – Lands owned by the federal government that are not regulated under Westport land use jurisdiction.

b. **Marine Industrial (MI)** – The following uses shall be permitted in the MI district subject to the provisions of this chapter and the applicable requirements of this title: Fish and seafood handling, storage, processing, packing, preserving and canning; Fish and seafood wholesaling and retail sales; Ice manufacturing, storage and sales; Boatyards, ship, boat or barge building, construction and repair, and dry-docks; Ship and boat sales; Marine equipment sales and service; Marine fuel sales; Marinas, moorage, docks, port terminals, ferry terminals, passenger terminals, ship berthing, barge berthing, boathouses, boat, ship, barge, assembly and structure launching facilities; and navigation aids; Barge and ship cargo receiving, handling and storage areas; The fabrication, manufacturing, and/or assembly of drilling towers, support platforms, modules, marine assemblies or marine structures within or outside of a building; Offices accessory to an allowed use; Eating and drinking places; Breakwaters, bulkheads, groins and jetties; Landfalls or access corridors for submerged cable, sewer line, waterline, or other pipeline crossings; Stormwater and wastewater outfalls; Public and semi-public uses including Coast Guard facilities, helipads, airports, public offices, police and fire stations, transmission lines, utility substations, pollution control plants, parks, public access facilities and public service facilities; The rearing of fish or shellfish by public agencies or nonprofit organizations for release; Equipment sales, rental, repair and servicing; Machine shops, welding shops and metal and structural composite fabrication within a building; Truck terminals; Hotel and motel complexes; Marine Aquatic Recreational Park Center.

c. **Mixed-Use Tourist Commercial 1 (MUTC-1)** – Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics;

Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.

d. **Mixed-Use Tourist Commercial 2 (MUTC-2)** – Uses permitted in the MUTC-2 district are as follows: All uses permitted in the MUTC-1 zone, except that: Retail sales on sites over 5 acres in size may be up to 65,000 square feet; and/or Buildings may be constructed up to 50 feet high or five stories, whichever is less.

e. **Recreation and Parks (RP)** – The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public accessways, and public viewpoints; Outdoor recreational activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets, and parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.

f. **Tourist Commercial (TC)** – The tourist commercial district is designed to provide for a master planned destination tourist resort which may include: Residential uses, including one or more hotels, motels, condominiums, apartments, and other forms of residential use for short-term, intermediate-term and long-term residential uses; Recreational and gaming facilities, including conference centers, movie and theater facilities, golf courses and other places of public and recreation consistent with state laws and licensing regulations; Tourist service commercial, including restaurants, lounges, professional and personal services, commercial retail, and service uses developed in conjunction with the primary uses identified in this section.

5. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a High-Intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to

commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

4.2.5.7. Restoration Opportunities

There are no restoration opportunities in this reach.

4.2.6. Bayfront North Reach

4.2.6.1. Existing Land Use Pattern

Bayfront North Reach is zoned for Marine Industrial (32 acres), Mixed-Use/Tourist Commercial 1 (29 acres), Residential 1 (3 acres), and Recreation and Parks (2 acres). The reach is primarily covered by herbaceous wetlands and vegetation (75 percent) as well as woody wetlands (12 percent), open water (5 percent), low intensity development (3 percent), open space (2 percent), medium intensity development (1 percent), barren land (1 percent), and less than 1 percent each of shrub/scrub and hay/pasture.

4.2.6.2. Projected Land Use

The Bayfront North Reach is designated for Recreation and Parks (2 acres), Residential (3 acres), Mixed-Use/Tourist Commercial (30 acres), and Marine Industrial (32 acres) uses. This reach includes the airport. The City's approved Airport Layout Plan includes an expansion of the existing airport to include a longer runway and a parallel taxiway located north of the existing runway. Most of this reach is covered by marine and estuarine wetlands, and as such, future development is unlikely in these areas.

4.2.6.3. Public Access

In the City's 2004 Comprehensive Park and Recreation Plan, the City recommends several improvements to existing park facilities. The City recommends that passive recreation opportunities, such as an elevated boardwalk, be pursued at Pacific Avenue Park. The site provides scenic South Bay views and needed public access on the Bay side of the city. It is unclear whether passive recreation opportunities were explored at this park.

4.2.6.4. Shoreline Modifications

Shoreline modification is moderate (36 percent to 65 percent) throughout the reach. Modifications are mostly associated with levees protecting the airport and marine industrial areas and channelization of estuarine streams, including Winter Creek.

4.2.6.5. Reach Functional Assessment

Bayfront North Reach ranks high for most (9 out 14) functional assessment criteria and high overall for ecological functions. Criteria related to water quality functions all rank high, primarily due to the presence of extensive salt marsh communities and eelgrass beds. Also there are no known water quality impairments in the reach. Invasive European green crab known to occur in the Bayfront reaches could represent a habitat limiting factor in the future if, for example, they outcompete native species for space or significantly alter conditions necessary for native species survival. Dense multi-strata riparian vegetation and LWD are generally absent within the reach, indicating moderate and levels of habitat function based on these criteria (criteria numbers 14 and 20 respectively). However, this is a result of

natural conditions and the plant communities that are present. The low rankings for these criteria do not reflect a human-induced impairment, rather a natural limitation. Overall the reach provides a diverse habitat structure and complexity to support numerous aquatic and shoreline-dependent species. Although they are likely smaller than what would be present in the absence of historical development and levee construction, the estuarine wetland is an important ecological feature that is not present in the more highly altered reaches of Westhaven Cove and Half Moon Bay to the north.

4.2.6.6. Recommended Environment Designations

High Intensity/Shoreline Residential/Urban Conservancy/Aquatic

Criteria for determining the High Intensity proposed environment designation for the Bayfront North Reach include the following:

1. This reach includes the Westport Airport, a City-owned public use airport with one runway, portions of a marine industrial use, and areas designated for high intensity commercial and industrial uses.

2. The Comprehensive Plan designations for the reach are:

    a. **Marine Industrial** – The marine industrial designation is intended to allocate space for the development of industrial uses and related activities, which can benefit from Westport's marine location and character, and is intended to encourage the continued development of marine-oriented activities, protected from incompatible uses. Marine-related ferry, transport and storage, processing, construction, repair, and distribution activities are all encouraged. Shoreline areas and access should be reserved for water or marine-dependent activities.

    b. **Mixed-Use/Tourist Commercial** – It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and residential above, or uses which mix commercial and residential structures in the same or neighboring parcels. Individual projects may be single purpose or mixed use.

3. The adopted zoning districts in the reach are:

    a. **Marine Industrial (MI)** – The following uses shall be permitted in the MI district subject to the provisions of this chapter and the applicable requirements of this title: Fish and seafood handling, storage, processing, packing, preserving and canning; Fish and seafood wholesaling and retail sales; Ice manufacturing, storage and sales; Boatyards, ship, boat or barge building, construction and repair, and dry-docks; Ship and boat sales; Marine equipment sales and service; Marine fuel sales; Marinas, moorage, docks, port terminals, ferry terminals, passenger terminals, ship berthing, barge berthing, boathouses, boat, ship, barge, assembly and structure launching facilities; and navigation aids; Barge and ship cargo receiving, handling and storage areas; The fabrication, manufacturing, and/or

assembly of drilling towers, support platforms, modules, marine assemblies or marine structures within or outside of a building; Offices accessory to an allowed use; Eating and drinking places; Breakwaters, bulkheads, groins and jetties; Landfalls or access corridors for submerged cable, sewer line, waterline, or other pipeline crossings; Stormwater and wastewater outfalls; Public and semi-public uses including Coast Guard facilities, helipads, airports, public offices, police and fire stations, transmission lines, utility substations, pollution control plants, parks, public access facilities and public service facilities; The rearing of fish or shellfish by public agencies or nonprofit organizations for release; Equipment sales, rental, repair and servicing; Machine shops, welding shops and metal and structural composite fabrication within a building; Truck terminals; Hotel and motel complexes; Marine Aquatic Recreational Park Center.

b. **Mixed-Use Tourist Commercial 1 (MUTC-1)** – Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics; Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.

4. Specific designation criteria in WAC 173-26-211(5)(d)(iii): Assign a High-Intensity environment designation to shoreline areas within incorporated municipalities, as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

Criteria for determining the proposed Shoreline Residential environment designation for the Bayfront North Reach (High Intensity) include the following:

1. This reach includes developed and undeveloped residential parcels planned and platted for residential development.

2. The Comprehensive Plan designation for this portion of the reach is:

   a. **Residential** – The single-family residential districts are residential zones requiring a low to medium density of population and providing protection from hazards, objectionable influences, building congestion, and lack of light, air, and privacy.

3. The adopted zoning district for this portion of the reach is:

    a. **Low Density Residential (R-1)** – Site-built, new-designated manufactured, or modular single-family detached dwellings; townhouses at not more than four units per building; duplexes; home occupations; fishing equipment storage and repair incidental to an off-premises commercial fishing business, provided such uses are screened or fenced with a 6-foot screen or fence; multifamily units fewer than four units per building; day care facilities as an accessory use with six or fewer children; planned developments, subject to the provisions of WMC 17.36.110.

4. Specific designation criteria in WAC 173-26-211(5)(f)(iii): Assign a Shoreline Residential environment designation to shoreline areas inside incorporated municipalities if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.

Criteria for determining the proposed Urban Conservancy environment designation for the Bayfront North Reach include the following:

1. This portion of the reach is predominantly wetlands located landward of the OHWM.

2. The Comprehensive Plan designations for the reach are:

    a. **Marine Industrial** – The marine industrial designation is intended to allocate space for the development of industrial uses and related activities, which can benefit from Westport's marine location and character, and is intended to encourage the continued development of marine-oriented activities, protected from incompatible uses. Marine-related ferry, transport and storage, processing, construction, repair, and distribution activities are all encouraged. Shoreline areas and access should be reserved for water or marine-dependent activities.

    b. **Mixed-Use/Tourist Commercial** – It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and residential above, or uses which mix commercial and residential structures in the same or neighboring parcels. Individual projects may be single purpose or mixed use.

    c. **Recreation and Parks** – The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.

