

IN THE BOARD OF COMMISSIONERS
FOR CLATSOP COUNTY, OREGON

BOOK 750 PAGE 423

ORDINANCE NO. 90- 13(AN ORDINANCE AMENDING THE
(CLATSOP COUNTY COMPREHENSIVE PLAN
(AND LAND AND WATER DEVELOPMENT AND
(USE ORDINANCE PERTAINING TO THE
(COLUMBIA RIVER ESTUARY

The Board of County Commissioners of Clatsop County, Oregon ordains as follows:

SECTION 1. SHORT TITLE.

This ordinance shall be known as the Columbia River Estuary Periodic Review Amendments.

SECTION 2.

The Board of County Commissioners of Clatsop County, Oregon recognizes the need to revise and amend the Clatsop County Comprehensive Plan/Zone Map. In the interest of the health, safety and welfare of the citizens of Clatsop County and in accordance with the recommendations of the Clatsop County Planning Commission and pursuant to State law, the Board of Commissioners hereby determines the necessity of amending the said Comprehensive Plan/Zone Map.

The Board of County Commissioners determines and takes notice that the adoption procedure for this ordinance complies with the Post Acknowledgement rules of the Land Conservation and Development Commission. The County Board of Commissioners has sought review and comment and has conducted the public hearing process pursuant to the requirements of ORS 215.050 and 215.060. The Planning Commission held a hearing on November 15, 1990. The Board received and considered the Planning Commission's recommendation on this request and held a public hearing on this ordinance pursuant to law on December 5, 1990.

SECTION 3. CONFORMITY WITH THE LAW.

This ordinance shall not substitute for nor eliminate the necessity for conformity with any and all laws or rules of the State of Oregon, or its agencies, or any ordinance, rule or regulation of Clatsop County.

SECTION 4. INCONSISTENT PROVISIONS.

This ordinance shall supercede, control and repeal any inconsistent provision of the Clatsop County Comprehensive Plan, as amended, the Clatsop County Land and Water Development and Use Ordinance, as amended, or any other ordinance or regulation made by Clatsop County.

SECTION 5. SEPARABILITY.

If any section, subsection, sentence, clause, phrase or any other portion of this ordinance is for any reason held invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions of this ordinance.

SECTION 6. EFFECTIVE DATE.

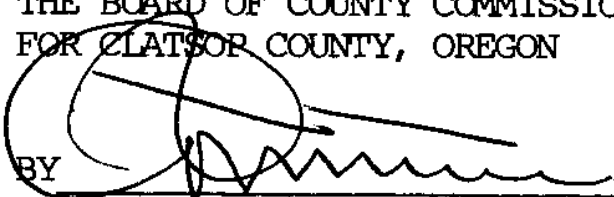
This ordinance shall be in full force and effective 30 days following the date of recording of this Ordinance.

SECTION 7. ADOPTION CLAUSE.

The Board of Commissioners hereby adopts the Columbia River Estuary Comprehensive Plan/Zone Map Change Amendments set forth in Exhibit "A" attached hereto and by reference herein made a part of this ordinance in its entirety.

ADOPTED this 19th day of December, 1990.

THE BOARD OF COUNTY COMMISSIONERS
FOR CLATSOP COUNTY, OREGON

BY 
R.T. Carruthers, Chair

BY Debra D. Kraske
Debra D. Kraske, Recording Secretary

Effective Date: 1-18-91

APPROVED AS TO FORM: 
Clatsop County Counsel

PERIODIC REVIEW

Clatsop County Comprehensive Plan
and Land and Water Development and Use Ordinance:
Columbia River Estuary

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I. Amend Section 1.030. Definitions, pp. 1-37, of Clatsop County Land and Water Development and Use Ordinance by amending the following definitions:

Aquaculture: The raising, feeding, planting and harvesting of fish, ~~and shellfish, or other aquatic plants or other aquatic organisms, and animals~~ including associated facilities necessary to engage in the use.

Aquatic Areas: Aquatic areas include the tidal waters, including subtidal areas and wetlands of the ~~estuaries-estuary~~ and non-tidal sloughs, streams, and wetlands within the shorelands areas boundary. The lands underlying these waters are also included. The upper limit of aquatic areas is the upper limit of aquatic line of non-aquatic vegetation or, where such a line cannot be accurately determined, Mean Higher High Water (MHHW) in tidal areas or Ordinary High Water (OHW) in non-tidal areas. ~~Aquatic areas can be further subdivided into wetlands (the upper portion of the aquatic zone) and waters (the lower portion). Wetlands and waters adjoin at Extreme Low Water (ELW) in tidal areas or, in non-tidal areas, a water depth of six feet relative to Ordinary Low Water (OLW).~~

~~Bankline or Stream~~ Alteration: Realignment of a stream bank or the entire stream, either within or outside of ~~without~~ its normal high water boundaries.

~~Beach: Area of unconsolidated material extending landward from the low water line to the seaward edge of shoreland vegetation.~~ Gently sloping areas of loose material (e.g., sand, gravel, and cobbles) that extend landward from the low-water line to a point where there is a definite change in the material type or landform, or to the line of vegetation.

Bulkhead: A vertical wall of steel, timber or concrete ~~piling of solid or open pile construction used for erosion protection or as a retaining wall.~~

~~Over~~-Channelization: Diversion of flow from shallow areas into the main channel by dredging, pile dikes or other means to the degree that circulation is markedly decreased and sedimentation increased in the shallow areas.

Coastal Shorelands: Those areas immediately adjacent to the ocean, estuaries, associated wetlands and coastal lakes. The extent of shorelands shall include at least: ~~These lands include, but are not limited to, the following:~~

1. Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or a coastal lake; Lands which limit, control, or are directly affected by the hydraulic action of the coastal water body, including floodways;
2. Adjacent areas of geologic instability where the geologic instability is related to or will impact a coastal water body;
3. Natural or man-made riparian resources, especially vegetation necessary to stabilize the shoreline and to maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas;
4. Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal water areas;

5. Areas necessary for water-dependent and water-related uses including areas of recreational importance which utilize coastal water or riparian resources, areas appropriate for navigation and port facilities, dredged material disposal and mitigation sites, and areas having characteristics suitable for aquaculture;
6. Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or related to the association with coastal water areas;
7. Coastal headlands;
8. Dikes and their associated inland toe drains; and
9. Locations of archaeological or historical importance associated with the estuary.

Dikes: With regard to flood protection, a structure designed and built to prevent inundation of a parcel of land by water.

With regard to dredged material disposal, a structure consisting of sediments, rock, or other material designed to contain the dredged material and allow for settling of solids in a specific area while it is being deposited and after deposition has occurred.

A dike is considered new when placed on an area which: (1) has never previously been diked, or (2) has previously been diked, but all or a substantial part of the area is subject to daily inundation and tidal marsh has been established. Maintenance and repair refer to: (1) existing serviceable dikes (including those that allow some seasonal inundation), and (2) those that have been damaged by flooding, erosion, tide gate failure, etc., but where reversion to tidal marsh has not yet occurred, or where repair work is commenced within 36 months of the breach regardless if the area has reverted to estuarine habitat.

Docks: ~~A pier or secured float or floats for boat tie-up vessel moorage, fishing, or other water use, often associated with a specific land use on the adjacent shoreland, such as a residence, or a commercial use or light industrial facility.~~

Dredged Material Disposal: ~~The deposition of dredged material in aquatic or land areas or shorelands. Methods include land disposal (deposition in specific land areas or on the tops and landward sides of flood protection dikes) and in-water disposal, (including beach nourishment, flowlane disposal, ocean disposal, estuarine open-water disposal, and agitation dredging) other in-water disposal.~~

Dredging: ~~The removal extraction or displacement of aquatic sediment or other material from a stream, river, estuary or other aquatic area for the purpose of deepening a navigation channel, mooring basin or other navigational areas, or obtaining fill material or mining and mineral extraction.~~

Duck Shack: ~~A structure having no permanent water or sewage treatment connection which is used to store recreational equipment meant for hunting waterfowl. and not exceeding 500 square feet on a float or pier not exceeding 750 square feet. Occupancy by a single individual of a duck shack shall be strictly limited to fifteen (15) days of any consecutive thirty (30) days period.~~

Dune, Conditionally Stable: A dune which is presently in a stable condition, but vulnerable to becoming active if its due to fragile vegetative cover ~~is disturbed~~.

Dune, Older Stabilized: A dune that is stable from ~~which is resistant to~~ wind erosion, has significant soil development, and may include diverse forest cover. May include older foredunes.

~~Emergency:—Emergency conditions are limited to activities such as bankline or streamline alteration, dike repair, fill, and shoreline stabilization undertaken during high water and/or storm conditions. Emergency activities affecting removal of material from estuarine aquatic areas or filling of estuarine aquatic areas are those necessary for preventing irreparable harm, injury or damage to persons or property. The Oregon Division of State Lands requires notification within 24 hours following the start of emergency activities. Measures taken as a result of emergency conditions will be inspected following notification and denied or approved. With respect to permit requirements in the Columbia River Estuary, emergency conditions are limited to: (a) severe bankline or dike erosion during a storm event or a high tide that threatens property or public safety; or (b) oil or hazardous waste spills subject to US Coast Guard Captain of the Port (COTP) authority; or (c) a 100 year (or more severe) flood event; or (d) flooding caused by a tsunami; or (e) extreme sedimentation, such as that caused by the eruption of Mt. St. Helens.~~

Estuary: A body of water semi-enclosed by land, connecting with the open ocean, and within which salt water is usually diluted by freshwater derived from the land. The estuary includes; estuarine water, intertidal areas, and submerged lands. The Columbia River Estuary, for regulatory purposes, extends to the western edge of Puget Island as defined by the north/south line between Section 21 and 22, Township 8 North, Range 6 West on the Oregon side, to the Wahkiakum-Cowlitz County line on the Washington side, and to the head of tide for all tributaries.

Fill: The placement by man of sand, sediment or other material ~~(excluding solid waste) in an aquatic area to create new shorelands or on uplands to~~ or raise the elevation of the land.

Flats: Intertidal and shallow subtidal areas with low slopes and current velocities, ~~often productive with~~ and usually consisting of relatively fine sediments.

Flowlane Dredged Material Disposal: ~~Disposal-Deposition of dredged material in or adjacent to a natural or maintained navigational channel in the flowlane, in a location where the prevailing sediment transport will carry the material is in a downstream direction.~~

Habitat: The place or type of site where an organism lives; the place occupied by an entire community, such as a freshwater tidal marsh community.

~~Intertidal:—Between the tides, here considered to be that area between mean lower low water and mean higher high water. Between extreme low water and the landward limit of aquatic vegetation, or where vegetation is absent, mean higher high water.~~

In-Water Dredged Material Disposal: ~~The disposal of dredged material in the estuary, river or ocean. Deposition of dredged materials in an aquatic area. Methods include beach nourishment, flowlane disposal, estuarine open-water disposal, in-water sump disposal, agitation dredging and ocean disposal.~~

Land Disposal: ~~Dumping/Deposition of~~ dredged material on upland areas or on shorelands, including on the top and landward sides of flood control dikes behind a dike.

Log Sort/Storage Areas: With respect to upland areas, an area where harvested logs are collected weighed, sorted and stored until ready for transfer to water storage areas or to market.

With respect to aquatic areas, the use of water surface area to store commercial logs in rafts until ready for market.

~~Log Dump/Sort Area (In Water): The use of an area to transfer logs to or from the land to water, normally associated with log storage/sort yards, log booming or processing/shipping facilities where rafts are built or dismantled.~~

~~Log Storage (In Water): The use of water surface area to store commercial logs in rafts until ready for market.~~

~~Log Storage/Sorting Area (Dry Land): An area where logs are gathered from surrounding harvest areas, weighed, sorted for species, size and quality, and stored until ready for transfer to water storage areas or to market.~~

~~Maintenance and Repair: Routine upkeep of existing structures or facilities which are in current use or operation.~~ Routine upkeep of an existing structure or remedial restoration of a damaged structure in current use or operation. Maintenance and repair may involve changes in the structure's location, configuration, orientation, or alignment if these changes are limited to the minimum amount necessary to retain or restore its operation or function or to meet current building, engineering or safety standards.

Marina: Facilities which provide moorage, launching, storage, supplies and a variety of services for recreational, commercial and ~~charter~~ fishing vessels. They are differentiated from docks and moorages by their larger scale, the provision of significant landslide services and/or the use of a solid breakwater (rock, bulkheading, etc.).

Mean High Water (MHW): The average height of all high waters over a 19-year period.

Mean Higher High Water (MHHW): The average height of the higher high waters over a 19-year period.

Mean Low Water (MLW): The average height of all low waters over a 19-year period.

Mean Lower Low Water (MLLW): The average height of the lower low waters over a 19-year period.

Mining/Mineral Extraction: The removal for economic use of minerals, petroleum resources, sands, gravels or other naturally occurring materials from the shorelands or submerged lands ~~and/or the bed beneath an aquatic area.~~

~~Minor Navigational Improvement:—A use or activity which improves or provides for navigation without causing a major alteration of the estuary. Included in this definition is the use of floating breakwaters and open pile piers in marina construction, dredging required for marina development where it meets the resource capabilities of the particular management unit. Dredging for minor navigational improvement includes remedial deepening of shoal areas in naturally existing channels allowing for passage of shallow draft craft, or for other minor uses or activities which are determined to meet the resource capability of the area and the purpose of the management unit in which the dredging is proposed. Alterations necessary to provide water access to existing or permitted uses including dredging for access channels and for maintaining existing navigation but excluding fill and in-water navigational structures other than floating breakwaters or similar permeable wave barriers.~~

~~Mitigate: To alleviate the negative impacts of a particular action.~~

Mitigation: Any action that, to some degree, softens the impact of development on wetlands and aquatic areas. This may include all or any one of the following actions: 1) avoiding the impact altogether by not taking a certain action or parts of an action; 2) minimizing impacts by limiting the degree or magnitude of an action and its implementation; 3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; 4) reducing or eliminating the impact over time by preservation and maintenance operations; and 5) compensating for the impact by creation, restoration, or enhancement of wetlands and aquatic areas to maintain their functional processes, such as natural biological productivity, habitat, and species diversity, unique features and water quality. Any mitigation action or combination of actions may involve monitoring and remedial follow up measures.

Natural Area: Includes land and water that has substantially retained its natural character, which is an important habitat for plant, animal, or marine life. Such areas are not necessarily completely natural or undisturbed, but can be significant for the study of natural, historical, scientific for the study of natural, historical, scientific, or paleontological features, or for the appreciation of natural features. - Land or water units which natural processes exist relatively undisturbed or can be restored to a nearly natural state. Such areas include:

- ~~1. Native terrestrial, freshwater or marine ecosystems, e.g., a salt marsh or stand of old growth forest.~~
- ~~2. Areas containing significant biological, geologic, hydrologic, paleontologic, archeological or scenic features, e.g., a single fossil bed or waterfall.~~
- ~~3. Areas particularly valuable for plants and wildlife:

 - ~~a. as habitat for rare, endangered, endemic or otherwise unique species;~~
 - ~~b. as exceptionally productive or diverse habitat;~~
 - ~~c. as vanishing habitat;~~
 - ~~d. as habitat crucial to a stage in a species' lifestyle, e.g., spawning grounds, or wetlands along flyways.~~~~

Navigation Channel: The Authorized channels maintained by the Corps of Engineers, and other natural or locally maintained channels.

Navigational Structures: Jetties, groins, pile dikes, breakwaters and other in-water structures designed to change or moderate hydraulic characteristics for the purpose of improving navigation. Structures such as pile dikes, groins, fills, jetties, and breakwaters that are installed to help maintain navigation channels, control erosion or protect marinas and harbors by controlling water flow, wave action and sand movement.

- a. ~~Pile dikes are flow control structures that are used primarily in river systems and are made of closely spaced piling connected by timbers; usually they are perpendicular to the shore. They are constructed to increase scour in the navigation channel and/or control shoreline erosion by interrupting sand transport and encouraging sedimentation in the sheltered lee of the pile dike. A single pile dike is usual; they are generally constructed in groups.~~
- b. ~~Groins are analogous to pile dikes, but are constructed from rocks. They can withstand rougher wave conditions than pile dikes, are often used on beaches, they exert a strong influence on sand transport and extend from the backshore seaward across the beach.~~
- e. ~~Jetties are the largest of all navigational structures; they are made of rock or concrete and are used to stabilize the channel and improve the scour at the mouth of an estuary. They must be able to withstand extreme wave conditions and may alter longshore sand transport for many miles along the coast.~~
- d. ~~Breakwaters may be of rock, steel, concrete or piling, or of the floating kind. They are used to protect harbors and marinas against waves and currents.~~

Pile Dike: A partial barrier to water flow, constructed of wooden piling, that is designed to direct river flow in a particular direction. ~~They are commonly erected perpendicular to the shore.~~

Piling/Dolphin Installation: Wood, concrete or steel posts driven into the bottom in aquatic areas either as mooring devices, or to support a dock, float, range marker, or other structure. ~~The driving of wood, concrete or steel piling into the bottom in aquatic areas to support piers or docks, structures, moored floating structures, vessels or log rafts or for other purposes. A dolphin is a group of piling held together by steel cable and used for mooring vessels, log rafts or floating structures.~~

Public Access: A means of physical approach to and along the shoreline available to the general public. ~~Public access to shoreline and aquatic areas may be achieved through:~~

- 1) Direct physical access to shoreland and aquatic areas (i.e., boat ramps;
- 2) Aesthetic access (i.e., viewing opportunities); and
- 3) Other facilities providing some degree of access to shorelands and aquatic areas.

Recreation: Any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction.

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Low-Intensity Recreation does not require developed facilities and can be accommodated without change to the area or resource. For example, boating, hunting, hiking, wildlife photography, and beach or shore activities can be low intensity recreation. Facilities included as low-intensity recreation include picnic tables, trail signs, unpaved trails and portable restrooms.

High-Intensity Recreation uses specially built facilities, or occurs in such density or form that it requires or results in a modification of the area or resource. Campgrounds, golf courses, public beaches, and marinas are examples of facilities for high-intensity recreation.

~~Recreation, High Intensity: Recreation which requires specially built facilities, or occurs in such extent, degree of magnitude that it results in impacts to or requires modification of estuarine resource areas. Examples of high intensity recreation include campgrounds, golf courses, boat launches, etc.~~

~~Recreation, Low Intensity: Recreation that does not require developed facilities and can be accommodated without change to the area or resource except for small improvements in Shoreland areas involving minimal capital investment and no structures over 500 square feet in size. Examples of low intensity recreation include boating, hunting, wildlife observation, beachcombing and picnicking. Examples of small improvements appropriate in shoreland areas include trails, picnic tables, restrooms and viewing platform.~~

Restoration: Revitalizing, returning or replacing original attributes and amenities such as natural biological productivity and aesthetic or cultural resources which have been diminished or lost by past alterations, activities or catastrophic events. For the purpose of Oregon Statewide Planning Goal 16, estuarine restoration means to revitalize or reestablish functional characteristics and processes of the estuary diminished or lost by past alterations, activities, or catastrophic events. A restored area must be a shallow subtidal or an intertidal or tidal marsh area after alteration work is performed, and may not have been a functioning part of the estuarine system when alteration work began.

Active Restoration involves the use of specific remedial actions such as removing dikes or fills, installing water treatment facilities, or rebuilding or removing deteriorated urban water front areas or returning diked areas to tidal influence.

Passive Restoration is the use of natural processes, sequences, and timing which occurs after the removal or reduction of adverse stresses without other specific positive remedial action.

~~Riparian: Vegetation on the banks of bodies of water which perform several functions: vegetation maintains water temperature and quality and enhances fish habitat; provides bank stabilization; provides habitat for the breeding, feeding, and resting of aquatic and upland wildlife species and protects aquatic ecosystems from unnecessary human disturbances. Of, pertaining to, or situated on the edge of the bank of a river or other body of water.~~

Riprap: A layer, facing, or protective mound of stones randomly placed to prevent erosion, scour or sloughing of a structure or embankment; also, the stone so used. In local usage, the similar use of other hard material, such as concrete rubble, is also frequently included as riprap.

Definitions

June 21, 1990

~~Shoreline: The boundary between shorelands and water. Wetlands may extend shoreward of the shoreline. The boundary line between a body of water and the land, measured on tidal waters at the landward limit of aquatic vegetation or, where aquatic vegetation is absent, Mean Higher High Water; and on non-tidal waterways at the ordinary high water mark.~~

~~Shoreline Stabilization: The protection from erosion and sloughing of ocean and estuary shorelines and of the banks of tidal or non-tidal streams, rivers or estuarine waters lakes by vegetative or structural means.~~

Vegetative Shoreline Stabilization: Use of plants that anchor the soil to prevent shoreline erosion and sloughing.

Structural Shoreline Stabilization: Use of riprap, bulkheads, sea walls or other non-vegetative material to prevent shoreline erosion.

Stabilization: The process of controlling soil or sand activity (i.e., stilling the movement of sand or eroding soil) by natural vegetative growth, planting of grasses and shrubs, or mechanical means (e.g., wire net, fencing).

Structure: Anything constructed, installed, erected, portable or located on the ground or water, or attached to the ground or to an existing structure, including but not limited to residences, apartments, barns, stores, offices, factories, sheds, cabins, mobile and floating homes, and other buildings.

Submerged Lands: Lands between Mean Low Water and Mean High Water (Oregon) or between Extreme Low Water, and Mean High Water (Washington). Lands lying below the line of Mean Low Water in tidal areas and the line of Ordinary Low Water in non-tidal areas.

Submersible Lands: Lands lying between Extreme Low Water and Extreme High Water (Oregon) or between Extreme Low Water, and Mean High Water (Washington).

Water-Dependent: A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the waterbody for water-borne transportation, recreation, energy production, or source of water. Use and activities which can only be carried out on, in or adjacent to water and the water location or access must be needed for one of the following:

- a. ~~water borne transportation (navigation, moorage, fueling and servicing of ships or boats, terminal and transfer facilities, resource and material receiving and shipping). or~~
- b. ~~recreation (active recreation such as swimming, boating or fishing, or passive recreation such as viewing or walking), or~~
- c. ~~source of water (energy production, cooling of industrial equipment or wastewater, other industrial processes, aquaculture operations), or~~
- d. ~~marine research or education (viewing, sampling, recording information, conducting experiments, teaching).~~

Water-Related: Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs. Uses and activities that do not require direct water access (are not water dependent) but may be appropriate as consistent with other development criteria because:

- a. ~~they provide goods and/or services that are directly associated with other water dependent uses (supplying materials or offering commercial or personal services to, or using products of, water dependent use), and~~
- b. ~~location other than adjacent to the water would result in a public loss of quality in the goods and services offered (evaluation of public loss of quality will involve a subjective consideration of economic, social and environmental consequences of the use).~~

Wetlands: ~~The overlying water and lands where tidal water determines the nature of soil development and the types of plant and animal communities living at the soil surface. Wetland soils retain sufficient moisture to support aquatic or semi-aquatic plant life. In marine and estuarine areas, wetlands are bounded at the lower extreme by Extreme Low Water; in freshwater areas, by the depth of 6 feet. Lands below wetlands are submerged lands. The shoreward boundary of wetlands is the line of non-aquatic vegetation, or in areas where this line cannot be defined, Mean Higher High Water. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.~~

II. Amend Section 1.030. Definitions, pp. 1-37 of the Clatsop County Land and Water Development and Use Ordinance by deleting the following definitions:

Estuary Area: The water and submerged lands of the Columbia River Estuary and its tributary streams, the associated tidelands, wetlands, shorelands and tributary watersheds within Pacific and Wahkiakum Counties in Washington and within Clatsop County Oregon.

Flowlane: The natural channel and the slopes adjacent to the natural channel, including the navigation channel.

Marsh: A low lying wetland characterized by emergent vegetation, such as cattail, which is predominantly herbaceous.

Resource Enhancement: The use of artificial or natural means to improve the quantity or quality of a specific resource.

Shorelands: The area adjacent to the estuary and its tributary streams and wetlands. The lower boundary of the shoreland is the line of non-aquatic vegetation, or in case where this cannot be defined, Mean Highway High Water. The upper boundary is 200 feet inland from Mean Higher High Water or the line of non-aquatic vegetation or the extent of the 100 year floodplain, whichever is greater. Shorelands extend upstream in estuary tributaries to the edge of the 100 year floodplain.

Shorelands Areas: Shoreland Areas include urban lands, farm lands, other low lands, forests, cliffs, and other steep topography along the estuary, tidal reaches of the estuary tributaries, and the ocean.

Waters: The overlaying water and the submerged lands located below Extreme Low Water in a tidally-influenced body and below -6 relative to Ordinary Low Water in non-tidal bodies.

Water-Dependent Commercial Activity, Low Intensity: A privately-owned or operated facility or place of business open to the public for sale of goods or services that can only be carried out on, in or adjacent to water, that results in negligible adverse impacts to aquatic resources or recreation benefits and that occupies an aquatic surface area no greater than 2,250 square feet.

III. Amend Section 1.030. Definitions, pp. 1-37 of the Clatsop County Land and Water Development and Use Ordinance by adding the following new definitions and placing them in alphabetical order.

Abutment: A substructure composed of stone, concrete, brick or timber supporting the end of a single span bridge or the ends of a multi-span superstructure and, in general, retaining or supporting the approach embankment placed in contact there-with.

Agitation Dredging: Dredging by displacement of sediments out of a shoaled area using currents generated by a ship's propeller or large pump. Also referred to as propwash dredging and sandwave skimming, depending on the gear and techniques used.

Avulsion: A tearing away or separation by the force of water. Land which is separated from uplands or adjacent properties by the action of a stream or river cutting through the land to form a new stream bed.

Beach Nourishment: Placement of sand material on actively eroding beach sites identified in the Dredged Material Management Plan to maintain the historic beach profile. Beach nourishment does not include creation of new land area or beaches and must provide for the protection of estuarine resources (including habitat, nutrient, fish, wildlife, and aesthetic resources). Dredged material may be used for beach nourishment.

Boat House: A floating or pile-supported structure used for the protection and storage of a boat or boats.

Boat Ramp: An improved sloped surface extending from a shoreland area into an aquatic area suitable for removing a boat from the water and launching a boat into the water from a trailer.

Breakwater: A protective navigational structure built of rock, concrete, steel, piling or constructed to float for the purpose of protecting the shore or facility behind the structure.

Bridge Crossing: The portion of a bridge spanning a waterway not including supporting structures or fill located in the waterway or adjacent wetlands.

Bridge Crossing Support Structures: Piers, piling, abutments, and similar structures necessary to support a bridge span but not including fill for causeways or approaches.

Dredged Material: Sediments, gravels, and other solids removed from an aquatic area.

Drift Right: A specific area or section of river bottom that has been cleared of snags and sunken debris and is shared and actively maintained by a group of fishermen as their fishing grounds.

Dune: A hill or ridge of sand built up by wind along sandy coasts.

Dune, Open Sand: A collective term for active unvegetated dune land forms.

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Dune, Recently Stabilized: A dune with sufficient vegetation to be stabilized from wind erosion, but with little, if any, development of soil or cohesion of sand under the vegetation. Recently stabilized dunes include conditionally stable foredunes, conditionally stable dunes, dune complexes, and younger stabilized dunes.

Dune, Younger Stabilized: A wind stable dune with weakly developed soils and vegetation.

Effluent: With regard to water quality, treated or untreated liquid entering the estuary from a point source. With regard to dredging, water, including dissolved and suspended materials, which flows from a dredged material disposal site.

Estuarine Enhancement: An action which results in a long-term improvement of existing estuarine functional characteristics and processes that is not the result of a creation or restoration action.

Estuarine Open-Water Dredged Material Disposal: All types of in-water dredged material disposal within the estuary which do not fall into the classifications of flowlane disposal, beach nourishment, sump disposal, agitation dredging and disposal to provide fill material for an approved aquatic area fill project.

Foredune, Conditionally Stable: An active foredune that has ceased growing in height and that has become conditionally stable with regard to wind erosion.

Foredune, Older: A conditionally stable foredune that has become wind stabilized by diverse vegetation and soil development.

Groins: A partial barrier to waterflow, that is constructed of rocks and designed to interrupt sand movement along a shore.

Incidental Use: A use that is in conjunction with, and smaller than the main part of a facility or use.

In-Kind: With respect to mitigation, any actions that duplicate the full array of wetland and aquatic area characteristics that are lost or impaired by a development action.

Jetty: A barrier to waterflow that is constructed of rock or concrete and used to stabilize the navigation channel and improve scour at the mouth of the estuary. Jetties must be able to withstand extreme wave conditions and may alter littoral drift.

Maintenance Dredging: Dredging of a channel, basin, or other facility which has been dredged before and is currently in use or operation or has been in use or operation sometime during the past five years, provided that the dredging does not deepen the facility beyond its previously authorized or approved depth plus customary over-dredging.

Definitions

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Moorage: Piling or a dock, or both, used to secure a boat or barge.

Navigation Aids: Beacons, buoys, range markers and other objects providing directional assistance.

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New Dredging: Dredging in an area that has not been dredged before; or deepening an existing dredged channel, basin, or other facility beyond its previously authorized or approved depth; or dredging a channel, basin, or other facility that has not been in use or operation in the past five years.

Ocean Flooding: The flooding of lowland areas by salt water owing to tidal action, storm surge, or tsunamis (seismic sea waves). Land forms subject to ocean flooding include beaches, marshes, coastal lowlands, and low lying interdune areas. Areas of ocean flooding are mapped by the Federal Emergency Management Agency (FEMA). Ocean flooding includes areas of velocity flooding and associated shallow marine flooding.

Off-Site: With respect to mitigation, an area separated from the impact area by a significant distance and that offers little or no opportunity for reestablishing lost values and functions to organisms which originally benefitted from the lost habitat.

On-Site: With respect to mitigation, an area adjacent to or near the impact area that offers a reasonable opportunity for reestablishing lost values and functions to organisms which originally benefitted from the lost habitat.

Out-of-Kind: With respect to mitigation, any action that replaces wetland or aquatic area characteristics that have been impaired or lost due to a development action with a different set of characteristics that are judged to be of equal resource value.

Permit: Discretionary approval of a proposed development of land under ORS 227.215.

Restoration as Mitigation: For the purposes of Statewide Planning Goal 16 estuarine restoration means to revitalize or reestablish functional characteristics and processes of the estuary diminished or lost by past alterations, activities, or catastrophic events. A restored area must be a shallow subtidal or an intertidal or tidal marsh area after alteration work is performed, and may not have been a functioning part of the estuarine system when alteration work began.

Significant Shoreland Resources: Significant shoreland resources are described in subarea plans, and are included in the Coastal Shorelands Boundaries. Significant shoreland resources include significant non-tidal wetlands, significant shoreland fish and wildlife habitat, significant riparian vegetation, exceptional aesthetic resources and coastal headlands.

Subtidal: Below the level of mean lower low tide. In the Columbia River Estuary this is generally 3 feet below mean lower low water.

Sump Dredged Material Disposal, In-Water: Deposition of dredged materials in a temporary in-water holding area and subsequently rehandling the material to place it on a land disposal site.

Temporary Estuarine Alteration: Dredging, filling, or other estuarine alteration occurring over a specified short period of time which is needed to facilitate an allowed use. Temporary alterations may not be for more than three years and the affected area must be restored to its previous condition. Temporary alterations include: (1) alterations necessary for federally authorized navigation projects (e.g., access to dredged material disposal sites by barge or pipeline and staging areas or dredging for jetty maintenance), (2) alterations to establish mitigation sites, alterations for bridge construction or repair and for drilling or other exploratory operations, and (3) minor structures (such as blinds) necessary for research and educational observation.

Temporary Use: A non-permanent structure, use or activity involving minimal capital investment that does not result in the permanent alteration of the site and is removed from the site within one year.

Tidal Marsh: Tidal wetlands vegetated with emergent vascular plants lying between extreme low tide and landward limit of aquatic vegetation.

Tidegate: A device placed in a dike or dam that allows the passage of water through a culvert in a single direction.

Water-Oriented: A use whose attraction to the public is enhanced by a view of or access to coastal waters.

Wetland Creation: Alteration, by excavation or other means, of upland areas to allow local hydrologic conditions to convert soils and vegetation to a hydric character.

Wetland Enhancement: An action which results in a long term improvement of existing wetland functional characteristics and processes that is not the result of a creation or restoration action.

Wetlands, Significant Non-tidal: Non-tidal wetlands described as significant in Coastal Shorelands boundary descriptions or protected by the County's Goal 5 element.

IV. Amend the Columbia River Estuary Shorelands and Aquatic Use and Activity Standards Portion of the Table of Contents of the Clatsop County Development Standards Document as Follows:

COLUMBIA RIVER ESTUARY SHORELAND AND AQUATIC USE AND ACTIVITY STANDARDS

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*Note: The page numbers inserted here reflect the page number the standard may be found on in this proposed amendment package. The actual page number of the standard in the County's Ordinance should be substituted after final adoption.

V. Amend Chapter 4, Columbia River Estuary Shoreland and Aquatic Use and Activity Standards, pp. 62 - 83 of the County's Development Standards document, by deleting Sections S4.200-S4.238 and replacing them with the following material:

COLUMBIA RIVER ESTUARY SHORELAND AND AQUATIC USE AND ACTIVITY STANDARDS

Standards in this Section are applicable to developments in Columbia River Estuary shorelands and aquatic areas.

SECTION S4.200 PURPOSE

Columbia River Estuary shoreland and aquatic area standards are requirements which apply to development uses and activities proposed in one or more of the following management designations: Marine Industrial Shorelands Zone (MI); Conservation Shorelands Zone (CS); Natural Shorelands Zone (NS); Aquatic Development Zone (AD); Aquatic Conservation Two Zone (AC-2); Aquatic Conservation One Zone (AC-1); Aquatic Natural Zone (AN); and those areas included in the Shorelands Overlay District (/SO). These standards are intended to protect the unique economic, social, and environmental values of the Columbia River Estuary.

SECTION S4.202 GENERAL STANDARD

Proposed uses and activities in the Columbia River Estuary shoreland and aquatic areas may only be approved when it is determined that such uses or activities are consistent with the purposes of the Columbia River Estuary management areas in which they are proposed and satisfy all applicable Comprehensive Plan policies and Columbia River Estuary Shoreland and Aquatic Activity and Use Standards. In addition, some uses and activities in the Columbia River Estuary which could potentially alter the estuarine ecosystem are also subject to an Impact Assessment and Resource Capability Determination.

SECTION S4.203 GENERAL DEVELOPMENT ZONE STANDARDS

The standards in this subsection apply to all development activities and uses in Columbia River Estuary shoreland and aquatic development zones, where appropriate.

1. Shoreland and aquatic area uses and activities that are not water-dependent shall not preclude or unduly conflict with existing, proposed or potential future water-dependent uses or activities on the site or in the vicinity.
2. Uses will be designed and located so as not to unduly interfere with adjacent uses (particularly adjacent historic structures). Appropriate landscaping, fencing, and/or other buffering techniques shall be used to protect the character of adjacent uses.

3. Waterfront access for the public, such as walkways, trails, waterfront seating or landscaped areas, shall be provided except when proven to be inconsistent with security or safety factors. Industrial and port facilities should designate public viewing points, for viewing waterfront and/or port operations in areas which would not interfere with operations. Provisions of public access shall not result in enlargement of development areas requiring dredge or fill activities or other alteration of estuarine resources.
4. Joint use of parking, moorage and other commercial support facility is encouraged where feasible and where consistent with local ordinance requirements.
5. In some locations maintenance, placement or replacement of riparian vegetation may be required to enhance visual attractiveness or assist in bank stabilization.

S4.204 AGRICULTURE AND FORESTRY

Standards in this subsection are applicable to agricultural and forestry activities on Columbia River Estuary shorelands. Activities outside of the coastal shorelands boundary are not covered by this subsection. Certain activities associated with agriculture and forestry (i.e., log storage, dike maintenance and shipping facilities for agricultural and forest products, are covered under different subsections.

1. Tillage and drainage practices should minimize sedimentation and control surface water runoff of animal wastes and excess fertilizers, herbicides and pesticides. Agriculture chemicals shall be applied so as to minimize the amount that is lost to the aquatic environment.
2. A buffer strip of permanent vegetation shall be maintained between cultivated or pasture areas and an undiked body of water, so as to filter surface runoff and retard sedimentation.
3. Feed lots or other confinement lots for livestock shall be:
 - a. Located at least 100 feet from streams or other waterbodies;
 - b. Away from hillsides leading directly to streams;
 - c. Outside the 100-year floodplain;
 - d. Located so as to protect groundwater supplies; and
 - e. Designed such that run off is controlled with diversion structures, settling ponds or other land management practices.
4. Forest practices and forest road building will comply with rules established under the Oregon Forest Practices Act, administered by the Oregon Department of Forestry.
5. On Development and Water-dependent Development Shorelands, agriculture uses shall be undeveloped and low intensity to reserve these areas for intensive residential, commercial or industrial use, as appropriate.
6. On Conservation Shorelands, agricultural uses shall be low intensity and consistent with maintenance of the forest resource and recreational values of these lands.

Terminal stations for aircraft, passenger and cargo operations, including runways, towers, and associated structures and systems shall comply with the following standard:

1. Airports and associated facilities shall be located away from migratory bird flyways and habitat used by resident waterfowl and other birds, in the interest of air safety and wildlife conservation.

SECTION S4.206 AQUACULTURE AND FISHERIES

The standards in this subsection apply to all projects that could affect commercial or recreational fisheries or aquaculture in the Columbia River Estuary. This section is also applicable to the development of aquaculture facilities and to fisheries enhancement projects.

1. Water diversion structures or man made spawning channels shall be designed and built to maintain minimum stream flows for aquatic life in affected streams.
2. Water discharged from aquaculture or hatchery facilities shall comply with state and federal water quality standards and any waste discharge permit conditions.
3. Aquaculture facilities shall be located far enough from sanitary sewer outfalls to avoid potential health hazards.
4. Aquaculture facilities shall be constructed to blend in with and not detract from the aesthetic qualities of the area. In developed areas, views from upland property shall be given consideration in facility design.
5. In-water construction activity in aquatic areas shall follow the recommendations of state and federal fisheries agencies with respect to project timing to avoid unnecessary impacts on migratory fish.
6. Commercial fish drifts shall be protected from conflicting in-water activity, including dredging, in-water dredge material disposal, and aquatic area mining and mineral extraction, by coordinating review of such activity with fishery regulatory agencies, fishing organizations, drift captains and drift right owners, and other interested parties.
7. Prior to approval of in-water activities with the potential for affecting commercial fishing activities, the project sponsor shall notify local drift captains, the Columbia River Fisherman's Protective Union and the Northwest Gillnetters Association and the state fishery agency.

SECTION S4.207 RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT

The standards in this subsection are applicable to construction or expansion of residential, commercial or industrial facilities in shoreland and aquatic areas of the Columbia River Estuary. Within the context of this section, residential uses include single and multi-family structures, mobile homes, and

floating residences (subject to an exception to Oregon Statewide Planning Goal 16). Duck shacks, recreational vehicles, hotels, motels and bed-and-breakfast facilities are not considered residential structures for purposes of this section. Commercial structures and uses include all retail or wholesale storage, service or sales facilities and uses, whether water-dependent, water-related, or non-dependent, non-related. Industrial uses and activities include facilities for fabrication, assembly, and processing, whether water-dependent, water-related or non-dependent, non-related.

1. Sign placement shall not impair views of water areas. Signs shall be constructed against existing buildings whenever feasible. Off-premise outdoor advertising shall not be allowed in aquatic areas.
2. Off-street parking may be located over an aquatic area only if all of the following conditions are met:
 - (a) Parking will be on an existing pile-supported structure; and
 - (b) Suitable shoreland areas are not available; and
 - (c) The amount of aquatic area committed to parking is minimized; and
 - (d) The aquatic area is in an Aquatic Development Zone; and
 - (e) Applicable off-street parking standards, Section S2.200, are met.
3. Joint use of parking, moorage and other commercial support facility is encouraged where feasible and where consistent with local ordinance requirements.
4. Uses on floating structures shall be located in areas protected from currents and wave action. The floats shall not rest on the bottom during low tidal cycles or low-flow periods.
5. Where groundwater is or may be used as a water supply, the ground-water table shall not be significantly lowered by drainage facilities, or be affected by salt water intrusion due to groundwater mining.
6. Fill in estuarine aquatic areas or in significant non-tidal wetlands in shoreland areas shall not be permitted for residential uses.
7. Piling or dolphin installation, structural shoreline stabilization, and other structures not involving dredge or fill, but which could alter the estuary may be allowed only if all of the following criteria are met:
 - (a) If a need (i.e., a substantial public benefit) is demonstrated; and
 - (b) The proposed use does not unreasonably interfere with public trust right; and
 - (c) Feasible alternative upland locations do not exist; and
 - (d) Potential adverse impacts, as identified in the impact assessment, are minimized.

8. Residential, commercial or industrial development requiring new dredging or filling of aquatic areas may be permitted only if all of the following criteria are met:

- (a) The proposed use is required for navigation or other water-dependent use requiring an estuarine location, or if specifically allowed in the applicable aquatic zone; and
- (b) If a need (i.e., a substantial public benefit) is demonstrated; and
- (c) The proposed use does not unreasonably interfere with public trust rights; and
- (d) Feasible alternative upland locations do not exist; and
- (e) Potential adverse impacts, as identified in the impact assessment, are minimized.