3. The adopted zoning districts in the reach are:

    a. **Marine Industrial (MI)** – The following uses shall be permitted in the MI district subject to the provisions of this chapter and the applicable requirements of this title: Fish and seafood handling, storage, processing, packing, preserving and

canning; Fish and seafood wholesaling and retail sales; Ice manufacturing, storage and sales; Boatyards, ship, boat or barge building, construction and repair, and dry-docks; Ship and boat sales; Marine equipment sales and service; Marine fuel sales; Marinas, moorage, docks, port terminals, ferry terminals, passenger terminals, ship berthing, barge berthing, boathouses, boat, ship, barge, assembly and structure launching facilities; and navigation aids; Barge and ship cargo receiving, handling and storage areas; The fabrication, manufacturing, and/or assembly of drilling towers, support platforms, modules, marine assemblies or marine structures within or outside of a building; Offices accessory to an allowed use; Eating and drinking places; Breakwaters, bulkheads, groins and jetties; Landfalls or access corridors for submerged cable, sewer line, waterline, or other pipeline crossings; Stormwater and wastewater outfalls; Public and semi-public uses including Coast Guard facilities, helipads, airports, public offices, police and fire stations, transmission lines, utility substations, pollution control plants, parks, public access facilities and public service facilities; The rearing of fish or shellfish by public agencies or nonprofit organizations for release; Equipment sales, rental, repair and servicing; Machine shops, welding shops and metal and structural composite fabrication within a building; Truck terminals; Hotel and motel complexes; Marine Aquatic Recreational Park Center.

b. **Mixed-Use Tourist Commercial 1 (MUTC-1)** – – Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics; Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.

c. **Recreation and Parks (RP)** – The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public accessways, and public viewpoints; Outdoor recreational activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets, and parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment

plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.

4. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

    a. They are suitable for water-related or water-enjoyment uses

    b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

    c. They have potential for ecological restoration

    d. They retain important ecological functions, even though partially developed

    e. They have the potential for development that is compatible with ecological restoration.

Areas of the reach waterward of the OHWM are designated aquatic. The location of the OHWM will be determined at the time of development. Aquatic areas may include estuarine wetlands if it is determined through a site analysis that the wetlands are located waterward of the OHWM.

4.2.6.7. Restoration Opportunities

Restoration opportunities are related to improvements to the drainage of Winter Creek and an unnamed stream that is channelized on the north side of the airport. Ecological conditions are generally good, but the stream are simplified and typically unvegetated. Improvements could be made by vegetating the channels and allowing them to be more sinuous.

4.2.7. Bayfront South Reach

4.2.7.1. Existing Land Use Pattern

Bayfront South Reach is zoned Residential 1 (4 acres), Residential 2 (3 acres), Recreation and Parks (1 acre), Mixed-Use/Tourist Commercial 2 (2 acres), and Mixed-Use/Tourist Commercial 1 (1 acre). Much of this reach is not zoned, as it is undevelopable wetland. The reach is covered primarily by herbaceous wetlands and vegetation (82 percent), woody wetlands (10 percent), barren land (5 percent), open water (2 percent), and less than 1 percent of low intensity development, shrub/scrub, deciduous forest, and open space.

4.2.7.2. Projected Land Use

Comprehensive plan designations in the Bayfront South Reach include Residential (7 acres), Mixed-Use/Tourist Commercial (3 acres), and Recreation and Parks (1 acre). Similar to Bayfront North Reach, most of this reach is covered by a marine and estuarine wetland, which may not be compatible with future development.

4.2.7.3. Public Access

Public access in this reach is limited.

4.2.7.4. Shoreline Modifications

The primary shoreline modification in this reach has to do with South Montesano Street. South Montesano Street is on fill along the harbor shoreline and has several manholes discharging directly to the harbor. There is also fill that could be removed at the end of East Lila Street and pilings and fill to be removed at the end of East Pacific Avenue.

4.2.7.5. Reach Functional Assessment

The Bayfront South Reach exhibits similar characteristics and functions as the North Reach (Section 4.2.6.5), and ranks the same across nearly all the assessment criteria for ecological functions. The Bayfront South ranked low for habitat function associated with multi-strata vegetation, but as described for the Bayfront North Reach, this is a result of a natural limitation and the vegetation communities that are present. It is not an indicator of impaired habitat function due to land use or development within the shoreline jurisdiction.

4.2.7.6. Recommended Environment Designations

Urban Conservancy/Aquatic

Criteria for determining the proposed Urban Conservancy environment designation for the Bayfront South Reach include the following:

1. The reach primarily covers land that is occupied by wetlands.
2. Most of the zoning that intersects with this reach is Mixed-Use/Tourist Commercial; however, due to the presence of wetlands, the area may not be suitable for future development.
3. The Comprehensive Plan designations for the reach are:
    a. **Mixed-Use/Tourist Commercial** – It is the intent of the Mixed-Use/Tourist Commercial (MUTC) zone that there be a mixture of tourist commercial and higher density residential uses in close proximity. Mixed use can include, but is not limited to, mixed use buildings with retail or office uses on the lower floors and residential above, or uses which mix commercial and residential structures in the same or neighboring parcels. Individual projects may be single purpose or mixed use.

b. **Residential** – The single-family residential districts are residential zones requiring a low to medium density of population and providing protection from hazards, objectionable influences, building congestion, and lack of light, air, and privacy.

c. **Recreation and Parks** – The purpose of the recreation and parks district is to reserve suitable areas for a broad variety of outdoor recreational activities serving both local residents and visitors while protecting the unique natural recreation areas of the city, thereby enabling the long-term use, enjoyment, and conservation of these unique areas.

4. The adopted zoning districts in the reach are:

a. **Mixed-Use Tourist Commercial 1 (MUTC-1)** – Uses permitted in the MUTC-1 district are as follows: Public facilities, including marina, ferry terminal, and marine support facilities; Retail sales, limited to 25,000 square feet; General office; Public support facilities, including utilities; Parks/open space and recreation facilities; Restaurants; Post offices; Motels, hotels; Medical clinics; Child day care center, child mini-day care center; All residential units; Public and/or private schools; Professional and personal services; Congregate care facilities, adult residential treatment facilities, evaluation and treatment centers; Parking structures or lots as a primary use; Museum, library, art gallery and places of public gathering; Service stations; Churches; Public and private assembly and recreation facilities; All uses which were legally established prior to January 1, 1996, except where there is a cessation of the use for 3 or more years; Convenience stores (grocery stores, mini-marts, food marts), both with and without fuel sales; and Fully enclosed indoor storage as a primary or secondary use, including single buildings and/or mini-storage units.

b. **Mixed-Use Tourist Commercial 2 (MUTC-2)** – Uses permitted in the MUTC-2 district are as follows: All uses permitted in the MUTC-1 zone, except that: Retail sales on sites over 5 acres in size may be up to 65,000 square feet; and/or Buildings may be constructed up to 50 feet high or five stories, whichever is less.

c. **Recreation and Parks (RP)** – The following uses shall be permitted in the RP district subject to the provisions of this chapter and the applicable requirements of this title: Public and private parks; Campgrounds, day-use recreational facilities, playgrounds and outdoor sports and play courts; Public reserves and natural areas; Beach accesses, public accessways, and public viewpoints; Outdoor recreational activities and fishing; Breakwaters, bulkheads, groins, jetties, and erosion control measures and activities; Public facilities, including but not limited to water lines, sewer lines, drainage ways, transmission lines, utility substations, streets, and parkways. All public utilities and transmission lines shall be located underground; Watersheds, well fields, public water supply storage and public water treatment plants; Public safety communications and warning devices, navigation aids, radar facilities and public communications facilities; Public interpretive centers, museum and interpretive instructive displays; Publicly owned information, safety and interpretive signs; Public horse arenas, public horse corrals, public horse

barns, horse stabling, and public bridle paths and trails; Parking lots accessory to an allowed use.

d. **Low Density Residential (R-1)** – See the district description under Bayfront North Reach.

e. **Medium Density Residential (R-2)** – Site-built, new-designated manufactured, or modular single-family detached dwellings; townhouses; duplexes; home occupations; multifamily units; planned developments subject to the provisions of WMC 17.36.110; public and semi-public uses as provided in WMC 17.36.050; day care facilities as an accessory use with six or fewer children; fishing equipment storage and repair incidental to off-premises commercial fishing businesses, provided such uses are screened or fenced with a 6-foot screen or fence.

5. Specific designation criteria in WAC 173-26-211(5)(e)(iii): Assign an Urban Conservancy environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, and that lie in incorporated municipalities, if any of the following characteristics apply:

   a. They are suitable for water-related or water-enjoyment uses

   b. They are open space, flood plain or other sensitive areas that should not be more intensively developed

   c. They have potential for ecological restoration

   d. They retain important ecological functions, even though partially developed

   e. They have the potential for development that is compatible with ecological restoration.

Areas of the reach waterward of the OHWM are designated aquatic. The location of the OHWM will be determined at the time of development. Aquatic areas may include estuarine wetlands if it is determined through a site analysis that the wetlands are located waterward of the OHWM.

4.2.7.7. Restoration Opportunities

The primary restoration opportunity in the Bayfront South Reach is stormwater improvements to the Montesano Street corridor. Currently there are direct discharges of stormwater from Montesano Street to the harbor via at least two tide gates. Updated would improve water quality and provide a buffer for aquatic species to the built environment.

5. Data Gaps

A comprehensive inventory of shoreline modifications was not available for the cities. What little data do exist, from the Washington Coastal Atlas, is at a coarse resolution (Ecology 2014b). Detailed information regarding shoreline modifications such as bank armoring, water diversion inlets and outlets, and other areas of altered bank or bed conditions could be collected and compiled into a georeferenced database. This information could then be used to make informed decisions on protection and restoration opportunities along the shorelines. The information could also be used to monitor development over time and determine net increases or reductions.