9. Commercial or industrial developments with ship receiving facilities shall provide facilities for disposing of vessel solid wastes. Disposal of fish wastes associated with commercial or industrial development, shall comply with state and federal regulations.

SECTION S4.208 ESTUARINE CONSTRUCTION: PILING AND DOLPHIN INSTALLATION, SHORELINE STABILIZATION AND NAVIGATIONAL STRUCTURES

The standards in this subsection apply to over-the-water and in-water structures such as docks, bulkheads, moorages, boat ramps, boat houses, jetties, pile dikes, breakwaters and other structures involving installation of piling or placement of riprap in Columbia River Estuary aquatic areas. This subsection does not apply to structures located entirely on shorelands or uplands, but does apply to structures, such as boat ramps, that are in both aquatic and shoreland designations. Standards in this subsection also apply to excavation for creation of new water surface area.

1. Where land use management practices and vegetative shoreline stabilization are shown to be infeasible (in terms of cost, effectiveness or other factors), structural means may be approved subject to applicable policies, standards and designation use restrictions.

2. Where structural shoreline stabilization is shown to be necessary because of the infeasibility of vegetative means, the choice among various structural means shall be made on a case by case basis. Factors to be considered include, but are not limited to:

- (a) Hydraulic features;
- (b) Shoreland habitat;
- (c) Adjacent land and water uses;
- (d) Aquatic habitat;
- (e) Water quality;

- (f) Engineering feasibility;
- (g) Navigation;
- (h) Impacts on public shoreline access.

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3. Jetties, groins and breakwaters shall be constructed of clean, erosion-resistant materials from upland sources. In-stream gravels shall not be used, unless part of an approved mining project. Material size shall be appropriate for predicted wave, tide and current conditions.

4. Where a jetty, groin, breakwater or other in-water structure is proposed for erosion or flood control, the applicant shall demonstrate that non-structural solutions, such as land use management practices, or other structural solutions, such as riprap, will not adequately address the problem.

5. Piling or dolphin installation, structural shoreline stabilization, and other structures not involving dredge or fill, but which could alter the estuary may be allowed only if all of the following criteria are met:

- (a) If a need (i.e., a substantial public benefit) is demonstrated; and
- (b) The proposed use does not unreasonably interfere with public trust rights; and
- (c) Feasible alternative upland locations do not exist; and
- (d) Potential adverse impacts, as identified in the impact assessment, are minimized.

6. Jetties, groins, breakwaters and piers requiring aquatic area fill may be allowed only if all of the following criteria are met:

- (a) The proposed use is required for navigation or other water-dependent use requiring an estuarine location, or if specifically allowed in the applicable aquatic zone; and
- (b) If a need (i.e., a substantial public benefit) is demonstrated; and
- (c) The proposed use does not unreasonably interfere with public trust rights; and
- (d) Feasible alternative upland locations do not exist; and
- (e) Potential adverse impacts, as identified in the impact assessment, are minimized.

7. Proposals for bulkheads may be approved only if it is demonstrated that sloped riprap will not adequately fulfill the project's objectives.

8. Proposals for new bulkheads or for new riprap bankline slopes steeper than 1.5 to 1 (horizontal to vertical) must demonstrate that adequate shallow areas will be available for juvenile fish shelter, or that the area is not typically used for juvenile fish shelter.

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October 3, 1990

9. Plant species utilized for vegetative stabilization shall be selected on the basis of potential sediment containment and fish and wildlife habitat values. Trees, shrubs and grasses native to the region should be considered for vegetative stabilization; however, plant species and vegetation stabilization techniques approved by the Soil Conservation Service, the U.S. Army Corps of Engineers and other participating federal and state resource agencies are also appropriate. Stabilization of dike slopes must not include vegetation (particularly trees) which jeopardize the dike.
10. Riprap bank protection must be appropriately designed with respect to slope, rock size, placement, underlying material and expected hydraulic conditions. Project design by a licensed engineer shall meet this requirement. Riprap projects designed by other individuals, such as experienced contractors, soil conservation service personnel or others, may meet this standard.
11. New shoreline stabilization projects shall not restrict existing public access to public shorelines.
12. Shoreline stabilization shall not be used to increase land surface area. Where an avulsion has occurred, fill may be used to restore the previous bankline, so long as the corrective action is initiated within one year of the date of the avulsion. Any other extension of the bankline into aquatic areas shall be subject to the policies and standards for fill.
13. Structural shoreline stabilization measures shall be coordinated with state and federal agencies to minimize adverse effects on aquatic and shoreland resources and habitats.
14. Bulkheads installed as a shoreland stabilization and protective measure shall be designed and constructed to minimize adverse physical effects (i.e., erosion, shoaling, reflection of wave energy or interferences with sediment transport in adjacent shoreline areas) resulting from their placement.
15. Emergency maintenance, for the purpose of making repairs or for the purpose of preventing irreparable harm, injury or damage to persons, property or shoreline stabilization facilities is permitted, not with-standing the other requirements in these standards, but subject to those regulations imposed by the Corps of Engineers and the Division of State Lands.
16. Revegetated shoreline areas shall be protected from excessive livestock grazing or other activities that would prevent development of effective stabilizing plant cover.
17. The size and shape of a dock or pier shall be the minimum required for the intended use.
18. Proposals for new docks and piers may be approved only after consideration of alternatives such as mooring buoys, dryland storage, and boat ramps.
19. Individual single-user docks and piers are discouraged in favor of community moorage facilities common to several users and interests.
20. With regard to excavation of shorelands to create new estuarine aquatic surface area, the following provisions are applicable. The maximum feasible amount of the new water surface area shall be excavated as an upland site, behind protective berms. The new aquatic area shall be connected to

adjacent water areas as the excavation is completed. Excavation in this manner shall not result in channelization of the waterway.

21. Sediments and materials generated by the excavation to create new estuarine water surface area shall be deposited on land in an appropriate manner.

22. Water quality degradation due to excavation to create new estuarine water surface area shall be minimized. Adverse effects on water circulation and exchange, increase in erosion and shoaling conditions, and introduction of contaminants to adjacent aquatic areas resulting from excavation of the area and presence of the new aquatic area will be minimized to the extent feasible.

SECTION S4.209 DEEP-WATER NAVIGATION, PORT AND INDUSTRIAL DEVELOPMENT

The standards in this subsection apply to port and industrial development occurring in and over Columbia River estuarine waters, and on adjacent shorelands. This section also applies to navigation projects related to deep-draft maritime activities, such as channel, anchorage and turning basin development or expansion.

1. New or expanded shoreland and aquatic area facilities for the storage or transmission of petroleum products must have on-site equipment for the containment of oil spills. A contingency plan for containment and clean-up of oil spills shall be provided.

2. New or expanded facilities for deep-water navigation, port or industrial development requiring aquatic area dredging or filling may be allowed only if all of the following criteria are met:

(a) The proposed use is required for navigation or other water-dependent use requiring an estuarine location, or if specifically allowed in the applicable aquatic zone; and

(b) If a need (i.e., a substantial public benefit) is demonstrated; and

(c) The proposed use does not unreasonably interfere with public trust rights; and

(d) Feasible alternative upland locations do not exist; and

(e) Potential adverse impacts, as identified in the impact assessment are minimized.

3. Deep-water navigation, port or industrial development requiring new piling or dolphin installation, construction of pile-supported structures, or other uses or activities which could alter the estuary may be permitted only if all of the following criteria are met:

(a) A need (i.e., a substantial public benefit) is demonstrated; and

(b) The proposed use does not unreasonably interfere with public trust rights; and

(c) Feasible alternative upland locations do not exist; and

- (d) Potential adverse impacts, as identified in the impact assessment are minimized.
4. Off-street parking may be located over an aquatic area only if all of the following conditions are met:
- (a) Parking will be on an existing pile-supported structure; and
 - (b) Suitable shoreland areas are not available; and
 - (c) The amount of aquatic area committed to parking is minimized; and
 - (d) The aquatic area is in an Aquatic Development Zone; and
 - (e) Applicable off-street parking standards Section S2.200, are met.
5. New or expanded ports or ship receiving facilities shall provide facilities for collecting, handling and disposing of vessel wastes.
6. Port or industrial development in or over estuarine aquatic areas involving the following activities shall be subject to an impact assessment.
- (a) Dredging
 - (b) Aquatic Area fill
 - (c) In-water structures
 - (d) Structural shoreline stabilization
 - (e) New in-water log storage areas
 - (f) Water in-take pipes
 - (g) Effluent discharge
 - (h) In-water dredged material disposal
 - (i) Beach nourishment
 - (j) Other activity which could adversely affect estuarine physical or biological resources.

Standards in this subsection are applicable to the maintenance and construction of railroads, roads and bridges in Columbia River Estuary shoreland and aquatic areas. Public, as well as private facilities are covered under this section. Forest roads, however, are excluded.

1. New or relocated land transportation routes shall be designed and sited so as to:
 - (a) Enhance areas in the Marine Industrial Shorelands Zone when possible; and
 - (b) Direct urban expansion toward areas identified as being suitable for development; and
 - (c) Take maximum advantage of the natural topography and cause minimum shoreline disruption; and
 - (d) Preserve or improve public estuary access where existing or potential access sites are identified; and
 - (e) Avoid isolating high-intensity waterfront use areas or water-dependent development areas from water access.
2. Maintenance and repair of roads and railroads and maintenance and replacement of bridges shall be permitted regardless of the plan designation through which the road or railroad passes, provided:
 - (a) The same alignment is maintained; and
 - (b) The same width is maintained, except that necessary enlargements to meet current safety and engineering standards may be permitted; and
 - (c) The number of travel lanes is not increased.
3. Fill-supported causeways or bridge approach fills across aquatic areas or across significant non-tidal wetlands in shoreland areas shall not be permitted; bridge abutments may, however, be approved.
4. Removal of riparian vegetation along transportation right-of-ways may be permitted in order to maintain clear vision.

SECTION S4.211 LOG STORAGE

This subsection includes standards for the establishment of new, and the expansion of existing, log storage and sorting areas in Columbia River Estuary aquatic and shoreland areas.

1. New aquatic log storage areas shall be located such that logs will not go aground during tidal changes or during low flow periods.

2. Proposals for reestablishment of previously used aquatic log storage areas must meet standards applied to new log storage areas, unless such areas have been abandoned for fewer than 36 months.
3. New aquatic log storage areas shall not be located in areas which would conflict with active gillnet fish drifts or with other commercial or recreational fishing activities.
4. New aquatic log storage areas shall be located where water quality degradation will be minimal and where good flushing conditions prevail.
5. Unpaved shoreland log yards underlaid by permeable soils shall have at least four feet of separation between the yard surface and the winter water table.
6. Log storage and sorting facilities in Marine Industrial Shorelands, shall not preclude or conflict with existing or possible future water-dependent uses at the site or in the vicinity, unless the log storage or sorting facility is itself an essential part of a water-dependent facility.

DELETE EXISTING SECTION S4.212 LOG STORAGE AND SORTING YARD (SEE PROPOSED SECTION S4.211)

SECTION S4.213 SHALLOW-DRAFT PORTS AND MARINAS

The standards in this subsection apply to development of new marinas and improvements to existing marinas in aquatic areas of the Columbia River Estuary. Also covered are adjacent shoreland support facilities that are in conjunction with or incidental to the marina. Included under this section's coverage are both public and private marinas for either recreational, charter or commercial shallow-draft vessels.

1. New marinas may be approved only when existing marinas are inadequate with respect to location, support services or size; or cannot expand to meet area moorage needs.
2. New marinas shall be located in or adjacent to areas of extensive boat usage, and in areas capable of providing necessary support services (including street access, upland parking, water, electricity and waste disposal).
3. The feasibility of upland boat storage shall be evaluated concurrent with proposals for new or expanded marina facilities.
4. Marina development and expansion may require some filling and dredging of presently undeveloped areas. Significant aquatic and shorelands resources shall be protected from preventable adverse impacts in the design, construction, and maintenance of marina facilities.
5. Marina development requiring filling or dredging in estuarine aquatic areas may be permitted only if all of the following criteria are met:

- (a) If required for navigation or for other water-dependent uses requiring an estuarine location, or if specifically allowed under the applicable aquatic zone; and
 - (b) If a need (i.e., a substantial public benefit) is demonstrated; and
 - (c) The proposed dredging or filling does not unreasonably interfere with public trust rights; and
 - (d) Feasible upland alternative sites do not exist; and
 - (e) Adverse impacts, as identified in the impact assessment are minimized.
6. New, expanded or renovated marinas shall be designed to assure adequate water circulation and flushing.
7. New or expanded marinas shall provide facilities for collecting, handling and disposing of vessel wastes.
8. Disposal of fish wastes shall comply with federal and state regulations.
9. Covered moorages may be permitted in marinas subject to the following requirements:
- (a) Information is provided on existing water quality and habitat conditions in the aquatic area proposed for the covered moorage; and
 - (b) Data on existing aquatic vegetation, and an analysis of the proposed covered moorages' impact on aquatic vegetation are provided; and
 - (c) Information is provided on light penetration, both with and without the proposed covered moorage; and
 - (d) No more than 20% of the marina's aquatic surface is occupied by the covered moorages.
10. New or expanded marina fuel docks shall maintain on-site equipment for the containment of spilled fuel. A contingency plan for containment and clean-up of accidental spills shall be provided.
11. Floating docks in marinas shall be located such that they do not rest on the bottom during low tides.
12. New individual docks outside of marinas may only be built when it is shown that existing marinas cannot reasonably accommodate the proposed use. Factors to be considered in this determination include, but are not limited to:
- distance between proposed dock and nearest marina;
 - availability and cost of moorage space in marinas;
 - area where the boat will be used; and
 - presence of other individual docks in the area.

13. The size and shape of docks and piers in marinas shall be limited to that required for the intended use.
14. Alternatives to new docks and piers, such as mooring buoys, dry land storage and launching ramps, shall be investigated and considered before new docks are permitted in a marina.
15. Off-street parking may be located over an aquatic area only if all of the following conditions are met:
 - (a) Parking will be on an existing pile-supported structure; and
 - (b) Suitable shoreland areas are not available; and
 - (c) The amount of aquatic area committed to parking is minimized; and
 - (d) The aquatic area is in an Aquatic Development Zone; and
 - (e) Applicable off-street parking standards, Section S2.200, are met.

SECTION S4.214 MINING AND MINERAL EXTRACTION

Standards in this subsection are applicable to the extraction of sand, gravel, petroleum products and other minerals from both submerged lands under Columbia River Estuary aquatic areas and from shoreland areas. These standards are also applicable to outer continental shelf mineral development support facilities built in the estuary.

1. Aquatic area mining and mineral extraction shall only occur in aquatic areas deeper than ten feet below MLLW, where estuarine resource values are low, and when no feasible upland sources exist.
2. Proposed mining and mineral extraction activities with potential impacts on estuary shoreland and aquatic areas shall provide the local government with a copy of a proposed or approved surface mining plan.
3. Project sponsors proposing estuarine shoreland or aquatic area mining or mineral extraction shall demonstrate that the activity is sited, designed and operated to minimize adverse impacts on the following:
 - (a) Significant fish and wildlife habitat; and
 - (b) Hydraulic characteristics; and
 - (c) Water quality.

4. Petroleum extraction and drilling operations shall not be allowed in estuarine aquatic areas. Petroleum may, however, be extracted from beneath estuarine aquatic areas using equipment located on shorelands or uplands. Petroleum exploration activities, with the exception of exploratory drilling, may be permitted in estuarine aquatic areas and in estuarine shoreland areas.
5. Unless part of an approved fill project, spoils and other material removed from aquatic areas shall be subject to Dredging and Dredged Material Disposal Standards in Section S4.232.

DELETE EXISTING SECTION S4.215 NAVIGATIONAL STRUCTURES (SEE PROPOSED SECTION S4.208)

SECTION S4.216 RECREATION AND TOURISM

Standards in this subsection are applicable to recreational and tourist-oriented facilities in Columbia River Estuary shoreland and aquatic areas.

1. Off-street parking may be located over an aquatic area only if all of the following conditions are met:
 - (a) Parking will be on an existing pile-supported structure; and
 - (b) Suitable shoreland areas are not available; and
 - (c) The amount of aquatic area committed to parking is minimized; and
 - (d) The aquatic area is in an Aquatic Development Zone; and
 - (e) Applicable off-street parking standards, Section S2.200, are met.
2. New or expanded recreation developments shall be designed to minimize adverse effects on surface and ground water quality. Adverse effects of storm run-off from parking lots shall be minimized.
3. New or expanded recreational developments shall be designed and located so as not to unduly interfere with adjacent land uses.
4. Structures developed for use as a duck shack may be permitted subject to the following requirements:
 - (a) They may be used to store recreational equipment for hunting waterfowl;
 - (b) They will have a holding tank so sewage is not disposed of directly into the river;

(c) The duck shack will not exceed 500 square feet if constructed on a float, or 750 square feet if constructed on a pier; and

(d) An individual may not occupy the structure for more than fifteen (15) days of any consecutive thirty (30) day period.

DELETE EXISTING SECTION S4.217 RESIDENTIAL USES (SEE PROPOSED SECTION S4.207)

SECTION S4.218 MITIGATION AND RESTORATION

Standards in this subsection are applicable to estuarine restoration and mitigation projects in Columbia River Estuary aquatic areas and adjacent shorelands.

1. Any fill activities that are permitted in estuarine aquatic areas or dredging activities in intertidal and shallow to medium depth estuarine subtidal areas shall be mitigated through project design and/or compensatory mitigation (creation, restoration or enhancement of another area) to ensure that the integrity of the estuary ecosystem is maintained. The Comprehensive Plan shall designate and protect specific sites for mitigation which generally correspond to the types and quantity of aquatic area proposed for dredging or filling.

2. Mitigation for fill in the aquatic areas or dredging in intertidal and shallow to medium depth subtidal areas shall be implemented, to the extent feasible, through the following mitigation actions:

Project Design Mitigation Actions

- a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- b) Minimizing impacts by limiting the degree or magnitude of action and its implementation;
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment (this would include removing wetland fills, rehabilitation of a resource use and/or extraction site when its economic life is terminated, etc.);
- d) Reducing or eliminating the impact over time by preservation and maintenance operations;

Compensatory Mitigation Actions

- e) Creation, restoration, or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary, such as its natural biological productivity, habitats, and species diversity, unique features and water quality.

Any combination of the above actions may be required to implement mitigation requirements. The compensatory mitigation actions listed in part (e) shall only be considered when, after consideration of impact avoidance, reduction or rectification, there are still unavoidable impacts.

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3. If compensatory mitigation actions are required, the U. S. Fish and Wildlife Service shall be asked to make a Resource Category determination for the site proposed for development. The classification shall be listed on the permit application and review notice. If the area subject to impact is in a Resource Category 2 or lower (4 = lowest), the following sequence of mitigation options shall be considered:

- o In-Kind/On-Site
- o In-Kind/Off-Site
- o Out-of-Kind/On-Site
- o Out-of-Kind/Off-Site

Generally, the requirements for considering each option before moving on to the next shall be stricter for higher Resource Categories.

The following list summarizes the mitigation goal for each resource category:

a) Resource Category 1: Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the Columbia River Estuary area.

Mitigation Goal: No loss of existing habitat value.

b) Resource Category 2: Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the Columbia River Estuary area.

Mitigation Goal: No net loss of in-kind habitat value.

c) Resource Category 3: Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis and in the Columbia River Estuary area.

Mitigation Goal: No net loss of habitat value while minimizing loss of in-kind habitat value.

d) Resource Category 4: Habitat to be impacted is of medium to low value for evaluation species.

Mitigation Goal: Minimize loss of habitat value.

4. Permit applicants shall submit a mitigation plan for each project proposal that requires mitigation. The mitigation plan shall define specific goals and objectives of the proposed mitigation action. The plan shall also address where applicable, performance specifications that include but are not necessarily limited to the following:

- a) starting date;
- b) completion date;

- c) grade specifications;
- d) area and elevation specifications;
- e) channel specifications;
- f) buffers;
- g) vegetation plantings;
- h) monitoring;
- i) contingency plan (outline of potential remedial work and specific remedial contingency actions);
- j) accountability requirements (e.g., bonding or any mechanism that serves as a bond).

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Goals, objectives and performance specifications shall be defined for both project design and compensatory mitigation. These components of the plan shall be developed in cooperation with relevant state and federal resource and regulatory agencies.

5. Each mitigation action shall be reviewed against its goals, objectives, and performance specifications.

6. All compensatory mitigation site plans shall include a contingency plan. The contingency plan shall include corrective measures to be taken in the event of suboptimal project performance (based on project goals and objectives). A list of remedial follow-up action strategies shall be specified in the contingency plan. These remedial strategies shall specifically address the goals, objectives and performance specifications of the mitigation site plan.

7. Post-mitigation monitoring for project design mitigation, when relevant, and compensatory mitigation shall be required over a 2-5 year time period, depending on the size and complexity of the mitigation project. Local governments, in coordination with state and federal resource agencies, shall design and implement the monitoring. Monitoring requirements may be waived as follows:

- a) A waiver of the 2-5 year monitoring requirement shall be granted if, at any time during the 2-5 year period, the project is judged successful; or
- b) If a mitigation project fails to satisfy the original goals and objectives after the designated time period, and the developer has met all the site design and contingency plan requirements, then the developer is not responsible for remedial action. However monitoring may still be required up to a predetermined time period to help agencies determine workable strategies for future mitigation efforts.

8. All mitigation actions shall begin prior to or concurrent with the associated development action.

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9. For estuarine wetlands, once a compensatory mitigation action is required, the habitat types displayed in OAR 141-85-254 shall provide the basis for comparing development activities and possible mitigation areas. The mitigation trade method described in OAR 141-85-256 shall be used to determine acreage and credit requirements for mitigation sites.
10. For non-tidal wetlands, once a compensatory mitigation action is required, habitat trade requirements shall be determined in coordination with appropriate state and federal agencies. Mitigation requirements shall be made on a case by case basis using determinations made by these agencies.
11. Removal and fill actions potentially exempt from estuarine mitigation requirements include:
 - a) Removal or fill of less than 50 cubic yards of material;
 - b) Filling for repair and maintenance of existing functional dikes where there is negligible physical or biological damage to tidal marsh or intertidal area;
 - c) Riprap to allow protection of existing bank line with clean, durable erosion resistant material provided that the need for riprap protection is demonstrated and that this need cannot be met with natural vegetation, and no appreciable increase in upland occurs;
 - d) Filling for repair and maintenance of existing roads where there is negligible physical or biological damage to tidal marsh or intertidal areas;
 - e) Dredging for authorized navigation channels, jetty or navigational aid installation, repair or maintenance contract with the Army Corps of Engineers;
 - f) Any proposed alteration that would have negligible adverse physical or biological impact on estuarine resources.
 - g) Dredging or filling required as part of an estuarine resource creation, restoration, or enhancement project agreed to by local, state, and federal agencies; and
 - h) Beach nourishment, subject to Dredging and Dredged Material Disposal Standards, Section S4.232.

Any waiver of mitigation shall be coordinated with state and federal agencies.

12. Activities that do not require mitigation even though they involve intertidal removal include:
 - a) Maintenance dredging -- dredging a channel basin, or other facility which has been dredged before and is currently in use or operation or has been in use or operation sometime during the past five years, provided that the dredging does not deepen the facility beyond its previously authorized or approved depth plus customary over-dredging; and
 - b) Aggregate mining -- provided the site has historically been used for aggregate removal on a periodic basis.

- a) As a general rule, conversion of an existing wetland type to another wetland type as mitigation for impacts on another wetland shall not be allowed. However, diked non-tidal wetlands with low wildlife value can be discounted and restored to tidal influence as mitigation for impacts in diked non-tidal wetlands. Also, enhancement of an existing wetland can be considered mitigation for impacts in another wetland;
- b) Transfer of ownership of existing wetlands to public ownership;
- c) Dedication of existing wetlands for natural uses;
- d) Provision of funds for research; or
- e) Monetary compensation for lost wetlands except where monies are used to purchase mitigation credits at a mitigation bank.

14. The following criteria shall be considered when selecting and including potential mitigation sites in the *Mitigation and Restoration Plan for the Columbia River Estuary* (not in order of priority):

- a) Proximity to potential development sites;
- b) Opportunity to create or restore habitat conditions and other values similar to those at the impacted sites or historically and presently scarce habitat types;
- c) Character of potential sites (e.g., low habitat value and no conflicting uses);
- d) Potential for protection through zoning; and
- e) Amount of new dike requirements, if any.

15. A plan amendment shall be required to remove any mitigation site from the mitigation plan. For a Priority 1 mitigation site the plan amendment shall require a demonstration that there is no longer a need for the site or that a suitable alternative mitigation site has been designated and protected. A Priority 2, Level 3 site shall be partially or totally removed from the mitigation plan if the landowner proposes a development that would preclude all or part of its use for mitigation and, if 30 days after the permit application has been circulated, a negotiated agreement to sell the land or certain landownership rights for mitigation use, has not been made. The negotiation shall be between the landowner and any interested buyer. The site shall not be removed from the plan until the development is completed. A Priority 2, Level 4 or a Priority 3 site shall be partially or totally removed from the mitigation plan if the landowner chooses to develop part or all of the site to a degree that would preclude its availability for mitigation use.

16. Clatsop County shall make the determination of whether a development will preclude all or some of the potential use of the site for mitigation purposes.

17. After a mitigation action takes place, Clatsop County shall amend its plan and change the designation to reflect its aquatic character.
18. The developer implementing a mitigation action shall be responsible for all costs associated with the mitigation project unless an alternative agreement for cost responsibility is negotiated between the landowner and the developer.
19. Shorelands in the Marine Industrial Shorelands Zone can only be used for mitigation subject to a finding that the use of the site for mitigation will not preclude or conflict with water-dependent uses.
20. Significant Goal 17 resource areas (major marshes, significant wildlife habitat, and exceptional aesthetic resources) can only be used for mitigation subject to a finding that the use of the site for mitigation will be consistent with protection of natural values.
21. For mitigation sites on Exclusive Farm Use land, construction of new farm related structures valued at \$5,000 or less shall be exempt from mitigation overlay district protection.
22. Shorelands in the Marine Industrial Shorelands Zone can only be used for restoration subject to a finding that the use of the site for restoration will not preclude or conflict with water-dependent uses.
23. Priority 2, Level 3 and 4 mitigation sites shall be designated as mitigation sites until they are proposed for restoration outside of the context of mitigation. At this time restoration shall be considered an allowed use subject to the 30 day freeze restrictions presented in mitigation standard 17. Restoration shall only be allowed at Priority 2 sites subject to a finding that the site is no longer required for mitigation.
24. Priority 3, Level 4 mitigation sites shall be designated as mitigation sites until they are specified for restoration outside of the context of mitigation. At this time, restoration shall be considered an allowed use. Restoration shall only be allowed at Priority 3 sites subject to a finding that the site is no longer required for mitigation.
25. Significant Goal 17 resource areas (major marshes, significant wildlife habitat, and exceptional aesthetic resources) can only be used for restoration subject to a finding that the use of the site for restoration will be consistent with protection of its natural values.

SECTION S4.219. SOLID WASTE DISPOSAL

Standards in this subsection are applicable to disposal of solid waste in the Columbia River Estuary aquatic and shoreland zones:

1. Solid waste disposal on shorelands shall be allowed only when an alternative upland location is demonstrated to be infeasible. Solid waste deposited in a shoreland disposal site shall be strictly confined to the site with the stipulation that all leachates be controlled by impermeable

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dike structures with appropriate treatment and outfall facilities. Disposal shall comply with state and federal waste disposal requirements.

2. Solid waste material shall not be deposited in aquatic areas.

3. Aesthetic impacts of shoreland solid waste disposal sites shall be minimized by screening the site with natural or planted vegetation.

SECTION S4.220. UTILITY

Standards in this subsection are applicable to utility structures and uses in the Columbia River Estuary aquatic and shoreland zones.

1. Electrical or communication transmission lines shall be located underground, unless burial is demonstrated as economically infeasible. Routes for major overhead electrical and communication transmission lines shall be chosen which minimize interference with migratory bird flyways and significant habitat of waterfowl, birds of prey and other birds.

2. Utilities shall not be located on new fill land unless part of an otherwise approved development fill project and no other alternative is feasible.

3. Above-ground utilities shall be designed to have the least adverse effect on visual and other aesthetic characteristics of the area. Interference with public uses and public access to the estuary shall be minimized.

4. After installation or maintenance of existing utility structures is completed, disturbed stream banks and aquatic and riparian vegetation shall be stabilized and restored.

SECTION S4.221. TIMBER PROPAGATION/HARVESTING STANDARDS, DELETED BY ORDINANCE 84-9, DATED MAY 23, 1984.

SECTION S4.230. BANKLINE AND STREAMBED ALTERATION

Standards in this subsection are applicable to an alteration of a stream bank or streambed in the Columbia River Estuary, either within or outside of its normal high water boundary.

1. Alterations to stream banks or streambeds shall:

- a) Maintain stream surface area where feasible; and
- b) Make maximum use of natural or existing deepwater channels; and
- c) Avoid creation of undesirable hydraulic conditions; and

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d) Minimize impacts on estuarine aquatic and shoreland resources.

2. Excavation activities in stream bankline areas resulting in expansion of existing aquatic area shall comply with standards regulating excavation of shorelands for the creation of new water surface area in Estuarine Construction, Section S4.208.

SECTION S4.231 DIKING

The standards in this subsection apply to the construction, maintenance and repair of flood control dikes in Columbia River Estuary shoreland and aquatic areas. The standards do not apply to dredged material containment dikes.

1. Dike maintenance and repair may be allowed under any of the following circumstances:

- (a) Dikes which have been inadvertently breached may be repaired, subject to state and federal permit requirements, if the repair is commenced within 36 months of the breach, regardless of whether the property has reverted to estuarine habitat.
- (b) Existing serviceable dikes (including those that allow some seasonal inundation) may be repaired.
- (c) Dikes which have been inadvertently breached may be repaired, subject to state and federal permit requirements, if the property has not reverted to estuarine habitat (as determined by U.S. Army Corps of Engineers and the Oregon Division of State Lands).

Dike repair projects that do not fit under (a), (b), or (c) above; that is projects where the property has reverted and more than 36 months have elapsed; must be reviewed as new dikes.

2. Dike maintenance and repair are distinguished from new dike construction. To qualify as maintenance and repair, changes in the location, size, configuration, orientation and alignment of the dike must be limited to the minimum amount necessary to retain or restore its operation or function or to meet current engineering standards. Filling aquatic areas for dike maintenance may be allowed only if it can be clearly demonstrated that there are no feasible engineering alternatives which would avoid the use of aquatic area fill.

3. The outside dike face shall be suitably protected from erosion during construction and maintenance operations. Shoreline stabilization standards shall be met.

4. New dikes in aquatic areas may be permitted either;

- (a) As part of an approved fill project; or
- (b) As a temporary flood protection measure needed to promote public safety and welfare, subject to applicable U. S. Army Corps of Engineers, and Oregon Division of State Lands rules; or

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5. Dredging of subtidal estuarine areas as a source of fill material for dike maintenance, in all aquatic area designation, may be allowed upon the applicant's demonstration that:

- a. Alternative methods of accomplishing dike maintenance are infeasible (i.e., dikes proposed for receiving dredged material are remote from upland sources of fill material and that land-based heavy equipment access to the dike area is not possible);
- b. Dredging in all cases will be limited to that necessary to maintain the dikes. Dredging as a source of fill material for dike maintenance does not include enlarging or changing the bottom contour of natural aquatic areas for navigation of any other aquatic area use;
- c. Dredging will not disturb or excavate emergent vegetation, intertidal flats, or other adjacent intertidal estuarine resources;
- d. Dredging as a source of fill material for dike maintenance will, in all cases, take place in subtidal aquatic areas, and shall be limited to the deepest subtidal aquatic area accessible to float-mounted dredging equipment. In narrow tributary areas of the estuary, dredging shall be limited to the deepest subtidal areas nearest the centerline of the waterway. In reaches of the estuary exceeding 200 feet in width, dredging shall be limited to subtidal areas greater than 80 feet in distance from the waterward toe of the dikes. The intent of this standard is to protect the dike structures from sloughing, maintain existing berms and shoal water immediately adjacent to dikes, and limit dredge excavations to subtidal areas below the level of effective light penetration.
- e. Dredging will not be confined to localized areas of river bottom. All excavations as a source of fill material shall be linearly dispersed along the entire dike maintenance area. Dredging shall not alter the existing contour of the river bottom such that deep trenches and pockets capable of stranding or impeding estuarine lifeforms will be created.
- f. Dredging operations shall be consistent with state and federal resource agency conditions, the requirements of local governments, and concerns of private interests, to ensure that project timing and dredging conditions protect estuarine resources (e.g., fish runs, spawning activity, benthic productivity, wildlife habitat, etc.)

SECTION S4.232 DREDGING AND DREDGED MATERIAL DISPOSAL

Standards in this subsection are applicable to all Columbia River Estuary estuarine dredging operations and to both estuarine shoreland and aquatic dredged material disposal.

1. Dredging in estuarine aquatic areas, subject to dredging and dredged material disposal policies and standards, shall be allowed only:

a. If specifically allowed by the applicable aquatic zone and required for one or more of the following uses and activities:

- (1) Navigation or navigational access;
- (2) An approved water-dependent use of aquatic areas or adjacent shorelands that requires an estuarine location;
- (3) An approved restoration project;
- (4) Mining or mineral extraction;
- (5) Excavation necessary for approved bridge crossing support structures, or pipeline, cable, or utility crossing;
- (6) Obtaining fill material for dike maintenance where an exception to Oregon Statewide Planning Goal 16 has been approved;
- (7) Maintenance and installation of tidegates and in existing functional dikes tidegate drainage channels;
- (8) Aquaculture facilities;
- (9) Temporary alterations; and
- (10) Incidental dredging for harvest of benthic species or removable in-water structures such as stakes or racks.

b. If a need (i.e., a substantial public benefit) is demonstrated; and

c. If the use or alteration does not unreasonably interfere with public trust rights; and

d. If no feasible alternative upland locations exist; and

e. If adverse impacts, as identified in the impact assessments, are minimized.

2. When dredging is permitted, the dredging shall be the minimum necessary to accomplish the proposed use.

3. Undesirable erosion, sedimentation, increased flood hazard, and other changes in circulation shall be avoided at the dredging and disposal site and in adjacent areas.

4. The timing of dredging and dredged material disposal operations shall be coordinated with state and federal resource agencies, local governments, and private interests to protect estuarine aquatic and shoreland resources, minimize interference with commercial and recreational fishing, including snag

removal from gillnet drifts, and insure proper flushing of sediment and other materials introduced into the water by the project.

5. Bottom sediments in the dredging area shall be characterized by the applicant in accordance with U.S. Environmental Protection Agency, and Oregon Department of Environmental Quality standards. Information that may be required includes, but is not limited to, sediment grain size distribution, organic content, oil and grease, selected heavy metals, pesticides and other organic compounds, and benthic biological studies.

The types of sediment tests required will depend on dredging and disposal techniques, sediment grain size, available data on the sediments at the dredging site, and proximity to contaminant sources. Generally, projects involving in-water disposal of fine sediments will require a higher level of sediment testing than projects involving disposal of coarse sediments. Projects involving upland disposal may be exempted from the testing requirement, depending on the nature of the sediments and the amount of existing sediment data available.

Unreasonable burdens on the permit applicant shall be minimized by considering the economic cost of performing the sediment evaluation, the utility of the data to be provided, and the nature and magnitude of any potential environmental effect.

6. Adverse short-term effects of dredging and aquatic area disposal such as increased turbidity, release of organic and inorganic materials or toxic substances, depletion of dissolved oxygen, disruption of the food chain, loss of benthic productivity, and disturbance of fish runs and important localized biological communities shall be minimized.

7. Impacts on areas adjacent to the dredging site such as destabilization of fine-textured sediments, erosion, siltation and other undesirable changes in circulation patterns shall be minimized.

8. The effects of both initial and subsequent maintenance dredging, as well as dredging equipment marshalling and staging, shall be considered prior to approval of new projects or expansion of existing projects. Projects will not be approved unless disposal sites with adequate capacity to meet initial excavation dredging and at least five years of expected maintenance dredging requirements are available.

9. Dredging for maintenance of existing tidegate drainage channels and drainage ways is limited to the amount necessary to maintain and restore flow capacity essential for the function (the drainage service provided by the tidegate) of tidegates and to allow drainage and protection of agricultural and developed areas. Tidegate maintenance dredging does not include enlarging or extending the dimensions of, or changing the bottom elevations of, the affected tidegate drainage channel or drainage way as it existed prior to the accumulation of sediments.

10. Dredging of subtidal estuarine areas as a source of fill material for dike maintenance, in all aquatic area designation, may be allowed upon the applicant's demonstration that:

- a. Alternative methods of accomplishing dike maintenance are infeasible (i.e., dikes proposed for receiving dredged material are remote from upland sources of fill material and that land-based heavy equipment access to the dike area is not possible);

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- b. Dredging in all cases will be limited to that necessary to maintain the dikes. Dredging as a source of fill material for dike maintenance does not include enlarging or changing the bottom contour of natural aquatic areas for navigation of any other aquatic area use;
- c. Dredging will not disturb or excavate emergent vegetation, intertidal flats, or other adjacent intertidal estuarine resources;
- d. Dredging as a source of fill material for dike maintenance will, in all cases, take place in subtidal aquatic areas, and shall be limited to the deepest subtidal aquatic area accessible to float-mounted dredging equipment. In narrow tributary areas of the estuary, dredging shall be limited to the deepest subtidal areas nearest the centerline of the waterway. In reaches of the estuary exceeding 200 feet in width, dredging shall be limited to subtidal areas greater than 89 feet in distance from the waterward toe of the dikes. The intent of this standard is to protect the dike structures from sloughing, maintain existing berms and shoal water immediately adjacent to dikes, and limit dredge excavations to subtidal areas below the level of effective light penetration.
- e. Dredging will not be confined to localized areas of river bottom. All excavations as a source of fill material shall be linearly dispersed along the entire dike maintenance area. Dredging shall not alter the existing contour of the river bottom such that deep trenches and pockets capable of stranding or impeding estuarine lifeforms will be created.
- f. Dredging operations shall be consistent with state and federal resource agency conditions, the requirements of local governments, and concerns of private interests, to ensure that project timing and dredging conditions protect estuarine resources (e.g., fish runs, spawning activity, benthic productivity, wildlife habitat, etc.)

11. Dredging for mining and mineral extraction, including sand extraction, shall only be allowed in areas deeper than 10 feet below MLLW where the project sponsor demonstrates that mining and mineral extraction in aquatic areas is necessary because no feasible upland sites exist and that the project will not significantly impact estuarine resources. The estuary bottom at the project site shall be sloped so that sediments from areas shallower than 10 feet below MLLW and other areas not included in the project do not slough into the dredged area. Dredging as part of an approved dredging project which also provides fill for an approved fill project shall not be subject to this standard.

12. When proposing dredging for sand extraction, the project sponsor shall first consider obtaining the material from a shoaled area within a federally-authorized navigation channel that is currently shallower than its authorized depth. Said dredging shall be coordinated with the U.S. Army Corps of Engineers. The dredging depth shall not exceed the authorized channel depth plus any over-dredging that the Corps would normally perform while maintaining the site.

Dredged Material Disposal Standards

13. Dredged material disposal shall occur only at designated sites or at new sites which meet the requirements of the Dredged Material Disposal Site Selection Policies.

14. Proposals for in-water disposal of dredged materials, including flowlane disposal, beach nourishment, estuarine open-water disposal, ocean disposal, and agitation dredging, shall:

- (a) Demonstrate the need for the proposed action and that there are no feasible alternative disposal sites or methods that entail less damaging environmental impacts; and
- (b) Demonstrate that the dredged sediments meet state and federal sediment testing requirements and water quality standards (see Dredging Standard 5); and
- (c) Not be permitted in the vicinity of a public water intake.

15. Proposals for in-water estuary disposal shall be coordinated with commercial fishing interests, including, but not limited to: gillnet drift captains at the dredging and disposal site, the Columbia River Fisherman's Protective Union, Northwest Gillnetters Association, and the State fishery agencies. In-water disposal actions shall avoid gillnet drifts whenever feasible. When it is not feasible to avoid gillnet drifts, impacts shall be minimized in coordination with fisheries interests through:

- (a) Disposal timing,
- (b) Gear placement,
- (c) Choice of disposal area within the drift, and
- (d) Disposal techniques to avoid snag placement.

16. Flowlane disposal, estuarine open water disposal and agitation dredging shall be monitored to assure that estuarine sedimentation is consistent with the resource capabilities and purposes of affected natural and conservation designations. The monitoring program shall be established prior to undertaking disposal. The program shall be designed to both characterize baseline conditions prior to disposal and monitor the effects of the disposal. The primary goals of the monitoring are to determine if the disposal is resulting in measurable adverse impacts and to establish methods to minimize impacts. Monitoring shall include, at a minimum, physical measurements such as bathymetric changes and may include biological monitoring. Specific monitoring requirements shall be based on, at a minimum, sediment grain size at the dredging and disposal site, presence of contaminants, proximity to sensitive habitats and knowledge of resources and physical characteristics of the disposal site.

The monitoring requirement shall be discontinued when adequate information has been gathered to determine impacts and establish an agreed-upon disposal volume and methodology. If the agreed-upon volume and methodology is altered, the monitoring requirement may be reestablished. Monitoring may be waived on small projects where the impacts would be undetectable. A decision to waive the requirement shall be made in coordination with state and federal regulatory agencies.

17. Flowlane disposal shall be in Aquatic Development areas identified as low in benthic productivity and use of these areas shall not have adverse hydraulic effects. Use of flowlane disposal areas in the estuary shall be allowed only when no feasible alternative land or ocean disposal sites with less damaging environmental impacts can be identified and the biological and physical impacts of flowlane disposal are

demonstrated to be insignificant. The feasibility and desirability of alternative sites shall take into account, at a minimum:

- (a) Operational constraints such as distance to the alternative sites;
- (b) Sediment characteristics at the dredging site;
- (c) Timing of the operation;
- (d) Environmental Protection Agency constraints on the use of designated ocean disposal sites;
- (e) The desirability of reserving some upland sites for potentially contaminated material only.

Long term use of a flowlane disposal area may only be allowed if monitoring confirms that the impacts are not significant. Flowlane disposal is contingent upon demonstration that:

- (f) Significant adverse effects due to changes in biological and physical estuarine properties will not result; and
- (g) Flowlane disposal areas shall be shown able to transport sediment downstream without excessive shoaling, interference with recreational and commercial fishing operations, including the removal of snags from gillnet drifts, undesirable hydraulic effects, or adverse effects on estuarine resources (fish runs, spawning activity, benthic productivity, wildlife habitat, etc.).

18. Ocean disposal shall be conducted such that:

- (a) The amount of material deposited at a site is compatible with benthic populations, other marine resources, and other uses of the area;
- (b) Interference with sport and commercial fishing is minimized;
- (c) Disposal is strictly confined to the sites designated by the U.S. Environmental Protection Agency; and
- (d) The disposal site does not shoal excessively and create dangerous wave and swell conditions.

19. Beach nourishment shall only be conducted at sites identified in the Dredged Material Management Plan. New sites may be added to the Plan by amendment after an exception to Oregon Statewide Planning Goal 16 for the site has been approved. Beach nourishment shall be conducted such that:

- (a) The beach is not widened beyond its historical profile. The historical profile shall be defined as the widest beach profile that existed prior to June 1986.
- (b) The material placed on the beach consists of sand of equal or greater grain size than the sand existing on the beach.

- (c) Placement and subsequent erosion of the materials does not adversely impact tidal marshes or productive intertidal and shallow subtidal areas.
- (d) Efforts are made to maintain a stable beach profile.
- (e) Dredged material is graded at a uniform slope and contoured to minimize juvenile fish stranding and hazards to beach users.

Use of beach nourishment sites shall be allowed only when no feasible land or ocean sites with less damaging environmental impacts can be identified. The feasibility and desirability of alternative sites shall take into account, at a minimum:

- (f) Operational constraints such as distance to the alternative sites;
- (g) Sediment characteristics at the dredging site;
- (h) Timing of the operation;
- (i) Environmental Protection Agency constraints on the use of designated ocean disposal sites;
- (j) The desirability of reserving some upland sites for potentially contaminated material only.

20. Except as noted below, land disposal and site preparation shall be conducted such that:

- (a) Surface runoff from disposal sites is controlled to protect water quality and prevent sedimentation of adjacent water bodies, wetlands, and drainage ways. Disposal runoff water must enter the receiving waterway through a controlled outfall at a location with adequate circulation and flushing characteristics. Underground springs and aquifers must be identified and protected;
- (b) Dikes are constructed according to accepted engineering standards and are adequate to support and contain the maximum potential height and volume of dredged materials at the site, and form a sufficiently large containment area to encourage proper ponding and to prevent the return of dredged materials into the waterway or estuary. Containment ponds and outfall weirs shall be designed to maintain adequate standing water at all times to further encourage settling of dredged materials. The dikes shall be constructed within the boundaries of the disposal site and shall be constructed of material obtained from within the site or other approved source.

Clean dredged material placed on land disposal sites located directly adjacent to designated beach nourishment sites may be allowed to flow directly into the waterway without conforming to (a) and (b), above, provided that all policies and standards for in-water disposal and beach nourishment are met and the dredged materials are not allowed to enter wetlands or the waterway in areas other than the designated beach nourishment site.

21. Land disposal sites which are not intended for dredged material disposal or development use within a two year period following disposal shall be revegetated as soon as site and weather conditions allow, unless habitat management plans agreed upon by resource management agencies specify that open sand areas should remain at the site. The project sponsor shall notify the City and state and federal permitting and resource management agencies when disposal is completed and shall coordinate revegetation with these agencies. The notification shall be sent to at least the following agencies: the local jurisdiction, U.S. Army Corps of Engineers, Soil Conservation Service, Division of State Lands, Oregon Department of Fish and Wildlife. Revegetation of a disposal site does not preclude future use of the sites for dredged material disposal.

The disposal site design shall be reviewed to determine if wetlands or other habitats will form on the site during the period between disposal actions. The disposal permit may be conditioned to allow future disposal actions to fill the created wetlands or habitats.

22. The final height and slope after each use of a land dredged material disposal site shall be such that:

- (a) The site does not enlarge itself by sloughing and erosion into adjacent areas;
- (b) Loss of materials from the site during storms and freshets is minimized; and
- (c) Interference with the view from nearby residences, scenic points, and parks does not occur.

DELETE EXISTING SECTION S4.233 DREDGED MATERIAL DISPOSAL (SEE PROPOSED SECTION S4.232)

DELETE EXISTING SECTION S4.234 EXCAVATION FOR CREATION OF NEW WATER SURFACE AREA (SEE PROPOSED SECTION S4.208)

SECTION S4.235 FILLING OF AQUATIC AREAS AND NON-TIDAL WETLANDS

This subsection applies to the placement of fill material in tidal wetlands and waters of the Columbia River Estuary. These standards also apply to fill in non-tidal wetlands in shoreland designations that are identified as "significant" wetlands under Statewide Planning Goal 17.

1. Fill in estuarine aquatic areas may be permitted only if all of the following criteria are met:

- (a) If required for navigation or for other water-dependent uses requiring an estuarine location, or if specifically allowed under the applicable aquatic zone; and
- (b) If a need (i.e., a substantial public benefit) is demonstrated; and
- (c) The proposed fill does not unreasonably interfere with public trust rights; and
- (d) Feasible alternative upland locations do not exist; and
- (e) Adverse impacts, as identified in the impact assessment, are minimized.

2. A fill shall cover no more than the minimum necessary to accomplish the proposed use.
3. Aquatic area fills using either dredged material or other easily erodible material shall be surrounded by appropriately stabilized dikes.
4. Aquatic areas shall not be used for disposal of solid waste.
5. Projects involving fill may be approved only if the following alternatives are examined and found to be infeasible:
 - (a) Construct some or all of the project on piling;
 - (b) Conduct some or all of the proposed activity on existing upland;
 - (c) Approve the project at a feasible alternative site where adverse impacts are less significant.

DELETE EXISTING SECTION S4.236 PILING AND DOLPHIN INSTALLATION (SEE PROPOSED SECTION S4.208)

SECTION S4.237 RIPARIAN VEGETATION PROTECTION

The standards in this subsection apply to any development use and activity affecting vegetation adjacent to and bordering Columbia River estuarine aquatic areas.

1. Riparian vegetation resources are described in the County's Comprehensive Plan and identified on Columbia River Estuary Resource Base Maps. These resources shall be maintained through the use of protective setbacks, except where direct water access is required for water-dependent and water-related uses. Development shall be setback 50 feet from all identified significant wetland and biological habitat and from the shoreline.

Pasture land, land managed for agricultural crops, landscaped area or unvegetated areas which do not function as riparian vegetation may, in particular locations, be included as part of the 50 protection buffer. Upon request, the County may undertake a site investigation to establish the extent of riparian vegetation requiring protection in a particular location.

2. Temporary removal of riparian vegetation due to construction or landscaping may be permitted subject to a revegetation plan approved by the County specifying: (a) temporary stabilization measures and (b) methods and timing of restoration of riparian vegetation. Native plant species should be considered for revegetation; however, plant species and revegetation techniques approved by the Soil Conservation Service, the US Army Corps of Engineers, and other participating federal and state agencies are appropriate.

DELETE EXISTING SECTION S4.238 SHORELINE STABILIZATION (SEE PROPOSED SECTION S4.208)

VI. Amend Chapter 4 Columbia River Estuary Shoreland and Aquatic Use and Activity Standards, by adding the following material:

SECTION S4.239 FISH AND WILDLIFE HABITAT

This subsection applies to uses and activities with potential adverse impacts on fish or wildlife habitat in Columbia River Estuary aquatic and shoreland areas.

1. Projects affecting endangered, threatened or sensitive species habitat, as identified by the US Fish and Wildlife Service or Oregon Department of Fish and Wildlife, shall be designed to minimize potential adverse impacts. This shall be accomplished by one or more of the following:
 - (a) Soliciting and incorporating agency recommendations into local permit reviews;
 - (b) Dedicating and setting aside undeveloped on-site areas for habitat;
 - (c) Providing on or off-site compensation for lost or degraded habitat;
 - (d) Retaining key habitat features (for example; roosting trees, riparian vegetation, feeding areas).
2. In-water construction activity in aquatic areas shall follow the recommendations of state and federal fisheries agencies with respect to project timing to avoid unnecessary impacts on migratory fish.
3. Uses and activities with the potential for adversely affecting fish and wildlife habitat may be approved only if the following impact mitigation actions are incorporated into the permit where feasible. These impact mitigation actions are listed from highest to lowest priority:
 - (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
 - (b) Minimizing impacts by limiting the degree or magnitude of an action and its implementation;
 - (c) Rectifying the impact by repairing, rehabilitating, restoring the affected environment (this may include removing wetland fills, rehabilitation of a resource use and/or extraction site when its economic life is terminated, etc.);
 - (d) Reducing or eliminating the impact over time by preservation and maintenance operations.
4. Projects involving subtidal or intertidal aquatic area fill or intertidal aquatic dredging with the potential for adversely affecting aquatic habitat must provide compensatory mitigation, consistent with Mitigation and Restoration Standards (subsection S4.218).

SECTION S4.240 PUBLIC ACCESS TO THE ESTUARY AND ITS SHORELINE

Standards in this subsection apply to all uses and activities in Columbia River Estuary shoreland and aquatic areas which directly or indirectly affect public access. "Public access" is used broadly here to include direct physical access to estuary aquatic areas (boat ramps, for example), aesthetic access (viewing opportunities, for example), and other facilities that provide some degree of public access to shorelands and aquatic areas.

1. Projects to improve public access shall be designed to assure that adjacent privately owned shoreland is protected from public encroachment.
2. Clatsop County will implement its Public Access Plan.
3. Clatsop County shall review under the provisions of ORS 271.300 - 271.360, proposals for the sale, exchange or transfer of public ownership which provides public access to estuarine waters.

SECTION S4.241 SIGNIFICANT AREAS

The standards in this subsection are intended to protect certain Columbia River shoreland and aquatic resources with estuary-wide significance. Significant shoreland and aquatic resources are identified as such in the Estuarine Resources and Coastal Shoreland Elements of the Comprehensive Plan. Significant aquatic resources are found in Natural Aquatic areas. This section applies only to activities and uses that potentially affect significant shoreland or aquatic resources. Other resources without estuary-wide significance are not covered by this section. Only those resources identified as significant under Statewide Planning Goal 17 are covered by these standards.

1. Temporary removal of riparian vegetation may be permitted in conjunction with a water-dependent use where direct access to the water is required for construction or for a temporary use. Riparian vegetation removed for these reasons must be replaced upon project completion. Permanent removal of riparian vegetation may be approved for a water-dependent project.
2. Permanent removal of riparian vegetation may be permitted along transportation right-of-ways for purposes of maintaining clear vision. Riparian vegetation that threatens the stability of flood control dikes may be removed.
3. Public access to significant scenic areas shall be provided in a manner consistent with the preservation of the scenic area and other significant resources.
4. Tidegated sloughs and drainage ditches identified as having significant aquatic habitat value, significant riparian vegetation, or other significant shoreland resource value may be maintained with respect to depth, but their bankline location and configuration may not be altered, unless part of an approved fill or shoreline stabilization project.
5. Riparian regulation may be removed as necessary for approved mitigation, restoration or creation projects.

6. Timber may be harvested in the A-5 Zone and adjacent riparian areas under the following conditions:

- a) Any timber harvesting operations must be carried out in accordance with a harvest plan approved by the Oregon Department of Forestry; and
- b) Selection of trees for harvest shall be done with consideration of retaining natural values.

SECTION S4.242 WATER QUALITY MAINTENANCE

The standards in this subsection are intended to help protect and enhance the quality of water in the Columbia River Estuary. Impacts on water quality in aquatic areas and in tidegated sloughs in shoreland areas are covered.

1. New and expanded marinas shall provide facilities for collecting, handling and disposing of all vessel wastes.
2. Thermal effluents shall be cooled before they are returned to the estuary.
3. The potential adverse impacts on water quality from dredging, fill, in-water dredged material disposal, in-water log storage, water intake or withdrawal, and slip or marina development will be assessed during permit review. Parameters to be addressed include:
 - Turbidity
 - Dissolved oxygen
 - Biochemical oxygen demand
 - Contaminated sediments
 - Salinity
 - Water temperature
 - Flushing
4. New or expanded marine fuel docks must provide on-site equipment for the containment of spilled fuels. A contingency plan for containment and clean-up of accidental spills shall be required.
5. New point-source waste water discharges into the Columbia River will be controlled through the National Pollution Discharge Elimination System (NPDES) permit program.
6. Estuarine aquatic area pesticide and herbicide application will be controlled by the Department of Environmental Quality and by the Department of Agriculture.

V
October 3, 1990

SECTION S4.243 WATER-DEPENDENT AND WATER-RELATED USE CRITERIA

Shoreland and Aquatic Zones must differentiate between water-dependent uses, water-related uses and other uses when establishing procedures and requirements for proposed uses. The level of development must be compatible with the purpose and characteristics of the shorelands and adjacent waters.

1. A use is water-dependent when it can only be accomplished on, in, or adjacent to water. Location on or adjacent to water, or direct water access is required for any of the following:

- (a) Waterborne transportation (such as navigation; moorage, fueling and servicing of ships or boats; terminal and transfer facilities; fish or other material receiving and shipping), or;
- (b) Recreation (active recreation such as swimming, boating and fishing or passive recreation such as viewing and walking), or;
- (c) A source of water (e.g., energy production, cooling of industrial equipment or wastewater, other industrial processes, aquaculture operations), or;
- (d) Marine research or education (such as observation, sampling, recording information, conducting field experiments and teaching).

2. A use is water-related when it:

- (a) Provides goods and/or services that are directly associated with water-dependent uses, supplying materials to, or using products of water-dependent commercial and industrial uses; or offering services directly tied to the functions of water-dependent; and
- (b) If not located adjacent to water, would experience a public loss of quality in the goods and services offered (evaluation of public loss of quality will involve subjective consideration of economic, social and environmental values).

VII. Amend Section S4.500 - S4.504, Protection of Riparian Vegetation pp. 100 - 101 of County's Land and Water Development and Use Ordinance as follows:

PROTECTION OF RIPARIAN VEGETATION

S4.500 PURPOSE AND AREAS INCLUDED

Riparian vegetation ~~performs several~~ is important ~~functions: it maintains for maintaining~~ water temperature and quality, ~~providing and thus enhances the quality of a stream as fish habitat. It provides bank stabilization, thus reducing the occurrence of streambank~~ minimizing erosion, ~~it provides providing~~ habitat for the feeding, breeding, and nesting of aquatic and ~~upland~~ terrestrial wildlife species; ~~and it protects, and protecting and buffering the aquatic ecosystem from necessary human disturbances. The purpose of This section is to establishes standards that will to protect these beneficial uses of riparian vegetation on lands not subject to the requirements of the Oregon Forest Practices Act.~~

~~S4.502 Definition of Riparian Vegetation~~ Areas of Riparian Vegetation are identified ~~defined~~ as follows:

1. Estuarine and Coastal Shoreland rivers and sloughs: A riparian vegetation zone of 50 feet wide shall be maintained except where ~~The extent of riparian vegetation is shown on the County's estuarine resource base maps. Comprehensive Plan Map entitled Significant Shorelands and Wetlands Habitat Map.~~
2. Lakes, ~~and~~ reservoirs, ~~and~~ river segments outside of Estuarine or Coastal Shoreland areas: A riparian vegetation zone 50 feet wide shall be maintained, except ~~Where emergent wetland vegetation exists adjacent to a lake, reservoir, or river, then the 50 feet shall be measured from the landward extent of the emergent vegetation wetland area. If a shrub or forested wetland area exists adjacent to the lake, reservoir or river, the zone of riparian vegetation shall be the entire area of the shrub or forested wetland.~~
3. ~~River segments outside of Estuarine or Coastal Shoreland areas with a flow exceeding 100 cfs: 50 feet, except that where shrub or forested wetlands are located adjacent to the river, the zone of riparian vegetation shall be the entire area of shrub or forested wetland. Where emergent wetland vegetation exists adjacent to a river the fifty feet shall be measured from the landward extent of the emergent vegetation.~~
4. ~~River and stream segments outside of Estuarine or Coastal Shoreland areas with a flow of less than 100 cfs .. 50 feet.~~

~~For estuarine areas, Measurements are taken horizontal and perpendicular from the line of non-aquatic vegetation. Where no aquatic vegetation is present, the measurement shall occur in estuarine and coastal shoreland areas from the mean higher high water line and from the ordinary high water line in non-estuarine areas. For non-estuarine areas measurements are taken from the ordinary high water line.~~

1. All structures shall be located outside of the zone of riparian vegetation areas defined in ~~S4.500-S4.502~~ above, unless direct water access to water is required in conjunction with a water-dependent or water-related use or as otherwise provided by this Ordinance.
2. Because the zone of riparian vegetation is a uniform width, it may in particular locations include pasture land, land managed for agricultural crops, landscaped area or unvegetated areas which do not function as riparian vegetation. Upon request, the County may undertake a site investigation to establish the extent of riparian vegetation requiring protection in a particular location. The Planning Director may, after consultation with the Department of Fish and Wildlife, determine that the extent of riparian vegetation at a given site is less than that specified in Section 4.502. When such a determination is made, structures shall be setback from the water body by the extent of identified site specific riparian vegetation.
3. Exemptions from (1) and (2) above and from the applicable setback requirement for the front or rear yard that is opposite the riparian area may be granted without a variance for uses on:
 - (a) Lots located in areas identified in the Comprehensive Plan's Goal 2 exception element as "built and committed" and which existed as of the date of adoption of this ordinance, and single family residential "lots of record" as defined and used in Chapter 884 Oregon Laws 1981 as amended, where the lot depth resulting from the riparian setback and the opposite front/rear yard setback is less than 45 feet.
 - (b) Other lots in identified "built and committed" areas and other "lot of record" where the combination of setbacks required by this section result in a buildable lot depth of less than 45 feet.

Exemptions from the riparian setback shall be the minimum necessary to accommodate the proposed use after the yard opposite the riparian area has been reduced to a width of no less than ten feet.

4. Vegetation within the riparian setback shall be maintained with the following exceptions:
 - a. The removal of dead, diseased or dying trees or trees that pose an erosion or safety hazard.
 - b. Vegetation removal necessary to provide direct water access to the Columbia River Estuary for a an approved water-dependent or water-related use that meets the criteria in Section S4.243.
 - c. Removal of vegetation necessary for the placement of structural shoreline stabilization.
5. The requirements of this section shall not apply to actions covered by the Oregon Forest Practices Act.

VIII. Amend the Marine Industrial Shorelands Zone (MI), Sections 3.620 - 3.636 pp. 115 - 118 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.620. Marine Industrial Shorelands Zone (MI)

Section 3.622. Purpose and Areas Included

The purpose of the MI Zone is to manage Columbia River Estuary shorelands in urban and urbanizable areas and shorelands in rural areas especially suited for water-dependent development uses and to reserve ~~protect~~ these shorelands for water-dependent industrial, commercial, and high-intensity recreational use.

~~The MI Zone includes areas with special suitability for water dependent development. Primary attributes for MI areas are access to well scoured deep water and maintained navigational access, presence of land transportation and public facilities, existing developed water dependent upland uses, potential for aquaculture, feasibility for marina development, and potential for recreational utilization.~~

Marine Industrial Shoreland areas have unique characteristics that make them especially suited for water-dependent development. Characteristics that contribute to suitability for water-dependent development include:

1. Deep water close to shore with supporting land transportation facilities suitable for ship and barge facility;
2. Potential for aquaculture;
3. Protected areas subject to scour which would require little dredging for use as a marina; and
4. Potential for recreational utilization of coastal waters or riparian resources.

Uses of the MI Zone shall maintain the integrity of the estuary and coastal waters. Water-dependent development uses receive highest priority, followed by water-related uses. Uses which are not water-dependent or water-related are provided for, only if they do not foreclose options for future higher priority uses and do not limit the potential for more intensive use of the area.

Section 3.624. Permitted Developments ~~Uses and Activities Permitted~~

The following uses and activities, and their accessory uses and activities, are permitted in the MI Zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.634, ~~Development Standards and Procedural Requirements~~.

1. Low-intensity water-dependent recreation.
2. Vegetative shoreline stabilization.

3. Navigational aids.
4. Passive restoration.
5. Grazing or other farm uses involving no structures.
6. Forestry activities
7. Maintenance and repair to existing structures and facilities, including dikes.
8. Temporary dike for emergency flood protection, subject to state and federal regulations, limited to 60 days.
9. Dredged material disposal at sites designated in the Comprehensive Plan.
10. Water-dependent industrial and port uses, including but not limited to:
 - a. port facilities and/or shipping activities
 - b. fuel storage and dispensing facilities
 - c. vessel construction, maintenance or repair facilities
 - d. marine railway facilities
 - e. seafood receiving, processing and storage
 - f. ice making and sales establishments
 - g. integrated manufacturing and shipping facility where a significant portion of the operation is water-dependent
 - h. other water-dependent industrial, or port uses meeting the criteria in Section S4.243 (1), Water-dependent Use Criteria
- ~~7. Emergency repair to existing functional and serviceable dikes.~~

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Section 3.626. Review Developments Uses and Activities Permitted with Review

The following uses and activities, and their accessory uses and activities, may be are permitted as Review Uses in the MI Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Development and Use Permitted with Review, and subject to the provisions of Section 3.634, Development Standards and Procedural Requirements.

1. Public utility structures.
2. Communication facilities.
3. Landfalls and access corridors for sewer line, water line, submerged cables or other pipeline crossing.
4. Structural shoreline stabilization.

5. Dredged material disposal at sites not designated in the Comprehensive Plan provided that the disposal does not preempt the use of the site for allowable water-dependent development activities.

- 6.8. Excavation to create new water surface area.

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- ~~1. New dike construction and maintenance and repair of existing functional and serviceable dikes.~~
- ~~3. Cable, sewer line, water line or other pipeline access corridors and landfall for submerged portions of these facilities in adjacent aquatic areas.~~
- ~~6. Storm water and treated wastewater outfalls.~~
- ~~7. Docks and moorages.~~
- ~~9. Utilities.~~

Section 3.628. Conditional Developments ~~Uses and Activities~~

The following uses and activities, and their accessory uses and activities, may be permitted ~~are allowed~~ as Conditional Uses in the MI Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.000 - .030 Conditional Development and Use, and subject to the provisions of Section 3.634, Development Standards and Procedural Requirements.

1. Water-related industrial and commercial uses including, but not limited to:
 - a. administrative offices of a water-dependent business
 - b. marine hardware sales and repair
 - c. security guard quarters in conjunction with a water-dependent use
 - d. marine craft and/or equipment sales
 - e. charter fishing offices
 - f. seafood market
 - g. sports fish cleaning, smoking, or canning
 - h. cold storage and/or ice processing facilities independent of seafood processing facilities
 - i. other water-related industrial and commercial uses meeting the criteria in Section S4.243(2).

Water-related Use Criteria
2. High intensity water-dependent commercial and recreational facilities including boat ramps, commercial moorages, and marinas for commercial and recreational marine craft.
3. New dike and tidegate construction.
4. Storm-water and treated wastewater outfalls.
5. Non-water-dependent, non-related uses involving minimal capital investment, including temporary uses.

~~6.9.~~ Forest manufacturing.

7. Aquaculture facilities.

~~8.10.~~ Mining and mineral extraction processing and differentiation.

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~~9.~~ Mitigation, restoration, creation and enhancement.

~~10.~~ Marine research and education facility.

~~11.~~ Land transportation systems.

~~1.~~ Water dependent industrial uses including, but not limited to:

- ~~a.~~ Port facilities and/or shipping activities.
- ~~b.~~ Marine fuel dock.
- ~~c.~~ Ship and boat building, repair.
- ~~d.~~ Wharves, piers, and marine railway, and other marine terminals and transfer facilities for passenger or water borne commerce.
- ~~e.~~ Seafood receiving and processing.
- ~~f.~~ Single purpose industrial docks.

~~2.~~ Other water dependent industrial or commercial uses meeting the criteria in Section 3.630, Water Dependent Use Criteria.

~~3.~~ Water related industrial or commercial uses including, but not limited to:

- ~~a.~~ Boat and/or marine equipment sales.
- ~~b.~~ Charter fishing offices.
- ~~c.~~ Cold storage and/or ice processing facilities.
- ~~d.~~ Retail trade facilities for the sale of products such as ice, bait, tackle, charts, gasoline, or other products incidental to or used in conjunction with a water dependent use.
- ~~e.~~ Sports fish cleaning establishments.
- ~~f.~~ Seafood market.

~~4.~~ Other water related industrial and commercial uses meeting the criteria in Section 3.632, Criteria for Determining Whether a Use is Water Related.

~~5.~~ A temporary use utilizing existing structures or facilities which requires minimal capital investment. A temporary use permit shall be valid for one year with annual renewal permitted subject to a Type II procedure.

~~6.~~ Security guard quarters in conjunction with a water dependent use.

~~8.~~ Marina and/or commercial moorage, high intensity water dependent recreation.

~~Water dependent uses can only be accomplished on, in, or adjacent to water. The location or access is required for one of the following:~~

- ~~1. Waterborne transportation (such as navigation; moorage, fueling, and servicing of ships or boats; terminal and transfer facilities; fish or other material receiving and shipping).~~
- ~~2. Recreation (active recreation such as swimming, boating, and fishing or passive recreation such as viewing and walking).~~
- ~~3. A source of water (such as energy production, cooling of industrial equipment or wastewater, other industrial processes, aquaculture operations).~~
- ~~4. Marine research or education (such as observation, sampling, recording information, conducting field experiments and teaching).~~

Section 3.632. ~~Criteria for Determining Whether a Use is Water Related~~

~~A use is water related when the use:~~

- ~~1. Provides goods and services that are directly associated with water dependent uses, supplies materials to, or uses products of water dependent commercial and industrial uses, or offers services directly tied to the functions of water dependent uses; and~~
- ~~2. If not located adjacent to water, would experience a public loss of quality in the goods and services offered (evaluation of public loss of quality will involve a subjective consideration of economic, social, and environmental values).~~

Section 3.634. ~~Development Standards and Procedural Requirements~~

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development standards contained in the Development and Use Standards Document.
3. All other applicable ordinance requirements shall be satisfied ~~adhered to~~.
4. When a proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure.
5. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
- ~~6.5.~~ Uses and activities that are not water-dependent shall not preclude or conflict with existing or probable future water-dependent use on the site or in the vicinity. If ~~In~~ ~~instances were non-~~

water-dependent development ~~is~~ ~~uses and activities are proposed in the MI Zone under Section 3.626, Review Developments and Uses and Activities Permitted with Review and or under Section 3.628, Conditional Developments Uses and Activities,~~ the County shall provide mailed notice to state and federal agencies with statutory planning and permit issuance authority in aquatic areas, including the Oregon Division of State Lands, Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, National Marine Fisheries Service, Army Corps of Engineers, and the Environmental Protection Agency.

7 9. Plan review and approval:

~~A No-building permit or other permit for construction or alteration of any building structure or use in the MI Zone will not~~ shall be issued until plans have been reviewed and approved ~~by the Planning Director in order to evaluate their for~~ conformity with the performance standards of this zone and the policies of the Comprehensive Plan, and ~~for to evaluate the~~ compatibility of the proposed structures or uses with surrounding uses ~~as to considering~~ factors ~~such as, including, but not limited to,~~ transportation, access, signs, lighting, building placement and design, noise, air quality, vibration, storage, landscaping, adjoining uses and location of public utilities including water and sewer facilities. ~~Following said review, Any activity or structures reviewed and so approved by the Planning Director will shall be considered deemed a permitted development with review satisfying Section 3.626. The approved activity or structure must be completed within the time frame specified in the approval, and not to exceed five years under the general description of permitted uses set forth in Section 3.626 hereof. Any activity or structure shall no longer be deemed a permitted use if not so constructed or completed, of the activity undertaken within the time not to exceed five years as may be set forth in the approval and review. If the permitted use status is lost due to inactivity or because of lack of construction or activity within the time specified, a new plan must be submitted for review and approval review or approval must be obtained.~~

~~8~~10.a. Standards: All uses must meet applicable state and federal air quality and noise laws or regulations.

9-10.b. Storage: All materials, including wastes, shall be stored and maintained in a manner that will not attract or aid the propagation of insects or rodents or other animals or birds, or otherwise create a health hazard or nuisance.

10-e. Fencing: Will be allowed inside a boundary planting screen and where it is necessary to protect property of the use concerned or to protect the public from a dangerous condition, with the following provisions:

~~a. 10.e.1.~~ No fence shall be constructed in the required setback from the public road right-of-way unless otherwise specifically approved by the Planning Commission.

~~b. 10.e.2.~~ Fences shall be aesthetically compatible with the surrounding property.

~~11~~-10.d. Lighting: Exterior lighting shall be directed away from zones other than LI unless otherwise approved.

12-44. Density provisions:

- a. The minimum lot area shall be one (1) acre.
- b. The minimum lot width shall be 150 feet.

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13-42. Setback requirements:

- a. Where a lot abuts a zone other than LI, there shall be a front, side or rear yard setback of not less than 50 feet. Otherwise, the front, side, or rear yards may be reduced to zero.
- b. Setbacks are not required where side, rear, or front property lines abut a railroad right-of-way.
- c. Uses that are not water-dependent or water-related shall be set back 50 feet from mean higher high water or the line of non-aquatic vegetation.

1412.e. Buffer: Where the MI Zone adjoins a zone other than LI, there shall be an area ~~buffer~~ of depth adequate to provide for a dense evergreen landscaped area which attains a minimum height of 8-10 feet, or such other screening measures as may be prescribed by the Planning Commission. In no case shall the buffer area have less width than the required 50 foot setback of this zone.

1543. Height: There is no height limitation except within 100 feet of a zone other than LI in which case the maximum height shall be the same height as the abutting zone.

~~6. In Marine Industrial Shorelands, uses that are not water dependent or water related shall be set back 30 feet from mean higher high water or the line of non-aquatic vegetation.~~

~~7. Chapters 1, 2, 5 and 6 and Sections of Chapter 3 of the Development and Use Standards Document; and~~

~~8. Section S4.200, Shoreland and Aquatic Development and Section S4.200, Rock and Mineral Resource Use, of the Development and Use Standards Document.~~

Section 3.636. State and ~~or~~ Federal Permits

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: ~~the completed permit application and other supporting material provided to the permit granting agency and a set of findings which demonstrate that the development is consistent with the Comprehensive Plan and this Ordinance. This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~ and other supporting material provided

IX. Amend the Conservation Shorelands Zone (CS), Sections 3.660 - 3.674, pp. 119 - 120 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.660 Conservation Shorelands Zone (CS)

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Section 3.662 Purpose and Areas Included

This zone is intended to conserve Columbia River Estuary for shorelands which provide important resource or ecosystem support functions and to designate areas for long term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration but because of their value for low intensity recreation or sustained yield resources or because of their unsuitability for intensive development uses should be designated for non consumptive uses. Non consumptive uses are those which can utilize resources on a sustained yield basis, while minimally reducing opportunities for other uses of the area's resources. They are managed for the protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources, aesthetic values and recreation. Uses of these shorelands shall be compatible with characteristics and uses of the adjacent estuarine waters.

Section 3.664 Permitted Developments ~~Uses and Activities Permitted~~

The following uses and activities and their accessory uses and activities, are permitted in the CS zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.670, Development Standards and ~~Procedural Requirements~~.

1. Low intensity recreation.
2. Navigational aids.
3. Vegetative shoreline stabilization.
4. Emergency repair to existing functional and serviceable dikes.
5. Temporary dike for emergency flood protection, subject to state and federal requirements, limited to 60 days.
6. Agriculture.
7. Forestry activities.
8. Dredged material disposal at sites designated in the Comprehensive Plan.
9. Passive restoration measures.
7. ~~Timber propagation and harvest, subject to state and federal requirements.~~

The following uses and activities, and their accessory uses and activities, may be permitted as Review Uses in the CS Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Development and Use Permitted with Review, and subject to the provisions of Section 3.670, ~~Development Standards and Procedural Requirements.~~

1. Structural shoreline stabilization for:
 - a. ~~Structures or uses existing as of October 7, 1977.~~
 - b. ~~Significant natural resources, historic, or archeological sites.~~
 - c. ~~Public facilities.~~
2. Dredged material disposal at sites not designated in the Comprehensive Plan provided that the proposed disposal site is not located in a Category 1 coastal shoreland.
3. Maintenance and repair of existing structures and facilities, including dikes.
4. Excavation to create new water surface area.
5. Active restoration, mitigation.
6. Individual dock or moorage or public recreational boat ramp with minimal on-shore facilities.
7. Communication facilities.
3. ~~New dike construction and maintenance and repair of existing functional and serviceable dikes.~~
6. ~~Maintenance and repair of structures existing as of October 7, 1977.~~

Section 3.668 Conditional Developments ~~and Uses and Activities~~

The following uses and activities, and their accessory uses and activities, may be permitted ~~are allowed~~ as Conditional Uses in the CS Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.000 - .030 Conditional Development and Use, and subject to the provisions of Section 3.670, ~~Development Standards and Procedural Requirements.~~

1. Marine research and education facilities.
2. High intensity water-dependent commercial and recreational facilities including boat ramps, moorages, or marina facilities.
3. Aquaculture facilities.
4. Log storage and sorting yard.

5. Public utility structure.

6. Land transportation facilities.

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7. Landfalls and access corridors for sewer line, water line, submerge cables or other pipeline crossing.

8. New dike and tidegate construction.

9. Storm water and treated wastewater outfalls.

~~2. Access to single individual dock or moorage used for water dependent recreational or low-intensity commercial purposes. Upland facility limited to immediate water access needs.~~

~~5. Utilities.~~

~~7. Cable, sewer line, water line, or other pipeline access corridors and landfall for submerged portions of these facilities in adjacent aquatic areas.~~

Section 3.670 Development Standards and Procedural Requirements

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards Document.
3. All other applicable ordinance requirements shall be satisfied ~~adhered to~~.
4. Shoreline setbacks shall meet the requirements of development standards S4.237, Riparian Vegetation Protection.
5. When a proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure.
6. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
7. Uses that are not water-dependent shall not preclude or conflict with existing or probable future water-dependent uses on the site or in the vicinity.

Section 3.674 State and Federal Permits

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application, and other supporting material ~~provided to which~~ demonstrate that the development is consistent with the Comprehensive Plan and this Ordinance. ~~This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

X. Amend the Natural Shorelands Zone (NS), Sections 3.680 - 3.694 pp. 121 - 122 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.680 Natural Shorelands Zone (NS)

Section 3.682 Purpose and Areas Included

This zone is for Columbia River Estuary shoreland areas which should be managed for resource protection, preservation, restoration, and recreation, with severe restrictions on the intensity and types of uses permitted, ~~managed for resource protection, preservation, restoration and recreation, with severe restrictions on the intensity and types of uses permitted.~~ Natural Shorelands ~~Zone~~ areas ~~may includes areas of unique or highly valuable~~ vegetative or wildlife habitat, and critical habitat of endangered or threatened species, ~~where a less restrictive designation would not proved adequate protection.~~ This designation is intended to preserve those natural resource systems existing relatively free of human influence.

Section 3.684 Permitted ~~Developments and Uses and Activities Permitted~~

The following uses and activities, and their accessory uses and activities, are permitted in the NS Zone under a Type I procedure, Section 2.110-2.100, and subject to the provisions of Section 3.690, ~~Development Standards and Procedural Requirements.~~

1. Navigational aids.
2. Low intensity recreation.
3. Vegetative shoreline stabilization.
4. Emergency repair to existing functional and serviceable dikes.
5. Research and educational observation.

Section 3.686 Review ~~Developments Uses and Activities Permitted with Review~~

The following uses and activities, and their accessory uses and activities, ~~may be~~ are permitted as Review Uses in the NS Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Development and Use Permitted with Review, and subject to the provisions of Section 3.690, ~~Development Standards and Procedural Requirements.~~

1. Maintenance and repair of existing structures and facilities, including functional and serviceable dikes.
2. Structural shoreline stabilization limited to riprap for:

- a. ~~Structures or uses existing as of October 7, 1977.~~
- b. ~~Significant natural resources, historic, or archaeological sites.~~
- c. ~~Public facilities.~~

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- 3. ~~Maintenance and repair of structures existing as of October 7, 1977.~~

Section 3.688 Conditional Developments ~~Uses and Activities~~

The following uses and activities, and their accessory uses and activities, may be permitted ~~are~~ allowed as Conditional Uses in the NS Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.000 - .030 Conditional Development and Use, and subject to the provisions of Section 3.690, ~~Development Standards and Procedural Requirements~~.

- 1. Marine research and/or education facilities.
- 2. Active Restoration, mitigation.
- 3. Landfalls and access corridors for sewer line, water line, submerged cables or other pipeline crossing.
- 3. ~~Cable, sewer line, water line or other pipeline access corridor and landfall for submerged portions of these facilities in adjacent aquatic areas.~~

Section 3.690 ~~Development Standards and Procedural Requirements~~

- 1. All ~~development~~ uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
- 2. All ~~development~~ uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards Document.
- 3. All other applicable ordinance requirements shall be satisfied ~~adhered to~~.
- 4. Shoreline setbacks shall meet the requirements of development standard S4.237, Riparian Vegetation Protection.

Section 3.694 State and Federal Permits

Applicants for development which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application and other supporting material ~~provided to the permit granting agency and a set of findings~~ which demonstrate the development is consistent with the Comprehensive Plan and this Ordinance. ~~This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XI. Amend the Aquatic Development Zone (AD), Sections 3.740 - 3.756 pp. 125 - 128 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.740. Aquatic Development Zone (AD)

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Section 3.742. Purpose and Areas Included

The purpose of the AD Zone is to ~~designate areas to provide for navigation, and other identified needs for public, commercial, and industrial water-dependent uses, water-dependent industrial and commercial uses and other water-dependent development~~ consistent with the level of development or alteration allowed by this management zone and the need to minimize damage to the Columbia River estuarine ecosystem. The objective of the AD Zone is to ensure optimum utilization of appropriate aquatic areas by providing for intensive development.

~~The AD Zone includes existing navigation channels, access channels and, turning basins. Further, Such areas include deep water areas adjacent to or near-in proximity to the shoreline, navigation channels, turning basins, subtidal areas for in-water disposal of dredged materials, areas of minimal biological significance needed for uses requiring alteration of the estuary not included in Aquatic Conservation-Two Zone, Aquatic Conservation-One Zone, and Aquatic Natural Zone, and areas for which an exception to Statewide Planning Goal 16, Estuarine Resources has been adopted and areas for which water-dependent use designations have been justified by means of approved Estuarine Resources Goal exception declarations are designated AD.~~

Uses of the AD Zone shall maintain the integrity of the estuary and coastal waters. Water-dependent development uses receive highest priority, followed by water-related uses. Permissible uses in areas managed for water-dependent activities include navigation, water-dependent commercial and industrial uses, water transport channels, water-storage areas when needed for products used in or resulting from commerce or recreation, flowlane disposal of dredged material, and marinas. Other uses, including uses which are not water-dependent or water-related are provided for when consistent with the purposes of the AD Zone, and if they do not foreclose options for future higher priority uses or do not limit the potential for more intensive use of the area.

Section 3.744. Permitted Developments ~~Uses and Activities Permitted~~

The following uses and activities, and their accessory uses and activities, are permitted in the AD Zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.754, Development Standards ~~and Procedural Requirements.~~

1. Undeveloped low intensity water-dependent recreation.
2. Passive restoration measures.
3. Navigational aids ~~such as beacons or buoys.~~

4. Vegetative shoreline stabilization.

5. Research and educational observation.

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6. Maintenance and repair of existing structures or facilities, including dikes.

7. Temporary dike for emergency flood protection, subject to state and federal requirements.

8. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources.

9. Water-dependent commercial, industrial and port uses including but not limited to:

a. docks, moorages, piers or wharves

b. fuel storage and dispensing facilities

c. cargo loading and unloading facilities

d. vessel construction, maintenance or repair facilities

e. seafood receiving, processing and storage

f. cargo marshalling, assembly and storage facilities

g. ice making and sales establishments

h. integrated manufacturing and shipping facility where a significant portion of the operation is water-dependent

i. marine railway facilities

j. other water-dependent uses meeting the criteria in Section S4.243(1), Water-dependent Use criteria

10. Piling and dredging in conjunction with permitted uses 3, and 5 through 9 listed above, pursuant to the applicable standards in Sections S4.208 and S4.232.