Given the predictions made by the Sea Level Affecting Marshes Model, a sea level rise model(Sandell and McAninch 2013), it is recommended that an analysis of sea level rise be performed to assess the performance of wastewater and stormwater infrastructure in the cities over time, similar to a recent effort made by King County (King County 2008). Even though there is not significant subsidence in the area and historical sea level rise has been modest, the model results indicate that a significant portion of the cities could be at risk of marine inundation within the next 100 years. These results suggest that flooding and saltwater intrusion into low-lying portions of the cities used for water supply is possible (Sandell and McAninch 2013). These issues could be made worse by human-induced increases to runoff caused by stormwater infrastructure (Rosenberg et al. 2010).

6. Shoreline Management Recommendations

The following are recommended actions, policies, and regulations for consideration by each City for their SMP. In addition to these recommendations, the updated SMP should incorporate all other requirements of the SMA (Chapter 90.58 RCW) and the SMP Guidelines (Chapter 173 26 WAC).

6.1. Environment Designations

Based on the Background and Methodology outlined in this document, the following specific recommendations are provided for future development and assignment of environment designations in the cities:

- Consider utilizing the basic five-category environment designation scheme in the SMP Guidelines in applying designations appropriately to City lands.
- Consider whether additional environment designations would be appropriate to delineate unique areas further that might warrant designation-specific use or modification regulations, such as waterfront parks.
- Utilize inventory and characterization findings, such as GIS information and/or function scores, in this report to inform assignment of environment designations, as outlined in Methodology.

6.2. Critical Areas

- Consider whether the critical areas regulations used by the Cities should be incorporated into their respective SMPs by reference or through direct inclusion. Either method of inclusion may require modification of the jurisdiction's critical areas regulations to meet SMA criteria (e.g., exceptions, exemptions, and allowance for water-dependent uses).
- Ocean Shores has recently updated their Critical Areas Ordinance to meet the GMA best available science criteria. Westport should update its Critical Area Ordinance to include best available science.

6.3. Flood Hazard Reduction

- Consistent with the WAC provisions in the SMP Guidelines, provide maximum flexibility for developing and maintaining flood hazard reduction measures as needed to improve protection of existing developed areas.
- Incorporate flood hazard reduction provisions from existing watershed management, comprehensive flood hazard management, and other applicable plans.

- Recognize that development guidelines consistent with the flood hazard reduction provisions in the SMP Guidelines can limit exposure to flood hazards within flood-prone areas.

6.4. Public Access

- Recognize vision of the Cities for parks, trails, and natural areas as a shoreline public access plan.
- Emphasize the importance of public access to the shoreline as one of the primary intents of the SMA.

6.5. Vegetation Conservation (Clearing and Grading)

- Build on the existing protections provided by the Cities' current SMPs, paying special attention to measures that would promote retention of shoreline vegetation and development of a well-functioning shoreline that supports ecosystem functions.
- Ensure clear regulations for selective pruning of trees for safety and view protection as may be allowed per WAC 173-26-221(5)(c).

6.6. Water Quality

- Include policies and regulations that appropriately incorporate recommendations of the water quality-related studies prepared for the Cities, particularly as related to impaired parameters listed by Ecology.
- Ensure that regulations allow for placement of any structures or facilities in the shoreline jurisdiction for improving water quality, as long as impacts are identified and mitigated, if necessary.
- Consider adding clarifying statements noting that the policies of the SMP are also policies of the Comprehensive Plans of each of the Cities, and that the policies also apply to activities outside the shoreline jurisdiction that affect water quality within the shoreline jurisdiction. However, the regulations apply only within the shoreline jurisdiction.
- Consider policies that seek to improve water quality and manage water quantity for ecological benefits and human use.

6.7. Shoreline Modification Provisions

6.7.1. Shoreline Stabilization

- Ensure that the definitions and standards for replacement and repair are consistent with WAC 173-26-231(3)(a). "Repair" activities should be defined to include a replacement threshold so that applicants and staff will know when "replacement' requirements need to be met.

- Fully implement the intent and principles of the SMP Guidelines. Reference appropriate exemptions found in the WAC related to normal maintenance, repair, and construction of the normal bulkhead common to single-family residences. These are not exemptions from the regulations, however; they are exemptions from a Shoreline Substantial Development Permit.

- Give preference to those types of shoreline modifications that have a lesser impact on ecological functions. Policies should promote "soft" over "hard" shoreline modification measures (i.e., beach nourishment as opposed to fixed structures like rock revetments). Give preference to designs that use vegetation and other natural materials (i.e., LWD and beach nourishment) as the primary basis for protection. Preference should also be given to existing structures or those that can be constructed entirely above the OHWM or MHHW.

- Incentives should be included in the SMP that would encourage modification of existing armoring, where feasible, to improve habitat while still maintaining any necessary site use and protection.

6.7.2. Piers and Docks

- Provide clear replacement and repair definitions and standards. “Repair” activities should be defined to include a replacement threshold so that applicants and staff will know when “replacement” requirements need to be met.

- Assess dimensional and other standards for new piers and replacement/modified piers contained in the existing SMP and update as needed to provide clarity.

- Consider standards that address materials such as grated decking for dock and pier replacements/modifications that may be proposed in the future along the shoreline.

- Be consistent with WDFW and USACE design standards, and recognize special local issues or circumstances.

6.7.3. Fill

- Restoration fills, (typically referred to as nourishment) using site-specific suitable sediment types, should be encouraged, including improvements to shoreline habitats, natural materials to anchor LWD placements, and as needed to implement shoreline restoration. Recommend not requiring a Shoreline Conditional Use Permit for restoration-related fills that are consistent with the on-site geomorphology.

- Fills waterward of the OHWM or MHHW to create developable land should be prohibited and should only be allowed landward of OHWM or MHHW if not inconsistent with the requirement to protect shoreline ecological functions and ecosystem processes.

6.7.4. Dredging

- Except for purposes of shoreline restoration or the maintenance of existing legal moorage and navigation (e.g., entrances to Grays Harbor, Westhaven, and Ocean Shores Marina), consider prohibiting dredging modifications.

6.7.5. Shoreline Habitat and Natural Systems Enhancement

- The SMP should include incentives to encourage restoration projects, particularly in areas identified as having lower function. For example, allow modification of impervious surface coverage, density, height, or setback requirements when paired with significant restoration. Emphasize that certain fills, such as spawning gravels or material to anchor logs, can be an important component of some restoration projects.

6.8. Shoreline Uses

6.8.1. Aquaculture

- Ensure appropriate provisions for aquaculture uses are provided.

6.8.2. Boating Facilities

- Regulations should be crafted that are consistent with the WAC, as well as accommodate any known plans for modifications of any of these facilities. They should be consistent with WDFW and USACE design standards, and recognize special local issues or circumstances. Incentives should be used where appropriate to encourage on-site restoration.

6.8.3. Commercial Development

- Recognize commercial uses and consider incentives to attract water-oriented uses in appropriate locations along the shoreline, while ensuring no net loss of shoreline ecological functions.

6.8.4. Forest Practices

- Provide general policies and regulations for forest practices according to the SMP Guidelines.

6.8.5. Shellfish Processing

- Westport allows fish and shellfish processing within its Marine Industrial (MI) district as a permitted use. Most fish processing activities occur within the shoreline jurisdiction of the City.

- Ocean Shores allows for light manufacturing within its General Commercial (B-2) zone but does not specifically state fish processing is permitted. It is unclear if there are fish processors within the shoreline jurisdiction of the City.

- Ensure appropriate provisions for fish processing are provided.

6.8.6. Recreational Development

- Policies and regulations related to recreation management should provide clear preferences for shoreline restoration consistent with public access needs and uses. Include provisions for existing and potential recreational uses, including boating, scuba diving, kayaking, swimming, surfing, and fishing.

6.8.7. Residential Development

- Recognize current and planned shoreline residential uses with adequate provision of services and utilities as appropriate to allow for shoreline recreation and ecological protection.
- Include a policy to continue education of waterfront homeowners about the use of fertilizers and chemicals and encourage natural lawn care and landscaping methods to reduce chemical output into surrounding shorelines.
- Encourage low impact development techniques that reduce impervious surface areas, increase use of eco-friendly stormwater detention/transmission, and decrease flood hazards.

6.8.8. Transportation and Parking

- Allow for maintenance and improvements to existing roads and parking areas and for necessary new roads and parking areas where other locations outside of the shoreline jurisdiction are not feasible.
- Opportunities for armoring reduction may be available by removal or relocating some roads currently in the shoreline jurisdiction.

6.8.9. Utilities

- Allow for utility maintenance and extension with criteria for location and vegetation restoration as appropriate.

7. RESTORATION PLAN

Potential restoration projects are identified for both Cities within Section 4 of this report. These and other potential projects will be proposed and examined in more detail in a restoration plan that will be prepared in a later phase of the SMP update process, consistent with WAC 173-26-201(2)(f).

The Restoration Plan will incorporate the findings from this analysis report and address the following six subjects (WAC 173-26-201(2)(f)(i-vi)):

> *(i) Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration;*
>
> *(ii) Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions;*
>
> *(iii) Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals;*
>
> *(iv) Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs;*
>
> *(v) Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals; and*
>
> *(vi) Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals.*

The Restoration Plan will

> *"… include goals, policies, and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program."*

The Restoration Plan will mesh potential projects identified in this report with additional projects, regional or local efforts, and programs of each jurisdiction, watershed groups, and environmental organizations that contribute or could potentially contribute to improved ecological functions of the shoreline.