11. Fill in conjunction with permitted uses 6 through 9 listed above, pursuant to the applicable standards in Section S4.235.

~~5. Low water bridge.~~

~~6. Emergency repair to existing functional and serviceable dikes.~~

~~8. Dredged material disposal at sites designated in the Comprehensive Plan.~~

~~Approval of Permitted Uses 1 through 8 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Permitted Uses.~~

Section 3.746. Review Developments and Use Permitted with Review

The following uses and activities, and their accessory uses and activities, may be permitted ~~are allowed~~ as Review Uses in the AD Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Development and Use Permitted with Review, and subject to the provisions of Section 3.754, Development Standards and Procedural Requirements.

1. Pipelines, cables and utility crossings.
2. Water-dependent public recreational and commercial facilities, such as boat ramps and moorages, but not including marinas.
3. Installation of new tidegates in existing functional dikes.
4. Communication facilities, including necessary foundation or support structures.
5. Estuarine in-water disposal of dredged material at sites designated in the Comprehensive Plan.
6. Minor navigational improvements.
7. Water storage areas where needed for products used in or resulting from industry, commerce and recreation.
8. Structural shoreline stabilization.
9. Estuarine enhancement.
10. Temporary alterations.
11. Active restoration measures.
12. Dredging to obtain fill material for dike maintenance.
13. Bridge crossings.
14. Piling in conjunction with the review uses 1 through 4, and 6 through 10, listed above, pursuant to the applicable standards in Section S4.208.
15. Dredging in conjunction with the review uses 1 through 4 and 6 through 12, listed above, pursuant to the applicable standards in Section S4.232.
16. Fill in conjunction with the review uses 1, 2, 4, 5, and 8 through 11 listed above, pursuant to the applicable standards in Section S4.235.

~~1. Maintenance and repair of structures or facilities existing as of October 7, 1977.~~

~~2. Water dependent industrial uses, including but not limited to:~~

- ~~a. Port facilities and/or shipping activities.~~
- ~~b. Marine fuel dock.~~

- e. ~~Ship and boat building, repair and marine railway facilities.~~
 - d. ~~Wharves, piers, and other terminal and transfer facilities for passenger or waterborne commerce.~~
 - e. ~~Seafood receiving and processing.~~
 - f. ~~Single purpose industrial docks.~~
3. ~~Maintenance and repair of existing functional and serviceable dikes.~~
 5. ~~Submerged cable, sewer line, water line, or other pipeline.~~
 6. ~~In water log storage.~~
 7. ~~Water dependent portions of aquaculture facilities.~~
 9. ~~Dredged material disposal at sites not designated in the Comprehensive Plan provided the dredged material is utilized as a source of fill material for an approved water dependent development project.~~
 10. ~~Storm water and treated wastewater outfalls.~~
 11. ~~Minor dredging of existing tidegates channels and drainage ways subject to standards for dredging, Section S4.232.~~
 12. ~~Dredging of subtidal estuarine aquatic areas as a source of fill material for dike maintenance, subject to standards for dredging, Section S4.232.~~

~~Approval of Review Uses 1 through 12 above must include approval of dredging, fill or piling installation if necessary for placement or installation of these Review Uses.~~

Section 3.748. Conditional Developments and Uses

The following uses and activities, and their accessory uses and activities, may be permitted are allowed as Conditional Uses in the AD Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.000 - .030 Conditional Development and Use, and subject to the provisions of Section 3.754, Development Standards and Procedural Requirements.- It must also be determined if the proposed uses and activities meet the resource capability of the affected AD Zone and if the proposed uses and activities are consistent with the purpose of the AD Zone stated in Section 3.742. These findings shall be made in accordance with the procedure detailed in Section 5.800-5.840 and 5.890-5.910, Resource Capability Determination. It must also be shown that these uses and activities are consistent with the purpose of the Aquatic Development Zone and with the purpose of the adjacent shoreland zones.

1. Navigation structures, including breakwaters, groins, and pile dikes.
2. New navigation projects or water transport channel improvements.

3. Mining or mineral extraction.
4. Bridge crossing support structures.
5. Aquaculture facilities.
6. Marinas and high intensity water dependent development recreation development.
7. Storm water and treated waste water outfalls.
8. Water-related uses including, but not limited to:
 - a. administrative offices of a water-dependent business
 - b. marine hardware sales and repair
 - c. charter fishing offices
 - d. sports fish cleaning facilities
 - e. seafood market
 - f. net storage
 - g. other water related uses meeting the criteria in Section S4.243(2), Water-related Use Criteria.
 - h. security guard quarters in conjunction with a water-dependent use.
9. Non-water-dependent, non-related uses involving minimal capital investment, including temporary uses.
10. Piling in conjunction with the conditional uses 1 through 9 listed above, pursuant to the applicable standards in Section S4.208.
11. Dredging in conjunction with the conditional uses 1 through 7 listed above, pursuant to the applicable standards in Section S4.232.
12. Fill in conjunction with the conditional uses 1 and 4 through 6 listed above pursuant to the applicable standards in Section S4.235.
- ~~2. Dredging for new navigational projects.~~
- ~~3. Dredging for mining or mineral extraction, or dredging as a source of fill material.~~
- ~~4. Public transportation facility bridge crossings and utility foundations.~~
- ~~5. Active restoration.~~
- ~~7. Single, individual dock or moorage, providing for aquatic area access by owner of adjacent uplands and allowing for aquatic area access by dependent commercial and recreational use.~~
- ~~8. In water log dump, sorting operation, or storage areas.~~

9. ~~Water related commercial and industrial uses including:~~

- ~~a. Boat and marine equipment sales.~~
- ~~b. Charter fishing offices.~~
- ~~c. Cold storage and ice processing facilities.~~
- ~~d. Retail trade facilities for the sale of products such as ice, bait, tackle, charts, gasoline, or other products incidental to, or used in conjunction with a water dependent use.~~
- ~~e. Sports fish cleaning establishments.~~
- ~~f. Seafood market.~~

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10. ~~Flowlane disposal of dredged material.~~

11. ~~A non water dependent use occupying an existing structure with a water dependent use, and the combination results in a multiple use facility.~~

12. ~~A temporary use utilizing existing structures or facilities which requires minimal capital investment. A temporary use permit shall be valid for one year with annual renewals permitted subject to conditional use procedure.~~

13. ~~Security guard quarters in conjunction with a water dependent use.~~

14. ~~Other water related uses meeting the criteria in Section 3.752.~~

~~Approval of Conditional Uses 1 through 14 above may must include approval of dredging, fill, or piling installation if necessary for placement or installation of these Conditional Uses.~~

Section 3.750. Water Dependent Use Criteria

~~Water dependent uses can only be accomplished on, in, or adjacent to water. The location or access is required for any one of the following:~~

- ~~1. Waterborne transportation (such as navigation; moorage, fueling, and servicing of ships or boats; terminal and transfer facilities; fish or other material receiving and shipping).~~
- ~~2. Recreation (active recreation such as swimming, boating, and fishing or passive recreation such as viewing and walking).~~
- ~~3. A source of water (such as energy production, cooling of industrial equipment or wastewater, other industrial processes, aquaculture).~~
- ~~4. Marine research or education (such as observation, sampling, recording information, conducting field experiments and teaching).~~

~~Section 3.752. Criteria for Determining Whether a Use is Water Related~~

~~A use is water related when the use:~~

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- ~~1. Provides goods and services that are directly associated with water dependent uses, supplies materials to, or uses products of water dependent commercial and industrial uses, or offers services directly tied to the functions of water dependent uses; and,~~
- ~~2. If not located adjacent to water, would experience a public loss of quality in the goods and services offered (evaluation of public loss of quality will involve a subjective consideration of economic, social, and environmental values).~~

~~Section 3.754. Development Standards and Procedural Requirements~~

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards document.
3. All other applicable ordinance requirements shall also be satisfied.
4. A proposal which requires new dredging, fill, in-water structures, riprap, new log storage areas, water in-take or withdrawal and effluent discharge, in-water disposal of dredged material, beach nourishment, application of pesticides and herbicides, or other activities which could affect the estuary's physical processes or biological resources is subject to an Impact Assessment, Section 5.810 - 5.840. ~~All development uses and activities that would alter the integrity of the estuarine ecosystem shall be subject to an Impact Assessment as detailed in Section 5.850-5.918 of the Resource Capability Determination procedure, Section 5.800-5.840 and 5.890-5.910.~~
5. When a development proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure. ~~In addition, a proposal with several uses shall be reviewed in aggregate for consistency with the resource capability and purposes of the AD Zone, when a resource capability determination is required.~~
6. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
7. Uses that are not water-dependent shall not preclude or conflict with existing or probable future water-dependent uses on the site or in the vicinity.

8. Piling, dredging, filling or other estuarine alteration permitted under Section 3.744 of this zone, Permitted Developments, are subject to the public notice provisions of Sections 6.110 and 6.115, Procedures for Mailed Notice and Published Noticed, if an impact assessment is required pursuant to Sections 5.810 through 5.840; or if a determination of consistency with the purpose of the AD Zone is required pursuant to Section 5.880; or if the Planning Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.

Section 3.756. State and Federal Permits

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application; and other supporting material ~~provided to the permit granting agency, and a set of findings~~ which demonstrate that the development is consistent with the Comprehensive Plan and this Ordinance. ~~This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XII. Amend the Aquatic Conservation Two Zone (AC-2), Sections 3.760 - 3.772 pp. 129 - 132 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.760. Aquatic Conservation Two Zone (AC-2)

Section 3.762. Purpose and Areas Included

The purpose of the AC-2 Zone ~~designation is to conserve designated areas of the Columbia River Estuary for long term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration. assure the conservation of: (1) fish and wildlife habitat, (2) essential properties of the estuarine resource (e.g., dynamic geological processes, continued biological productivity, unique endemic communities of organisms, maintenance of species diversity), and (3) the long term use and conservation of renewable estuarine resources. They are managed for the protection and conservation of the natural resources and benefits found in these areas. The AC-2 Zone includes areas needed for maintenance and enhancement of biological productivity, recreational resources, aesthetic values, features aquaculture and open water portions of the estuary. The AC-2 Zone includes areas of smaller or of less biological importance than those in the Aquatic Natural Zone and Aquatic Conservation One Zone. Areas that are partially altered and adjacent to existing development of low to moderate intensity which do not possess the resource characteristics of other aquatic areas are also included in this zone. This designation provides for development uses of low to moderate intensity that do not require major alterations of the estuary, with emphasis on maintaining estuarine natural resources and benefits.~~

~~AC 2 zone designations include small areas of tidal marshland intertidal mud and sand flats, small fringing tidal marshes, open water portions of the estuary, and areas needed for water dependent recreational use. Partially altered estuarine areas adjacent to existing development of moderate intensity are also included in this designation: unless otherwise needed for preservation or development potential consistent with the need to minimize damage to the estuarine ecosystem.~~

~~Low to moderate intensity development is appropriate in the AC e management units (e.g., active restoration, communication facilities, and aquaculture). When consistent with the resource capabilities of the area and the purposes of the AC 2 zone designation, conditional uses providing for development of moderate intensity are appropriate.~~

Section 3.764. Permitted ~~Developments Uses and Activities Permitted~~

The following uses and activities, and their accessory uses and activities, are permitted in the AC-2 Zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.770, ~~Development Standards and Procedural Requirements.~~

1. Undeveloped low intensity water-dependent recreation.
2. Passive restoration measures.
3. Navigational aids, ~~such as beacons or buoys.~~

4. Vegetative shoreline stabilization.
5. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources.
6. Research and educational observations
7. Emergency repair to existing functional and serviceable dikes.
8. Temporary dike for emergency flood protection, subject to state and federal requirements.
9. New floating residences and reorientation of existing floating residences within the John Day exception area as described in the Comprehensive Plan and subject to standards in S4.207 S4.217.
10. Piling and dredging in conjunction with permitted uses 3 and 5 through 9 listed above, pursuant to the applicable standards in Section S4.208 and S4.232.
11. Filling in conjunction with permitted uses 5, 7 and 8 listed above, pursuant to the applicable standards in Section S4.235.
- ~~5. Low intensity aquaculture.~~
- ~~6. Low water Bridge.~~
- ~~10. Reorientation of existing floating residences within the John Day exception area as described in the Comprehensive Plan and subject to Standards in S4.217.~~
- ~~11. Beach nourishment at sites designated in the Comprehensive Plan~~

~~Approval of Permitted Uses 1 through 11 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Permitted Uses.~~

Section 3.766. Review Developments Uses and Activities Permitted with Review

The following uses and activities, and their accessory uses and activities, are allowed as Review Uses in the AC-2 Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Developments and Uses Permitted with Review. These uses and activities are also subject to the provisions of Section 3.770, Development Standards and Procedural Requirements.

1. Individual docks and boat ramps for public use where neither dredging nor filling for navigation access is needed.
2. Pipelines, cables and utility crossings.

3. Maintenance and repair of existing structures or facilities, including dikes, existing as of October 7, 1977.
4. Structural shoreline stabilization.
- 5.6. Communication facilities, including necessary foundation or support structures.
6. Beach nourishment at sites designated in the Comprehensive Plan.
7. Bridge crossing support structures.
8. Installation of tidegates in existing functional dikes.
9. Water dependent portions of an aquaculture facility which do not involve dredge or fill or other estuarine alteration other than incidental dredging for harvest of benthic species or removable in-water structures such as stakes or racks.
10. Active restoration of fish and wildlife habitat or water quality.
11. Estuarine enhancement.
12. Bridge crossings.
13. Piling in conjunction with the review uses 1 through 9 listed above, pursuant to the applicable standards in Section S4.208.
14. Dredging in conjunction with the review uses 2 through 11 listed above, pursuant to the applicable standards in Section S4.232.
15. Filling in conjunction with the review uses 2 through 7, 10, and 11 listed above, pursuant to the applicable standards in Section S4.235.
- ~~1. Single individual dock or moorage, providing for aquatic area access by owner of adjacent uplands and allowing for moorage of a single vessel and recreational use.~~
- ~~2. Submerged cable, sewer line, water line or other pipeline.~~
- ~~4. Structural shoreline stabilization limited to riprap where necessary to protect:

 - ~~a. structures or uses existing as of October 7, 1977~~
 - ~~b. significant natural resources, historic or archaeological sites~~
 - ~~c. public facilities~~~~
- ~~5. Maintenance and repair of existing functional and serviceable dikes.~~

~~7. Minor dredging of existing tidewater channels and drainage ways, subject to standards for dredging, Section S4.232.~~

~~8. Dredging of subtidal estuarine aquatic areas as a source of fill material for dike maintenance, subject to standards for dredging, Section S4.232.~~

It must be determined that the following uses and activities, and their accessory uses and activities, meet the resource capability of the Aquatic Conservation zone in which they occur, subject to the procedures in Sections 5.860 - .880 Resource Capability Determination.

16. Temporary alterations.

17. Temporary uses involving an existing structure or involving new facilities requiring minimal capital investment and no permanent structures.

18. Dredging to obtain fill material for dike maintenance.

19. Piling, dredging or filling associated with the review uses 16 through 18 listed above, pursuant to the applicable standards in Sections S4.208, S4.232 and S4.235.

Section 3.768. Conditional Developments ~~Uses and Activities~~

The following uses and activities and their accessory uses and activities, are allowed as Conditional Uses in the AC-2 Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.010 - .030 Conditional Development and Use. These uses and activities are also subject to the provisions of Section 3.770, Development Standards and Procedural Requirements. It must also be determined if the proposed uses and activities meet the resource capability of the affected AC-2 Zone and if the proposed uses and activities are consistent with the purpose of the AC-2 Zone stated in Section 3.762. These findings shall be made in accordance with the procedure detailed in Section 5.800-5.840 and 5.890-5.910. It must also be determined that the uses and activities meet the resource capability of the Aquatic Conservation Two zone pursuant to Sections 5.860 - .880 Resource Capability Determination.

1. Storm water and treated wastewater outfalls.

2. High intensity water-dependent recreation, including boat ramps and marinas.

3. Mining and mineral extraction

4. Water-dependent portions of aquaculture facilities.

5. Minor navigational improvements ~~limited to: minor dredging of shoals in naturally existing and traditionally used channels.~~

6. Log storage and other low-intensity water-dependent commercial or industrial uses requiring occupation of water surface area by means other than dredge or fill.

- 7.44. Active restoration measures for purposes other than for habitat protection, nutrient, fish, wildlife and aesthetic resources.
8. Piling in conjunction with any of the conditional uses 1 through 6 listed above, pursuant to the applicable standards in Section S4.208.
9. Dredging in conjunction with any of the conditional uses 1 through 5, and 7 listed above, pursuant to the applicable standards in Section S4.232.
10. Filling in conjunction with any of the conditional uses 1, 4, and 7 listed above, pursuant to the applicable standards in Section S4.235.

~~1. Moorages associated with recreational facilities and low intensity, water dependent commercial or industrial uses.~~

~~3. Public transportation facility bridge crossings.~~

~~7. In water log storage.~~

~~8. Structural Shoreline stabilization limited to riprap and/or bulkhead installation necessary to protect:~~

- ~~a. aquaculture facilities~~
- ~~b. moorages or marinas~~
- ~~c. high intensity recreation facilities~~

~~9. Maintenance dredging of existing facilities.~~

~~10. Dredging for mining or mineral extraction, or dredging as a source of fill material.~~

~~Approval of Conditional Uses 1 through 10 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Conditional Uses.~~

Section 3.770. Development Standards and ~~Procedural~~ Requirements

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards Document.
3. All other applicable ordinance requirements shall also be satisfied.

4. A proposal which requires new dredging, fill, in-water structures, riprap, net log storage areas, water in-take or withdrawal and effluent discharge, in-water disposal of dredged material, beach nourishment, application of pesticides and herbicides, or other activities which could affect the estuary's physical processes or biological resources is subject to an Impact Assessment, Sections 5.810 - 5.840.

~~All development uses and activities that would alter the integrity of the estuarine ecosystem shall be subject to an Impact Assessment as detailed in Section 5.850-5.910 of the Resource Capability Determination procedure, Section 5.800-5.840 and 5.890-5.910.~~

5. When a development proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure. ~~In addition, proposal with several uses shall be reviewed in aggregate for consistency with the resource capability and purposes of the AC 2 Zone, when a resource capability determination is required.~~
6. For an expanded water-dependent commercial use of surface area (see Section 3.768, item 6) the following criteria are established and may be required by the Planning Commission:
- That the need for additional aquatic area cannot be met at other alternative locations in the County;
 - That the increase in use of estuarine aquatic area will result in minimal additional impacts to fish and wildlife.
 - That the increase in use of estuarine aquatic area will not result in adverse impacts on the navigability of the area or adversely affect other commercial uses of adjacent aquatic areas;
 - That the need for additional surface area to accommodate the proposed activity is precisely delineated and sufficient information presented warranting expansion.
7. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
8. Uses and activities permitted under Section 3.764 of this zone, Permitted Developments, are subject to the public notice provisions of Sections 6.110 and 6.115, Procedures for Mailed Notice and Published Notice, if an impact assessment is required pursuant to Sections 5.810 through 5.840; or if a resource capability determination is required pursuant to Sections 5.860 - .870; or if a determination of consistency with the purpose of the AC-2 Zone is required pursuant to Section 5.880; or if the Planning Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.

Section 3.772. State and Federal Permits

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application and other supporting material which demonstrate that the development is consistent with the Comprehensive Plan and this Ordinance. ~~This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XIII. Amend Aquatic Conservation One Zone (AC-1), Section 3.780 - 3.792 pp. 133 - 135 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.780. Aquatic Conservation One Zone (AC-1)

Section 3.782. Purpose and Areas Included

The purpose of the AC-1 ~~designation Zone~~ is to conserve designated areas of the Columbia River Estuary for long term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration assure the conservation and protection of: (1) significant fish and wildlife habitats, and (2) essential properties of the estuarine resource (e.g., dynamic geological processes, continued biological productivity, unique or endemic communities of organisms, maintenance of species diversity). ~~This designation provides for uses that do not require major alteration of the estuary, while providing for the long term uses and conservation of renewable estuarine resources. This zone is managed for the protection and conservation of the natural resources and benefits found in these areas. The AC-1 Zone designations includes areas needed for maintenance and enhancement of biological productivity, recreational resources, aesthetic values and aquaculture valuable tidal marshes and intertidal mud and sand flats. They shall include areas of significant habitat smaller or of less biological importance than those identified in the AN Zone. Areas that are partially altered and adjacent to existing development of low intensity which do not possess the resource characteristics of other aquatic areas are also included in this zone. AC 1 Zones may also include productive shallow subtidal areas.~~

~~Low intensity uses which do not result in major alterations of the estuary are appropriate in AC 1 management units (e.g., aquaculture, recreation, minor navigational improvements). Minor alterations of the estuary may be permitted in conjunction with approved uses.~~

Section 3.784. Permitted Developments and Uses Permitted

The following uses and activities, and their accessory uses and activities, are permitted in the AC-1 Zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.790, ~~Development Standards and Procedural Requirements.~~

1. Undeveloped low intensity water-dependent recreation.
2. Passive restoration measures.
3. Navigational aids, such as beacons or buoys.
4. Vegetative shoreline stabilization.
5. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources.
6. Emergency repair to existing functional and serviceable dikes.

7. Temporary dike for emergency flood protection, subject to state and federal requirements.
8. Research and educational observations
9. Piling and dredging in conjunction with permitted uses 3, and 5 through 8 listed above, pursuant to the applicable standards in Sections S4.208 and S4.232.
10. Filling in conjunction with permitted uses 5 through 7 listed above, pursuant to the applicable standards in Section S4.235.
5. ~~Low water Bridge.~~

~~Approval of Permitted Uses 1 through 7 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Permitted Uses.~~

Section 3.786. Review Developments and Uses and Activities Permitted with Review

The following uses and activities, and their accessory uses and activities, may be permitted are allowed as Review Uses in the AC-1 Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - .051 Developments and Uses Permitted with Review. These uses and activities are also subject to the provisions of Section 3.790, Development Standards and Procedural Requirements.

1. Individual docks and boat ramps for public use where neither dredging nor filling for navigation access is needed.
2. Pipelines, cables and utility crossings.
3. Maintenance and repair of existing structures or facilities, including dikes. ~~existing as of October 7, 1977.~~
4. Installation of tidegates in existing functional dikes.
5. Communication facilities, including necessary foundation or support structures.
6. Structural shoreline stabilization.
7. Water dependent portions of an aquaculture facility which do not involve dredge or fill or other estuarine alteration other than incidental dredging for harvest of benthic species or removable in-water structures such as stakes or racks.
8. Beach nourishment at sites designated in the Comprehensive Plan.
9. Estuarine enhancement.
10. Bridge crossings.

11. Piling in conjunction with review uses 1 through 8 listed above, pursuant to the applicable standards in Section S4.208.
12. Dredging in conjunction with review uses 2 through 7, and 9 listed above, pursuant to the applicable standards in Section S4.232.
13. Filling in conjunction with review uses 2, 3, 5, 6, 8, and 9 listed above, pursuant to the applicable standards in Section S4.235.

- ~~1. Single individual dock or moorage, providing for aquatic area access by owner of adjacent uplands and allowing for moorage of a single vessel and recreational use.~~
- ~~2. Submerged cable, sewer line, water line or other pipeline.~~
- ~~4. Maintenance and repair of existing functional and serviceable dikes.~~

The following review uses and activities, and their accessory uses and activities, meet the resource capability of the Aquatic Conservation Zone in which they occur, subject to the procedures in Sections 5.860 - .880 Resource Capability Determination. permitted if determine to meet the resource capability of the AC-1 Zone in which the use occurs and are found to be consistent with the purpose of the AC-1 Zone stated in Section 3.782. This determination shall be made in accordance with the procedure detailed in Section 5.800-5.840 and 5.890-5.910, Resource Capability Determination.

14. Dredging to obtain fill material for dike maintenance.
15. Temporary alterations.
16. Temporary uses involving an existing structure or involving new facilities requiring minimal capital investment and no permanent structures.
17. Piling, dredging or filling in conjunction with the review uses 14 through 16 listed above, pursuant to the applicable standards in Sections S4.208, S4.232 and S4.235.
- ~~6. Aquaculture facilities limited to: temporary, easily removed structures which require no dredge or fill (e.g., net pens anchored by individual piling). Individual, unconnected piling in conjunction with such aquaculture facilities.~~
- ~~7. Minor dredging of existing tidegate channels and drainage ways, subject to standards for dredging, Section S4.232.~~
- ~~8. Dredging of subtidal estuarine aquatic areas as a source of fill material for dike maintenance, subject to standards for dredging, Section S4.232.~~
- ~~9. Structural shoreline stabilization limited to riprap where necessary to protect:

 - ~~a. structures or uses existing as of October 7, 1977,~~
 - ~~b. Significant natural resources, historic or archaeological, sites,~~
 - ~~c. Public facilities.~~~~

~~Approval of Review Uses 1 through 8 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Review Uses.~~

Section 3.788. Conditional Developments ~~Uses and Activities~~

~~The following uses and activities, and their accessory uses and activities, may be permitted are allowed as Conditional Uses in the AC-1 Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.010 - .030 Conditional Development and Use. These uses and activities are also subject to the provisions of Section 3.790, Development Standards and Procedural Requirements. It must also be determined if the proposed uses and activities meet the resource capability of the affected AC-1 Zone and if the proposed uses and activities are consistent with the purpose of the AC-1 Zone stated in Section 3.782. These findings shall be made in accordance with the procedure detailed in Section 5.800 5.840 and 5.890 5.910, Resource Capability Determination. It must also be determined that the uses and activities meet the resource capability of the Aquatic Conservation One Zone, subject to the procedures in Sections 5.860 - .880 Resource Capability Determination.~~

1. Bridge crossing support structures.
2. Water-dependent portions of aquaculture facilities.
3. Active restoration measures.
4. Storm water and treated wastewater outfalls.
5. Minor navigational improvements limited to: minor dredging of shoals in naturally existing and traditionally used channels.
6. Mining and mineral extraction
7. Log storage and other water-dependent uses requiring occupation of water surface area by means other than dredge or fill.
8. Piling in conjunction with conditional uses 1, 2, 5 through 7 listed above, pursuant to the applicable standards in Section S4.232.
9. Dredging in conjunction with conditional uses 1 through 6 listed above, pursuant to the applicable standards in Section S4.232.
10. Filling in conjunction with conditional uses 1 through 4 listed above, pursuant to the applicable standards in Section S4.235.
1. ~~Public transportation facility bridge crossing.~~
4. ~~Maintenance dredging of existing facilities.~~

~~Approval of Conditional Uses 1 through 5 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Conditional Uses.~~

Section 3.790. Development Standards and Procedural Requirements

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards Document.
3. All other applicable ordinance requirements shall also be satisfied.
4. A proposal which requires new dredging, fill, in-water structures, riprap, new log storage areas, water in-take or withdrawal and effluent discharge, in-water disposal of dredged material, beach nourishment, application of pesticides and herbicides, or other activities which could affect the estuary's physical processes or biological resources is subject to an Impact Assessment, Sections 5.810 - 5.840. ~~All development uses and activities that would alter the integrity of the estuarine ecosystem shall be subject to an Impact Assessment as detailed in Section 5.850-5.910 of the Resource Capability Determination procedure, Section 5.800-5.840 and 5.890-5.910.~~
5. When a development proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure. ~~In addition, proposal with several uses shall be reviewed in aggregate for consistency with the resource capability and purposes of the AC-1 Zone, when a resource capability determination is required.~~
6. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
7. Uses that are not water-dependent shall not preclude or conflict with existing or probable future water-dependent uses on the site or in the vicinity.
8. Uses and activities permitted under Section 3.784 of this zone, Permitted Developments, are subject to the public notice provisions of Sections 6.110 and 6.115, Procedures for Mailed Notice and Published Notice, if an impact assessment is required pursuant to Sections 5.810 through 5.840; or if a resource capability determination is required pursuant to Sections 5.860 - .870; or if a determination of consistency with the purpose of the AC-1 Zone is required pursuant to Section 5.880; or if the Planning Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.

Section 3.792. State and Federal Permits

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: ~~the completed permit application, and other supporting material provided to the permit granting agency and a set of findings which demonstrates that the development is consistent with the Comprehensive Plan and this Ordinance. This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XIV. Amend Aquatic Natural Zone (AN), Sections 3.800 - 3.810, pp. 136 - 138 of the County's Land and Water Development and Use Ordinance to read as follows:

Section 3.800. Aquatic Natural Zone (AN)

Section 3.802. Purpose and Areas Included

The purpose of the AN Zone designation is to assure the preservation and protection of: ~~(1) significant fish and wildlife habitats; (2) essential properties of the estuary resources (e.g., dynamic geological processes, continued biological productivity, unique or endemic communities or organisms, species diversity); and (3) continued biological productivity of the Columbia River estuarine resources;~~ and scientific research and educational opportunities. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological and evolutionary processes.

~~The AN Zone includes major tracts of all tidal marshes, and intertidal mud and sand tidal flats, which because of a combination of factors such as size, habitat value, and productivity, play a vital role in the function of the estuarine ecosystem and seagrass and algae beds. AN Zones may also include ecologically important subtidal areas. This designation is intended to preserve those natural aquatic resource systems existing relatively free of human influence.~~

Section 3.804. Permitted Developments Uses and Activities Permitted

The following uses and activities, and their accessory uses and activities, are permitted in the AN Zone under a Type I procedure, Section 2.110, and subject to the provisions of Section 3.810, ~~Development Standards and Procedural Requirements.~~

1. Undeveloped low intensity water-dependent recreation.
2. Passive restoration measures.
3. Navigational aids, ~~such as beacons or buoys.~~
4. Vegetative shoreline stabilization.
5. Emergency repair to existing functional and serviceable dikes.
6. Estuarine research and educational observation.
7. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources.
8. Piling in conjunction with permitted uses 1 through 7 listed above, pursuant to the applicable standards in Section S4.208.
9. Dredging in conjunction with permitted uses 4 and 5 listed above, pursuant to the applicable standards in Section S4.232.

The following uses and activities, and their accessory uses and activities, may be permitted ~~are~~ allowed as Review Uses in the AN Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.040 - 5.051 Developments and Uses Permitted with Review. These uses and activities are also subject to the provisions of Section 3.810, Development Standards and Procedural Requirements.

1. Structural shoreline stabilization limited to riprap.
2. Maintenance and repair of existing structures or facilities, including dikes existing as of October 7, 1977. ~~Dredge, fill or piling installation required for maintenance and repair of such existing structures and facilities.~~
3. Bridge crossings
4. Piling, dredging or filling in conjunction with review uses 1 and 2 above, pursuant to the applicable standards in sections S4.208, S4.232, S4.235.
1. ~~Individual, unconnected piling in conjunction with navigational aides.~~
3. ~~Maintenance and repair of existing functional and serviceable dikes.~~

It must be determined that the following review uses and activities and their accessory uses and activities, meet the resource capability of the Aquatic Natural Zone, subject to the procedures in Sections 5.860 - .880 Resource Capability Determination. ~~permitted if determined to meet the resource capability of the AN Zone in which the use occurs and are found to be consistent with the purpose of the AN Zone stated in Section 3.802. This determination shall be made in accordance with the procedure detailed in Section 5.800 5.840 and 5.890 5.910, Resource Capability Determination.~~

- 5.4. Water-dependent portions of an aquaculture facility which do not involve dredge or fill or other estuarine alteration other than incidental dredging for harvest of benthic species or removable in-water structures such as stakes or racks ~~facilities limited to: temporary, easily removed structures which require no dredge or fill (e.g., net pens anchored by individual piling). Individual, unconnected piling in conjunction with such aquaculture facilities.~~
6. Dredging to obtain ~~of subtidal estuarine aquatic areas as a source of fill material for dike maintenance, subject to standards for dredging, Section S4.232.~~
7. Boat ramps for public use where neither dredging nor filling for navigational access is needed.
8. Estuarine enhancement.
9. Temporary alterations.
10. Bridge crossing support structures.

11. Installation of tidegates in existing functional dikes.
12. Piling in conjunction with review uses 5, 7 and 9 through 11 listed above, pursuant to the applicable standards in Section S4.208.
13. Dredging in conjunction with review uses 5, 6 and 8 through 11 listed above, pursuant to the applicable standards in Section S4.232.
14. Filling in conjunction with review uses 8 through 10 listed above, pursuant to the applicable standards in Section S4.235.
5. ~~Minor dredging of existing tidegate channels and drainage ways, subject to standards for dredging, Section S4.232.~~
7. ~~Structural shoreline stabilization limited to riprap where necessary to protect:~~
 - a. ~~Structures or uses existing as of October 7, 1977.~~
 - b. ~~Significant natural resources, historic or archaeological sites.~~
 - c. ~~Public facilities.~~
8. ~~Low water Bridges~~

~~Approval of Review Uses 1 through 8 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Review Uses.~~

Section 3.808. Conditional Developments ~~Uses and Activities~~

The following uses and activities, and their accessory uses and activities, may be permitted are allowed as Conditional Uses in the AN Zone under a Type II procedure, Section 2.120, when authorized in accordance with Sections 5.010 - .030 Conditional Development and Use. These uses and activities are also subject to the provisions of Section 3.810, Development Standards and Procedural Requirements. It must also be determined if the proposed uses and activities meet the resource capability of the affected AN Zone stated in Section 3.802. These findings shall be made in accordance with the procedure detailed in Section 5.800 5.840 and 5.890 5.910, Resource Capability Determination. It must also be determined if these uses and activities meet the resource capability of the Aquatic Natural Zone, subject to the procedures in Sections 5.860 - .880 Resource Capability Determination.

1. Communication facilities, including necessary foundation or support structures.
2. Active restoration of fish and wildlife habitat or water quality.
3. Pipelines, cables and utility crossings.
4. Piling in conjunction with conditional uses 1 and 3 listed above pursuant to the applicable standards in Section S4.208.

5. Dredging and filling in conjunction with conditional uses 1 through 3 listed above pursuant to the applicable standards in Sections S4.232 and S4.235.
3. ~~Submerged cable, sewer line, water line, or other pipeline.~~

~~Approval of Conditional Uses 1 through 3 above must include approval of dredging, fill or piling installation if necessary for the placement or installation of these Conditional Uses.~~

Section 3.810. Development Standards and Procedural Requirements

1. All development uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
2. All development uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Development Standards contained in the Development and Use Standards Document.
3. All other applicable ordinance requirements shall be adhered to.
4. A proposal which requires dredging, fill, in-water structures, riprap, new log storage areas, application of pesticides and herbicides, water intake or withdrawal and effluent discharge, in-water disposal of dredged material, beach nourishment or other activities which could affect the estuary's physical processes or biological resources is subject to an Impact Assessment, Sections 5.800 - 5.840. ~~All development uses and activities that would alter the integrity of the estuarine ecosystem shall be subject to an Impact Assessment as detailed in Section 5.850-5.910 of the Resource Capability Determination procedure, Section 5.800 5.840 and 5.890-5.910.~~
5. When a proposal includes several uses, the uses shall be reviewed in aggregate under the more stringent procedure. ~~In addition, a proposal with several uses shall be reviewed in aggregate for consistency with the resource capability and purposes of the AN Zone, when a resource capability determination is required.~~
6. Uses that are water-dependent must meet the criteria in Section S4.243(1). Uses that are water-related must meet the criteria in Section S4.243(2).
7. Uses and activities permitted under Section 3.804 of this zone, Permitted Developments, are subject to the public notice provisions of Sections 6.110 and 6.115, Procedures for Mailed Notice and Published Notice, if an impact assessment is required pursuant to Sections 5.810 through 5.840; or if a resource capability determination is required pursuant to Sections 5.860 - .870; or if a determination of consistency with the purpose of the AN Zone is required pursuant to Section 5.880; or if the Planning Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application and other supporting material ~~provided to the permit granting agency and a set of findings~~ which demonstrates that the development is consistent with the Comprehensive Plan and this Ordinance. ~~This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XV. Amend the Shoreland Overlay District (/SO) Section 4.080 - 4.095, pp. 166 - 168 of the County's Land and Water Development and Use Ordinance to read as follows:

SECTION 4.080 SHORELAND OVERLAY DISTRICT (/SO)

SECTION 4.082. PURPOSE

The purpose of this district is to manage ~~development~~ uses and activities in coastal shoreland areas which are not designated as a Shoreland Zone in a manner consistent with the resources and benefits of coastal shorelands and adjacent estuarine aquatic areas.

SECTION 4.084. DESIGNATION OF SHORELANDS OVERLAY DISTRICT

This overlay district refers to areas described in the Estuarine and Coastal Shoreland Element of the Comprehensive Plan and designated on official Clatsop County Zoning Maps. It does not include shoreland areas of the Columbia River Estuary designated Marine Industrial Shoreland, Conservation Shoreland, or Natural Shoreland. Included in this overlay district are:

1. Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or a coastal lake. Shorelands which are directly affected by hydraulic action of estuarine waters, or in turn limit, control, or affect the characteristics of estuarine waters, including areas of the 100-year floodplain areas of geological instability in or adjacent to the shoreland boundary, and sedimentation sources.
2. Areas of geological instability in or adjacent to the shoreland boundary when the geologic instability is related to or will impact a coastal water body.
- 3.2. Natural or man-made riparian resources, especially vegetation which function to stabilize the shoreline or maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas.
- 4.3. Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal and estuarine areas. ~~including feeding areas, nesting sites, and important fish and wildlife habitat.~~
- 5.4. Areas necessary ~~and appropriate~~ for water-dependent and water-related uses, including areas appropriate for port facilities and navigational structures, dredged material disposal and mitigation sites, and areas suitable for aquaculture, ~~and existing land uses and public facilities.~~
- 6.5. Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or associated with the coastal or estuarine areas.
- 7.6. Areas of recreational importance or public access which utilize coastal waters or riparian resources.
- 8.7. Locations of archaeological or historical importance associated with the estuary.

9. Coastal headlands
10. Dikes and their associated inland toe drains.

SECTION 4.086. CATEGORIES OF COASTAL SHORELANDS

There are two categories of Coastal Shorelands as described below:

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Category 1: Those shorelands described in the Estuarine and Coastal Shoreland Element of the Comprehensive Plan as:

- a. Significant, non-estuarine marshes;
- b. Riparian resources;
- c. Significant fish and wildlife habitat;
- d. Exceptional aesthetic resources;
- e. Historical and archaeological sites.

Category 2: All shorelands which do not fall within 1(a)-(e) and are not currently designated Marine Industrial Shorelands, Conservation Shorelands or Natural Shorelands are the second category of Coastal Shorelands. ~~This constitutes most of the Coastal Shorelands in the County.~~

SECTION 4.088. DEVELOPMENTS ~~USES AND ACTIVITIES~~ PERMITTED WITHIN CATEGORY 1 COASTAL SHORELANDS

Only the following uses and activities are permitted under a Type I procedure (Section 2.110) within shorelands defined in Section 4.086(1) (a)-(e):

1. Low-intensity, water-dependent recreation.
2. Existing and compatible farm uses and activities, excluding structures.
3. Forest operations only if natural values of the resource are protected, as determined by administration of the Oregon Forest Practices Act, where applicable, otherwise as determined by the Planning Department under a Type II procedure.
4. Research or educational activities which maintain or enhance the natural characteristics of the area and its resources.
5. ~~Navigational aids, such as channel range markers, requiring minimal structures and maintenance.~~
6. Vegetative shoreline stabilization.
7. Maintenance and repair of existing and serviceable dikes.
8. New dikes.

SECTION 4.090. DEVELOPMENTS ~~USES AND ACTIVITIES PERMITTED WITHIN~~
CATEGORY 2 COASTAL SHORELANDS

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Within coastal shorelands defined in Section 4.086(2) the following uses and activities are permitted if otherwise allowed in the underlying zone, and subject to the ~~procedural~~ requirements and standards of the use in the underlying zone:

1. Uses allowed in Section 4.088 above.
2. Single-family dwellings, provided that, if possible, the dwelling is to be located on a portion of the property outside of the Coastal Shoreland boundary.
3. Limited home occupation.
4. Home occupation in an existing building.
5. Signs.
6. Water-dependent recreation.
7. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources.
8. Aquaculture.
9. Utilities as necessary for public service.
10. Water-dependent commercial and industrial uses.

Any Other uses and activities within Category 2 Coastal Shorelands are ~~only~~ allowed under a Type IV procedure upon findings that such uses and activities ~~satisfy a need which cannot be accommodated at other upland locations or in urban or potentially urbanized areas and that the use is~~ are compatible with the objectives of the Comprehensive Plan to protect riparian vegetation and wildlife habitat.

SECTION 4.092. DEVELOPMENT STANDARDS ~~PLACEMENT OF STRUCTURES~~

1. All uses and activities in the Columbia River Estuary Shoreland Overlay District will satisfy applicable Columbia River Estuary Shoreland and Aquatic Area Use and Activity Standards contained in the Development and Use Standards document.
2. If a proposal involves several uses, the standards applicable to each use shall be satisfied.
- ~~3.4.~~ For parcels totally within the Coastal Shoreland Boundary, structures shall be sited according to lot line setbacks and Riparian Vegetation Standards in S4.500 et seq.

- ~~4.2.~~ For parcels partially within and partially outside of the Coastal Shorelands Boundary, structures shall be located outside the Boundary. This requirement may be waived by the Planning Director only upon a showing that the portion of the site outside of the Boundary cannot accommodate the use or is of such value for resource purposes that the use would impact resource productivity less if located within Coastal Shorelands.
5. Proposed development in shoreland areas with identified hazards to development shall be evaluated prior to construction to assure that new hazards are not created or existing hazards are not worsened on adjacent property.

SECTION 4.094. LAND DIVISIONS

- ~~1. Land divisions in the EFU, AF 20, F 38 and F 80 Zones are permitted subject to the requirements of the base zone.~~
- ~~2. Land divisions in areas built and committed to non resource use are permitted subject to the requirements in the base zone.~~
- ~~3. Land divisions in areas other than (1) and (2) above are permitted only if they satisfy a need which cannot be accommodated at other upland locations or in urban or potentially urbanized areas.~~

SECTION 4.095. STATE AND FEDERAL PERMITS

Applicants for developments which require a state or federal permit shall submit to the Planning Director a copy of: the completed permit application; and other supporting material ~~provided to the permit granting agency and a set of findings which demonstrates that the development is consistent with the Comprehensive Plan and this Ordinance. This information shall be subject to the Consistency Review procedure set forth in Section 5.120.~~

XVI. Amend the Dredged Material Disposal Overlay Reserve District (/DMD) Section 4.160-4.176, pp. 182 - 184 of the County's Land and Water Development and Use Ordinance to read as follows:

SECTION 4.160. DREDGED MATERIAL DISPOSAL SITE RESERVATION OVERLAY
~~RESERVE~~ DISTRICT (/DMD)

SECTION 4.162. PURPOSE

The intent of this district is to designate dredged material disposal sites in the County with respect to present and expected water-dependent development and navigational access requirements in the Columbia River Estuary and to protect these sites for dredged material disposal operations.

SECTION 4.164. DISTRICT BOUNDARIES

The /DMD Site Reservation District conforms to the description of dredged material disposal sites in the ~~County's Columbia River Estuary Dredged Material Management Disposal Plan of the County's Comprehensive Plan~~. Revisions to the ~~County's Columbia River Estuary Dredged Material Management Disposal Plan~~ must be recorded by amendment to the Comprehensive Plan.

SECTION 4.166. PRIORITY I DREDGED MATERIAL DISPOSAL SITES

The purpose of Priority I site designations is to protect important dredged material disposal sites from incompatible and preemptive uses that may limit their ultimate use for the deposition of dredged material, and to ensure that an adequate number of sites will be reserved in order to accommodate dredged material disposal needs resulting from five years of existing and expected water-dependent development and navigation projects.

SECTION 4.168. USES ALLOWED IN PRIORITY I DREDGED MATERIAL DISPOSAL SITES

Dredged material disposal at Priority I sites designated in the Comprehensive Plan's background report Columbia River Estuary Dredged Material Management Plan is permitted with standards under a Type I procedure if the site is located upland or in the coastal shoreland boundary. Dredged material disposal at Priority I sites designated in the Comprehensive Plan and located in aquatic areas may be allowed as a Review Use under a Type II procedure. In addition, only those development uses and activities permitted, permitted with review, or conditionally permitted in the underlying zone which are determined not to preempt the site's future use for dredged material disposal are allowed, subject to the policies and procedural requirements of the underlying zone.

SECTION 4.170. REMOVAL OF PRIORITY I DREDGED MATERIAL DISPOSAL SITE DESIGNATION

Priority I sites may be removed by ordinance amendment to the Comprehensive Plan in the following situations:

1. After a Priority I dredged material disposal site has been filled to capacity and is no longer available for additional dredged material disposal, the dredged material disposal site designation shall be removed.
2. Removal of a Priority I dredged material disposal site designation before a site has been filled to capacity shall only be approved if:
 - a. Provision is made for a replacement Priority I dredged material disposal site of suitable characteristics; or
 - b. The dredging need for which the Priority I site was initially designated for dredged material disposal is withdrawn or reevaluated.

SECTION 4.172. PRIORITY II DREDGED MATERIAL DISPOSAL SITES

The purpose of Priority II dredged material disposal site designations is to identify disposal areas necessary to meet probable and projected dredging needs. These sites may be required in the future to provide disposal site volumes associated with long-range water-dependent development and navigational dredging needs. The importance of these sites, as compared with Priority I dredged material disposal sites, does not justify efforts to protect all or portions of each site from potential preemptive uses.

SECTION 4.174. USES ALLOWED IN PRIORITY II DREDGED MATERIAL DISPOSAL SITES

Dredged material disposal at Priority II sites designated in the Comprehensive Plan's background report Columbia River Estuary Dredged Material Management Plan is permitted with standards under a Type I procedure if the site is located upland or in the coastal shoreland boundary. Dredged material disposal at Priority II sites designated in the Comprehensive Plan and located in aquatic areas may be allowed as a Review Use under a Type II procedure. In addition, development uses and activities permitted, permitted with review, or conditionally permitted in the underlying zone are allowed subject to the policies and procedural requirements of the zone. Allowable uses which will preempt use of the site for dredged material disposal shall be subject to the 30 day hold period indicated in Section 4.176.

When a valid development permit application is submitted for Planning Department or Planning Commission approval which entails use of a Priority II dredged material disposal site in a way which would be incompatible with or preempt use of the site for dredged material disposal, action on the application shall be suspended for 30 days from the date a complete application is filed. The period of suspension is to allow interested parties time to negotiate for use of the site as a dredged material disposal area. If negotiations are not completed within the 30 day period, the development application will be reviewed in accordance with normal procedures.

SECTION 4.178. PREEMPTIVE USES

Incompatible and preemptive uses of Priority I and Priority II dredged material disposal sites includes the following:

1. Uses requiring substantial structural or capital improvements (e.g., construction of permanent buildings);
2. Uses that require extensive alteration of the topography of the site, thereby reducing the potential usable volume of the dredged material disposal area (e.g., extensive site grading, elevation by placement of fill materials other than dredged spoils).
3. Uses that include changes made to the site that would prevent expeditious use of the site for dredged material disposal. Such uses would delay deposition of dredged materials on the site beyond the period of time commonly required to obtain the necessary federal, state and local dredging and spoil disposal permits (approximately 90 days).

XVII. Amend the Mitigation Site Overlay District (/MIT) Sections 4.180-4.189, pp. 185 - 186 of the County's Land and Water Development and Use Ordinance to read as follows:

SECTION 4.180. MITIGATION SITE OVERLAY DISTRICT (/MIT)

SECTION 4.182. PURPOSE

The purpose of the Mitigation Site Overlay District is to protect identified mitigation sites in the Columbia River Estuary from incompatible and preemptive development uses and activities and implement mitigation and that may prevent the potential for restoration actions in designated of the areas of the zone to estuarine influence or prevent mitigation actions. There are three priority categories and four protection levels for mitigation sites in this district.

SECTION 4.184. DESIGNATION OF MITIGATION SITES

Mitigation sites are described and identified on maps in the background report *Mitigation and Restoration Plan for the Columbia River Estuary* ~~document~~ of the County's Comprehensive Plan. Revisions to mitigation site designations must be recorded by amendment to the Comprehensive Plan and Plan Map.

SECTION 4.186. DEVELOPMENTS ALLOWED USES AND ACTIVITIES PERMITTED IN
MITIGATION SITES

The Priority and Level of protection for a designated mitigation site may be determined from the background report *A Mitigation and Restoration Plan for the Columbia River Estuary* of the County's Comprehensive Plan.

The following uses are allowable in this overlay district:

1) Priority 1, Level 1:

- a. Uses allowed in the underlying zone that do not preempt the use of the site for mitigation purposes, subject to the underlying zone's development standards.
- b. Mitigation as a Review Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section §4.218.
- c. In an Exclusive Farm Use (EFU) Zone, farm related structures that are valued at \$5,000 or less, subject to the development standards of the underlying zone.

2) Priority 1, Level 2:

- a. Uses allowed in the underlying zone that do not preempt the use of the site for mitigation purposes, subject to the underlying zone's development standards.

- b. Mitigation as a Review Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section S4.218.
 - c. In an Exclusive Farm Use (EFU) Zone, farm related structures that are valued at \$5,000 or less, subject to the development standards of the underlying zone.
 - d. Topographical and structural preemptive uses allowed in the underlying zone and subject to the zone's policy and procedural requirements, under the additional conditions that:
 - 1) if diked, demonstration that a predetermined amount of dike frontage (established in the Plan or during new site designations) and contiguous diked area is retained for mitigation purposes; or
 - 2) if upland, demonstration that a predetermined amount of contiguous area (established in the Plan or during new site designation) is available for excavation to allow tidal influence or capable of being inundated through some water level control procedure.
 - e. Restoration, creation, or enhancement outside of the context of mitigation as a Conditional Use under the conditions that:
 - 1) if diked, demonstration that a predetermined amount of dike frontage and contiguous diked area is retained for mitigation purposes; or
 - 2) if upland, demonstration that a predetermined amount of contiguous area is available for excavation to allow tidal influence or capable of being inundated through some water level control procedure. If the underlying zone is Exclusive Farm Use (EFU), Forestry (F-38 and F-80), and Agricultural/Forestry (AF-20), a goal exception shall be required to implement restoration, creation or enhancement outside of the context of mitigation.
- 3) Priority 2, Level 3:
- a. Uses allowed in the underlying zone that do not preempt the use of the site for mitigation purposes, subject to the underlying zone's development standards.
 - b. Mitigation as a Review Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section S4.218.
 - c. In an Exclusive Farm Use (EFU) Zone, farm related structures that are valued at \$5,000 or less, subject to the development standards of the underlying zone.
 - d. Restoration, creation and enhancement outside of the context of the mitigation as a Conditional Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section S4.218. If the underlying Zone is

Exclusive Farm Use (EFU 38), Forestry (F38 and F80), or Agricultural/Forestry (AF20), a goal exception is required to implement restoration, creation, or enhancement outside of the context of mitigation.

- e. Preemptive uses allowed in the underlying zone, subject to the zone's development standards, under the additional condition that action on the application shall be suspended for 30 days from the date a complete application is filed. The period of suspension is to allow interested parties time to review the need and negotiate use of the site for mitigation. If at the close of the 30 day period no satisfactory means of preserving the site is established, the permit will be processed under the normal procedures.

4. Priority 3, Level 4:

- a. All uses allowed in the underlying zone, subject to the underlying zone's development standards.
- b. Mitigation as a Review Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section S4.218.
- c. Restoration, creation, and enhancement outside of the context of mitigation as a Conditional Use under a Type II procedure pursuant to Section 2.120, and subject to the Mitigation and Restoration Standards in Section S4.128. If the underlying zone is Exclusive Farm Use (EFU38), Forestry (F38 and F80), or Agricultural/Forestry (AF20), a goal exception is required to implement restoration, creation, or enhancement outside of the context of mitigation.

~~In designated mitigation sites, only those development uses and activities permitted, permitted with review, or conditionally permitted in the underlying zone which are determined not to preempt the area's future use as a mitigation site are allowed.~~

~~Incompatible and preemptive use of mitigation sites includes the following:~~

- ~~1. Uses requiring substantial structural or capital improvements (e.g., construction of permanent buildings);~~
- ~~2. Uses that require extensive alteration of the topography of the site, thereby affecting the potential value of the site for mitigation, or for restoration as a mitigation action (e.g., extensive site grading, elevation of the site by placement of fill materials);~~
- ~~3. Uses that include changes made to the site that would prevent expeditious use of the area for mitigation. Such uses would delay use of the area for mitigation beyond the period of time commonly required to obtain federal, state, and local permits necessary for the mitigation action and the associated development requiring mitigation.~~

~~Proposed development uses and activities will be reviewed under the procedure required for such proposals in the underlying zone.~~

SECTION 4.188 4.190. REMOVAL OF THE MITIGATION SITE OVERLAY DISTRICT
—DESIGNATION

Removal of designated mitigation sites shall be subject to the following criteria:

1. Priority 1, Level 1:

- a. Removal of the Mitigation Site Overlay District shall be allowed for any portion of the site where a mitigation action has occurred. The site shall be removed by an amendment to the Comprehensive Plan.
- b. Removal of the Mitigation Site Protection Overlay District before the site has been used wholly or in part for mitigation shall be done by an amendment to the Comprehensive Plan only where:
 - (1) Provision is made for a replacement mitigation site of suitable characteristics; or
 - (2) The development need for which the mitigation site was initially designated as a compensating action is withdrawn or reevaluated.

2. Priority 1, Level 2:

- a. Removal of the Mitigation Site Overlay District shall be allowed for any portion of the site where a mitigation action has occurred. The site will be removed by plan amendment during routine plan upkeep.
- b. Removal of the Mitigation Site Overlay District shall be allowed for any portion of the site where preemptive uses have been implemented, including restoration, creation or enhancement outside of the context of mitigation provided that:
 - 1) if diked, a demonstration that a predetermined amount of dike frontage and contiguous diked area is retained for mitigation purposes; or
 - 2) if upland, demonstration that a predetermined amount of contiguous area is available for excavation to allow tidal influence or capable of being inundated through some water level control procedure.
- c. Removal of all or portions of the Mitigation Site Overlay District from the Comprehensive Plan before the site has been used wholly or in part for mitigation shall be done by Plan amendment and may only be approved if:
 - 1) provision is made for a replacement of adequate mitigation area of suitable characteristics in another suitable location; or

- 2) the development need for which the mitigation site was initially designated as a compensating action is withdrawn or reevaluated.

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3. Priority 2, Level 3:

- a. The Mitigation Site Overlay District shall be removed from any portion of a site where a mitigation action has occurred or preemptive uses have been implemented, including restoration, creation or enhancement outside of the context of mitigation. The site shall be removed by an amendment to the Comprehensive Plan.
- b. Removal of the Mitigation Site Overlay District for all or portions of a designated mitigation site before the site has been used wholly or in part for mitigation shall be done by an amendment to the Comprehensive Plan and Zoning Ordinance where:
 - 1) Provision is made for a replacement of adequate mitigation area of suitable characteristics in another suitable location; or
 - 2) The development need for which the mitigation site was initially designated for compensatory purposes is with-drawn or reevaluated.

4. Priority 3, Level 4:

- a. The Mitigation Site Overlay District shall be removed from any portion of the site that a mitigation action has occurred or preemptive uses have been implemented, including restoration, creation or enhancement outside of the context of mitigation. The site will be removed by an amendment to the Comprehensive Plan.

5. After a mitigation site has been used for mitigation or restoration, creation, or enhancement action outside of the context of mitigation and all or a portion of the site is no longer available for mitigation, the Mitigation Site Overlay District designation shall be removed and the wetland or aquatic area created through the mitigation action shall be placed in the appropriate Aquatic designation. These changes shall be made by means of an amendment to the Comprehensive Plan.

- ~~1. After a mitigation site has been used for a mitigation or restoration action and all or a portion of the site is no longer available for mitigation, the mitigation site designation shall be removed and the aquatic area created as a result of the mitigation action shall be zoned as an Aquatic Natural (AN) designation. These changes must be recorded by amendment to the Comprehensive Plan and Plan Map.~~
- ~~2. Removal of a designated mitigation site from the County's site inventory before the site has been used wholly or in part for mitigation shall be done by ordinance amendment to the Comprehensive Plan and Plan Map and shall only be approved if:~~
 - ~~a. Provision is made for a replacement mitigation site of suitable characteristics; or~~

- b. ~~The development need for which the mitigation site was initially designated as a compensating act is withdrawn or reevaluated.~~

SECTION 4.189 PREEMPTIVE USES

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Incompatible and preemptive use of mitigation sites includes the following:

1. Uses requiring substantial structural or capital improvements (e.g., construction of permanent buildings) but not including dike maintenance.
2. Uses that require extensive alteration of the topography of the site, thereby reducing the potential for mitigation (e.g., extensive site grading, elevation of the site by placement of fill materials).

XVIII. Delete the following Reserve Inventory Sites Overlay District (/RD) Sections 4.190-4.198, p. 185 of the County's Land and Water Development and Use Ordinance:

SECTION 4.190. RESERVE INVENTORY SITES OVERLAY DISTRICT (/RD) BOOK 750 PAGE 529

SECTION 4.192. PURPOSE

The purpose of the Reserve Inventory Sites Overlay designation is to provide a comprehensive list of potential mitigation sites in Clatsop County. The list of inventory sites shall be used to select mitigation sites to replace those designated by the Mitigation Sites Overlay District (/MIT), Section 4.180, as the latter is used for mitigation or is removed from the /MIT Overlay District designation.

SECTION 4.194. DESIGNATION OF INVENTORY SITES

Reserve inventory sites are described in and identified on maps in "The Mitigation and Restoration Plan for the Columbia River Estuary" "A Mitigation Plan for the Columbia River Estuary" document of the County's Comprehensive Plan. Revisions to inventory site designations must be recorded by amendment to the Comprehensive Plan and Plan Map.

SECTION 4.196. USES ALLOWED DEVELOPMENT USES AND ACTIVITIES PERMITTED IN INVENTORY SITES

In designated inventory sites all development uses and activities permitted, permitted with review, or conditionally permitted in the underlying zone which are determined not to preempt the area's potential as a mitigation site are allowed. Incompatible and preemptive uses of inventory sites include extensive site grading, elevation of the site by placement of fill materials or other physical changes which would eliminate potential use of the site for mitigation.

When a development permit application is submitted for Planning Department or Planning Commission approval which would entail extensive alteration of the topography of the inventory site, action on the application will be suspended for 30 days from the date of application to allow interested individuals or organizations to negotiate for use of the site as a mitigation site. If negotiations are not completed within 30 days the development application will be reviewed in accordance with procedures required by the underlying zone designation.

SECTION 4.198. REMOVAL OF INVENTORY SITE DESIGNATION

1. Nomination of a designated inventory site to the for use as a mitigation site overlay reserve district shall be accomplished by amendment to the Comprehensive Plan and Plan Map.
2. Removal of a designated inventory site from the list identified in the "Mitigation and Restoration Plan for the Columbia River Estuary" above due to incompatible or preemptive development or for other reasons will be accomplished by amendment to the Comprehensive Plan and Plan Map.

XIX. Amend Consistency Review Sections 5.120 - 5.122, p. 215 of the County's Land and Water Development and Use Ordinance, to read as follows:

SECTION 5.120. COASTAL ZONE CONSISTENCY REVIEW

SECTION 5.122. APPLICABILITY

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This section applies to the following activities that directly affect the coastal zone:

- a) actions requiring federal permits or licenses
- b) federal activities and development projects
- c) outer continental shelf activities
- d) federal grants or financial assistance.

SECTION 5.124. CONSISTENCY REVIEW PROCEDURE FOR ACTIVITIES REQUIRING STATE OR FEDERAL PERMITS OR LICENSES

Applicants for ~~developments~~ activities in Clatsop County's coastal zone which require a state or federal permit or license shall submit to the Planning Director a copy of: the completed permit application, other supporting material provided to the permit granting agency and a set of findings which demonstrate that the development would be consistent with the applicable elements of the Comprehensive Plan and this Ordinance.

If the activity requires a local permit, the applicant shall apply for the local permit under the established permit program. Approval of the permit shall constitute a ruling that the action is consistent with the applicable elements of the Comprehensive Plan and Ordinance. If the action does not require a local permit, the County may make an investigation to provide information on the project's conformance with the Plan and Ordinance standards and provisions. The investigation can be done administratively or through public hearings.

~~The Planning Director or his designate will make an investigation to provide information on the project's conformance with the Plan and Ordinance standards and provisions. If the development is permitted under a Type I or Type II procedure, the issuance of a development permit by the Planning Director constitutes a ruling that the development is consistent with the Plan and Ordinance. If the development is permitted under a Type III procedure, Planning commission approval of a development permit constitutes a ruling that the development is consistent with the Plan and Ordinance.~~

The Planning Director shall respond to the state or federal public notice for development and use to the permit granting agency within seven working days of the local actions. ~~The response shall constitute a development permit.~~ The response shall contain a statement of whether ~~or not approval of the permit is would be~~ consistent with the applicable elements of the Comprehensive Plan, the reasons development is or is not consistent, standards and conditions which ~~should~~ apply if the permit is granted, and the need for local permits for developments associated with the activity.

SECTION 5.125. CONSISTENCY REVIEW PROCEDURE FOR FEDERAL ACTIVITIES AND DEVELOPMENT PROJECTS

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Federal activities in the Coastal Zone are not subject to the established local permit procedures. Federal activities which directly affect the coastal zone of the county must be consistent, to the maximum extent practicable, with the coastal zone management program. The coastal zone management program includes the County's Comprehensive Plan and Zoning Ordinance. The federal consistency determination is reviewed by the Oregon Department of Land Conservation and Development.

Consistency determinations for federal activities shall be reviewed for conformance with the mandatory enforceable policies of the County's Comprehensive Plan and Ordinance. The review may be done administratively or through public hearings. The federal agency has the option of applying for a local permit to demonstrate consistency with the Plan and Ordinance. The Planning Director shall communicate concurrence or disagreement with the consistency determination, and recommendations for conditions of project approval to the Oregon Department of Land Conservation and Development within 21 days of receiving the notice for reviewing the federal consistency determination.

SECTION 5.126. OUTER CONTINENTAL SHELF ACTIVITIES

Federally licensed or permitted activities described in Outer Continental Shelf plans and which affect Clatsop County's coastal zone shall be conducted in a manner consistent with the coastal zone management program. The applicant's consistency certification is reviewed by the Department of Land Conservation and Development. The Planning Director may review these activities for consistency with the Plan and Zoning Ordinance. The review may be done administratively or through public hearings. The Planning Director may communicate concurrence or disagreement with the consistency certification to the Oregon Department of Land Conservation and Development within the time specified on the Oregon Department of Land Conservation and Development notice for the activities.

SECTION 5.127. FEDERAL GRANTS AND FINANCIAL ASSISTANCE

Federal financial assistance or grants to state agencies, cities, counties, special purpose districts, or regional bodies, for activities which affect the coastal zone shall be granted only when the activities are consistent with the coastal zone management program. The Planning Director may review the grants and financial assistance for consistency with the Plan and Ordinance. The review may be done administratively or through public hearings. The Planning Director may communicate the review findings to the Intergovernment Relations Division Clearinghouse within the time specified on the Clearinghouse notice.

XX. Amend Columbia River Estuary Resource Capability and Impact Assessment, Sections 5.800-5.910, pp. 243-247 by deleting the existing text and replacing it with the following material:

SECTION 5.800 COLUMBIA RIVER ESTUARY IMPACT ASSESSMENT AND RESOURCE CAPABILITY DETERMINATION

SECTION 5.810 IMPACT ASSESSMENT

The purpose of this section is to provide an assessment process for development alterations which could potentially alter the estuarine ecosystem. Oregon Statewide Planning Goal 16, Estuarine Resources, requires that actions which would potentially alter the Columbia River estuarine ecosystem be preceded by an assessment of potential impacts. The Impact Assessment need not be lengthy and complex, but it should enable reviewers to gain a clear understanding of the impacts expected.

SECTION 5.820 IMPACT ASSESSMENT REQUIREMENTS

The following uses and activities, in addition to those so indicated in the aquatic zones, all require an Impact Assessment at the time a permit is reviewed:

1. Dredging;
2. Aquatic area fill;
3. In-water structures;
4. Riprap;
5. New in-water log storage areas;
6. Application of pesticides and herbicides;
7. Water intake or withdrawal;
8. Effluent discharges;
9. In-water dredged material disposal;
10. Beach nourishment;
11. Other uses or activities which could affect estuarine physical or biological resources; and
12. Uses or activities that require a Resource Capability Determination.

SECTION 5.825 USE OF IMPACT ASSESSMENT

Information contained in an Impact Assessment shall be used during the evaluation of a use or activity's significant impacts on the estuarine ecosystem; in determining whether potential impacts can be avoided or minimized; and for providing a factual base of information needed to address applicable standards in Section S4.200 through S4.243.

Where a use or activity requires a Resource Capability Determination, information in the impact assessment can be used to satisfy the requirements of Section 5.870.

SECTION 5.830 INFORMATION TO BE PROVIDED IN THE IMPACT ASSESSMENT

Information needed to complete the Impact Assessment should be obtained from sources other than the permit application (i.e., environmental impact statements, Columbia River Estuary Data Development Program data, other reports or data applicable to the Columbia River Estuary). An assessment of impacts of aquatic area pesticide and herbicide application may be provided by the Oregon Department of Agriculture and the Oregon Department of Environmental Quality. An assessment of the impacts of new point-source waste water discharges into the Columbia River Estuary may be provided through the National Pollution Discharge Elimination System (NPDES) permit program.

A complete Impact Assessment includes the following information:

1. Aquatic life forms and habitat, including information on both the extent of and impacts on: habitat type and use, species present (including threatened or endangered species), seasonal abundance, sediments, and vegetation.
2. Shoreland life forms and habitat, including information on both the extent of and impacts on: habitat type and use, species present, (including threatened or endangered species), seasonal abundance, soil types and characteristics, and vegetation present.
3. Water quality, including information on: sedimentation and turbidity, dissolved oxygen, biochemical oxygen demand, contaminated sediments, salinity, water temperatures, and expected changes due to the proposed use or activity.
4. Hydraulic characteristics, including information on: water circulation, shoaling patterns, potential for erosion or accretion in adjacent areas, changes in flood levels, flushing capacity, and water flow rates.
5. Air quality, including information on quantities of particulates and expected airborne pollutants.
6. Public access to the estuary and shoreline, including information on: proximity to publicly-owned shorelands and public street ends; effect on public boat launches, marinas and docks; and impact on inventoried public access opportunities.
7. Navigation, including information on: distance from navigation channels, turning basins and anchorages; proximity to range markers.
8. Demonstration that proposed structures or devices are properly engineered.
9. Demonstration that the project's potential public benefits will equal or exceed expected adverse impacts.
10. Demonstration that non-water dependent uses will not preempt existing or future water-dependent utilization of the area.
11. Determination of methods for mitigation and accommodation of the proposed development, based on items (1) through (10) above, in order to avoid or minimize preventable adverse impacts.

Based on the information and analysis in Section 5.830, one of the following four conclusions shall be reached:

1. The proposed uses and activities do not represent a potential degradation or reduction of estuarine resource.
2. The proposed uses and activities represent a potential degradation or reduction of estuarine resources. The Impact Assessment identifies reasonable alterations or conditions that will eliminate or minimize to an acceptable level expected adverse impacts.
3. The proposed uses and activities will result in unacceptable losses. The proposed development represents irreversible changes and actions and unacceptable degradation or reduction of estuarine resource properties will result.
4. Available information is insufficient for predicting and evaluating potential impacts. More information is needed before the project can be approved.

SECTION 5.860 RESOURCE CAPABILITY DETERMINATION

Some uses and activities in Columbia River Estuary Natural and Conservation Aquatic zones are allowed only if determined to meet the resource capabilities of the area and if determined to be consistent with the purpose of the affected zone. Some uses and activities in Development Aquatic zones are allowed only if determined to be consistent with the purpose of the zone.

SECTION 5.870 RESOURCE CAPABILITY PROCEDURE

A completed Resource Capability Determination consists of the following elements.

1. Identification of the affected area's zone, and its purpose.
2. Identification of the types and extent of estuarine resources present and expected adverse impacts. This information is included in the Impact Assessment, Section 5.830.
3. A determination of whether the use or activity is consistent with the resource capabilities of the affected zone. A use or activity is consistent with the resource capabilities of the area when either
 - (a) Impacts on estuarine resources are not significant; or
 - (b) Resources of the area will be able to assimilate the use and activity and their effects and continue to function in a manner which:
 - In Natural Aquatic designations, protects significant fish and wildlife habitats, natural biological productivity, and values for scientific research and education; or

- In Conservation Aquatic designations, conserves long-term use of renewable resources, natural biological productivity, recreation and aesthetic values and aquaculture.
4. For temporary alterations, the Resource Capability Determination must also include:
 - a. Determination that potential short-term damage to estuary and shoreland resources is consistent with the resource capabilities of the area; and
 - b. Determination that the area and affected resources can be restored to their original condition.

SECTION 5.880 DETERMINING CONSISTENCY WITH THE PURPOSE OF THE ZONE

Certain uses in Aquatic Development, Aquatic Conservation and Aquatic Natural Zones may be permitted only if they are consistent with the purpose of the aquatic zone in which they occur. A Consistency Determination consists of the following elements.

1. Identification of the affected zone and its purpose.
2. Description of the proposed project's potential impact on the purposes of the affected zone.
3. Determination that the proposal is either:
 - a. consistent with the purpose of the affected zone;
 - b. conditionally consistent with the purpose of the affected zone; or
 - c. inconsistent with the purpose of the affected zone.

- XXI. Amend Policy P10 Introduction and Background of the Columbia River Estuary Land and Water Use Plan by deleting the existing text and replacing it with the following material:

COLUMBIA RIVER ESTUARY LAND AND WATER USE PLAN

P10. INTRODUCTION AND BACKGROUND

THE ESTUARY PLANNING AREA

The Columbia River Estuary planning area includes aquatic areas and shorelands from the 3-mile limit offshore to the eastern boundary of Wahkiakum County in Washington (RM 53) and the eastern boundary of Clatsop County in Oregon (RM 45). All tributary streams to the head of tide and their adjacent shorelands are included within the estuary planning area. In Oregon, the coastal zone, as defined by the Land Conservation and Development Commission, extends only to the downstream end of Puget Island (RM 38). Although shorelands generally extend to the landward limit of the floodplain for planning purposes, jurisdictional boundaries of the shorelands zones define a much smaller area. This Plan's informational sections, such as descriptions of shoreland features and human uses, apply to the entire floodplain area. Regulatory sections, such as aquatic and shoreland designations and policies, apply to the narrower jurisdictional shoreland area.

The estuary is divided into 46 planning subareas. These subareas were drawn to represent distinct planning units with common features and needs. Land use patterns, physical and biological characteristics, and jurisdictional boundaries were used to determine subarea boundaries. The subarea plans which are under, or in part under Clatsop County jurisdiction are described in P 30.

THE PLANNING PROCESS

The shorelands and estuary elements of the County's Comprehensive Plan that pertain to the Columbia River Estuary were prepared by the Columbia River Estuary Study Taskforce (CREST) and are the basis for managing these resources within a regional content. CREST, a bi-state organization of cities, counties, and port districts, was organized in 1974 to develop a coordinated, regional estuary management program. Clatsop County has been a participant in CREST since its inception.

CREST member jurisdictions and staff formulated a land and water use planning process in 1976, establishing a regional framework for local citizens, interest groups, governments, and state and federal agencies to integrate their efforts in creating an estuary-wide management plan. The impetus for developing the Plan came from growing conflicts between conservation, uses and developments of estuarine areas. The Regional Management Plan was also in response to state coastal zone management programs and federal funding under the 1972 Coastal Zone Management Act. The need for better management data, for long term protection of critical natural resource areas, and for estuarine development all contributed to the planning program. In 1977, CREST published an Inventory synthesizing existing scientific and management information on the physical, biological, and cultural characteristics of the Columbia River Estuary. Using this technical background information along with collaboration of specially created citizen planning committees, local jurisdictions and state and federal agencies, CREST staff produced the initial draft of a regional management plan.

The final draft of the Columbia River Estuary Regional Management Plan was published in June of 1979. The 1979 Regional Management Plan was adopted into local shoreline master programs in Washington and comprehensive plans in Oregon and was implemented through the local zoning and permitting process. The plans have been fine-tuned through local plan amendments to meet changing development and conservation needs.

Revisions to the Regional Plan began in 1987 as a result of changes in local development needs as well as state and federal regulations and programs. In addition, the Oregon Department of Land Conservation and Development required that the Plan be updated through their Periodic Review process. The 1989 revisions to the regional plan reflect changes in development trends, local planning needs, new or updated state and federal programs and regulations, new information, and language changes to approve and streamline the Plan. The revised Regional Plan has no legal authority except as implemented by local governments in local comprehensive plans (Oregon) and local shoreline management master programs (Washington).

COMPREHENSIVE PLAN CONTENT AND STRUCTURE

The Goal 16 and 17 element of the County's Comprehensive Plan pertaining to the Columbia River Estuary is intended to satisfy the requirements of the Estuarine Resources and Coastal Shorelands goals established by the Oregon Land Conservation and Development Commission and to function as part of the Oregon Coastal Zone Management Program as certified by the Department of Commerce under the Federal Coastal Zone Management Act. Under these programs, the Columbia River Estuary has been designated "development".

This Comprehensive Plan section (Goal 16 and 17 element) consists of the following parts:

- Definitions.
- Use and area designations.
- Use and Activity Tables.
- P 15 Cumulative Impacts.
- P 20 Columbia River Estuary Aquatic and Shoreland Regional Policies.
- P 21 Intergovernmental Coordination Policies.
- P 30 Columbia River Estuary Subarea Plans.
- P 40 Columbia River Estuary Dredged material Management Plan.
- P 50 Mitigation and Restoration Plan for the Columbia River Estuary
- P 60 Appendices

Land and Water Development and Use standards are in the County's Zoning Ordinance.

DEFINITIONS

1. Aquatic Areas

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Aquatic areas include the tidal waters, including subtidal areas and wetlands of the estuaries, and non-tidal sloughs, streams, and wetlands within the shorelands area boundary. The lands underlying these waters are also included. The upper limit of aquatic areas is the upper limit of aquatic vegetation or, where such a line cannot be accurately determined, Mean Higher High Water (MHHW) in tidal areas or Ordinary High Water (OHW) in non-tidal areas.

2. Coastal Shorelands

Those areas immediately adjacent to the ocean, estuaries, associated wetlands and coastal lakes. The extent of shorelands shall include at least:

1. Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or a coastal lake;
2. Adjacent areas of geologic instability where the geologic instability is related to or will impact a coastal water body;
3. Natural or man-made riparian resources, especially vegetation necessary to stabilize the shoreline and to maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas;
4. Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal water areas;
5. Areas necessary for water-dependent and water-related uses including areas of recreational importance which utilize coastal water or riparian resources, areas appropriate for navigation and port facilities, dredged material disposal and mitigation sites, and areas having characteristics suitable for aquaculture;
6. Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or related to the association with coastal water areas;
7. Coastal headlands;
8. Locations of archaeological or historical importance associated with the estuary; and
9. Dikes and their associated inland toe drains.

The estuary is defined for planning purposes, as all aquatic areas subject to tidal influence downstream of the Wahkiakum County line (RM 53) in Washington and to the eastern boundary of Clatsop County in Oregon (RM 45). In Oregon, the Coastal Zone, as defined by the Land Conservation and Development Commission, extends only to the downstream end of Puget Island (RM 38).

Tidal influence extends to Bonneville Dam (RM 145). Daily tidal range is 8.3 feet near the river mouth and decreases to about 5.5 feet near the upstream limit of the CREST planning area (Eagle Cliff - RM 53.3). See Section 203 of the "Columbia River Estuary Inventory of Physical, Biological and Cultural Characteristics" for a complete discussion of tides and tidal effect in the river.

4. Water-dependent

A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the waterbody for water-borne transportation, recreation, energy production, or source of water.

5. Water-related

Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

6. Development or Use

USE: Use is the end to which a land or water area is ultimately employed. A use often involves the placement of structures or facilities for industry, commerce, habitation, or recreation. An accessory use is the use incidental and subordinate to the main use of the property and located on the same lot or parcel as the main use.

ACTIVITY: Activity is any action taken either in conjunction with a use or to make a use possible. Activities do not in and of themselves result in a specific use. Several activities -- dredging, piling, fill -- may be undertaken for a single use - a port facility. Most activities may take place in conjunction with a variety of uses.

USE AND AREA DESIGNATIONS

The land and water use classification system separates aquatic from shoreland areas and defines management designations for each area. These designations provide for uses and activities ranging from preservation to intensive development.

1. Natural Aquatic areas are intended for resource protection, preservation and restoration, with severe restrictions on the intensity and types of uses. They are managed to preserve natural resources in recognition of dynamic, natural, geological and evolutionary processes. Natural Aquatic areas may include significant fish and wildlife habitats, tidal marshes and intertidal flats, sea grass, and algae beds, that, because of a combination of factors such as size, biological productivity and habitat value, play a vital role in the functioning of the estuarine ecosystem. Natural Aquatic areas may also include ecologically important subtidal areas.
2. Natural Shoreland areas are managed for resource protection, preservation, restoration and recreation, with severe restrictions on the intensity and types of uses. Natural Shoreland areas may include unique vegetative or wildlife habitat and critical habitat for endangered or threatened species. This area is intended to preserve those natural resource systems existing relatively free of human influence.
3. Conservation Aquatic areas are managed for the protection and conservation of the natural resources and benefits found in these areas. The designation is for long term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration. Areas that are partially altered or adjacent to existing development of low to moderate intensity and not possessing characteristics of other designated aquatic areas are also included. Minor alterations may be permitted in conjunction with approved uses. Conservation Aquatic areas may include open water portions of the estuary and areas needed for maintenance and enhancement of biological productivity, recreational resources, aesthetic values and aquaculture.
4. Conservation Shorelands are managed for the protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources, aesthetic values and recreation. Conservation Shoreland may include commercial forest lands, areas subject to severe flooding or other hazards, scenic recreation areas, and certain public shoreline areas. Conservation Shorelands are for the purpose of conserving shorelands which provide important ecosystem support functions and to designate certain areas for long term uses of renewable resources that do not require major alterations.
5. Development Aquatic areas are managed for navigation and other identified needs for public, commercial, and industrial water-dependent uses consistent with the level of development or alteration allowed in the aquatic area and the need to minimize damage to the estuarine ecosystem. The objective of Development Aquatic areas is to ensure optimum utilization of appropriate aquatic areas by providing for intensive development. Some water-related and other uses may be permitted. Development Aquatic areas may include: deep water areas adjacent to or near the shoreline, navigation channels, turning basins, subtidal areas for in-water disposal of dredged materials, mining or mineral extraction areas, and areas adjacent to developed or developable shorelines which may need to be altered to provide navigational access or create new land areas for water-dependent uses.
6. Development Shorelands are managed for a wide range of water-dependent, water-related, water oriented non-dependent, or other uses. Development Shorelands may include existing developed areas or areas suitable for future residential, commercial, industrial, or recreational development. Most such areas are within urban growth boundaries of existing towns or cities, but may include other development centers. Plans for development of such areas should provide public access to the shorelines.

7. Especially Suited for Water-dependent (ESWD) Development Shorelands are managed for water-dependent uses, with water-related uses allowed based on demonstration of need and analysis of alternative sites. ESWD Development Shorelands include areas of high potential for water-dependent commercial and industrial development and high intensity recreational use.

In formulating the Comprehensive Plan, the following general policies guided application of the land and water use classification system.

1. All major tracts of tidal marshes, tide flats, seagrass and algae beds were designated 'Natural Aquatic' because of their proximity and value as fish and wildlife habitat.
2. Tracts of significant habitat smaller or of less biological importance than those assigned as Natural Aquatic were designated Conservation Aquatic. These include most of the smaller fringing marshes along bays and streams.
3. Deep-water areas adjacent to or in proximity to the shoreline, navigation channels, subtidal areas for in-water disposal of dredge material and areas of minimal biological significance needed for uses requiring alteration of the estuary were designated Development Aquatic.
4. Dikes were designated the same classification as the adjacent shorelands.
5. Commercial forest lands within Coastal Shorelands are designated Conservation Shorelands.
6. Areas designated as especially suited for water-dependent uses were based on a consideration of the following factors:
 - deep-water close to shore suitable for ship and barge facilities, with supporting land transportation systems;
 - potential for aquaculture;
 - protected areas subject to scour which would require little dredging for use as marinas;
 - potential for high intensity recreational utilization;
 - amount of vacant land available to support the anticipated water-dependent development;
 - availability of public services, such as sewer and water;
 - possibility for land use conflicts with existing or anticipated land uses in the area;
 - projected demand for various water-dependent developments.

7. General priorities, from highest to lowest, for uses within all estuary zones shall be:
- a. Uses which maintain the integrity of the estuarine ecosystem;
 - b. Water-dependent uses requiring an estuarine location, as consistent with the overall Oregon Estuarine Classification;
 - c. Water-related uses which do not degrade or reduce the natural estuarine resources and values; and
 - d. Non-water dependent, non-water related uses, which do not alter, reduce or degrade the estuarine resources and values.

USE AND ACTIVITY TABLES

1. Permitted Developments: Uses and activities allowed in this category of review may be undertaken subject to:
- The general requirement that the use or activity be designed and conducted in a manner that will minimize, so far as practical, any resultant damage to the natural resource values of affected aquatic and shoreland areas and the public’s use of the water;
 - The standards set forth in the zoning ordinance; and
 - Applicable state and federal regulations.
2. Review Developments: Uses and activities allowed under this category of review may be undertaken subject to:
- written findings by the Planning Director that the proposed use or activity is consistent with the policies of the Comprehensive Plan, appropriate zoning standards and, where required, findings of a Resource Capability Determination and Impact Assessment.
3. Conditional Developments: Uses and activities allowed under this category of review may be undertaken subject to:
- written findings, adopted after a public hearing (if required), that the proposed use or activity is consistent with the policies of the Comprehensive Plan, appropriate zoning standards and, where required, findings of a Resource Capability Determination and Impact Assessment.

The following tables are a summary of how the various uses and activities of each zone are treated: as a permitted use, a review use or conditional use. These tables are included as a guide only. The zone of interest should always be referred to for accuracy, and for a more thorough description of the use or activity allowed.