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APPENDIX A

Ocean Shores Map Folio

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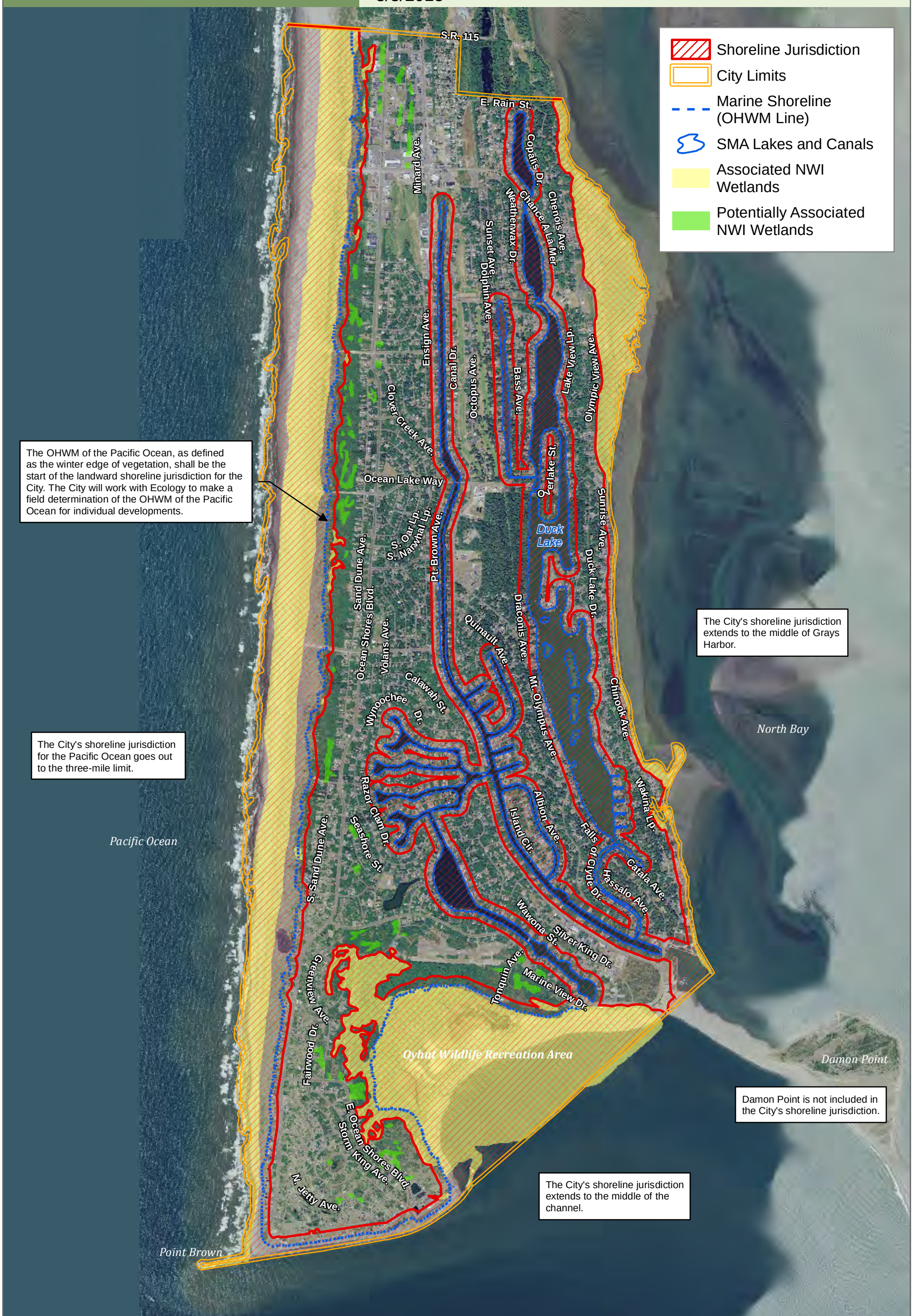
City of Ocean Shores
Shoreline Master Program

Figure 1: Shoreline Jurisdiction

3/3/2015



N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

Shoreline jurisdiction boundaries depicted on this map are approximate. They have not been formally delineated or surveyed and are intended for planning purposes only. Additional site-specific evaluation may be needed to confirm/verify information shown on this map.

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City of Ocean Shores
Shoreline Master Program

Figure 2: 100 Year Floodplain & Wetlands
3/3/2015

Notes:
1. The OHWM of the Pacific Ocean, as defined as the winter edge of vegetation, shall be the start of the landward shoreline jurisdiction for the City. The City will work with Ecology to make a field determination of the OHWM of the Pacific Ocean for individual developments.
2. The City's shoreline jurisdiction for the Pacific Ocean goes out to the three-mile limit.
3. The City's shoreline jurisdiction extends to the middle of the channel.
4. The City's shoreline jurisdiction extends to the middle of Grays Harbor.
5. Damon Point is not included in the City's shoreline jurisdiction.

N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

Shoreline jurisdiction boundaries depicted on this map are approximate. They have not been formally delineated or surveyed and are intended for planning purposes only. Additional site-specific evaluation may be needed to confirm/verify information shown on this map.

CITY OF OCEAN SHORES WASHINGTON

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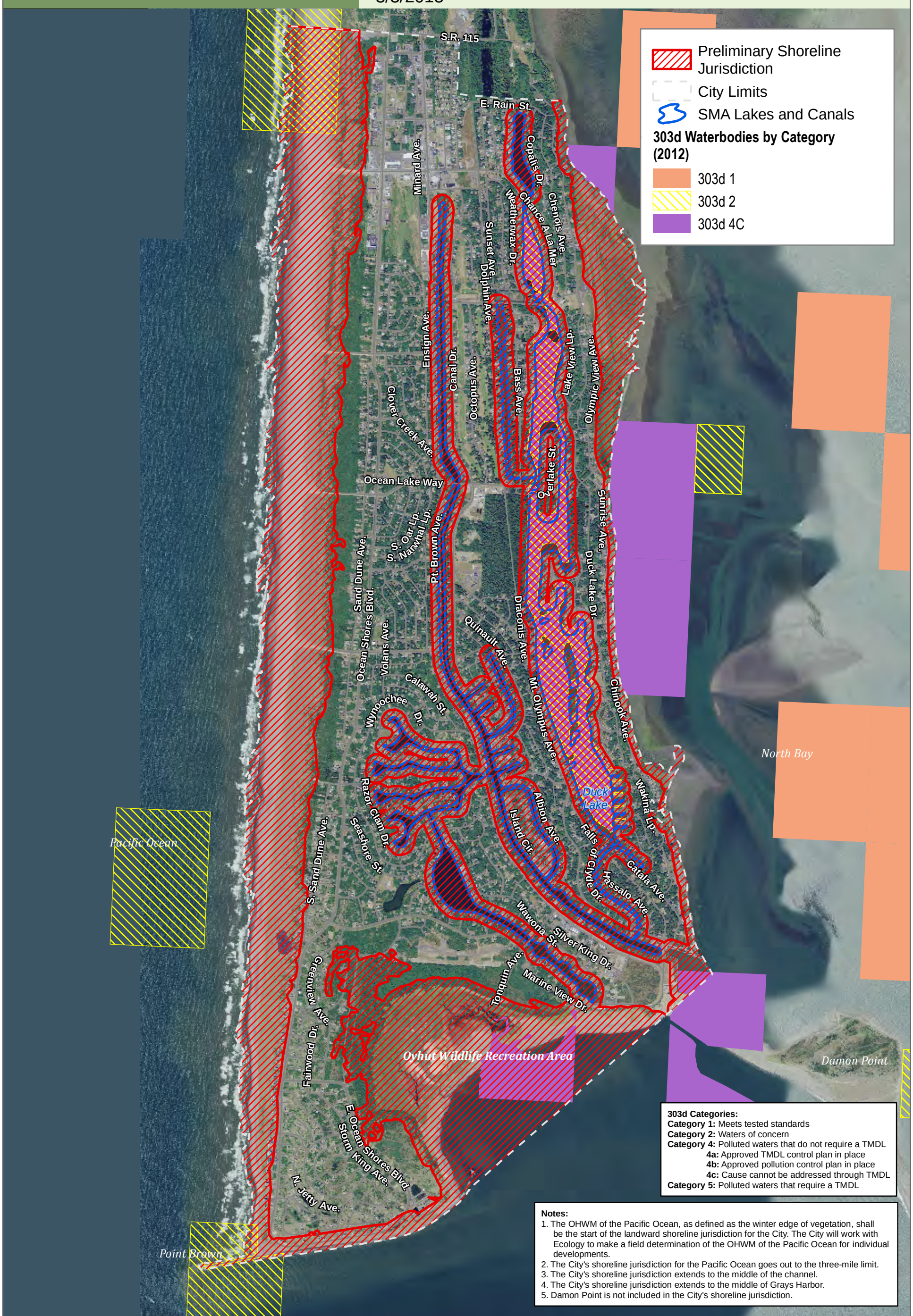
Shoreline Master Program

Figure 3: Water Quality 303(d) Listed Waterbodies
3/3/2015



N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

Shoreline jurisdiction boundaries depicted on this map are approximate. They have not been formally delineated or surveyed and are intended for planning purposes only. Additional site-specific evaluation may be needed to confirm/verify information shown on this map.

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Shoreline Master Program

Figure 4: Shoreline Barriers

3/3/2015

Notes:

1. The OHWM of the Pacific Ocean, as defined as the winter edge of vegetation, shall be the start of the landward shoreline jurisdiction for the City. The City will work with Ecology to make a field determination of the OHWM of the Pacific Ocean for individual developments.
2. The City's shoreline jurisdiction for the Pacific Ocean goes out to the three-mile limit.
3. The City's shoreline jurisdiction extends to the middle of the channel.
4. The City's shoreline jurisdiction extends to the middle of Grays Harbor.
5. Damon Point is not included in the City's shoreline jurisdiction.
6. Not shown on map: Piped discharge system originating from the Ocean Shores Sewage Treatment Plant.