Uses	AN	AC1	AC2	AD
Aquaculture				
• water-dependent portions not requiring estuarine alteration	R	R	R	
• water-dependent portions requiring estuarine alteration		C	C	
• facilities				C
Boat ramps				
• not requiring dredging or fill	R	R	R	
• requiring estuarine alteration			C	R
Commercial, Industrial and Port Uses				
• water-dependent				R
• water-related				C
• non-water-dependent				C
• water storage areas		C	C	R
Docks and Moorages				
• not requiring dredge or fill		R	R	R
• requiring estuarine alteration			C	R
Land Transportation Systems				
• bridge crossings	R	R	R	R
• bridge crossing support structures	R	C	R	C
Log dump/sort/storage areas		C	C	R
Marinas			C	C
Mining and Mineral Extraction		C	C	C
Navigation				
• navigational aids	P	P	P	P
• minor navigational improvements		C	C	R
• navigational structures				C
• new navigational projects or water transport channel improvements				C
Recreation				
• high intensity (excluding marinas in AD)			C	R
• low intensity	P	P	P	P
Resource Enhancement				
• passive restoration	P	P	P	P
• active restoration of fish and wildlife or water quality	C	C	R	R
• active restoration for other purposes		C	C	R
• estuarine enhancement	R	R	R	R
• projects for protection of habitat, nutrient, fish, wildlife and aesthetic resources	P	P	P	P
Temporary Uses requiring minimal capital investment		R	R	C
Utilities				
• communication facilities	C	R	R	R
• storm water and treated wastewater outfall		C	C	C
• pipelines, cables and utility crossings	C	R	R	R

Activities

AN AC1 AC2 AD

Dikes

• maintenance and repair	R	R	R	P
• emergency repair	P	P	P	P
• installation of tidegates	R	R	R	R
• temporary dike for emergency		P	P	P
• dredging as a source of fill for dike maintenance	R	R	R	R

Dredged Material Disposal

• beach nourishment at designated sites		R	R	R
• in-water disposal at designated sites				R

Research and educational observations

P	P	P	P
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Shoreline stabilization

• vegetative	P	P	P	P
• structural (limited to riprap)	R			
• structural (riprap, bulkhead)		R	R	R

Temporary Alterations

R	R	R	R
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AN - Aquatic Natural Zone
AC1 - Aquatic Conservation One Zone
AC2 - Aquatic Conservation Two Zone
AD - Aquatic Development Zone

P - Permitted Development Uses and Activities
R - Development Uses and Activities Permitted with Review
C - Conditional Development Uses and Activities

USE AND ACTIVITY TABLE - SHORELANDS

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NS CS MI

Uses

Agriculture			
• uses involving no structures			P
• agriculture activities		P	
Aquaculture Facilities		C	C
Boat Ramps			
• recreational		R	C
• commercial		C	C
Commercial, Industrial, and Port Uses			
• water-dependent			R
• water-related			C
• non-water-dependent			C
Docks and Moorages			
• individual		R	
• recreational		C	C
• commercial		C	C
Forestry Activities and Manufacturing			
• forest activities		P	P
• forest manufacturing			C
Land Transportation Systems		C	C
Log Sorting/Storage Areas		C	C
Marinas		C	C
Marine research and education facilities	C	C	C
Mining and mineral extraction			C
Navigational aids	P	P	P
Recreation			
• low intensity	P	P	P
• high intensity		C	C
Resource enhancement			
• passive restoration	C	P	P
• active restoration	C	R	C
• mitigation	C	R	C
Temporary Uses requiring minimal capital investment			C
Utilities			
• communication facilities		R	R
• stormwater and treated wastewater fallouts		C	C
• cables sewer lines, pipeline landfalls	C	C	R
• public utility structures		C	R

Shorelands (cont'd)

Activities

Dikes

- new dike construction
- maintenance/repair
- emergency repair
- new tidegates
- temporary dikes

	C	C
R	R	P
P	P	P
	C	C
	P	P

Dredged Material Disposal

- designated sites
- non-designated sites

P	P
R	R

Excavation to create new water surface area

R	R
---	---

Research and educational observation

P

Shoreline stabilization

- vegetative
- structural (limited to riprap)
- structural (riprap and bulkhead)

P	P	P
R		R
	R	R

NS - Natural Shoreland Zone

CS - Conservation Shoreland Zone

MI - Marine Industrial Shoreland Zone

P - Permitted Development Uses and Activities

R - Development Uses and Activities Permitted with Review

C - Conditional Development Uses and Activities

XXII. Amend Policy P15, Overview and Cumulative Impacts, by deleting the existing text and replacing it with the following material:

P15 CUMULATIVE IMPACTS

INTRODUCTION

This Section addresses the potential combined effects of certain activities on the estuary. The primary reason for addressing cumulative impacts is that they cannot be adequately considered during most permit reviews, yet under certain conditions can become significant planning issues. The Columbia River Estuary Regional Management Plan recognizes that development activities generate cumulative impacts that cannot be readily addressed on a permit-by-permit basis. The plan identifies cumulative impacts and sets provisions, primarily in the Analysis section below, discouraging or limiting activities posing a cumulative impact problem. In addition, the Plan's management system, discussed in the Scope section below, limits most high impact activities to small geographic areas within the estuary.

A second reason for considering cumulative impacts in this plan is that Oregon and Washington local jurisdictions are required by state statutes to address them. Comprehensive Plan Requirement 5 of Oregon Statewide Planning Goal 16 states that local jurisdictions must "Consider and describe in the plan the potential cumulative impacts of the alterations and development activities envisioned."

SCOPE

Discussion of cumulative impacts in this Plan is limited to seven major topic areas. Cumulative impacts on Public Access, Water Quality, Fisheries, Maritime Commerce, Recreation/Tourism, Circulation and Aquatic Habitat are identified and discussed. In many cases cumulative impacts are both positive and negative. Navigation channel maintenance dredging, for example, generates beneficial impacts with respect to maritime commerce, and some harmful impacts with respect to fisheries habitat. Public Access, as another example, is affected in a positive way by boat ramp construction, and negatively by riprap shoreline protection. Cumulative impacts that are significant in certain estuary subareas are described in the subarea plans in Policy P 30 of the County's Comprehensive Plan.

Cumulative impacts on the seven categories of estuarine resources identified above are generated by a number of activities. The following activities are considered in this section:

- Dredging, New and Maintenance;
- Dredged Material Disposal, Aquatic and Shoreland;
- Filling;
- Structural Shoreline Stabilization;
- Boat Ramps, New and Expanded;

- Marinas, New and Expanded;
- Moorages, Individual;
- Aquaculture and Fish Hatcheries;
- Port Development; and
- River Training.

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Some activities with cumulative impacts on the estuary are not regulated by this plan, and are not considered in this section. Chief among these are:

- Forestry;
- Upstream Activities;
- Activities in the Ocean Outside of the Estuary Planning Area;
- Fisheries Harvest Allocations;
- Local Point Source and Nonpoint Source Discharge;
- River Flow Management; and
- Navigation.

CUMULATIVE IMPACT ANALYSIS

1. Public Access

Activities generating cumulative impacts on public access can both enhance and reduce opportunities for public access to the waters and shorelines of the Columbia River Estuary. Public access is treated broadly here to include both physical and visual access.

The cumulative impact of maintenance dredging projects on public access is limited and to some extent beneficial. Main navigation channel maintenance dredging generates no identifiable cumulative impacts on public access opportunities. Boat ramp and marina access channel dredging has the cumulative effect of maintaining or improving small boat access. The cumulative impacts of new dredging on public access are similar to those of maintenance dredging.

Use of designated shoreland and aquatic dredged material disposal sites will have little measurable cumulative impact on public access in the Columbia River Estuary. Beach nourishment will have positive cumulative effects on public access, but only to the extent that enhanced beaches are used by the public.

Filling Columbia River Estuary aquatic areas along the shoreline will have a generally negative impact on public access. Only limited areas along the shoreline are designated for fills, so cumulative impacts on public access should not be great.

Riprap bank protection can, under certain circumstances, have significant negative cumulative impact on public access, especially physical shoreline access. Riprap can also have beneficial impacts on public access by protecting marinas and boat ramps. The County's estuarine construction policies and standards encourage nonstructural shoreline stabilization and require riprap proposals to be reviewed for their impacts on public shoreline access.

Boat ramps and marinas have a strongly beneficial cumulative impact on public access for the boating public. Private individual moorages on the other hand can have negative cumulative impacts with respect to public access if allowed to overcrowd particular waterways. Continuous development of individual moorages along a reach of the Columbia River Estuary or a tributary can block public shoreline access and inhibit small boat navigation, having a strongly negative cumulative impact. The County's estuarine construction policies and standards encourage community docks and piers and discourage individual moorages.

Aquaculture and hatchery development may, under certain circumstances, generate adverse cumulative impacts on public access. If large nearshore water areas are leased and used for net pens, for example, public access could be substantially reduced. Pond aquaculture facilities on shorelands, on the other hand, would be expected to have little or no adverse cumulative impact. The County's fisheries and aquaculture policies and standards require that aquaculture developments minimize impacts on public access and views from upland property.

Port development is often not fully compatible with public access; however, the cumulative impact of port development on public access is expected to be minor. Port development is limited to only a few sites in the estuary. Full development of all existing designated Development and Water Dependent Development shorelands would not significantly reduce public access opportunities in the Columbia River Estuary, but may have locally significant effects.

River training activities, including pile dikes and dredged material disposal islands, have had little or no cumulative impact on public access.

2. Water Quality

A number of parameters are considered here: turbidity, dissolved oxygen, biochemical oxygen demand, organic contaminants, metals, and other undesirable compounds. Both long-term and short-term water quality impacts are considered.

New and maintenance dredging projects can have cumulative short-term impacts, especially with respect to turbidity. Rarely, however, are more than a small number of dredging projects occurring at one time. Longer-term cumulative impacts tend to be less significant. Aquatic and shoreland dredged material disposal can generate significant cumulative impacts on Columbia River Estuary water quality. Pollutants associated with fine sediments can be re-suspended as a result of aquatic dredged material

disposal. Land disposal can also generate water quality impacts by way of contaminated runoff. Rarely, however, are more than a small number of disposal projects occurring at one time. Because impacts associated with dredging and dredged material disposal tend to be short-lived, the potential for generating significant cumulative impacts on water quality is limited. The County's dredging and dredged material disposal policies and standards require that projects be timed so as to minimize impacts. These policies and standards also contain sediment testing provisions to ensure that disposed sediments meet state and federal water quality standards.

Filling of aquatic areas is expected to generate only minor, short-lived water quality impacts if conducted with clean material behind protective berms. Fills constructed without these protective measures do have the potential for generating water quality problems associated with leachates from contaminated fill material. Large waterfront areas in some parts of the estuary consist entirely of fill material: in these areas the potential for cumulative water quality impacts may be high.

Riprap constructed from clean non-erodible stone generates few potential water quality impacts. Inasmuch as it may displace riparian vegetation, riprap may result in more turbid runoff entering the river. The cumulative impact of riprap on water quality may be considerable to the extent that riparian vegetation is lost. The plan identifies shorelines with significant riparian vegetation and requires that they be protected. The County's estuary construction policies and standards encourage vegetative shoreline stabilization over riprap.

Boat ramps and individual moorages are expected to have no significant cumulative impact on water quality. Enclosed marinas, however, can generate local water quality impacts. To the extent that marinas are located near each other, or are concentrated in poorly flushed tributaries, cumulative impacts may be considerable. The County's water quality maintenance policies and standards alleviate some of these concerns by requiring that new or expanded marinas have facilities for emptying boat holding tanks and disposing of other waste materials and that new or expanded full docks have spill containment equipment.

Aquaculture and fish hatcheries are potentially detrimental for water quality if uneaten fish food and fish wastes accumulate and decompose on the site rather than dispersing. Significant cumulative impacts would be expected only to the extent that several operations are clustered together, or they occur in a small or poorly flushed waterway, or if a single operation is very large relative to the waterway's flushing volume. The County's fisheries and aquaculture policies and standards require that aquaculture facilities be located so as to minimize water quality problems and that facilities meet state and federal discharge standards.

Port development has occurred in the estuary without any significant cumulative water quality impacts. Increased port activity increases the likelihood of water quality degrading actions such as oil or chemical spills.

River training activities may affect water quality by changing flushing patterns. The cumulative impact of river training on flushing has been to decrease flushing away from the main navigation channel, and increase flushing near the channel. Because little is known about the relationship between flushing and water quality at specific locations on the Columbia River Estuary, the cumulative impact of river training on water quality is difficult to evaluate.

Discussion of cumulative impacts on fisheries includes impacts on commercial, recreational, and uneconomic nongame species. Impacts on their habitats are discussed in subsection 7 Aquatic Habitat.

Dredging can have measurable impacts on fish by disrupting feeding and shelter areas as well as migration routes. Also, dredging equipment can physically interfere with commercial fishing operations. Project scheduling can reduce some of these impacts. Long-term impacts which might generate significant cumulative impacts are not well understood. Crab entrainment resulting from bar maintenance dredging may have significant impacts on the population of juvenile crabs at the bar, but its impacts on the overall estuary and offshore crab populations are unknown. The County's dredging policies and standards require that dredging operations be timed to minimize impacts on fish and commercial fishing operations.

Dredged material disposal can affect fish by affecting water quality. This is discussed in subsection 2 Water Quality.

Filling can affect fish and their habitats by disrupting migration routes, and by eliminating benthic communities that are a component of their habitat. Lost habitat will presumably be replaced by way of compensatory mitigation measures. Potential fill sites in the Columbia River Estuary are not so numerous as to generate significant cumulative impacts if appropriate mitigation measures are applied.

Riprap may affect fish habitat by disrupting shallow water benthic communities and by eliminating nearshore shallow water areas. The benthic communities are a component of fish habitat. Nearshore shallow areas may be important as resting, shelter and migration routes for juvenile anadromous fish. Large reaches of shoreline are riprapped, so existing cumulative impacts may be high. However, to the extent that riprap projects tend to be placed on eroded or erodible shorelines, these impacts may be reduced somewhat. The County's estuarine construction standards require that structural shoreline stabilization projects maintain adequate shallow areas for juvenile fish shelter.

Boat ramps, marinas, and moorages are all essential components of the commercial and recreational fisheries support system in the Columbia River Estuary. To the extent that commercial and game harvests are subject to regulation, these facilities will not generate significant negative impacts on fish populations. Water quality impacts associated with small boat moorage may generate relatively minor, localized cumulative impacts on fish. The County's standards for marinas require that new or expanded marinas be designed to assure adequate water circulation and flushing.

Aquaculture and fish hatchery facilities have the potential for generating both positive and negative cumulative impacts on fisheries. Positive impacts can result from fisheries enhancement programs associated with hatcheries and with aquaculture release programs. Negative impacts can be generated from confinement aquaculture and hatchery operations that develop fish diseases which in turn infect wild stocks, or when introduced species out-compete desirable native stocks. Significant harmful cumulative impacts would be expected when operations are concentrated in small or poorly flushed waterways. Regulations and license procedures administered by state fish agencies address these concerns.

Port development's expected impacts on fisheries are more associated with dredging and filling than with port activity by itself. Some potential impacts are described in subsection 2. Fish populations, distribution, and diversity may be related to port activity, but significant cumulative impacts have not been identified. Impacts associated with dredging and filling are minimized on a project-by-project basis under the county's regional policies and standards on dredging and filling.

River training affects fisheries by altering migration routes. Upstream migrant anadromous fish follow strong currents in the main navigation channel. Significant cumulative impacts on fisheries may be associated with river training. New navigation structures must be reviewed against plan policies that address impacts on fisheries and their habitat.

4. Maritime Commerce

Cumulative impacts on maritime commerce are considered in this subsection. Included are deep draft moorage, navigation and associated activities.

Dredging has had beneficial cumulative impacts on maritime commerce. A large share of all dredging in the estuary is carried out to accommodate maritime commerce. The cumulative impacts of channel maintenance dredging on navigation are significant. Reduced dredging at any of the numerous shoals or at the bar would significantly impede deep draft commerce in the Columbia River Estuary.

Land disposal of dredged material has had no measurable cumulative impact on maritime commerce. Aquatic disposal can affect navigation to the extent that some of this material may settle in the channel and contribute to shoaling. This impact is cumulatively small if frequent and thorough maintenance dredging of the channels is considered. However, dispersion of material disposed in the aquatic environment may not be fully known, increasing the need for the dredging due to reshaling of the channel.

Filling of the Columbia River Estuary has few significant impacts on navigation and maritime commerce. Shoreline fills are evaluated for impacts on navigation. The bulkhead and pierhead lines established on the river are intended to avoid fill and pier-related impacts on navigation. The cumulative impacts of fill on maritime commerce are negligible.

Riprap has few significant impacts on navigation, except those beneficial ones associated with protecting shorelines from ship wakes. The cumulative effect of protected shorelines is that they allow deep draft navigation close to shore without causing shoreline erosion.

Boat ramps and marinas have no significant cumulative impact on maritime commerce. Deep draft moorage opportunities in the Columbia River Estuary have a direct beneficial impact on maritime commerce.

Aquaculture and fish hatcheries are expected to have no measurable impacts on maritime commerce.

Port development has direct, positive impact on maritime commerce in the Columbia River Estuary. The cumulative impact of port development in the Columbia River Estuary is related to the stimulation of maritime commerce.

River training efforts generate direct positive cumulative impacts on navigation by keeping navigation channels relatively free of obstructions, and by lowering maintenance costs.

5. Recreation/Tourism

Discussion of cumulative impacts on recreation and tourism includes estuary-oriented recreation undertaken by both local residents and by visitors from outside the region. Many impacts may be largely aesthetic in nature.

Dredging results in changes that are for the most part invisible, unless intertidal areas are dredged. Dredging for small boat access and maintenance dredging of small boat facilities is beneficial with respect to some segments of the recreation and tourism sector.

Dredged material disposal at upland sites generates both positive and negative impacts. Beach nourishment may have beneficial impacts on recreation and tourism, but only to the extent that nourished beaches are accessible. Other types of upland disposal may yield negative aesthetic impacts, depending on location. Aquatic dredged material disposal could have impacts on recreation and tourism with respect to water quality and recreational fisheries, discussed in subsections 2 Water Quality and 3 Fisheries. Dredged material disposal's cumulative impacts are not expected to be significant with respect to recreation and tourism.

Filling Columbia River Estuary aquatic areas may negatively impact recreation and tourism if the fill is used for facilities that do not support these activities. Because filling in the Columbia River Estuary is limited by this plan to a few sites, cumulative impacts are expected to be minor.

Riprap may have cumulative impacts on recreation or tourism. Extensive riprap protection of otherwise undeveloped shorelines will yield undesirable aesthetic impacts, and impede public access. On the other hand, riprap may be needed to protect important recreational and visitor-oriented facilities (such as marinas). Large stretches of shoreline in the estuary are riprapped, and cumulative impacts may be significant. Regional policies and standards for estuarine construction and public access address these concerns.

Boat ramps, marinas, and moorages have a generally positive impact on recreation and tourism, though there may also be a negative aesthetic component. The net cumulative impact is probably positive, however, because the estuary is large relative to the extent of existing recreational boat facilities.

Aquaculture and fisheries generate both beneficial and harmful impacts on recreation and tourism. Benefits are realized to the extent that hatcheries produce game fish, and inasmuch as the hatcheries and aquaculture facilities have a visitor-oriented component. Negative impacts are mainly aesthetic, and related to water quality. Cumulative negative impacts are expected only when facilities

become concentrated in small waterways, or when very large facilities are developed. Regulations and license procedures administered by state fish agencies address these concerns.

Port development may generate both positive and negative impacts with respect to tourism and recreation. The passage of deep draft vessels up and down the Columbia River Estuary, together with associated tug, barge and wharf activities, are significant elements of the Columbia River Estuary's attractiveness for visitors. Port development may also, however, generate negative impacts on recreational fishing and public access (see subsections 3 and 1). Net cumulative impacts are believed to be positive.

River training probably has little cumulative impact on recreation and tourism outside of minor aesthetic detractions such as pile dikes.

6. Circulation

Discussion of cumulative impacts on circulation includes erosion, accretion, flooding, salinity intrusion, and related phenomena.

Dredging projects have had significant cumulative impacts on circulation, particularly larger projects like the main navigation channel. New projects will generate larger impacts than maintenance projects, other parameters being comparable. The cumulative impact of smaller dredging projects is probably minor unless several small projects are concentrated in an area. The Impact Assessment requires consideration of a dredging project's impact on circulation.

Dredged material disposal in the water should have relatively minor cumulative impacts on circulation. Land disposal practices should have no measurable cumulative impact on circulation.

Filling has had a substantial impact on circulation. Shoreline fills alter nearshore currents and can create eddies and other current aberrations. Diking on tributaries can reduce the tidal prism, substantially lowering flushing and thus increasing shoaling rates. Small shoreline fills are not expected to have significant cumulative impacts on circulation unless concentrated along a single reach of shoreline. The Impact Assessment requires consideration of a fill's impact on circulation.

Riprap is intended to reduce shoreline erosion, so its net cumulative impact on this component of circulation is probably significant and positive. Depending on slope and rubble size, riprap projects can, in some instances, generate unintended impacts on adjacent unprotected shorelines. There is no evidence, however, of a significantly negative cumulative effect of riprap along shorelines with respect to this aspect of circulation.

Boat ramps and marinas are so small and widely spaced that cumulative circulation impacts are not anticipated. Individual moorages can, when concentrated along a shoreline, have undesirable negative impacts on currents. Their cumulative impact is potentially significant, but there are no data verifying this. Plan policies require that alternative moorage alternatives be investigated before individual moorages are approved.

Aquaculture and fish hatcheries have little impact on circulation. They are generally designed to take advantage of flushing waters, rather than interfere with them. Cumulative impacts, if there are any, are not expected to be significant.

Port development's impact on circulation is probably restricted to associated dredging and filling. Where the main navigation channel is close to shore, erosion may result from ship wakes. Navigation and maritime commerce are not expected to generate, by themselves, cumulative circulation impacts.

River training efforts are directly related to circulatory changes in the Columbia River Estuary. They have produced intentionally significant cumulative impacts.

7. Aquatic Habitat

Discussion of cumulative impacts on aquatic habitat includes impacts on the benthic environment, the surface and the water column that affect aquatic plants and animals.

Dredging has resulted in cumulative impacts on aquatic habitat. Large dredging projects, like maintenance of the main navigation channel, can generate substantial negative impacts on benthic habitat in the dredging area. New dredging projects will yield more significant negative impacts on an aquatic habitat than maintenance dredging, other factors being comparable. The Impact Assessment addresses the impact of dredging on aquatic habitat.

Dredged material disposal in the water can have cumulative impacts on aquatic habitat. Flowlane disposal and sump disposal, two kinds of in-water disposal allowed in the estuary, are comparable with respect to their impacts on the water column. Sump disposal probably has a larger impact than individual flowlane disposal projects on benthic habitats. In-water dredged material disposal must meet policy requirements regarding impact minimization.

Filling has affected aquatic habitats, especially shallow water benthic habitats since most fills are in intertidal or shallow subtidal areas. Fills are subject to impact minimization requirements and Impact Assessment review for effects on aquatic habitat.

Riprap has had some impact on aquatic habitats, particularly nearshore shallow water habitat. Riprap bank protection may interrupt shallow water shelter areas needed by juvenile fish, thus subjecting them to increased predation. The cumulative impact of riprap on juvenile fish habitat in some areas may be significant. The County's estuarine construction standards require that structural shoreline stabilization projects maintain adequate shallow areas for juvenile fish shelter.

Boat ramps and marinas are not so large or so numerous in the estuary as to have a significant cumulative impact on aquatic habitat. Individual moorages, where concentrated along a small waterway, may have a cumulative impact on aquatic habitats.

Aquaculture and fish hatcheries potentially have three types of negative impacts on aquatic habitats. Water quality and benthic communities can be affected by the accumulation of feces and surplus fish food. This generally will not result in cumulative water quality or benthic impacts if

facilities are not placed closely together. The second possible negative impact associated with fish hatcheries and aquaculture is disease. The concern is that fish raised in confinement are more susceptible to disease than naturally occurring populations. Diseases may not be confined to the hatchery or aquaculture facility, and may spread to naturally occurring stocks. The potential for this type of occurrence may increase as hatchery and aquaculture facilities are concentrated in a single waterway. The third potential negative impact on aquatic habitat associated with hatchery and aquaculture facilities is that species introduced to the estuary could out-compete native stocks. The County's fisheries and aquaculture standards and the license procedures administered by state fisheries agencies address these concerns.

Port development and marine terminal activity has had a substantial cumulative impact on aquatic habitat, primarily as a result of dredging and filling.

River training projects have probably affected aquatic habitat by changing the distribution of shallow water, shoal and deep water habitats in the Columbia River Estuary. The overall cumulative impact of river training on aquatic habitats is not well understood.

XXIII. Amend the Columbia River Estuary Aquatic and Shoreland Regional Policies, Policies P20 - P20.23 by deleting the existing text and replacing it with the following material:

P20. COLUMBIA RIVER ESTUARY SHORELAND AND AQUATIC REGIONAL POLICIES

This section establishes use and activity policies for developments in Columbia River Estuary aquatic areas and shorelands. Some apply only to the estuary’s waters and tidal wetlands: these are indicated by the qualifying phrase "aquatic areas" or "aquatic designations." Policies applicable only to estuary shorelands, including associated non-tidal wetland areas, are so indicated by the phrase "shoreland areas" or "shoreland designations."

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Policies in this subsection are applicable to agricultural and forestry activities on Columbia River Estuary shorelands. Activities outside of the coastal shorelands boundary are not covered by this subsection. Certain activities associated with agriculture and forestry, such as log storage, dike maintenance, and shipping facilities for agricultural and forestry products, are covered under different subsections. [This section combines presently separate P20.1 - Agriculture and P20.12 - Forestry and Forest Products Industry.]

1. Continued use of productive agricultural land is encouraged. Conversion to non-agricultural uses, except in urban areas, is discouraged.
2. Existing dikes and tide gates and drainage systems protecting productive agricultural land shall be maintained consistent with dike maintenance policies and standards, unless part of an approved restoration or mitigation project.
3. Potential water quality degradation of estuarine aquatic areas and associated tributaries resulting from agricultural or forest management practices shall be controlled by Oregon Forest Practices Act and Administrative Rules, Soil Conservation Service programs, and state water quality programs.
4. Conversion of productive agricultural or forestry shoreland to tidal or non-tidal wetland for a restoration project requires an exception to the applicable statewide planning goal if the restoration project is not proposed as mitigation for a development project.
5. In undiked areas bordering estuarine aquatic areas, a buffer strip of riparian vegetation shall be maintained to preserve water quality, trap sediment and nutrient runoff, for fish and wildlife habitat and aesthetic resources.

P20.2. AQUACULTURE AND FISHERIES

The policies in this subsection apply to all projects that could conceivably affect fisheries (either commercial or recreational) or aquaculture in the Columbia River Estuary. This subsection is also applicable to the development of aquaculture facilities and to fisheries enhancement projects. [This section combines presently separate P20.2 - Aquaculture and P20.11 - Fisheries.]

1. Traditional fishing areas shall be protected when dredging, filling, pile driving or when other potentially disruptive in-water activities occur.
2. Sufficient space for present and anticipated needs shall be reserved for the following uses:
 - Fishing vessel moorage;
 - Seafood receiving and processing;
 - Boat repair;
 - Net storage and repair;
 - Ice making;

- Cold storage;
- Other seafood industry support facilities.

3. Increased hatchery production and other fish enhancement efforts shall be supported where feasible, and when consistent with other applicable plan provisions.
4. Aquaculture and hatchery facility location, design and operation shall minimize adverse impacts on estuarine and shoreland habitat, navigation channels and public access points, and not interfere with commercial or recreational navigation.
5. Existing aquaculture and hatchery facilities and areas identified as having significant aquaculture potential shall be protected from conflicting uses.

P20.3. DEEP-WATER NAVIGATION, PORT AND INDUSTRIAL DEVELOPMENT

The policies in this subsection apply to port and industrial development occurring in and over Columbia River Estuary waters, and on adjacent shorelands. This section also applies to navigation projects related to deep-draft maritime activities, such as channel, anchorage and turning basin development or expansion.

1. Shorelands with adjacent deep-water access, adequate rail or road access, and sufficient backup land shall be reserved for water-dependent recreational, commercial, industrial, or port development.
2. Federally designated channels, anchorages and turning basins, including necessary side slopes, shall be in Aquatic Development designations.
3. Development, improvement and expansion of existing port sites is preferred prior to designation of new port sites.
4. Aides to navigation, including range markers, buoys, channel markers and beacons, shall be protected from development impacts that would render them ineffective. This policy does not preclude development subject to U.S. Coast Guard approved reorientation or relocation of navigation aides.
5. Permit review for proposals involving treated or untreated waste-water discharge into the estuary will rely on the point source water pollution control program administered by the Oregon Department of Environmental Quality.

P20.4. DIKING

The policies in this subsection apply to the construction, maintenance and repair of flood control dikes in Columbia River Estuary shoreland and aquatic areas. These policies do not apply to dredged material containment dikes.

1. Deliberate dike breaching or removal may be permitted as part of a restoration or mitigation project. Productive agricultural land, significant wildlife habitat, and major marshes shall not be lost as a result of dike breaching activities unless an exception is approved.
2. New dike alignment or configuration shall not cause an increase in erosion or shoaling in adjacent areas, or an appreciable increase in seasonal water levels behind dikes. Waterway channelization shall be avoided.
3. New dikes shall be placed on shorelands rather than in aquatic areas unless part of an approved fill project, as a temporary flood protection measure, or subject to an exception.
4. Maintenance of existing dikes using clean dredged material from maintained channels or suitable material from other sources (i.e., excess roadworks excavation material) shall be encouraged.
5. Maintenance of dikes by means other than dredging of aquatic areas is encouraged, however, dredging of the adjacent subtidal aquatic areas to obtain fill material for dike maintenance may be permitted when necessary, subject to the Dredging and Dredged Material Disposal Standards, Section S4.232, and when coordinated with state and federal resource agencies, and private interests.

P20.5. DREDGING AND DREDGED MATERIAL DISPOSAL

Policies in this subsection are applicable to all estuarine dredging operations and to both estuarine shoreland and aquatic dredged material disposal in the Columbia River Estuary. [This section combines presently separate P20.5 - Dredged Material Disposal Site Selection and P20.6 - Dredging and Dredged Material Disposal.]

1. Dredging shall be allowed only:

- (a) If required for navigation or other water-dependent uses that require an estuarine location or if specifically allowed by the applicable management unit requirements and,
- (b) If a need (i.e., a substantial public benefit) is demonstrated and the use or alteration does not unreasonably interfere with public trust rights; and,
- (c) If no feasible alternative upland locations exist; and,
- (d) If adverse impacts are minimized.

2. Dredging and dredged material disposal shall not disturb more than the minimum area necessary for the project and shall be conducted so as to minimize impacts on wetlands and other estuarine resources. Loss or disruption of fish and wildlife habitat and damage to essential properties of the estuarine resource shall be minimized by careful location, design, and construction of:

- (a) Facilities requiring dredging,
- (b) Sites designated to receive dredged material, and
- (c) Dredging operation staging areas and equipment marshalling yards.

Dredged materials shall not be placed in intertidal or tidal marsh habitats or in other areas that local, state, or federal regulatory agencies determine to be unsuitable for dredged material disposal. Exceptions to the requirement concerning disposal in an intertidal or tidal marsh area include use of dredged material as a fill associated with an approved fill project or placement of dredged materials in the sandy intertidal area of a designated beach nourishment site. Land disposal shall enhance or be compatible with the final use of the site area.

3. The timing of dredging and dredged material disposal operations shall be coordinated with state and federal resource agencies, local governments, and private interests to protect estuarine aquatic and shoreland resources, minimize interference with recreational and commercial fishing operations, including snag removal from gillnet drifts, and insure proper flushing of sediment and other materials introduced into the water by the project.

4. The effects of both initial and subsequent maintenance dredging, as well as dredging equipment marshalling and staging, shall be considered prior to approval of new projects or expansion of existing projects. Projects will not be approved unless disposal sites with adequate capacity to meet initial excavation dredging and at least five (5) years of expected maintenance dredging requirements are available.

5. Dredging subtidal areas to obtain fill material for dike maintenance may be allowed subject to Columbia River Estuary Dredging Standard S4.232(10).

6. Dredging for mining and mineral extraction, including sand extraction, shall only be allowed in areas deeper than 10 feet below MLLW where the project sponsor demonstrates that mining and mineral extraction in aquatic areas is necessary because no feasible upland sites exist and that the project will not significantly impact estuarine resources. The estuary bottom at the project site shall be sloped so that sediments from areas shallower than 10 feet below MLLW and other areas not included in the project do not slough into the dredged area. Dredging as part of an approved dredging project which also provides fill for an approved fill project shall not be subject to the mining and mineral extraction policies and standards.

7. Where a dredged material disposal site is vegetated, disposal should occur on the smallest land area consistent with sound disposal methods (e.g., providing for adequate dewatering of dredged sediments, avoiding degradation of receiving waters). Clearing of land should occur in stages and only as needed. It may, however, be desirable to clear and fill an entire site at one time, if the site will be used for development immediately after dredged material disposal. Reuse of existing disposal sites is preferred to the creation of new sites provided that the dikes surrounding the site are adequate or can be made adequate to contain the dredged materials.

8. Disposal of dredged materials in intertidal areas shall only be allowed at designated beach nourishment sites or to provide fill material for an approved intertidal fill project.

9. When identifying land dredged material disposal sites, emphasis shall be placed on sites where (not in priority order):

- (a) The local comprehensive plan land use designation is development provided that the disposal does not preclude future development at the site;
- (b) The potential for the site's final use will benefit from deposition of dredged materials;
- (c) Material may be stockpiled for future use;
- (d) Dredged spoils containing organic, chemical, and/or other potentially toxic or polluted materials will be properly contained, presenting minimal health and environmental hazards due to leaching or other redistribution of contaminated materials;
- (e) Placement of dredged material will help restore degraded habitat; or where
- (f) Wetlands would not be impacted.

Important fish and wildlife habitat, or areas with scenic, recreational, archaeological, or historical values that would not benefit from dredged material disposal and sites where the present intensity or type of use is inconsistent with dredged material disposal shall be avoided. The use of agricultural or forest lands for dredged material disposal shall occur only when the project sponsor can demonstrate that the soils can be restored to agricultural or forest productivity after disposal use is completed. In cases where this demonstration cannot be made, an exception to the Agricultural Lands Goal or Forest Lands Goal must be taken and included as an amendment to the Comprehensive Plan prior to the use of the site for dredged material disposal. The use of shoreland water dependent development sites for dredged material disposal shall occur only when the project sponsor can demonstrate that the dredged material placed on the site will be compatible with current or future water dependent development. Dredged material disposal shall not occur in significant Goal 17 shorelands or wetlands habitats.

Engineering factors to be considered in site selection shall include: size and capacity of the site; dredging method; composition of the dredged materials; distance from dredging operation; control of drainage from the site; elevation; and the costs of site acquisition, preparation and revegetation.

10. Estuarine in-water disposal sites shall be in areas identified as low in benthic productivity, unless the disposal is to provide fill material for an approved fill project, and where disposal at the site will not have adverse hydraulic effects. Estuarine in-water disposal sites shall only be designated and used when it is demonstrated that no feasible land or ocean disposal sites can be identified and biological and physical impacts are minimal. An in-water disposal site shall not be used if sufficient sediment type and benthic data are not available to characterize the site.

11. Flow lane disposal sites shall only be allowed in development designated areas within or adjacent to a channel where:

- (a) Sediments can reasonably be expected to be transported down-stream without excessive shoaling,
- (b) Interference with recreational and commercial fishing operations, including snag removal from gillnet drifts, will be minimal or can be minimized by applying specific timing restrictions,
- (c) Adverse hydraulic effects will be minimal,
- (d) Adverse effects on estuarine resources will be minimal, and
- (e) The disposal site depth is between 20 and 65 feet below MLLW.

12. Beach nourishment sites shall only be designated on sandy beaches currently experiencing active erosion. Dredged material disposal at beach nourishment sites shall only be used to offset the erosion and not to create new beach or land areas. Beach nourishment sites shall not be designated in areas where placement or subsequent erosion of the dredged materials would adversely impact tidal marshes or productive intertidal or shallow subtidal areas. Designation of new beach nourishment sites shall require an exception to Statewide Planning Goal 16.

13. Dredged material disposal sites with adequate capacity to accommodate anticipated dredging needs for at least a five year period shall be identified and designated. Additional sites may also be designated. All dredged material disposal sites shall receive a Priority I or II designation with respect to its suitability and importance for meeting five-year dredging needs.

14. Priority I Dredged Material Disposal Sites

Sites which are essential for meeting anticipated five-year disposal needs shall receive a Priority I designation. Priority I shoreland sites shall be protected from incompatible and preemptive uses to ensure adequate sites will remain available to accommodate five-year disposal needs. Incompatible and preemptive uses include:

- (a) Uses requiring substantial structural or capital improvements (e.g., construction of permanent buildings, water and sewer service connections);
- (b) Uses that require alteration of the topography of the site, hereby affecting the drainage of the area or reducing the potential useable volume of the dredged material disposal site e.g., extensive site grading or excavation, elevation by placement of fill materials other than dredged spoils);
- (c) Uses that include changes made to the site that would prevent expeditious use of the site for dredged material disposal. Such uses would delay deposition of dredged material on the site beyond the period of time commonly required to obtain the necessary federal, state and local dredging and dredged material disposal permits (approximately 90 days);

(Note: Examples of non-preemptive or compatible uses of shoreland dredged material disposal sites are: unimproved parking lots, equipment storage yards, materials marshalling yards, log storage and sorting yards, and undeveloped recreation areas, campgrounds or recreational vehicle parking areas.)

Incompatible or preemptive uses shall not be allowed at shoreland Priority I dredged material disposal sites unless the site is removed from the dredged material disposal plan by ordinance amendment upon demonstration that either:

- (d) The site has been filled to capacity and is available for other uses, or
- (e) The site is, in fact, not required to accommodate anticipated five-year disposal needs, or
- (f) A new Priority I site has been designated to replace the site being removed.

15. Priority II Dredged Material Disposal Sites

(a) Dredged material disposal sites which are not required for anticipated five-year disposal needs but which may be required to meet longer range needs shall be given a Priority II designation. The importance of these sites, as compared with Priority I sites, does not justify efforts to reserve all or portions of each site from possible preemptive uses.

(b) A 30-day freeze shall be placed on preemptive development requests (as defined in 15(a), above), for the purpose of allowing affected government agencies or private interests to negotiate for the use of the property as a disposal site. The County may choose to run this freeze concurrently or in addition to the normal permit process. If there is no expressed interest in use of the site for dredged material disposal during the freeze period, the development request shall be reviewed under normal procedures. If the request is approved, the entire site or affected portions of the site shall be removed from the dredged material disposal plan by ordinance amendment.

16. In order to ensure the adequacy of identified dredged material disposal site capacities for anticipated five-year disposal requirements, an analysis of the dredge material disposal site inventory shall be completed every five years. The analysis shall include:

- (a) A determination of the Priority I sites utilized for dredged material disposal and the volume received by each site during the preceding period, noting also the project source of the dredged material and the interval separating the most recent from the next anticipated dredging event.
- (b) A determination of the number and usable volume of Priority I sites remaining in the inventory, and the relationship between these sites and present or expected navigation-related dredging or water-dependent development projects in the following five year period, and the number and useable volume of Priority II sites identified in the inventory.
- (c) An identification of the Priority II or other additional sites to be added to the Priority I inventory.

(d) An analysis of the adequacy of the dredged material site inventory shall include notification of, and communication of up-dated inventory information to affected property owners and local, state and federal governmental agencies. Of particular importance is the addition, deletion, or change in priority of dredged material disposal sites.

(e) The County shall cooperate with other jurisdictions on the Columbia River Estuary in monitoring of dredged material site availability and in dredged material disposal plan update.

17. New dredging in Aquatic Conservation management units may be permitted for the following if the dredging is consistent with the resource capabilities of the affected management unit:

- (a) Aquaculture;
- (b) High intensity water-dependent recreation, including boat ramps and marinas;
- (c) Minor navigational improvements;
- (d) Mineral extraction;
- (e) Obtaining fill material for dike maintenance where a Goal 16 exception has been approved;
- (f) Active restoration;
- (g) Bridge crossing support structures;
- (h) Pipelines, cables, and utility crossings;
- (i) Maintenance and installation of tidegates and associated drainage channels;
- (j) Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources;
- (k) Structural shoreline stabilization;
- (l) Navigational aids;
- (m) Communication facilities;
- (n) Stormwater and treated wastewater outfalls;
- (o) Research and educational observations.

18. New dredging in Aquatic Natural management units may be permitted for the following if the dredging is consistent with the resource capabilities of the affected management unit:

- (a) Maintenance or installation of bridge crossing support structures;
- (b) Obtaining fill material for dike maintenance where a Goal 16 exception has been approved;

- (c) Maintenance and installation of tidegates and associated drainage channels;
- (d) Pipelines, cables, and utility crossings;
- (e) Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources; and
- (f) Active restoration;
- (g) Navigational aids;
- (h) Communication facilities.

P20.6. ESTUARINE CONSTRUCTION: PILING AND DOLPHIN INSTALLATION, SHORELINE STABILIZATION AND NAVIGATIONAL STRUCTURES

The policies in this subsection apply to over-the-water and in-water structures such as docks, bulkheads, moorages, boat ramps, boat houses, jetties, pile dikes, breakwaters and other structures involving installation of piling or placement of riprap in Columbia River Estuary aquatic areas. Also covered under these policies are shoreline stabilization and aquatic area fills. This section does not apply to structures located entirely on shorelands or uplands, but does apply to structures, such as boat ramps, that are in both aquatic and shoreland designations. [This section is presently P20.8]

1. Proper streamside vegetation management is the preferred method of shoreline stabilization, followed by planting of new vegetation, installation of riprap and installation of a bulkhead.
2. Navigational structures, such as breakwaters, jetties, groins, and pile dikes are major estuarine alterations with long term biological and physical effects. Proposals for new or enlarged navigational structures, or for removal of existing structures, must demonstrate that expected benefits outweigh potential adverse impacts on estuarine productivity.
3. New uses in aquatic areas and in shoreland areas especially suited for water-dependent development that are not water-dependent, if permitted, shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.
4. Where structural shoreline stabilization is shown to be necessary, an impact assessment is required and will include consideration of effects on shoreland and aquatic habitats, effects on fishing areas, uses of the adjacent shoreland and aquatic areas, and potential for adverse impacts in adjacent areas due to the project.
5. Proliferation of single-purpose docks and moorages is discouraged. Public or commercial multi-vessel moorage is preferred.

DELETE CURRENT POLICY P20.7 - ENERGY FACILITIES

P20.7. FILLING OF AQUATIC AREAS AND WETLANDS

This subsection applies to the placement of fill material in the tidal wetlands and waters of the Columbia River Estuary. These policies also apply to fill in nontidal wetlands in subarea descriptions. [This section is presently P20.9 - Filling of Estuarine Waters and Wetlands.]

1. New uses in aquatic areas and in shoreland areas especially suited for water-dependent development that are not water-dependent, if permitted, shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.
2. Reduction of surface area and volume of aquatic areas and significant non-tidal wetlands in shoreland areas shall be minimized in the location and design of uses or activities requiring fill.
3. Construction on piling is preferred over construction on fill.

P20.8. FISH AND WILDLIFE HABITAT

This subsection applies to uses and activities with potential adverse impacts on fish or wildlife habitat, both in Columbia River estuarine aquatic areas and in estuarine shorelands. [This section is presently P20.10.]

1. Endangered or threatened species habitat shall be protected from incompatible development.
2. Measures shall be taken to protect nesting, roosting, feeding and resting areas used by resident and migratory bird populations.
3. Major marshes, significant wildlife habitat, coastal headlands, and exceptional aesthetic resources in the Coastal Shorelands Boundary shall be protected.

P20.9. LAND TRANSPORTATION SYSTEMS

Policies in this subsection are applicable to the maintenance and construction of railroads, roads and bridges in Columbia River Estuary shoreland and aquatic areas. Public, as well as private facilities are covered under this subsection. Forest roads, however, are excluded. [This section is presently P20.13 - Land Transportation Facilities.]

1. New non-water-dependent uses in aquatic or shoreland areas especially suited for water-dependent development shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.
2. Land transportation systems shall be maintained and improved to support existing urban areas, allow industrial site development and support rural and recreational uses.

3. New land transportation routes shall not be located in aquatic areas or in significant nontidal wetlands in shoreland areas except where bridges are needed, and where no feasible alternative route exists.
4. New land transportation routes shall be located so as not to reduce or downgrade the potential for development of Development Shorelands or Development Aquatic areas.
5. When feasible, new public roads in scenic areas shall provide rest areas, view-points and facilities for safe bicycle and pedestrian travel.
6. Construction of new land transportation systems and maintenance of existing land transportation systems shall be undertaken in a manner that minimizes expected impacts on aquatic and shoreland estuarine resources.

P20.10. LOG STORAGE

This subsection establishes policies for the establishment of new, and the expansion of existing, log storage and sorting areas in Columbia River Estuary aquatic and shoreland areas. [This section is a new policy section.]

1. New aquatic area log storage facilities shall be designed and located so as to minimize potential adverse impacts on aquatic habitat, water quality and in areas that will not conflict with other estuarine uses.

P20.11. MINING AND MINERAL EXTRACTION

Policies in this subsection are applicable to the extraction of sand, gravel, petroleum products and other minerals from both submerged lands under aquatic areas and from shoreland areas in the Columbia River Estuary. [This section is presently P20.14.]

1. Proposals for aquatic and shoreland area mining may be approved subject to protection of adjacent property and fishery resources from potential adverse impacts, including sedimentation and siltation.
2. Mining operations in aquatic and shoreland areas shall use technology and practices which minimize potential damage to estuarine resources, in conformance with the Oregon State Reclamation of Mined Lands Act.
3. Mineral extraction or gravel or sand dredging from the estuary may be permitted only when these resources are not otherwise available at upland locations and in conformance with the County's Dredging and Dredged Material Disposal policies and standards concerning mining and mineral extraction.
4. Aquatic area mining or mineral extraction projects may be approved only for the least biologically sensitive areas, and may occur only in aquatic areas deeper than ten feet below MLLW.

5. Mining and mineral extraction activities shall not be approved in areas of major marshes, significant fish and wildlife habitat, or exceptional aesthetic resources. Mining and mineral extraction activities occurring in areas of known or reported historical or archaeological sites should have an archaeological survey conducted of the proposed site.
6. Wastewater associated with mining shall be handled in a manner that preserves water quality and in conformance with state and federal water quality requirements.

DELETE CURRENT POLICY P20.12 - FORESTRY AND FOREST PRODUCTS INDUSTRY

P20.12. MITIGATION AND RESTORATION

Policies in this section are applicable to estuarine restoration and mitigation projects on Columbia River Estuary aquatic areas and shorelands. Non-tidal wetlands are briefly addressed. [This section combines presently separate P20.15 Mitigation and P20.19 Restoration].

Mitigation

1. Any fill activities that are permitted in the Columbia River Estuary aquatic areas or dredging activities in intertidal and shallow to medium depth subtidal areas shall be mitigated through project design and/or compensatory mitigation (creation, restoration or enhancement) to ensure that the integrity of the estuary ecosystem is maintained. Local Comprehensive Plans shall designate and protect specific sites for mitigation which generally correspond to the types and quantity of aquatic area proposed for dredging or filling.
2. Mitigation for fill in estuarine aquatic areas or dredging in intertidal and shallow to medium depth subtidal areas of the Columbia River Estuary planning area shall be implemented through the following mitigation actions:

Project Design Mitigation Actions

- a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- b) Minimizing impacts by limiting the degree or magnitude of action and its implementation;
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment (e.g., removing wetland fills, rehabilitation of a resource use and/or extraction site when its economic life is terminated);
- d) Reducing or eliminating the impact over time by preservation and maintenance operations;

Compensatory Mitigation Actions

- e) Creation, restoration, or enhancement of an estuarine area to maintain the functional characteristics and processes of the estuary, such as its natural biological productivity, habitats, and species diversity, unique features and water quality.

Any combination of the above actions may be required to implement mitigation requirements. The compensatory mitigation actions listed in section (e) shall only be implemented after impact avoidance, reduction and rectification techniques have been considered, and there are still unavoidable adverse impacts.

3. Pre-permit application meetings and visits to the proposed development and mitigation sites shall be encouraged. The initial site visit coordinated between the local government and federal and state agencies shall be structured such that key issues will be addressed and consensus, to the degree possible, is established on each issue. This will require a structured site review format listing goals, objectives, and specific activities associated with the proposed development and mitigation actions.
4. The full array of wetland and aquatic area values shall be addressed when making mitigation site decisions and when designing mitigation action requirements. The list includes but is not limited to: fish and wildlife habitat, flood storage and desynchronization, food chain support, passive recreation, shoreline anchoring and water purification functions.
5. All mitigation actions shall be required to begin prior to or concurrent with the associated development action.
6. Developments in low-value diked freshwater nontidal wetlands can be mitigated by treating estuarine restorations or creations as in-kind mitigation actions. The final decision on the relative value of diked freshwater nontidal wetland shall be made through a cooperative effort between local governments and state and federal regulatory agencies. Values considered shall include but are not restricted to fish and wildlife habitat, flood storage and desynchronization, food chain support, passive recreation, shoreline anchoring and water purification functions.
7. If any of the compensatory mitigation actions are required, the local government shall require that the U.S. Fish and Wildlife Service make a Resource Category determination for the site proposed for development. The classification shall be listed on the permit application and review notice. If the area subject to impact is in a Resource Category 2 or lower (4 = lowest), the following sequence of mitigation options shall be considered:
 - In-Kind/On-Site
 - In-Kind/Off-Site
 - Out-of-Kind/On-Site
 - Out-of-Kind/Off-Site

8. If out-of-kind mitigation is found to be the only option, the applicant shall first seek restoration of historically and/or present day scarce habitat types.
9. All completed mitigation sites shall be adequately buffered from development and other activities to minimize the potential adverse impacts on the mitigation site. Buffer requirements shall be determined through a cooperative effort between local governments and state and federal regulatory agencies.
10. No mitigation action shall endanger or obstruct adjacent properties. The potential for present or future endangerment or obstruction shall be determined in advance of the mitigation action. Responsibility for rectifying potential damage to adjacent property shall be determined prior to permit approval.
11. Clatsop County will cooperate with CREST and state and federal resource agencies in the periodic review of the region's mitigation plan. Reviews should occur every 4-7 years. The review shall include reexamination of site availability, degree of plan implementation, changed policies and legal requirements and possible new projects that may require mitigation.
12. Additional mitigation sites shall be designated by Clatsop County as the need arises. New designations shall be coordinated with CREST, local governments, state and federal resource agencies. New sites shall be subject to the same policies and standards as sites presently designated.
13. All designated mitigation sites shall be protected and shall facilitate mitigation actions through appropriate zoning ordinance measures. For any new site not designated in the plan, mitigation shall be implemented through the policies and standards of this plan.
14. Estuarine alterations in Washington can be mitigated by actions in Oregon and vice versa if local and state authorities from both states and federal authorities with statutory responsibility for administering mitigation requirements approve the mitigation site selected and the mitigation action proposed.
15. Shorelands that are in a Water-Dependent Development Shorelands designation can only be used for mitigation subject to a finding that the use of the site for mitigation will not preclude or conflict with water-dependent uses.
16. Full consideration shall be given to existing significant Goal 17 resources when designing a mitigation project that may potentially alter, impair or destroy all or any portion of these resources. The minimum consideration will be to discount value from the credit potential of the mitigation action proportional to the existing value of the Goal 17 resource. Significant Goal 17 resource areas (major marshes, significant wildlife habitat and exceptional aesthetic resources) can only be used for mitigation subject to a finding that the use of the site for mitigation will be consistent with the protection of natural values.
17. Any acquisition strategy for bringing designated mitigation sites (pre- or post-mitigation action) into public ownership or into ownership of a private nonprofit land trust organization is encouraged.
18. All mitigation sites designated on public lands shall remain in public ownership.

19. An area in forest production, and considered for mitigation purposes, shall be evaluated for its present use value and compared with its potential value as a wetland before conversion of the site is acceptable.

20. A developer may create, restore or enhance more wetland area than required for immediate development impacts. Subject to federal, state and local agency approval, this "surplus mitigation" may be credited against future development. The reserve wetland area shall not be considered a mitigation bank unless it is acquired and managed by a federal or state land and resource management agency. In Oregon, this shall be the Division of State Lands.

Mitigation Bank Policies

21. Any area where a mitigation action has taken place and mitigation credits are available for future development and the site is owned and managed by a federal or state land management agency, shall be designated as a mitigation bank. The federal or state agency (Division of State Lands) shall be responsible for administration of a mitigation bank area throughout the period it serves as a bank.

22. An agreement among local, state and federal authorities shall serve as the implementing instrument establishing a mitigation bank and for continuing management of a bank. Such an agreement is necessary to document the initial conditions of a bank's formation, including the means by which a mitigation bank shall be administered. The agreement shall also detail ownership of the site and include an itemized presentation of project costs, a technical plan outlining the habitat mitigation action, and include the number of mitigation credits available in the bank. A plan for monitoring the mitigation site shall be provided, including the goals, costs, and responsibility of the monitoring program. The agreement shall specify the mechanisms by which mitigation "credits" will be transferred from the bank and applied to the activity qualifying for use of the bank. The agreement shall also specify the means by which proportional mitigation bank creation costs will be assessed.

23. Mitigation credits in mitigation banks shall be reserved for use by small scale development projects (5 acres or less of impacted wetland and/or aquatic area). This does not apply to the Airport Mitigation Bank.

24. A variety of habitats shall be created in a mitigation bank whenever possible, such that the opportunity of replacement for wetland resources lost to a variety of development activities is possible. The mitigation bank shall be of sufficient capacity to meet the requirements of a number of expected development projects.

25. Mitigation banks shall be created by written agreement with the Director of Oregon Division of State Lands (DSL) and shall be administered by DSL. Such agreements shall provide the basis for creation and operation of the bank and shall specifically provide for the following:

- a) The exact location of the real property.
- b) Proof of ownership or control, i.e., deed or title report.

- c) The nature and extent of the mitigation action. This analysis shall require information about the site salinity, elevation, wave and current actions, substrate, and other physical and biological characteristics.
 - d) How and when the mitigation action shall be performed.
 - e) A statement of informed opinion as to what habitat shall result from the action and a statement as to the relative value of each anticipated habitat type.
 - f) How the resulting changes shall be monitored and evaluated [OAR 141-85-254 (12, 14)] and what contingencies are planned if goals are not satisfied within a reasonable time period.
 - g) How the mitigation bank shall be protected (e.g., dedication, conservation easement, deed transfer).
 - h) How funding for necessary construction or alteration work and potential remedial action shall be guaranteed (e.g., bonding).
 - i) The price that may be charged for credits from the bank.
26. Applicants for removal and fill permits requiring mitigation are not obligated, or automatically entitled, to use an existing mitigation bank to meet the mitigation needs of any project. Permit applicants shall negotiate directly with the administrator of the bank, resource agencies, and regulatory agencies to secure the right to use the bank. Agreements between the administrator of the bank and the permit applicant are subject to the Planning Director's approval of the number of mitigation credits charged against the bank.

Restoration

27. Restoration of tidal and nontidal wetlands in the Columbia River Estuary area may be done either as a mitigation action or as an action outside of the context of mitigation.
28. Restoration outside of the context of mitigation shall be allowed at designated mitigation sites if the site is a middle or low priority site and findings are made that it is no longer needed for mitigation.
29. All restoration projects shall serve to revitalize, return, replace or otherwise improve the wetland and aquatic ecosystems in the Columbia River Estuary area. Examples include restoration of natural biological productivity, fish and wildlife habitat, aesthetic or historic resources that have been diminished or lost due to past alterations, activities, or catastrophic events. In selecting projects, priority shall be given to those projects which provide substantial public benefits and which restore those wetland and aquatic habitat types, resources, or amenities which are in shortest supply compared to past abundance.
30. After a restoration takes place the local jurisdiction shall amend its plan and implement a zone change, for the restored area, to reflect the aquatic character of the site.

31. Restoration of economically marginal and unused low-lying diked areas to estuarine wetland shall be encouraged; active restorations to provide potential for diverse habitat (e.g., mudflat and marsh) as well as passive restorations are encouraged. Except through public condemnation procedures, removal of dikes or excavation on private lands shall not occur without consent of the landowner.

33. Shorelands that are in a Water-Dependent Development Shorelands designation can only be used for restoration subject to a finding that the use of the site for restoration will not preclude or conflict with water-dependent uses.

34. Significant Goal 17 resource areas (major marshes, significant wildlife habitat, and exceptional aesthetic resources) can only be used for restoration subject to a finding that the use of the site for restoration will be consistent with protection of its natural values.

35. Old piling, navigational structures, and buildings that are a hazard to navigation and contribute to excessive shoaling, or pose a threat to life or property shall be removed. Prior to removal, the costs and benefits associated with removal shall be evaluated. Factors requiring consideration include:

- Potential erosion or sedimentation problems that may result from removal;
- The structure's habitat value and probable longevity; and
- The structure's historic and scenic values.

36. Restoration of riparian vegetation around wetlands and waterways in the Columbia River Estuary planning area is a high priority. Protection of these areas shall be implemented using various strategies (e.g., zoning, acquisitions, easements, and transfer of development rights).

Long Term Aquatic Area and Nontidal Wetlands Mitigation and Restoration Policies

37. Federal and state resource agencies should be requested to intensify existing programs to identify Resource Categories of wetlands and Section 404 wetlands in the Columbia River Estuary area to give developers greater certainty regarding available development sites and potential mitigation requirements. The net result shall be greater certainty for developers and a more streamlined permit process.

38. CREST shall make an effort to develop a program to identify and assess the relative values of nontidal wetlands. This inventory effort shall provide baseline data that can be used to give greater certainty regarding site potential for development and mitigation requirements.

39. A method of quantifying enhancement credits for estuarine and nonestuarine wetland mitigation should be developed. Also, a method for quantifying nonestuarine wetland values should be developed and incorporated into local statutes. Ideally, this system should be compatible with the system used in Oregon's Estuarine Mitigation Law. The system would have to be reviewed and accepted by state and federal resource and regulatory agencies.

40. A system should be devised whereby wetland impacts that are allowed under a regional or nationwide permit, and that do not require any permit procedure, may be reported to the local government so that an accurate record of cumulative wetland impacts can be maintained.

41. The following framework for restoration implementation is recommended for the Columbia River Estuary:

- a) Develop and provide educational materials for landowners explaining the benefits of natural area protection and various options for restoring land to natural conditions and protecting the restored land.
- b) Establish an incentive system in the Columbia River Estuary area whereby landowners can effectively utilize a variety of options for restoration and protection of their land.
- c) Identify landowners with economically marginal production land (e.g., forest or agricultural production), that was historically wetland, and inform them of any incentive-oriented restoration systems for restoration and encourage their participation.

42. The following techniques are suggested as potential methods to establish a wetland restoration and protection incentive system:

- a) Development of effective acquisition power through private nonprofit organizations and federal and state grants (acquisition may be through sale, trade or land donations). Public ownership is encouraged.
- b) Protection through restrictions while landowners retain title to the land, (e.g., conservation easements, mutual covenants, deed restrictions and leases).
- c) Provide tax incentives for landowners that allow restoration to take place on their land.
- d) Deed restrictions, wildlife easements or fee acquisition on Farmers Home Administration farm foreclosure inventory lands.

P20.13. PUBLIC ACCESS TO THE ESTUARY AND ITS SHORELINE

Policies in this subsection apply to all uses and activities in Columbia River Estuary shoreland and aquatic areas which directly or indirectly affect public access. "Public access" is used broadly here to include direct physical access to estuary aquatic areas (i.e. boat ramps), aesthetic access (i.e. viewing opportunities), and other facilities, designations, or opportunities that provide some degree of public access to Columbia River Estuary shorelands and aquatic areas. [This section is presently P20.16.]

1. Federal, state and local activities in the estuary shall, when feasible, provide for maintenance and improvement of estuarine public access.

2. Public access in urban areas shall be preserved and enhanced through waterfront restoration and construction of public facilities, and other actions consistent with local public access plans.
3. Public access in rural areas shall be preserved and enhanced through development of trails, scenic viewing areas, boat ramps and other actions consistent with local public access plans.
4. Proposed major shoreline developments shall not, individually or cumulatively, exclude the public from shoreline access to areas traditionally used for fishing, hunting or other shoreline activities.
5. Publicly owned shorelands with water access should remain in public hands.
6. Special consideration shall be given toward making the estuary accessible for the physically handicapped or disabled.
7. Public access to publicly owned shorelands and aquatic areas shall be maintained and improved where feasible.
8. Clatsop County will develop and implement programs for increasing public access.

P20.14. RECREATION AND TOURISM

Policies in this subsection are applicable to recreational and tourist-oriented facilities in Columbia River Estuary shoreland and aquatic areas. [This section is presently P20.17.]

1. New non-water-dependent uses in aquatic areas or in shoreland areas especially suited for water-dependent development, if permitted, shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.
2. Recreation uses in waterfront areas shall take maximum advantage of their proximity to the water by providing water access points, water-front viewing areas, and structures visually compatible with the waterfront.

P20.15. RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT

The policies in this subsection are applicable to construction or expansion of residential, commercial or industrial facilities in Columbia River Estuary shoreland and aquatic areas. Within the context of this subsection, residential uses include single and multi-family structures, mobile homes, and floating residences (subject to an exception). Duck shacks, recreational vehicles, hotels, motels and bed-and-breakfast facilities are not considered residential structures for purposes of this subsection. Commercial structures and uses include all retail or wholesale storage, service or sales facilities and uses, whether water-dependent, water-related, or non-dependent, non-related. Industrial uses and activities include facilities for fabrication, assembly, and processing, whether water-dependent, water-related or non-dependent non-related. [This section is presently P20.18.]

1. New non-water-dependent uses in aquatic areas or in shoreland areas especially suited for water-dependent development if permitted, shall not preclude or pose any significant conflicts with existing, proposed or probable future water-dependent uses on the site or in the vicinity.
2. Shoreland developments shall be designed and constructed to minimize adverse environmental and aesthetic impacts. Where appropriate and feasible, development shall be clustered to provide open space.
3. Where non-water-dependent, non-water-related residential, commercial or industrial development exists on shorelands designated for water-dependent development, transition of shorelands to water-dependent or water-related uses is encouraged.

P20.16. SHALLOW-DRAFT PORTS AND MARINAS

The policies in this subsection apply to development of new marinas and improvement of existing marinas in aquatic areas of the Columbia River Estuary. Also covered are adjacent shoreland support facilities that are in conjunction with or incidental to the marina. Included under this subsection's coverage are both public and private marinas for either recreational, charter or commercial shallow draft vessels. [This section is presently P20.20.]

1. Proliferation of individual single-purpose docks and moorages is discouraged. Public or commercial multi-vessel moorage is preferred.
2. Navigational access to the estuary and its tributaries shall be maintained. Peripheral channels, streams and sloughs shall not be closed to navigation. Necessary maintenance dredging for traditional moorage areas shall be allowed, subject to the requirements of the aquatic designation, state and federal permits, and local plan and ordinance provisions.
3. Provisions should be made for adequate flushing and water circulation and waste disposal receptacles to ensure the maintenance of water quality in marina and moorage facilities.

P20.17. SIGNIFICANT AREAS

The policies in this subsection are intended to protect certain Columbia River shoreland and aquatic resources with estuary-wide significance. Significant shoreland resources are identified as such in subarea plans. Significant aquatic resources are found in Natural Aquatic areas. This subsection applies only to activities and uses that potentially affect significant shoreland or aquatic resources. Other resources without estuary-wide significance are not covered by this subsection. [This section is presently P20.21 - Significant Areas: Natural, Scientific, Scenic, Historical, Cultural and Archaeological Resources.]

1. Significant estuarine aquatic and shoreland resources shall be protected from degradation or destruction by conflicting uses and activities.

2. Major marshes, significant wildlife habitat, and aesthetic resources shall be protected.
3. Known or newly discovered archaeological sites shall be protected in compliance with existing state and federal laws.

P20.18. SHORELAND HAZARD AREAS

The policies in this subsection apply to development in Columbia River Estuary shoreland areas with identified hazards to development. These hazards are identified in subarea plans, and include areas susceptible to erosion, soil movement, and flooding. [This section is presently P20.22.]

1. Development proposed in identified shoreland hazard areas is generally discouraged. All new and replacement development in shoreland hazard areas shall be protected from the hazard.

P20.19. WATER QUALITY MAINTENANCE

The policies in this subsection are intended to help protect and enhance the quality of water in the Columbia River Estuary. Impacts on water quality in aquatic areas and in tidewatered sloughs in shoreland areas are covered. [This section is presently P20.23.]

1. Non-point source water pollutants from forest lands, roads, agricultural lands, streambank erosion and urban runoff shall be controlled by state water quality programs, Oregon Forest Practices Act and administrative rules, and Soil Conservation Service programs.
2. New untreated waste discharges into tributary streams, enclosed bays and sloughs shall not be permitted.
3. Petroleum spill containment and clean-up equipment should be located in the estuary area. This equipment should be capable of controlling a large spill in all areas of the estuary.
4. Ports, marinas and commercial moorage facilities shall provide waste disposal receptacles in compliance with Marpol Annex V.

P20.20. WATER-DEPENDENT DEVELOPMENT AREAS

Policies in this subsection are applicable only to those Columbia River Estuary Shorelands designated as Especially Suited for Water-Dependent Development. The purpose of these policies is to assure that adequate sites are available for water-dependent uses. [This is a new Policy section].

1. Shorelands especially suited for water-dependent uses shall be protected for water-dependent uses.
2. Temporary uses involving minimal capital investment or uses incidental to a water-dependent use may be allowed in shorelands especially suited to water-dependent development if the temporary or incidental use does not foreclose future opportunities for a water-dependent use.

XXIV. Amend the Columbia River Estuary Intergovernmental Coordinations Policies, Policies P21 - P21.5, by deleting the existing text and replacing it with the following material:

P21 INTERGOVERNMENTAL COORDINATION POLICIES

P21.1 LOCAL INTERGOVERNMENTAL COORDINATION

The Columbia River Estuary Study Taskforce (CREST) provides local governments with a forum for communication and cooperation in planning and development activities of regional scope and importance. Local governments recognize the mutual benefits of such coordination during the decision-making and implementation process.

On behalf of member governments, CREST will:

1. Provide continued planning assistance to member jurisdictions upon request to and approval by the CREST Council, review local comprehensive plans and make recommendations which will result in coordination and conformance with the Columbia River Estuary Regional Management Plan;
2. Provide technical information and assistance to member jurisdictions, other agencies and private interests concerning implementation of the Columbia River Estuary Regional Management Plan;
3. Evaluate state and federal estuary activities, programs, developments and project impact assessments that may affect local governments and report results to concerned jurisdictions;
4. Coordinate with local, state and federal agencies on estuary development, research, regulation, project impact assessment and plan review and update;
5. Establish and maintain a library of information and data pertaining to and affecting the Columbia River Estuary for use by the public, local government and state and federal managers and researchers.

P21.2 SCIENTIFIC RESEARCH AND PLANNING IN ESTUARINE AREAS

Research is conducted by state and federal agencies, universities, private consultants, and individuals in the estuary area. State and federal agencies periodically develop special-purpose plans for particular resource areas, within the estuary, which affect local planning and decision-making.

To ensure local coordination and to provide useful information for local estuary management decisions, it is recommended that all agencies, consultants, university personnel and individual researchers conducting research or developing special management plans should:

1. Contact CREST and affected local jurisdictions during the project-planning stage to outline the research or planning objectives and schedule, and the means of reporting project results; and

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2. Make provision for timely reporting of research results and management plan findings to local jurisdictions.

P21.3 PUBLIC INFORMATION

Public knowledge of the value of estuarine resources and the importance of estuarine resources to the local economy could be dramatically improved through a program of education and public information. CREST and local governments, in cooperation with state and federal agencies, educational institutions and private groups should:

1. Encourage development of practical educational courses, extension education programs, science fairs, library and museum displays relating to the Columbia River Estuary and the marine sciences in general;
2. Encourage the establishment of major oceanographic research and educational facilities in the area;
3. Maintain and expand the CREST library and information services.

P21.4 DEVELOPMENT EVALUATION, PERMIT INFORMATION AND PERMIT REVIEW

Development occurring in estuarine aquatic or shorelands areas produces impacts of varying type and degree. State and federal permits are required for in-water construction, dredging, filling, waste discharge and numerous other activities. These permits are mandated by law and allow each local jurisdiction to carry out its responsibility to control or limit negative economic and environmental effects. The number of permits and necessary requirements, and the lack of knowledge about such requirements, may add substantial cost and time delays to development projects.

CREST will provide permit information and assistance for potential developers concerning requirements at the local, state and federal level. Information to be provided may include: environmental and legal constraints, methods to minimize or mitigate the impacts of proposed projects, and general policies of agencies that will review the project. The intent of this policy is to facilitate understanding and use of existing permit processes. Review by CREST is not mandatory.

P21.5 STATE AND FEDERAL CONSISTENCY

The Columbia River Estuary plan is consistent with Oregon's Coastal Zone Management Program. The State's program is implemented through local comprehensive plans. Federal activities and federally funded or permitted activities in the estuary area shall be consistent to the maximum extent practicable with the regional policies, development standards, and land and water use designations in local comprehensive plans.

- XXV. Amend the Columbia River Estuary Subarea Plans, Policies P30 - P30.22, by deleting the existing text and replacing it with the following material:

P 30. COLUMBIA RIVER ESTUARY SUBAREA PLANS

The Columbia River Estuary Study Taskforce (CREST) has prepared a regional management plan for the Columbia River Estuary covering three counties, including Clatsop County, and four cities. The relevant parts of the *Columbia River Estuary Regional Management Plan* are adopted and summarized in the County's Comprehensive Plan and Land and Water Development and Use Ordinance. This section describes the aquatic areas and adjacent shorelands in Clatsop County.

The estuary is divided into 46 planning subareas. These subareas were drawn to represent distinct planning units with common features and needs: land use patterns, physical and biological characteristics, and jurisdictional boundaries were used to determine subarea boundaries. The subarea plans which are under, or in-part under Clatsop County jurisdiction are described in P30.1 through P30.22. There are 16 subareas wholly within Clatsop County and 6 subareas partially within Clatsop County and one or more other jurisdiction.

The subarea plans are divided into several elements, each of which addresses a different set of factors affecting land use. The elements are designed to provide local government officials, planners, and other plan users with the background information needed to evaluate development proposals. Those elements and their contents are described below.

General Description

This section contains a description of subarea boundaries and general characteristics. The boundaries are described using, where possible, commonly known features.

Aquatic Features

This section describes predominant aquatic area characteristics. The aquatic area is defined as all areas lying waterward of the landward limit of aquatic vegetation or, where there is no vegetation, Mean Higher High Water. The following physical and biological characteristics are discussed:

- a. Changes to the aquatic habitats over the past century.
- b. Currents, bathymetry, salinity, tidal influences, flushing, sedimentation, and flow;
- c. Estuarine wetlands;
- d. Benthic and water-column invertebrates;

- e. Fish; and
- f. Wildlife.

Shoreland Features

This section contains information on shoreland physical and biological features. Features discussed include:

- a. Soils;
- b. Topography;
- c. Vegetation;
- d. Nontidal wetland habitat; and
- e. Wildlife.

For informational and planning purposes, the Shoreland Features section describes all of the land area within the floodplain. Much of this area does not fall under the regulatory boundaries of shorelands, as defined by Oregon.

The regulatory estuary shorelands area in Oregon includes all lands within fifty feet landward of the estuarine shoreline. Land with the following characteristics is also included:

- a. Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or a coastal lake.
- b. Areas of geological instability in or adjacent to the shoreland boundary when the geologic instability is related to or will impact a coastal water body.
- c. Natural or man-made riparian resources, especially vegetation which function to stabilize the shoreline or maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas.
- d. Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal and estuarine areas.
- e. Areas necessary and appropriate for water-dependent and water-related uses, including areas appropriate for port facilities and navigational structures, dredged material disposal and mitigation sites, and areas suitable for aquaculture, and existing land uses and public facilities.
- f. Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or associated with the coastal or estuarine areas.

- g. Areas of recreational importance or public access which utilize coastal waters or riparian resources.
- h. Locations of archaeological or historical importance associated with the estuary.
- i. Coastal headlands.
- j. Dikes and their associated inland toe drains.

Human Use

This section describes human land and water uses in each subarea. The following factors, where applicable, are discussed:

- a. Predominant economic activities and developed land uses;
- b. Locational advantages to economic activities resulting from the presence of natural resources or from physical site characteristics;
- c. Recreational uses, both active and passive;
- d. Major point and non-point pollution sources;
- e. Navigational structures and channels;
- f. Transportation facilities; and
- g. Cumulative impacts on the subarea from particular activities.

Issues

This section focuses on the relationship between resources and uses identified in the previous three subsection descriptions and existing and projected land use patterns. Areas are identified where conflicts exist between pressures for development and resource conservation. Limitations on development potential resulting from physical site characteristics are discussed with particular emphasis on changes that have taken place since adoption of the *1979 Columbia River Estuary Regional Management Plan*.

Aquatic and Shoreland Designations

Based on an evaluation of the aquatic and shoreland features described in the previous sections, portions of the various subareas are designated according to their development potential, resource sensitivity, and conservation needs. Aquatic and shoreland designations are used with the policies and development standards to determine the types and intensities of uses which would be permitted within the subarea. Aquatic and shoreland designations are defined in Policy P10. Shoreland designations apply to the regulatory shoreland area only. This subsection defines the regulatory shoreland boundary of each subarea.

Subarea Policies

This subsection includes policies that contain specific provisions concerning a unique physical, land use, or economic characteristic of the subarea. Policies applicable to the entire estuary are included in Policy P20.

P 30.1 MOUTH OF THE COLUMBIA RIVER

General Description

This subarea includes the South Jetty, the offshore waters west of the Columbia River Entrance Buoy and the estuary between the South Jetty and a line connecting Jetty A and the North Jetty. It extends upstream to about RM 3. It does not, however, include Clatsop Spit, Jetty A, the ocean beaches or any land areas except the South Jetty. The subarea extends seaward of the Columbia Entrance Buoy to the three mile limit (state and county line), encompassing productive areas outside the mouth of the estuary and ocean dredged material disposal sites. The subarea includes parts of both Clatsop County, Oregon and Pacific County, Washington.

Aquatic Features

The Mouth of the Columbia River Subarea includes waters both inside the estuary and in the ocean. The river mouth has undergone large physical changes resulting from construction of the entrance jetties. Prior to jetty construction, the mouth of the river was at Cape Disappointment in Washington and Point Adams in Oregon. Large, shifting sand bars and shallow channels characterized the area. With the construction of the jetties, the mouth was moved about 3-1/2 miles seaward and constricted from 6 to 2 miles wide. The constriction of the mouth has resulted in a deeper entrance channel.

The mouth of the Columbia River is the most physically dynamic area of the estuary. Tidal currents, freshwater flow, wind-driven currents, waves, and coastal currents all affect the waters of the subarea. Currents and wave action combine to make navigation difficult.

Sediments in the subarea consist almost entirely of fine sand inside the mouth and in the adjacent offshore area. Some silt is found farther offshore and south of the entrance. Outside the mouth, sediment is transported by wind-driven currents and waves. The dominant direction of sediment transport is north. From the bar inward, tidal, estuarine and river flow effects become much more important. Upstream bottom currents bring sand into the estuary from the ocean during low flow periods. The overall yearly balance and the effect of storms are not known.

Salinity levels in the estuary portion of the subarea vary from zero to near ocean salinities depending on tidal cycle and river discharge. During high river discharge the water column becomes stratified with bottom salinity levels greatly exceeding those on the surface. The area becomes entirely freshwater during very high river discharges and strong ebb tides. During low river discharge, the water column becomes highly stratified during neap tides and nearly unstratified during spring tides.

Plant types in the subarea include phytoplankton and marine algae. Phytoplankton productivity is high in offshore areas but is generally low within the estuary portion of the subarea. Marine algae grow on the jetties.

Zooplankton productivity is very high in this area and seaward for several miles. Benthic invertebrate production is high in offshore marine waters but decreases toward the mouth. There is an

extensive commercial crab and shrimp fishery outside the mouth, while recreational crab fishing is important inside the jetties. The main channel area is an important nursery area for juvenile Dungeness crab.

Fish in the subarea include a mix of coastal marine, estuarine and anadromous species. Common marine species include English sole, sand sole, butter sole, starry flounder, northern anchovy, surf smelt, whitebait smelt, and Pacific tomcod. Anadromous fish including longfin smelt, American shad, Pacific herring, eulachon, and the salmonids migrate through the subarea.

Birds commonly occurring within the subarea include cormorants, gulls, surf scoters, western grebes, and sanderlings. Western and glaucous-winged gulls feed in the subarea year round and nest on the South Jetty in spring and summer.

The subarea is an important feeding area for California and northern sea lions. Although the sea lion species can be found in the subarea year round, they are most common in winter and spring. Harbor seals also feed in the subarea.

Shoreland Features

The only shorelands in the subarea are on the South Jetty, which is constructed of rock and rubble. The tip of the South Jetty is the largest California and northern sea lion haulout site in the estuary.

Human Use

This subarea contains the downstream end of the authorized navigation channel (55 feet deep by 1/2 mile wide to RM 3). The channel is stabilized by the entrance jetties and maintained primarily by hopper dredge. The average amount dredged from this subarea is about 8 million cubic yards per year. The offshore disposal sites (Areas A, B, E, and F) are in the outer portions of this area. An in-water estuary site (Area D in the Estuary Channels Subarea) was used for disposal of material from the inner bar when, during rough bar conditions, disposal at sites outside the mouth (disposal sites A, B, E, and F) was too hazardous. The Corps of Engineers has adopted a change in practices to discontinue disposal of entrance material in Area D. Recreational use of the waters by small boats is high. The Buoy 10 sports fishery draws large numbers of recreational anglers to this area each summer. Commercial fishing is intensive throughout the year.

The cumulative impact of jetty construction and dredging on circulation and scouring in this subarea has been substantial, particularly with respect to deep-draft navigation. The cumulative impact of the jetties on sand transport along the ocean beaches is not well-documented, but probably significant. The cumulative impact of bar dredging on fish habitat, particularly Dungeness crabs, may be significant, but recent studies on this are inconclusive.

Issues

The Corps of Engineers has studied the effects of dredging the bar on the juvenile Dungeness crab population. Study results demonstrate that the hopper dredge removes large numbers of juvenile crab from the bar. The long-term effect of this removal on the regional crab population has not been determined.

Peacock Spit has accreted north of the North Jetty (in the Cape Disappointment, Washington Subarea) and is part of Fort Canby State Park. In recent years the spit has experienced erosion and the Washington State Parks Department desires maximum disposal of dredged material at Area E, since this may feed the beach at Peacock Spit and retard erosion. The desirability of extensive disposal at Area E needs to be evaluated, particularly as it may affect the productive crab fishery in the area.

Aquatic and Shoreland Designations

All aquatic areas are Conservation, except:

1. Dredged material disposal sites A, B, E, and F, which are designated Development.
2. The navigation channel, plus a flowlane disposal area on each side (either 600 feet wide or to the 20-foot bathymetric contour, whichever is narrowest), is designated Development.
3. Shorelands on the South Jetty are designated Development. The South Jetty is entirely within the regulatory shorelands boundary.

Subarea Policies

1. Adverse impacts on Dungeness crab habitat and on commercial or recreational crabbing in the Mouth of the Columbia River subarea caused by dredging or by in-water dredged material disposal shall be minimized.

P 30.2 BAKER BAY

General Description

This subarea includes the aquatic areas of Baker Bay and the Sand Islands. It is bounded on the west side by the Ilwaco navigation channel and by the shoreline to the north. On the east it is bounded by Chinook Point, and by the 30 foot depth contour to the south. The Sand Islands are the only shorelands in this subarea. The Town of Ilwaco and the Port of Ilwaco are not included in this subarea. The subarea is under the jurisdiction of Clatsop County, Oregon and Pacific County, Washington.

Aquatic Features

The aquatic portion of this subarea includes the waters and wetlands of Baker Bay out to the North Channel. Prior to construction of the South Jetty in the 1890's, Baker Bay was an open water environment, very exposed to winds and waves. Sheltered anchorage and deep water were provided at and behind Cape Disappointment; most of the bay was navigable. The mouth of the Columbia River, including Baker Bay, was an extremely dynamic environment. Channels and sand bars continually changed in size, shape, and position. Between 1839 and 1848, Sand Island was located mid-river approximately 4.3 miles south of Cape Disappointment. By 1870, the island had naturally shifted 1.55 miles to the north to a position 2.75 miles south of Cape Disappointment.

The natural northerly movement of Sand Island continued until 1885 when South Jetty construction began. While the jetty was being built, Sand Island moved into Baker Bay and enlarged. By 1910, the island stabilized in approximately its present location due to changes in current flow patterns resulting from the new jetty. The movement and stabilization of Sand Island in Baker Bay has been the largest recorded shoaling event in the bay.

Shoaling continued to occur rapidly in the bay through the 1930's. Factors contributing to this shoaling included shelter from strong currents and waves brought on by Sand Island's presence in the bay, the effects of numerous pilings in the bay, and, possibly, the effects of diking the Chinook and Wallacut River tidelands and the increased sediment load in the Columbia River due to upriver logging and agricultural activities.

Sand Island breached and formed two islands in 1940. A great deal of sediment eroded from the gap between the islands during the occurrence of the breach. In addition, the newly opened gap resulted in scouring and deepening of the shallow flats immediately north of the islands.

The complex water exchange patterns of Baker Bay's three entrances determine the bay's circulation. A mathematical model of the bay provides the only information available on circulation. Much of the water exchange between the bay and the main channel of the estuary occurs through the entrance between East and West Sand Islands. The Ilwaco and Chinook Channel entrances exhibit maximum ebb flows about two hours before high water and maximum flood flows about two hours after high water. The situation is reversed in the entrance between East and West Sand Islands, with

maximum ebb flows about two hours after high water and maximum flood flows two hours before high water. The currents in the interior of the bay are much weaker than the currents in the bay's entrances.