Source: Grays Harbor County, City of Ocean Shores, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

Shoreline jurisdiction boundaries depicted on this map are approximate. They have not been formally delineated or surveyed and are intended for planning purposes only. Additional site-specific evaluation may be needed to confirm/verify information shown on this map.

CITY OF OCEAN SHORES WASHINGTON

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City of Ocean Shores
Shoreline Master Program

Figure 5: Land Cover

3/3/2015

Notes:
1. The OHWM of the Pacific Ocean, as defined as the winter edge of vegetation, shall be the start of the landward shoreline jurisdiction for the City. The City will work with Ecology to make a field determination of the OHWM of the Pacific Ocean for individual developments.
2. The City's shoreline jurisdiction for the Pacific Ocean goes out to the three-mile limit.
3. The City's shoreline jurisdiction extends to the middle of the channel.
4. The City's shoreline jurisdiction extends to the middle of Grays Harbor.
5. Damon Point is not included in the City's shoreline jurisdiction.

N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

Shoreline jurisdiction boundaries depicted on this map are approximate. They have not been formally delineated or surveyed and are intended for planning purposes only. Additional site-specific evaluation may be needed to confirm/verify information shown on this map.

CITY OF OCEAN SHORES WASHINGTON

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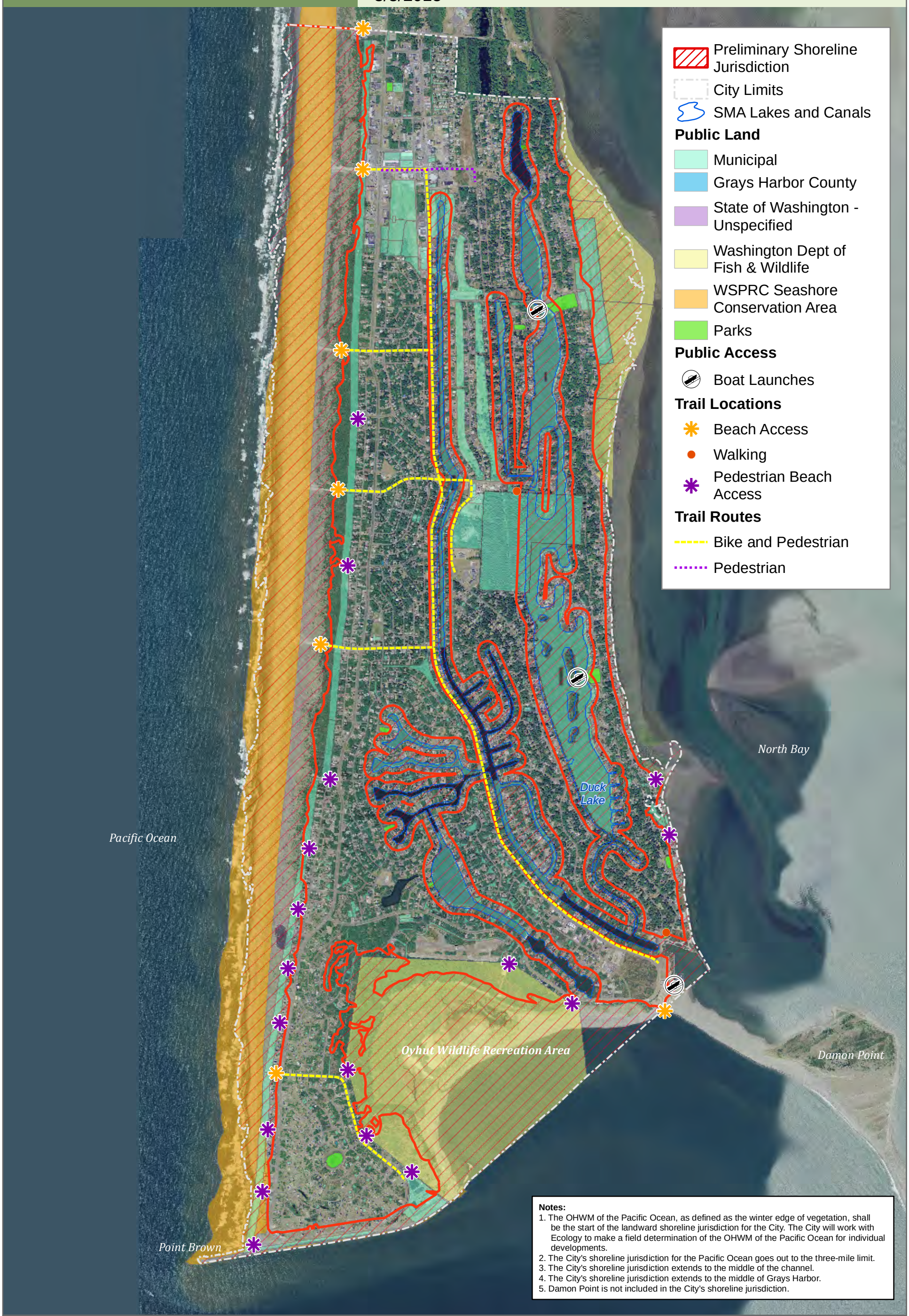
City of Ocean Shores
Shoreline Master Program

Figure 6: Public Land and Public Access

3/3/2015



Notes:
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N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, WSPRC, NRCS NAIP (2013)

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City of Ocean Shores
Shoreline Master Program

Figure 7: Shellfish Growing Areas

3/3/2015

Notes:
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CITY OF OCEAN SHORES WASHINGTON

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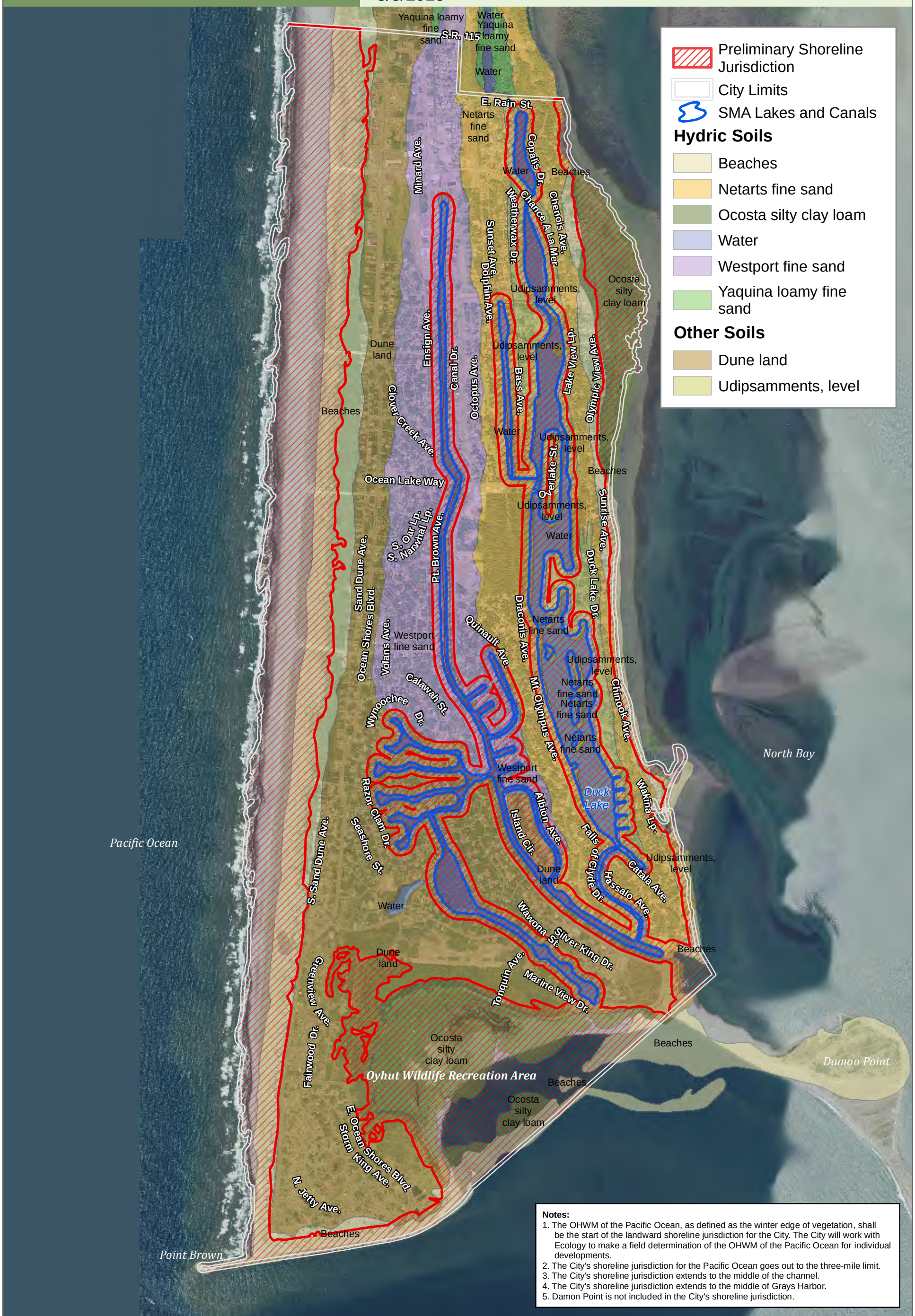
City of Ocean Shores
Shoreline Master Program

Figure 8: Soils

3/3/2015



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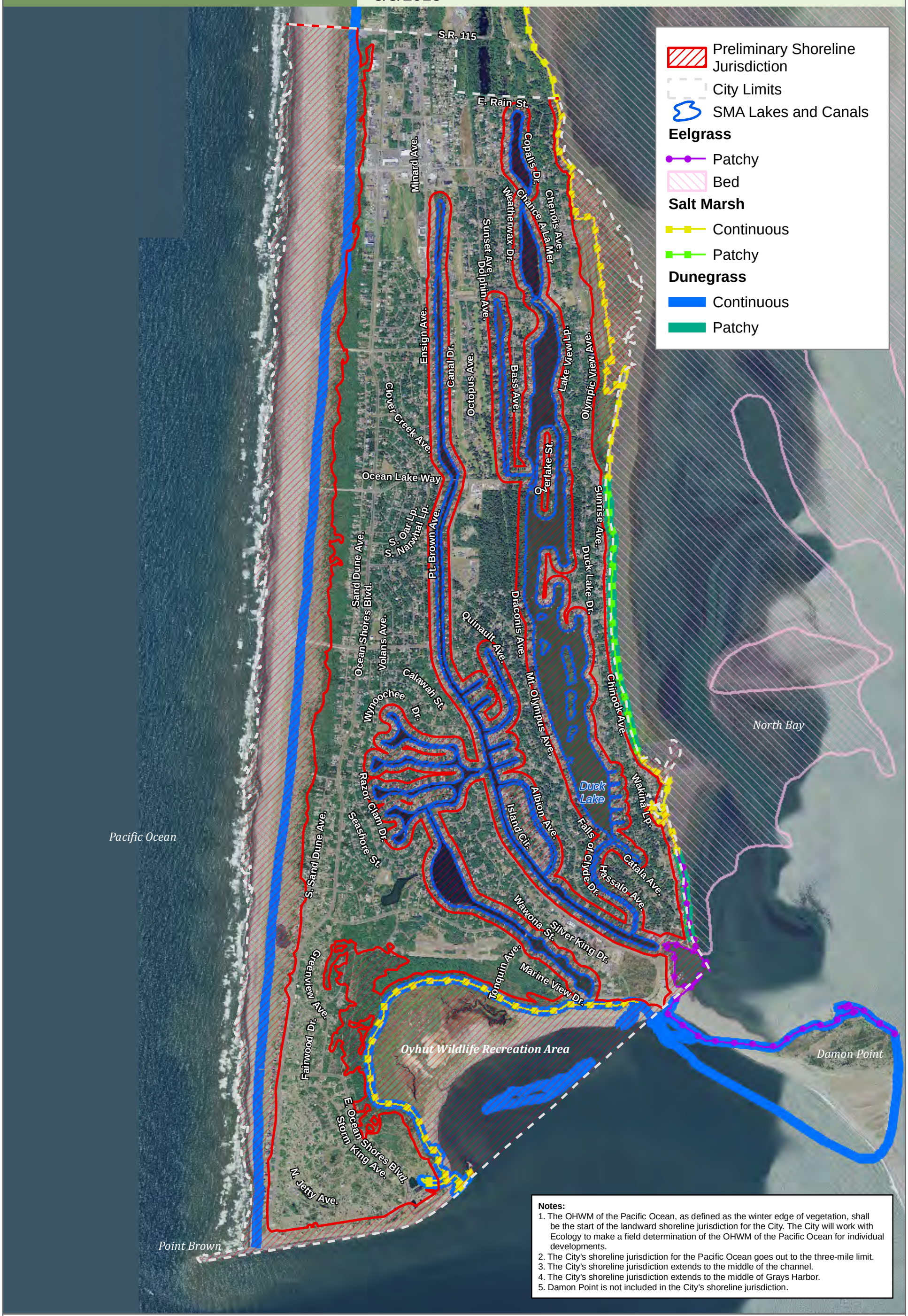
City of Ocean Shores
Shoreline Master Program

Figure 9: Shoreline Vegetation

3/3/2015



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CITY OF OCEAN SHORES WASHINGTON

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City of Ocean Shores
Shoreline Master Program

Figure 10: Shoreline Modification

3/3/2015

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CITY OF OCEAN SHORES WASHINGTON

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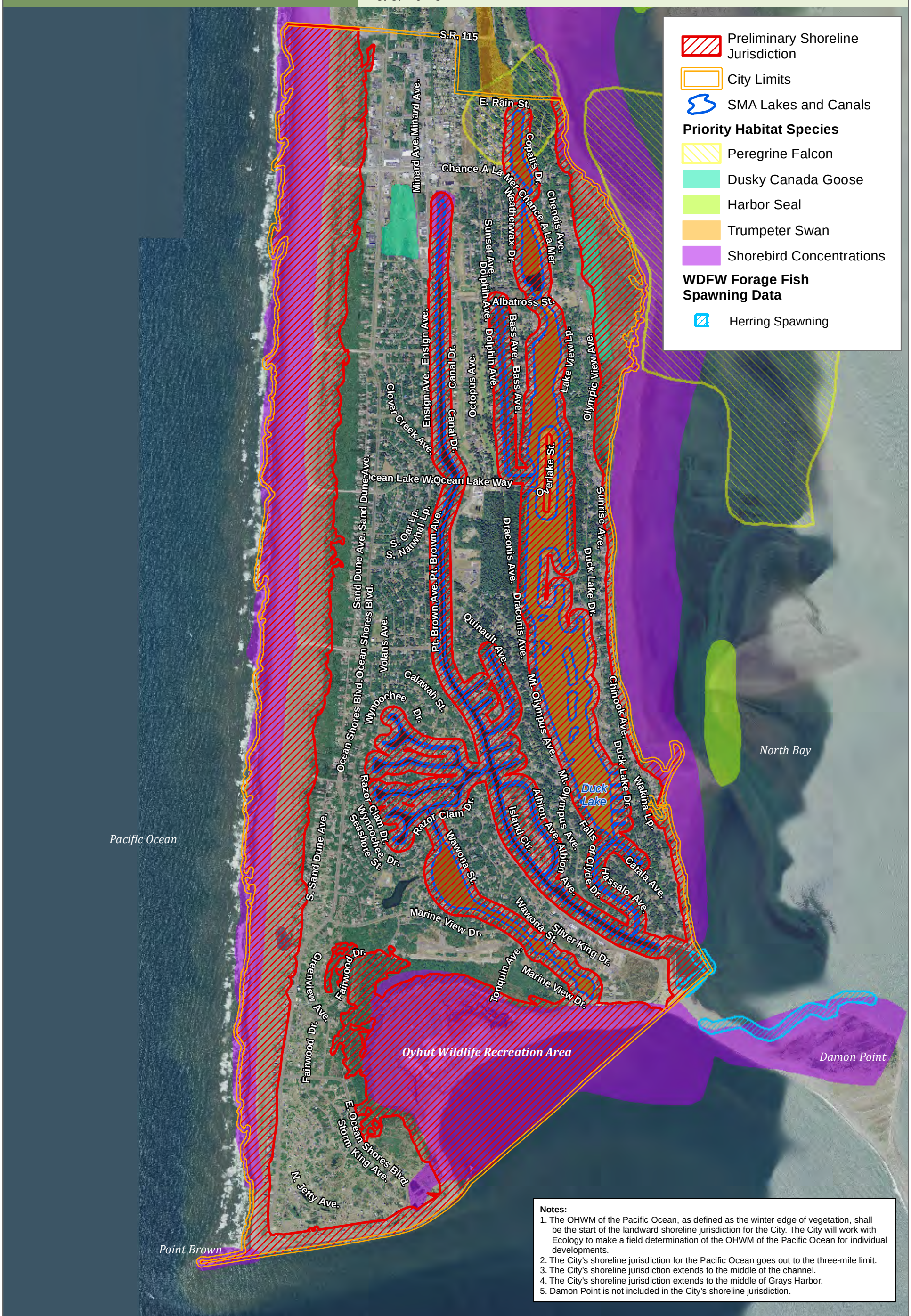
City of Ocean Shores
Shoreline Master Program

Figure 11: WDFW Priority Habitat Wildlife

3/3/2015



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City of Ocean Shores
Shoreline Master Program

Figure 12: Zoning

3/3/2015

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N

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Source: Grays Harbor County, Grays Harbor Council of Governments, City of Ocean Shores, WSDOT, Ecology, NRCS NAIP (2013)

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City of Ocean Shores
Shoreline Master Program

Figure 13: Reaches

3/3/2015

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City of Ocean Shores
Shoreline Master Program

Figure 14: Shoreline Environment Designations

3/3/2015

Notes:
1. Areas waterward of the OHWM are designated Aquatic.
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APPENDIX B

Westport Map Folio

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Figure 2: 100 Year Floodplain & Wetlands

Figure 3: Water Quality 303(d) Listed Waterbodies

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Figure 10: Shoreline Modification

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Figure 12: Contaminated Sites

Figure 13: Zoning

Figure 14: Reaches

Figure 15: Shoreline Environment Designations

City of Westport
Shoreline Master Program

Figure 1: Shoreline Jurisdiction

2/16/2015

N

0 0.5 1 Miles

Source: Grays Harbor County, USFWS NWI (2011), FEMA Preliminary DFIRM (2013), WA DNR, WSDOT, DOE, NRCS NAIP (2013)

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City of Westport
Shoreline Master Program

Figure 2: 100 Year Floodplain & Wetlands
2/16/2015

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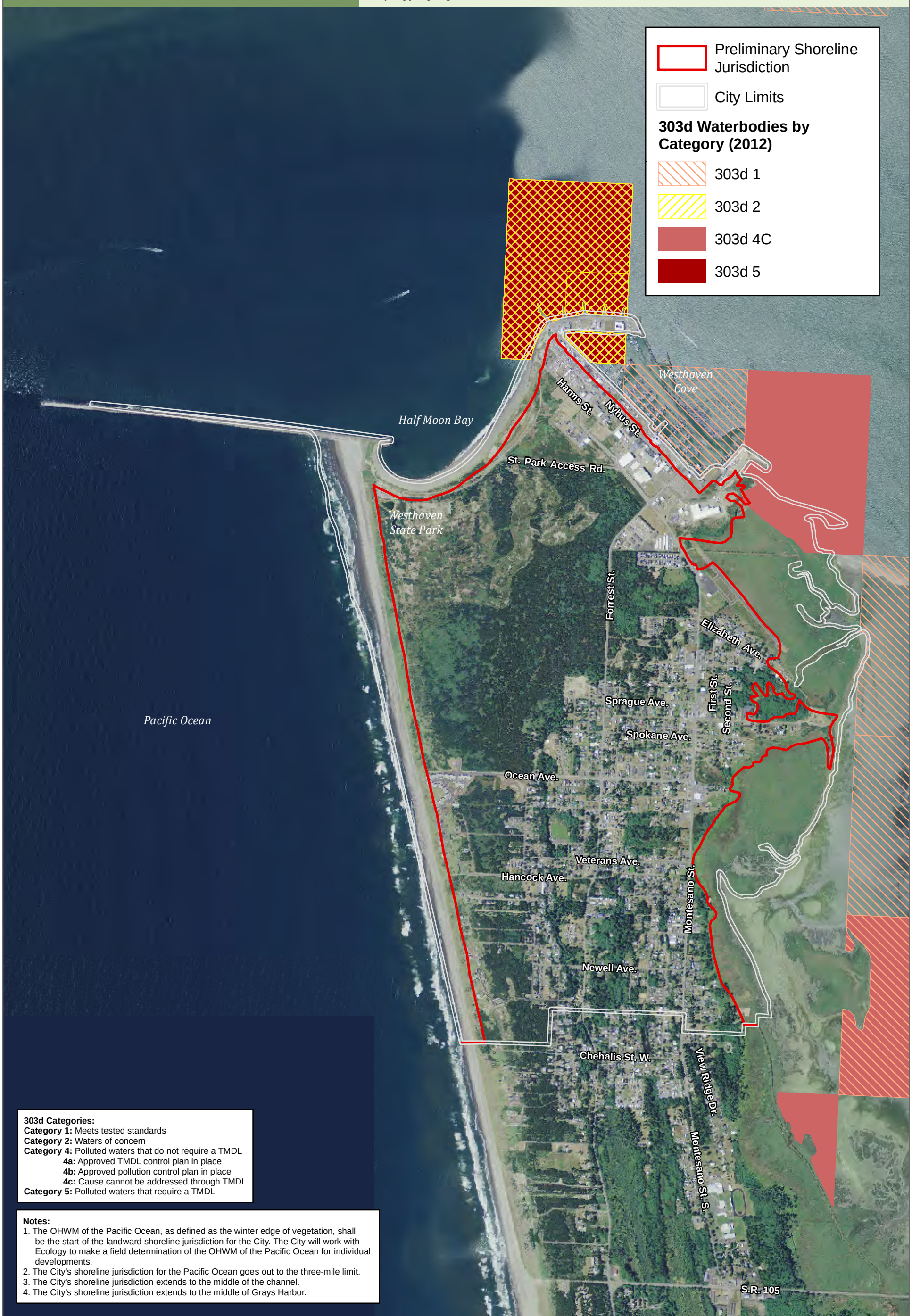
City of Westport
Shoreline Master Program

Figure 3: Water Quality 303(d) Listed Waterbodies
2/16/2015



303d Categories:
Category 1: Meets tested standards
Category 2: Waters of concern
Category 4: Polluted waters that do not require a TMDL
- **4a:** Approved TMDL control plan in place
- **4b:** Approved pollution control plan in place
- **4c:** Cause cannot be addressed through TMDL

Category 5: Polluted waters that require a TMDL

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City of Westport
Shoreline Master Program

Figure 4: Shoreline Barriers

2/16/2015

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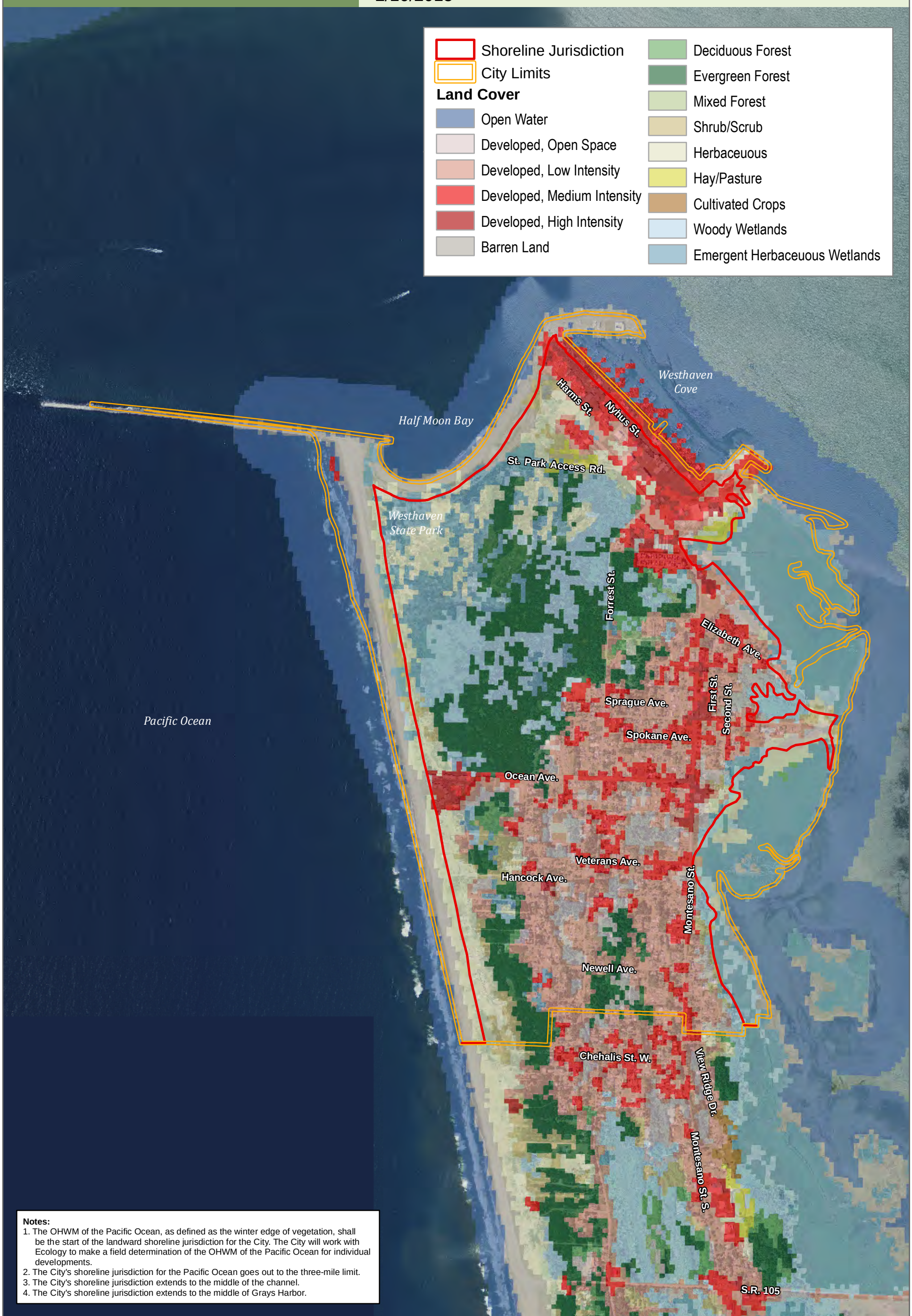
City of Westport
Shoreline Master Program

Figure 5: Land Cover

2/16/2015



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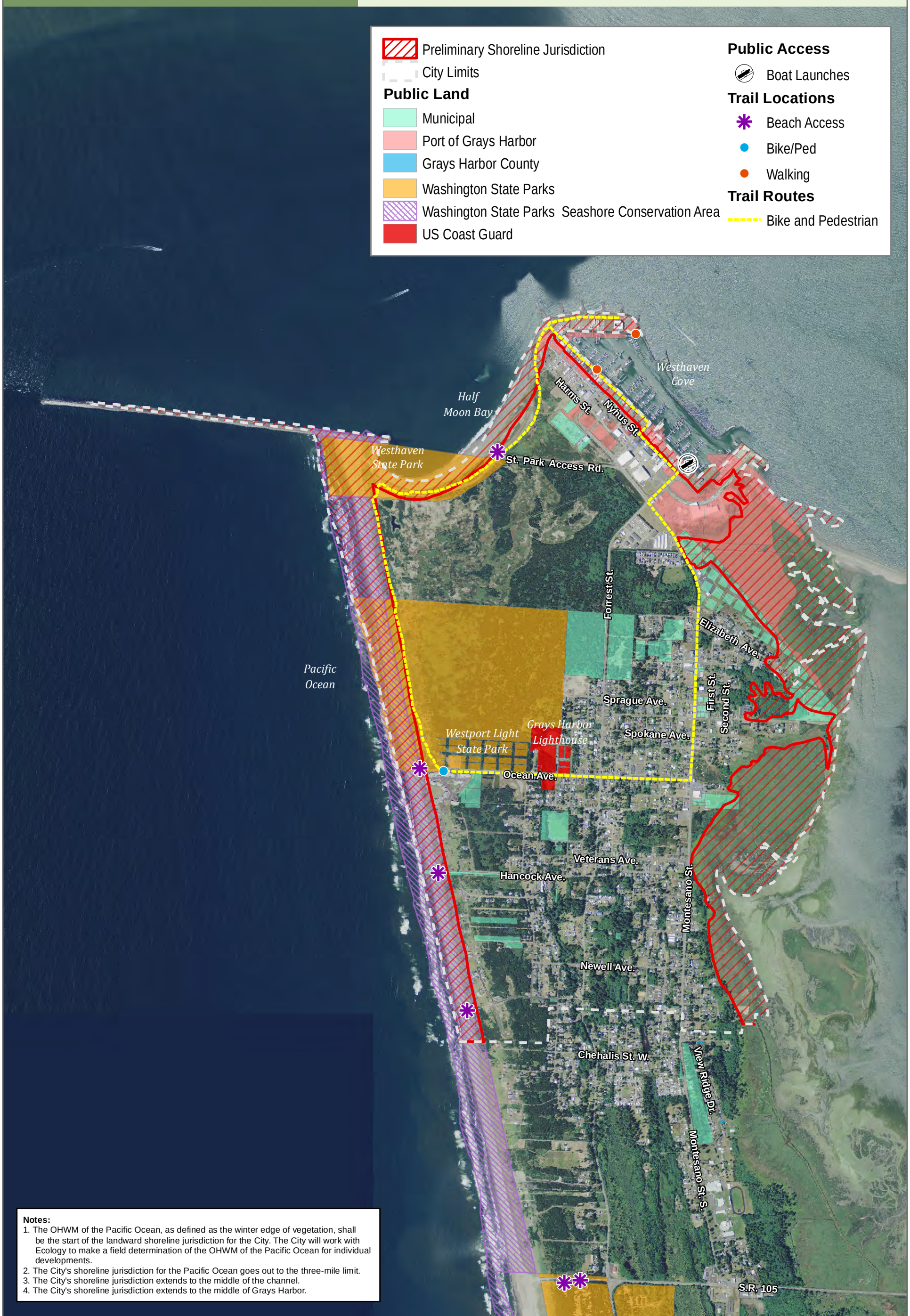
City of Westport Shoreline Master Program

Figure 6: Parks and Public Land

2/10/2015



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City of Westport
Shoreline Master Program

Figure 7: Shellfish Growing Areas

2/16/2015

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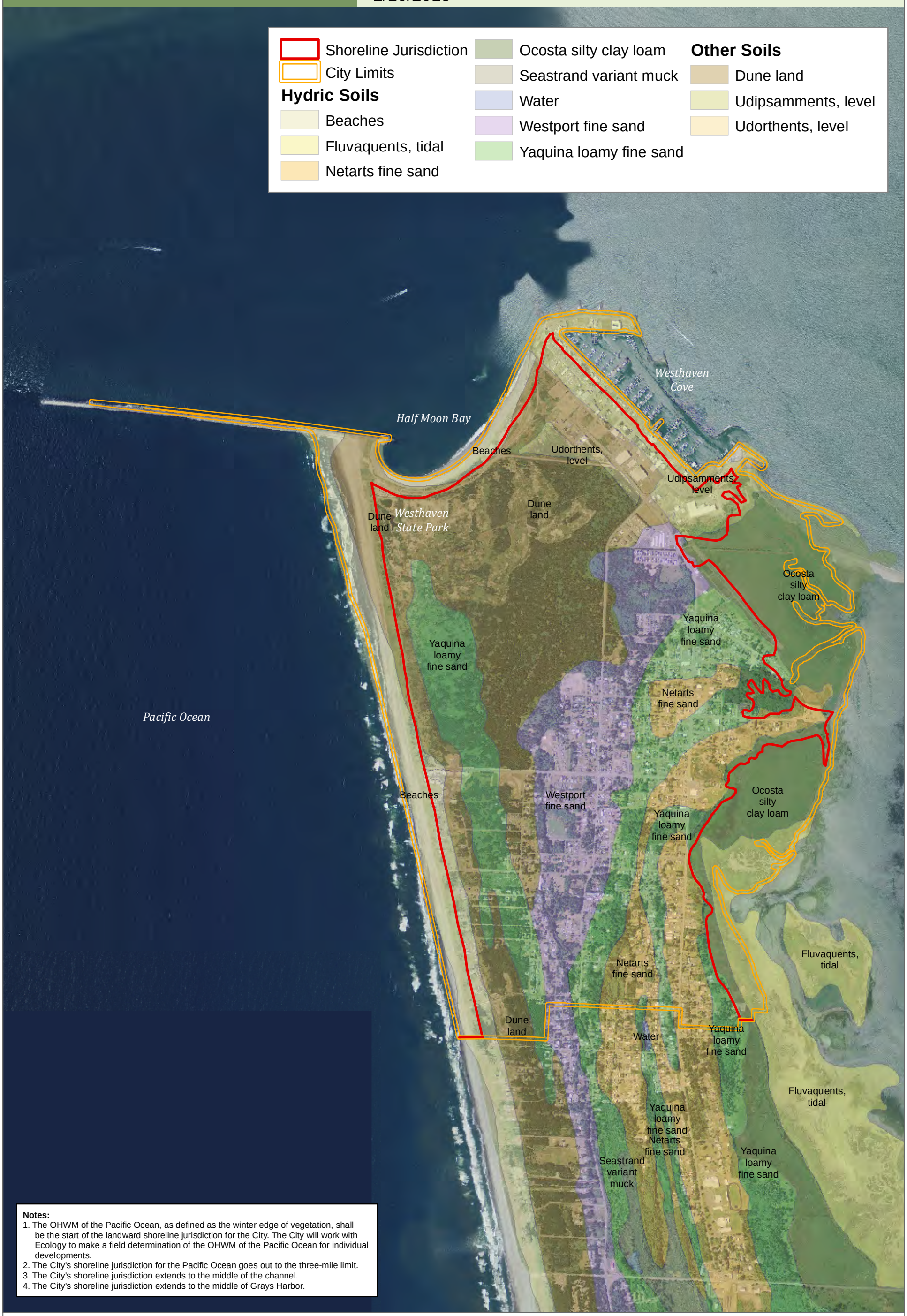
City of Westport
Shoreline Master Program

Figure 8: Soils

2/16/2015



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City of Westport
Shoreline Master Program

Figure 9: Shoreline Vegetation

2/16/2015

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City of Westport
Shoreline Master Program

Figure 10: Shoreline Modification

2/16/2015

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City of Westport
Shoreline Master Program

Figure 11: PHS Wildlife

2/16/2015

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City of Westport
Shoreline Master Program

Figure 12: Contaminated Sites

4/20/2015

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City of Westport
Shoreline Master Program

Figure 13: Zoning

2/16/2015

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City of Westport
Shoreline Master Program

Figure 14: Reaches

2/16/2015

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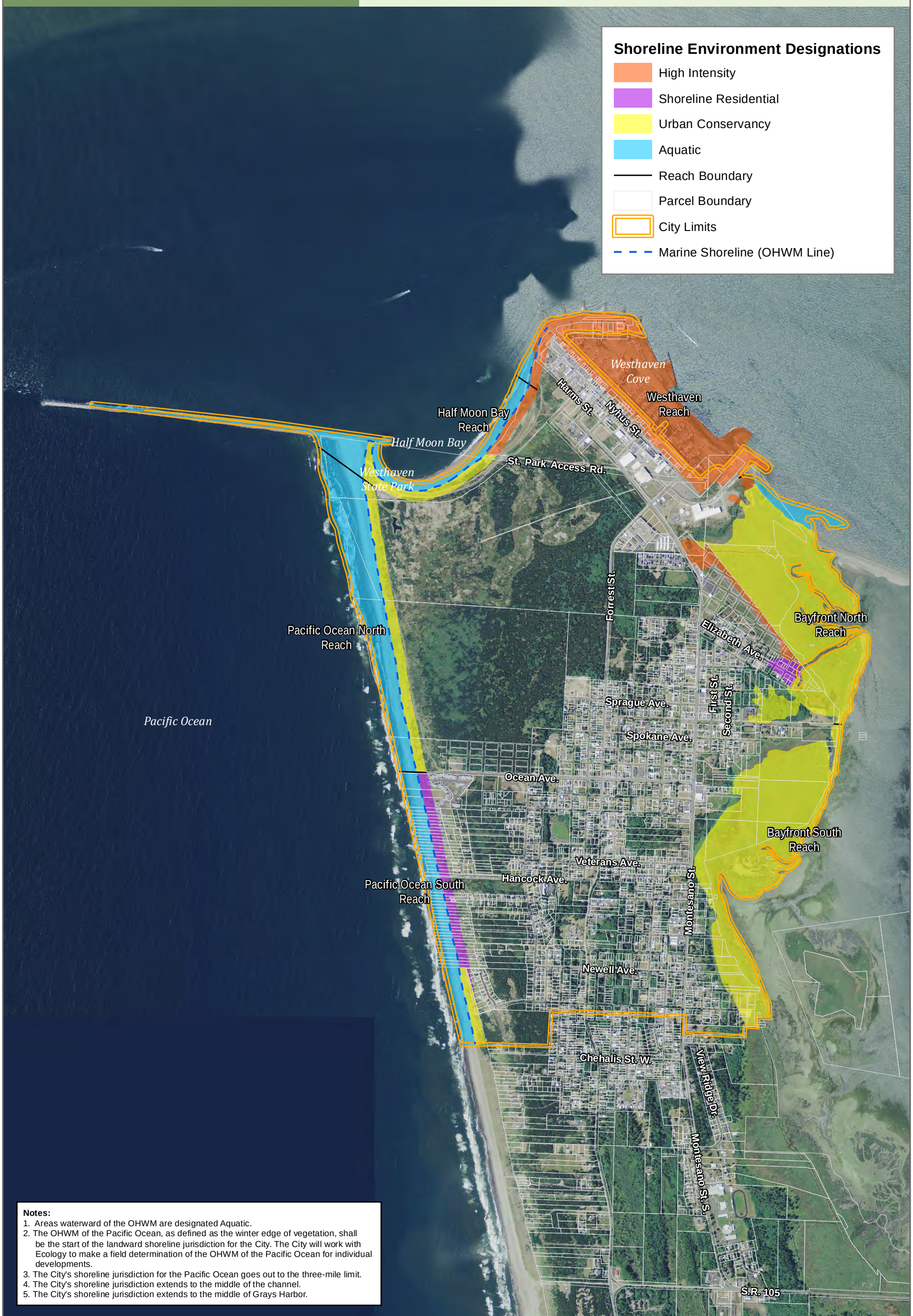
City of Westport Shoreline Master Program

Figure 15: Potential Shoreline Environment Designations

4/16/2015



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