Winds have a significant impact on the bay's water levels, currents, and waves. During the prevailing north and northwest winds of summer, water levels drop and the circulation patterns in the bay change. For example, an average north-flowing current in the east portion of the bay reverses and flows south. During the prevailing south winds of winter, water levels rise in the bay and the average north-flowing current of the east portion of the bay continues to flow to the north and increases in strength. The windward shores in the bay receive strong wave action.

Two tributaries flow into the bay but have little affect on the bay's circulation. The discharge of the Chinook River averages 55 cubic feet per second while the discharge of the Wallacut River averages 25 cubic feet per second.

The salinity of Baker Bay ranges from less than 0.5 to greater than 30 parts per thousand (ppt) depending on the tidal stage and the discharge of the Columbia River. During low river discharge the salinity levels in the east half of the bay range over the tidal cycle from 0.5 to 30 ppt while the salinity levels in the western half of the bay range from 5 to 30 ppt. Salinity levels during high river discharge range over the tidal cycle from less than 0.5 to 30 ppt.

The sediments of the Baker Bay Subarea are primarily poorly-sorted with mean grain sizes ranging from fine sand to coarse silt. Very fine sand, silt, and clay comprise the tidal flats of the inner bay. These tidal flats tend to have coarser sediments near the shoreline than offshore. Many of the outer bay's protected tidal flats contain sediments with mean grain sizes in the very fine sand, silt, and clay classes during high river discharge periods and in the medium to fine sand classes during low river discharge periods. Exposed tidal flats of the outer bay, such as the flat near Chinook Point, consist of sediments with mean grain sizes ranging from medium to fine sand year round. Sediments with mean grain sizes in the coarse sand class exist in the subarea on the northeast shore of West Sand Island, the southern shores of East and West Sand Islands, and in the channel between the islands.

The plant types of the Baker Bay aquatic area include phytoplankton, benthic algae, eelgrass, and brackish tidal marsh and swamp vegetation. Phytoplankton productivity has not been measured in the bay. Benthic algal productivity levels on the tidal flats and low marshes of the subarea rank among the highest in the estuary. Productivity rates are highest on the more protected tidal flats on the west side of the bay and lowest on the exposed tidal flats adjacent to the islands. The tidal flats of the inner bay and north shoreline exhibit intermediate production levels. Sparse patches of eelgrass grow on many of the tidal flats of the bay, with highest densities on the flats adjacent to Ilwaco Channel. The tidal marshes and swamps of the subarea form a narrow band around much of the shoreline. Bulrush dominates the colonizing (lowest elevation) low marshes while Lyngby's sedge dominates higher elevation low marshes. The high marshes contain primarily creeping bent grass, aster, and marsh potentilla. The swamps contain mainly willow, Sitka spruce, and alder.

Invertebrate types studied in the Baker Bay subarea include benthic infauna and epibenthic organisms. The benthic infauna consist of a very productive community dominated by clams, polychaetes, and oligochaetes. The epibenthic zooplankton community exhibits high densities on the

tidal flats and slopes during spring, summer, and fall. The channels are important nursery areas for Dungeness crab.

Fish community sampling in Baker Bay has been concentrated on the tidal flats north of East and West Sand Islands and in Ilwaco Channel. Little is known about the fish utilization of the inner bay. The dominant fish species found in the bay include English sole, starry flounder, Pacific staghorn sculpin, Pacific herring, shiner perch, longfin smelt, and juvenile salmonids. Other abundant species include prickly sculpin, Pacific tomcod, snake prickleback, peamouth, and threespine stickleback.

Pacific herring, shiner perch, and longfin smelt spawn in the estuary and possibly within the Baker Bay subarea. Pacific herring spawn in the estuary from April through July. Although yearling and older herring have not been found to be abundant in the bay, herring spawning habitat (eelgrass beds) does exist in the inner bay. Larval Pacific herring appear in the estuary in spring and summer and subyearlings utilize Baker Bay as a nursery area during the same seasons. Shiner perch bear their young in the estuary in June and July and perch ranging in age from yearlings through adults are very abundant in the bay in spring, summer, and fall. Subyearling shiner perch utilize the bay as a nursery area in summer and fall. Longfin smelt spawn in the estuary from November through March and smelt ranging in age from yearlings through adults occur in the subarea year round. They are particularly abundant in summer. Larval longfin smelt appear in the estuary in winter and spring and subyearlings utilize the bay as a nursery area in summer and fall.

Several salmonid species migrate through the bay and use it as a nursery area. Subyearling chinook salmon, originating from upriver populations and from a hatchery on the Chinook River migrate through the bay from March through August. They utilize the bay as a nursery area primarily in spring and summer but are also present in fall and winter. Yearling chinook salmon migrate along the mouth of the bay primarily in spring. Yearling coho salmon, originating from upriver populations and from a hatchery on the Chinook River, migrate through the bay primarily in spring. The hatchery on the Chinook River also produces chum salmon.

Several bird species utilize the Baker Bay Subarea. Surf scoter, a migratory waterfowl species, winters in the bay. Other migratory waterfowl, particularly pintail, wigeon, rudy duck, and merganser, also winter in the bay. Mallard, a resident waterfowl species, feed in the bay and nest in marshes on West Sand Island. Shorebirds and great blue heron feed in the tidal flat and low marsh habitats. Shorebirds utilize the tidal flats and marshes of the entire bay while great blue heron concentrate in the western portion of the bay. Western and glaucous-winged gulls nest in a large colony on East Sand Island in spring, summer, and fall. There is also a large Caspian tern nesting colony on East Sand Island. The bay is an important bald eagle feeding area. Two nesting pairs of eagles use the bay. Their nests are located above Cape Disappointment and Scarboro Hill. The bay is also used by numerous wintering and transient eagles.

The harbor seal is the most abundant marine mammal species in Baker Bay. Seals occupy a haulout site on a sand flat west of Chinook Point and feed throughout the bay. The numbers of seals utilizing the bay is relatively low, with fewer than 25 animals found on the haulout at any one time.

Aquatic and terrestrial mammal use of the Baker Bay Subarea is relatively low. The narrow, fringing low marshes do not provide suitable habitat for supporting large populations of mammals. A

few muskrat utilize the low marshes for feeding and some denning activity occurs near the Chinook River. Most mammal activity is concentrated in the high marsh and swamp near the Chinook River. These habitats receive use by raccoon, river otter, and deer.

Shoreland Features

East and West Sand Islands comprise the subarea's shorelands. The islands have sandy sediments and are vegetated primarily by dune grasses and Scotch broom. There are several open sand areas, primarily at actively used dredged material disposal sites. The southern part of West Sand Island has some of the last remaining examples of a native dune grass communities on the Oregon and Washington coast.

Wildlife values on the islands are high. East Sand Island contains gull and Caspian tern nesting colonies.

Human Use

The Corps of Engineers uses both East and West Sand Islands for dredged material disposal. The U.S. Fish and Wildlife Service and the Corps have an agreement that specifies procedures for revegetation of the islands. The Corps of Engineers revegetates the dredged material with a mixture of clover and perennial grasses and disposes dredged material on a rotating basis to allow maximum habitat establishment.

Alterations are extensive in Baker Bay. Several thousand pilings from old fish traps remain. The Chinook Jetty and pile dikes along the southern shore of the islands were built to direct river flow toward the main navigation channel and prevent erosion of the islands. The southern shore of East Sand Island is riprapped. The remains of the pier and the railroad bed used to unload the material remain on East Sand Island.

Tidelands are owned by the States of Oregon and Washington. East and West Sand Islands are owned by the federal government. Many of the Washington tidelands have had mineral, oil, and gas rights leased. There are also leases pending for black sands mining.

There are three authorized navigation channels in Baker Bay. The Chinook Channel extends 1.3 miles between the Columbia River and the Chinook Basin. It is authorized at 10 feet deep and 150 feet wide. Shoaling problems in the Chinook Channel are severe; the worst shoal encroaches from Chinook Point to the east, opposite East Sand Island. The Ilwaco navigation channel follows a circuitous course between Jetty A and the Port of Ilwaco. The southernmost half mile of the authorized channel is 16 feet deep and 200 feet wide; the remaining 2.7 miles are 16 feet deep and 150 feet wide. The channel has a moderate shoaling problem, with the worst shoals at the outer end and at the final turn into Ilwaco. The Baker Bay East Channel, from East Sand Island to Ilwaco, is not presently maintained.

Issues

Use conflicts in this subarea include the impacts on aquatic and terrestrial habitat from dredging, dredged material disposal, and possible future black sands mining. The eastern portion of East Sand Island is a nesting area for Caspian terns. This area has also been used as a disposal site for maintenance dredging of the Chinook Channel. The northwest corner of West Sand Island has been used for disposal and other parts of the island are designated for disposal. The southern portion of West Sand Island has the last remnant of native fescue-bluegrass unstabilized sand dune community in Oregon or Washington.

Dredged material disposal by the U. S. Army Corps of Engineers at Area D has been a subject of continuing controversy. A report by the Columbia River Estuary Study Taskforce (Fox and Benoit: Dredged Material Disposal at Area D, 1986) found that although a portion of the material disposed at Area D may enter Baker Bay, that sediment is probably responsible for only a minor amount of total shoaling in the bay. A more recent study of sediment erosion and accretion in Baker Bay by the U. S. Army Corps of Engineers (U. S. Army Corps of Engineers, Portland District: Bathymetric Differencing in Baker Bay) found that sediments in Baker Bay had generally accreted until about 1957, when erosion began to exceed accretion. It should be noted, however, that maintenance dredging is included in the total erosion calculations. Use of Area D, which is located approximately three-quarters of a mile south of the Chinook pile dike, has been decreasing. A maximum limit of 3,250,000 cyds of material over a 5 year time period was recommended in a study by CREST in 1986. Average annual disposal has decreased from 1,320,000 cubic yards in the 1971 through 1977 period to 742,000 cubic yards in the 1978 through 1984 period. In 1986, the latest year for which figures are available, approximately 491,994 cubic yards were disposed. The majority of sediments disposed at Area D are coarse and settle quickly. They are transported primarily as bedload. There is evidence that this sediment moves primarily upstream along the north channel. Principal sources for the material currently disposed at Area D are the Ilwaco and Chinook navigation channel, Flavel Shoals, Desdemona Shoals, and the Skipanon Waterway. (See Estuary Channels Subarea Plan).

The mineral rights to most of Baker Bay have been leased for black sands mining. This mining would have unknown impacts on the bay's hydrology and biological productivity.

Aquatic and Shoreland Designations

The intertidal areas of Baker Bay are designated Natural. The subtidal aquatic areas are designated Conservation, except for the two maintained navigation channels which are designated Development.

The shorelands of the Sand Islands are designated Conservation.

Three dredged material disposal sites are listed in the *1986 Columbia River Estuary Dredged Material Management Plan*: CC-S-3.1 (on West Sand Island), CC-B-5.8, CC-S-6.8 (on East Sand Island).

A mitigation site on West Sand Island (Site 12, Priority 2) is described in the *1987 Mitigation and Restoration Plan for the Columbia River Estuary*.

Both East and West Sand Islands are within the regulatory shoreland boundary of Clatsop County.

Subarea Policies

1. The local governmental bodies, relevant agencies and interested parties shall continue to pursue the resolution of the navigational access problems in Baker Bay.
2. Channel realignments or other improvements must be justified in terms of hydraulics, sand transport and impacts on maintenance dredging.
3. Areas of future channel realignment shall be designated Development for the purpose of establishing a new navigation channel.
4. The marshes north of the Sand Islands should be protected as should the native dune grass communities on the southern part of West Sand Island.
5. The use of heavy equipment for activities associated with dredged material disposal on the Sand Islands is appropriate.

P 30.3 ESTUARY CHANNELS

General Description

This subarea includes the deep water portions of the estuary from Jetty A (RM 3) to the upper end of Rice Island (RM 22.5). The subarea contains the authorized navigation channel. The boundary of the subarea generally follows the 20-foot bathymetric contour; however, it varies from this contour in the vicinity of cities and other subareas containing deep channels. There are no intertidal wetland or shoreland areas. Portions of Clatsop County, Astoria, Hammond and Warrenton, Oregon and Pacific and Wahkiakum Counties, Washington are within this subarea.

Aquatic Features

Human activities have caused some changes in the channels. Historically, the north channel carried a larger portion of the river flow than the south. Navigation structures, including pile dikes and created islands, now direct a larger portion of the flow to the south channel.

Tidal and river flow are the primary factors influencing currents in the subarea. Most of the tidal exchange between the estuary and ocean occurs through the north channel. In comparison, the south channel receives less tidal flow but greater river flow. As a result, flood currents are relatively stronger in the north channel while ebb currents are relatively stronger in the south channel.

Salinity levels vary widely both over time and among different parts of the subarea. The eastern extent of the subarea represents the normal upstream limit of salinity intrusion. Salinity levels increase

in the downstream direction. In most of the subarea, salinity levels vary from freshwater conditions to 33 ppt. Generally, salinity levels in bottom waters are greater than those on the surface. Saline water intrudes farther upstream in the north channel than in the south.

Sediments in the subarea range primarily from coarse to medium sand. Patches of very fine sand, silt, and clay appear periodically in the portion of the channel between RM 8 and 18. In addition, the south channel contains fine sand during low river discharge months in the area between RM 8 and 12. The area of finer sediments results from the turbidity maximum zone. This zone is the area where upstream suspended sediment transport converges with downstream sediment transport. Waters in the zone are very turbid because they are laden with sediments. Fine sediments are periodically deposited on the bottom in this area.

Bedload sediment transport on the channel bottoms also converges at the turbidity maximum zone. Coarse sediments originating seaward of the zone are transported upriver while those originating landward of the zone are transported downriver.

The only plant type present is phytoplankton because the subarea consists entirely of deep water habitat. Phytoplankton productivity is relatively high at the upstream end of the subarea and decreases to relatively low levels toward the downstream end.

The estuary's major invertebrate groups, zooplankton, benthic infauna, and epibenthic organisms, have been studied in the subarea. The accumulation of particulate organic matter in the turbidity maximum zone allows for very high zooplankton and epibenthic organism population densities in the area between RM 8 and 18. The most abundant zooplanktonic organism in this region, Eurytemora affinis, has been considered by researchers to be the most important food species for fish in the estuary. Benthic infauna populations are relatively sparse in the channels. This is most likely a result of frequent sediment movement on the channel bottom. Dungeness crab use the western part of the subarea as a nursery area.

Fish populations in the estuary tend to concentrate in the area between RM 6 and 19, due to the abundant supply of invertebrate food species. The subarea is an important nursery area for marine bottom species such as English sole, starry flounder, and Pacific staghorn sculpin. Pacific tomcod, snake pricklyback, and northern anchovy are seasonally abundant in the channels. White and green sturgeon populations concentrate in the deeper portions of the subarea, primarily in the north channel near the Astoria-Megler Bridge and in the south channel off Tongue Point. Pacific herring, shiner perch, and longfin smelt possibly spawn in the subarea.

In addition to longfin smelt, other anadromous species including American shad, eulachon, and the salmonids utilize the subarea as a migration route and nursery area. Adult American shad migrate upriver primarily in June and July while juveniles migrate downriver mainly in November and December. Juvenile shad use the channels year round as a nursery area. Eulachon migrate upriver from December through April with a peak run in February. All of the salmonid species abundant in the estuary use the channels as a migration route. Subyearling chinook migrate downriver primarily from March through August. Yearling chinook and coho salmon and juvenile steelhead and cutthroat trout migrate through the subarea primarily in spring.

Several bird species, particularly the fish eaters, utilize the subarea. Bird concentrations tend to be greater in the north channel than the south channel. Cormorants use primarily the western portion of the subarea while common mergansers and western grebes use the eastern portion. Surf scoters are also abundant in the subarea. Bald eagles associated with nesting sites near Tongue Point and along the northern shore of the estuary feed in the subarea.

The channels are important feeding areas for harbor seals and California sea lions. Harbor seals use the subarea year round while California sea lions use the channels primarily in winter.

Human Use

Navigation, maintenance dredging, and dredged material disposal are the predominant human activities in the ship channel. Waste disposal, principally from fish processing, is a lesser use. There are also gillnet drifts in and around the north and south channels. Recreational fishing for salmon and sturgeon is important. Recreational and commercial crabbing occurs off Hammond and the Sand Islands. The cumulative impacts of navigation channel maintenance on the southern arm of this subarea have been significant with respect to both navigation and circulation. The northern arm of the subarea has been affected by decreased river flow and some shoaling as a result of river flow training structures.

Issues

In-water disposal of dredged material is an issue of concern. Approximately 630,000 cubic yards of dredged material are placed in the Harrington Point Sump by hopper dredge each year, and eventually moved by pipeline dredge to Rice Island (See the Estuary Sands Subarea Plan). Approximately 650,000 cubic yards are deposited in Area D annually.

Area D is located in the north channel of the Columbia River Estuary approximately 4,200 feet south of the Chinook pile dike. Disposal of dredged material at Area D is a major concern. The Corps of Engineers places dredged material at Area D for several channel maintenance projects in the lower estuary. A study by CREST in 1986 made several recommendations for regulating disposal at Area D, including a maximum limit of 3,250,000 cubic yards of dredged material over a 5-year time period (see Baker Bay subarea).

The Corps of Engineers is currently studying the effects of relocating Area D to the west of and adjacent to the current Area D disposal site. The shifting of the north channel along with the settling of the disposed material has rendered portions of the site too shallow or created a navigational hazard for the larger hopper dredges to maneuver safely.

Aquatic Designations

All aquatic areas are designated Conservation except:

1. The main navigational channel and a flowlane disposal area on each side of the channel (either 600 feet wide or extending to the 20 foot bathymetric contour, whichever is narrower) is designated Development.
2. Dredged material disposal sites CC-E-8.5 (Area D) and CC-E-21.0 (Harrington Sump) listed in the *Columbia River Estuary Dredged Material Management Plan* are designated Development.

Subarea Policies

1. The use of the Area D in-water dredged material disposal site shall be kept to an absolute minimum. In all cases, ocean disposal shall be substituted for the use of this site whenever feasible. The use of Area D shall be regulated by implementing cubic yardage limitations for dredged material disposal. The Corps of Engineers should continue to examine alternative disposal sites and methods that would result in fewer adverse shoaling impacts. The use of Area D should be discontinued when feasible alternatives are found.
2. The U.S. Army Corps of Engineers shall continue to review navigation improvements and the impacts of disposal of dredged material at Area D with the objective of minimizing undesirable sedimentation.
3. Dredged disposal at Area D shall be allowed for the following Corps dredging projects and sites: Flavel Shoal, Desdemona Shoal, Upper Sands Shoal, Tongue Point Crossing Shoal, Chinook Channel, Baker Bay West Channel, Skipanon Channel, and the Columbia River Bar. Non-federal projects proposed in estuarine locations between the mouth of the Columbia River and Tongue Point may also be eligible for disposal in Area D, provided they meet the policies and standards for estuarine in-water disposal.
4. Total disposal for Corps of Engineers projects at Area D shall not exceed 3,250,000 cubic yards over a 5 year period.
5. The Corps of Engineers has provided the following estimates of their Area D disposal needs for the projects and shoals listed in Condition #3.

Flavel Shoal 500,000 cubic yards per year

Desdemona, Upper Sands, and Tongue Point Crossing Shoals 30,000 cubic yards per year

Columbia River Bar 50,000 cubic yards per year

Skipanon, Chinook and Baker Bay West Channels 65,000 cubic yards per year

Total Disposal Approximately 650,000 cubic yards per year

6. All dredged material disposal at Area D shall be reported to CREST and local jurisdictions. If annual disposal amounts significantly exceed those given in No. 5 above, the Corps of Engineers shall limit subsequent disposal operations at Area D to ensure that the 5-year disposal limit (3,250,000 cubic yards) is not exceeded.
7. Total annual disposal for non-federal projects at Area D shall not exceed 100,000 cubic yards.
8. Disposal at Area D shall be controlled so as to minimize impacts to commercial gillnet and crab fishermen.
9. Uncontaminated dredged material from navigation channel projects in this subarea should be used for dike maintenance.

P 30.4 ESTUARY SANDS

General Description

This subarea includes the extensive mid-estuary sand flats between approximately RM 6 and RM 24 and the adjacent slopes to as deep as 20 feet below MLLW. These include Desdemona and Taylor Sands, the Tongue Point bar and other unnamed sands, the largest of which extends west and north from Rice Island into Grays Bay. Rice Island, a dredged material disposal island, is also included. Rice Island and adjacent water areas are part of the Lewis and Clark National Wildlife Refuge. This subarea includes portions of Clatsop County, Oregon and Pacific and Wahkiakum Counties, Washington.

Aquatic Features

The western part of this subarea has accreted significantly since the construction of the jetties at the mouth. The increase in tidal currents resulting from constriction of the mouth by the jetties has caused sediments forming the natural tidal delta to be transported both into the estuary and out to sea. A portion of the sediment transported into the estuary has accumulated in the estuary sands subarea.

Strong river and tidal currents and wind waves create the high energy environments of the Estuary Sands Subarea. The broad, shallow channels between Desdemona and Taylor Sands form the main corridor of water transport between the north and south channels. Water flows southeasterly from the north to the south channel during flood tides and northwesterly from the south to the north channels during ebb tides.

Salinity levels are similar to surface salinities found in the adjacent north and south channels (see Estuary Channels Subarea Plan).

The subarea has a wide range of sediment types. The tidal flat sediments range from medium to fine sand while the surrounding slopes contain coarse to medium sand. Scattered deposits of silt and clay appear intermittently throughout the subarea.

Plant types in the subarea include phytoplankton and benthic algae. Phytoplankton productivity is similar to that found in the adjacent north and south channel (see Estuary Channels Subarea Plan). Benthic algae productivity on the sands is low due to the instability of the sediments.

Invertebrate, fish and bird species present in the subarea are similar to those found in the surrounding north and south channels (see Estuary Channels Subarea Plan). Rice Island is used as a nesting site for Caspian Terns and small colonies of western and glaucous-winged gulls. Canada Geese are also establishing nesting sites on the island. The subarea is an important fish and bird feeding area.

Taylor Sands and the surrounding waters are important feeding areas for the Mill Creek bald eagle pair (see Tongue Point Subarea Plan). Feeding in this area is particularly intense during the nesting season. A pile dolphin on Taylor Sands provides an important hunting perch site for the eagles.

The subarea contains the largest harbor seal haulout sites in the estuary. Desdemona and Taylor Sands each contain two haulout sites. The largest site, on Desdemona Sands, is used by about 50% of the estuary's harbor seal population in winter and early spring, nearly 100% of the population in late spring and summer, and 80 to 90% of the population in fall.

Shoreland Features

The only shorelands in the subarea are on Rice Island. Rice Island is a large dredged material disposal island created to receive material from the main navigation channel, and to direct river flow. It is now nearly filled to capacity. The island has some planted vegetation, primarily grasses, to stabilize the sand. Canada geese nest on the island.

Human Use

Major uses and activities in this subarea include gillnet drifts along the margins of the sands and in the minor channels between the sand bars, recreational boating, and small boat and tug navigation across the river. Dredging and dredged material disposal have occurred on and around various sands. The sands were used for horse seining and fish traps when such activities were practiced. The only area currently being used for dredged material disposal is Rice Island, an entirely man-made island created for the dual purposes of flow control and dredged material disposal. The cumulative impact of channel maintenance (dredging and river training) on circulation and sediment transport has been significant in this subarea. Shoaling has increased substantially in this subarea as a result of jetty construction and other channel maintenance activities.

The Corps of Engineers and the U.S. Fish and Wildlife Service cooperate with regard to management of dredged material disposal islands. The cooperative agreement provides for continued dredged material disposal on Rice Island, and establishes timing of disposal as well as revegetation and habitat maintenance techniques.

Issues

Potential uses of the sand flats include dredged material disposal, recreation, aquaculture, and restoration. The Corps of Engineers has discussed the possibility of creating additional islands for dredged material disposal. State and federal resource agencies have raised concerns regarding the proposal and it may not be actively pursued. Island creation or expansion for dredged material disposal would require amendment of local shoreline master programs and comprehensive plans.

Aquatic and Shoreland Designations

Subtidal aquatic areas and the narrow tidal flat along the south shore of Rice Island are Conservation. All other tidal flats are Natural.

All shoreland areas are Conservation.

Rice Island is entirely within the regulatory shorelands area. The western portion of the island is within the regulatory shoreland boundary of Clatsop County and the eastern tip is in the regulatory shoreland boundary of Wahkiakum County.

Rice Island is a dredged material disposal site listed in the *1986 Columbia River Estuary Dredged Material Management Plan*: CC-S-22.2/WK-S-21.2.

Subarea Policies

1. Proposals to enlarge existing dredged material disposal islands or to create new ones will require an exception to Oregon Statewide Planning Goal 16.
2. The use of heavy equipment on Rice Island in association with dredged material disposal activities is appropriate.

P 30.5 RIVER CHANNELS

General Description

This subarea includes the deep water portions (deeper than 20 feet below MLLW) of the authorized navigation channel and adjacent slopes between Harrington Point (RM 22.5) and the western end of Puget Island. The authorized navigation channel is in this subarea, but side channels are not included. There are no intertidal wetlands or shorelands. Some water areas are part of the Lewis and Clark National Wildlife Refuge. Parts of Wahkiakum County, Washington and Clatsop County, Oregon are included.

Aquatic Features

While tides and tidal currents are important in this reach, fresh water flow increasingly dominates circulation patterns toward the upriver end. Salinity intrusion varies, depending on freshwater flow and the tides, but will normally not extend past Pillar Rock. Flood tide currents may not be observable under high flow conditions, and the 100-year flood level rises sharply toward the upstream limit of the subarea.

Sediments in the channel and slopes are largely medium to coarse sand, with some gravel. Compacted sediments are found in some scour holes. The transport of sand and gravel as bedload is almost entirely downstream. Some sand moves in suspension under freshet conditions.

Phytoplankton comprise the only plant type found in the subarea. The phytoplankton consist primarily of freshwater species carried into the estuary from upriver. They exhibit relatively high productivity levels in the subarea. As these freshwater species encounter saline water downriver from the subarea many are killed. This accounts for the lower phytoplankton productivity in downriver subareas (see Estuary Channels Subarea Plan).

Zooplankton, benthic infauna, and epibenthic organisms occurring in the subarea consist primarily of freshwater species. Population densities are relatively low.

Fish species present in the subarea include freshwater fishes, marine fishes tolerant of low salinities, and anadromous fishes. The most abundant freshwater species include threespine stickleback, peamouth, and prickly sculpin. Principal marine species in the subarea include starry flounder, Pacific staghorn sculpin, Pacific tomcod, and snake prickleback. White sturgeon concentrate in deep channel areas. The primary anadromous species include American shad, eulachon, and the salmonids (see Estuary Channels Subarea Plan).

Several species of water birds utilize the subarea. Double-crested cormorants associated with nesting sites on range markers off of Miller Sands are abundant. Waterfowl species, including mallard, surf scoter, and common merganser, feed in the subarea.

Two marine mammal species, harbor seals and California sea lions use the subarea. They are most common in winter when the seals and sea lions feed on the eulachon run as it moves upriver.

Human Use

The main navigation channel passes through this area. Dredging is required at five separate bars, with an average 900,000 cubic yards removed annually by pipeline and 625,000 cubic yards by hopper dredge. In-water disposal occurs at the Harrington Point Sump (for rehandling) and at several flowlane disposal sites along the main navigation channel. Numerous pile dikes exist. Gillnet drifts exist along the edge of and in the main navigation channel. Commercial sturgeon, gillnetting, sports fishing and pleasure boating also occur. The cumulative impact of channel maintenance activities on water quality and circulation may be substantial.

Issues

Major issues in this subarea are related to dredging, disposal and navigational structures and their impact on fish habitat and commercial fisheries. Replacement of pile dikes in this area is being studied by the Corps of Engineers. Depending on the results of monitoring the prototype rock groin at Cottonwood Island, the Corps may consider replacing aging pile dikes in this subarea with rock groins.

Gillnet fishermen have expressed concern over in-water activities which interfere with commercial fishing. Major areas of conflict include:

- Sinker logs from log rafts;
- Debris uncovered by dredging; and
- Dredged material disposal activities

Potential conflicts may be alleviated through continued coordination between gillnetters, log transport companies and the Corps of Engineers. Some gillnetters have suggested that they be reimbursed for costs they incur while clearing drift areas. Such a requirement is outside of this Plan's scope. Planning measures that can be implemented to reduce the snag problem include:

- Requirements that conflicting activities avoid gillnet drifts whenever possible; and
- Requirements that gillnet drift captains be consulted concerning timing and location of in-water activity.

Aquatic Designations

The main navigation channel and a flowlane disposal area on each side of the channel (extending either 600 feet or to the 20-foot bathymetric contour, whichever is narrowest) are designated Development. All other areas are Conservation.

Harrington Point Sump is an in-water dredged material disposal site listed in the *1986 Columbia River Estuary Dredged Material Management Plan: CC-E-21.0*.

Subarea Policies

1. Prior to approval of in-water activities with the potential for affecting fisheries, the project sponsor shall notify local drift captains, the Columbia River Fisherman's Protective Union and the Northwest Gillnetters Association. The Washington Department of Fisheries shall also be consulted to determine project timing and methods that will minimize impacts on the fishery.

2. In-water activities that may leave snags in gillnet drifts shall be avoided whenever possible. The project sponsor shall notify the drift captain if a drift cannot be avoided.

P 30.6 SNAG ISLANDS

General Description

This subarea includes dredged material disposal islands (Miller Sands and Jim Crow Sands), tidal marsh (around the Snag Island Jetty and Miller Sands), the Woody Island Channel, exposed sand bars south and west of Woody Island Channel, and various subsidiary channels. The entire subarea is within the Lewis and Clark National Wildlife Refuge, and within Clatsop County, Oregon.

Aquatic Features

The aquatic portion of this subarea consists of several small marsh islands and sandflats separated by a network of shallow channels. Historically the subarea has tended to shoal due to navigation structures and created islands which have channeled most of the river flow through the main navigation channel. There are more tidal marshes and flats in the subarea than occurred a century ago. Woody Island channel which runs along the southern boundary of the subarea was once an important navigation channel. Parts of the channel are now too shallow for safe navigation by all but the smallest boats.

Little is known about currents in the subarea. Woody Island channel is the main corridor for water transport through the subarea. The subarea is primarily freshwater. During very low river discharge conditions, saline water extends into Woody Island Channel.

Sediments in most of the subarea are sandy. Coarse sand occurs in the deeper areas while fine sand occurs on the flats. Sediments in the tidal marshes probably consist mainly of silt and clay.

Plant types in the subarea include phytoplankton, benthic algae, and tidal marsh vegetation. Phytoplankton productivity is relatively high. Benthic algal productivity on the predominantly sandy tidal flats is very low. The marshes of the subarea include colonizing low marshes dominated by bulrush (Scirpus validus) and higher elevation low marshes dominated by Lyngby's sedge (Carex lyngbyei), reed canary grass (Phalaris arundinacea), and cattail (Typha angustifolia). The colonizing marshes develop on the downstream side of the islands while the higher marshes develop on the upstream sides.

Of the estuary's invertebrate types, only benthic infauna and epibenthic organisms have been studied in the subarea. Benthic infauna densities are high. Important fish prey species such as the amphipod Corophium salmonis and the clam Corbicula manilensis are abundant. Epibenthic organism densities are also high in the subarea.

Fish species present in the subarea are the same as those found in the River Channels Subarea and the upstream end of the Estuary Channels Subarea. The shallow tidal flats and marsh channel are important feeding and nursery areas for juvenile salmonids.

Several species of water birds utilize the subarea. Double-crested cormorants nest on channel range markers west of Miller Sands. Western and glaucous-winged gulls occupy a small nesting colony on the western tip of the Miller Sands sandspit. Canada geese are exhibiting significant growth in the estuary. A large nesting colony is established on Miller Sands. Abundant waterfowl in the subarea include western grebe, mallard, and common merganser.

Marine mammal use of the subarea concentrates around a haulout site south of Miller Sands. Harbor seals occupy this haulout year round with peak use in spring and winter. The aquatic mammal species muskrat and nutria utilize the marshes of the subarea.

Shoreland Features

Shorelands in the subarea include Miller Sands and Jim Crow Sands, both dredged material disposal islands. Soils on the islands consist of Columbia River sand. Both islands are relatively low and flat.

Vegetation has been planted on the islands to help stabilize the sand. Miller Sands has some well-developed grasslands, shrub and willow/cottonwood habitat on the main island. Only scattered grasslands have become established on Jim Crow Sands.

Wildlife on the islands includes small mammals such as muskrat and nutria and several bird species. Bald eagles hunt from the islands. Canada geese nest on Miller and Jim Crow Sands. There is a small nesting colony of Caspian terns on Miller Sands.

Human Use

Activities in this area include navigational improvements, dredged material disposal, commercial and sports fishing, wildlife observation, waterfowl hunting, and trapping. Active dredge material disposal sites are located on Jim Crow Sands and Miller Sands. Gillnet drifts are found in Woody Island Channel and along the margins of the navigational channel.

Issues

The establishment of duck shacks in the sloughs and along the shores of the islands is a longstanding issue. These structures are approved for temporary periods (i.e., the hunting season) and not for use as permanent residences. However, in some cases, they have been improved beyond their intended function.

A proposal involving a possible exchange of the State of Oregon's ownership interests in some estuary islands, including Miller Sands and Jim Crow Sands Islands, for federal property on the South Tongue Point peninsula was first investigated in 1987 and is again being considered in 1990. As part of the proposal, the federal government would consolidate ownership of islands in the Lewis and Clark National Wildlife Refuge (except Mott Island). The State of Oregon would expand its ownership of the old naval station site on the North Tongue Point peninsula and acquire the South Tongue Point peninsula, facilitating its plans for development of the Tongue Point area. Clatsop County may also quitclaim its relatively minor ownership interests in the estuary islands to the federal government in exchange for in-lieu-of-tax payments.

This subarea is relatively distant from all boat ramps. The hunting and sport fishing use of this area is probably less than in some other subareas. All areas except Miller Sands are open to hunting and trapping. Future use of Miller Sands and Jim Crow Sands is an issue of concern. Public access to the wildlife refuge is discussed in the Upper Marsh Islands Subarea Plan.

Aquatic and Shoreland Designations

All aquatic areas are designated Conservation except:

The wetlands above the 3 feet bathymetric contour surrounding the Snag Island Jetty; the wetlands north of Green Island; and the unnamed sands southeast of the Woody Island Channel area are all designated Natural.

Shorelands, including Miller Sands and Jim Crow Sands, are designated Conservation.

Jim Crow Sands and Miller Sands Islands are within the regulatory shoreland boundary of Clatsop County.

Four dredged material disposal sites are listed in the *1986 Columbia River Estuary Dredged Material Management Plan*: CC-B-23.1, CC-S-23.5 (Miller Sands), and CC-B-27.2, CC-S-27.2 (Jim Crow Sands).

Subarea Policies

1. Measures that increase or enhance public access opportunities to the Wildlife Refuge are encouraged.
2. The use of heavy equipment in association with dredged material disposal on Miller Sands and Jim Crow Sands is appropriate.
3. In-water activities that may leave snags in gillnet drifts shall be avoided whenever possible. The project sponsor shall notify the drift captain if a drift cannot be avoided.

P 30.7 CATHLAMET BAY

General Description

This subarea includes Lois, Mott, Green, Russian, Seal, McGregor and unnamed marsh islands; sand and mud flats; and parts of South, Prairie and other subsidiary channels. It extends from near Tongue Point (RM 19) to RM 25. The entire subarea is in the Lewis and Clark Wildlife Refuge, and within Clatsop County.

Aquatic Features

The aquatic features in this subarea include several tidal marsh islands separated by relatively deep, narrow channels. Historically, this subarea has tended to shoal and develop more marsh habitat. The marshes of Green Island have developed in the past century. Also, the unnamed marsh islands in the western part of the subarea increased in size since the creation of Lois Island.

There is little information on currents in the subarea. The subarea is primarily freshwater with some salinity intrusion in the deeper water areas north of Lois and Mott Islands. Sediments in the subarea are similar to sediments in the Snag Islands Subarea.

The plant types present in the subarea include phytoplankton, benthic algae, and tidal marsh and swamp vegetation. Phytoplankton and benthic algal productivity are similar to that in the Snag Islands Subarea. The low marshes of Green Island and the unnamed islands east of Lois Island have developed a pattern of growth common in the Cathlamet Bay islands. The lowest elevation marshes develop on the downstream sides of the islands and the highest on the upstream sides. The downstream sites consist of bulrush (Scirpus validus) dominated colonizing low marshes which grade into tidal flats, while the upstream sides consist of higher elevation marshes dominated by Lyngby's sedge (Carex lyngbyei). The marshes of Russian Island are slightly higher than those on the other islands. They are dominated by Lyngby's sedge, horsetail (Equisetum fluviatile), rush (Juncus oxymeris), wappato (Sagittaria latifolia), water parsnip (Sium suave), and creeping spikerush (Eleocharis palustris). The marsh islands have an extensive network of tidal channels. These channels are important as feeding and shelter areas for juvenile salmonids. Although they have not been studied extensively in the Columbia, marshes and associated tidal channels have been demonstrated to be the most important salmon rearing habitats in other estuaries. Lois and Mott Islands are surrounded by tidal marshes and swamps. The marshes are similar to others found in the subarea. The swamps contain primarily shrub species.

Invertebrate and fish species in the subarea are similar to those found in the Snag Island Subarea.

Bird species common in the subarea are similar to those in the Snag Island Subarea. In addition, great blue heron and shorebirds utilize the subarea. Bald eagles use the subarea intensively as a feeding area. South channel and the unnamed islands and associated flats east of Lois Island are used most frequently. Eagles also feed on Green and Russian Islands and the marshes and flats around Lois

Island. Piling on the northern side of South channel are important bald eagle perching sites. A breeding pair of eagles known as the Twilight Creek pair as well as many non-breeding eagles that occupy the area primarily in winter and spring use the subarea.

Marine mammal use of the subarea primarily occurs on and adjacent to a harbor seal haulout site on Green Island. Although a relatively small number of harbor seals utilize the site, it is one of the few haulouts in the estuary where harbor seals give birth to young. They generally give birth in late spring and raise the pups through summer. The group of harbor seals remaining in the Columbia River during this period generally produce fewer than 10 pups per year.

Aquatic and terrestrial mammals utilize the marshes and swamps of the subarea. Muskrat and nutria occupy the marsh islands. These species, along with beaver and raccoon are found in the swamps surrounding Lois and Mott Islands.

Shoreland Features

Shorelands in the subarea are on Lois and Mott Islands. Both islands were created from material dredged from the MARAD Basin and Tongue Point pier area. Both islands are wooded with willow and alder along the fringes and grass-covered on the interiors. Wildlife values are considered high. There is a bald eagle perch site on the eastern-most point of Lois Island.

Human Use

Human use of this area includes sport and commercial fishing, log storage and transport, hunting, trapping, and wildlife observation. None of these could be classified as intensive.

Issues

The tidal flats and marshes of Cathlamet Bay are a highly productive, integral part of the estuarine ecosystem. Their inclusion in the Lewis and Clark National Wildlife Refuge provides needed protection for fish and wildlife resources in the area.

The establishment of duck shacks in the sloughs and along the shores of the islands is a long-standing issue. These structures are approved for temporary periods (i.e., the hunting season) and not for use as permanent residences. However, in some cases, they have been improved beyond their intended function.

Both Mott and Lois Islands are within the wildlife refuge and the habitat value of the upland areas for birds and wildlife is high. The U.S. Fish and Wildlife Service (USFWS) has indicated that they generally oppose use of the area for dredged material disposal. Recreational fishing and boating may conflict with port development in the Tongue Point area. Public access to the islands in the Wildlife

Refuge is limited. USFWS does not provide any access facilities, and does not manage the refuge for public access.

Aquatic and Shoreland Designations

Aquatic areas are Conservation, except for tidal marsh and other wetland areas on and adjacent to the islands which are designated Natural.

Shoreland areas in this subarea are designated Natural. The entire upland portions of Lois and Mott Islands are included in the regulatory shoreland boundary of Clatsop County.

Subarea Policies

1. Measures that increase or enhance public access opportunities to the Wildlife Refuge are encouraged.

P 30.8 UPPER MARSH ISLANDS

General Description

This diverse group of marsh islands and interconnecting channels extends between Minaker Island (RM 26) and Welch Island (RM 35). The subarea includes Minaker, Karlson, Marsh, Brush, Horseshoe, Woody, Tronson, Quinns, Goose, Grassy, Fitzpatrick and Welch Islands. Parts of Prairie and other subsidiary Channels are also included. Large sections of the islands consist of forested and shrub swamps, with tidal marsh in the lower areas. Sand and mudflats also occur. The shorelands on Woody, Welch, and Fitzpatrick Islands are current or former dredged material disposal sites. The entire area is in the Lewis and Clark National Wildlife Refuge, and within Clatsop County.

Aquatic Features

The aquatic portions of this subarea include several large intertidal marsh and swamp islands separated by relatively deep, narrow channels. Historically the area has changed little compared with other areas of the estuary. Horseshoe and Grassy Island marshes have enlarged slightly in the last century.

There is little information on currents in the subarea. Saline water does not intrude into the subarea. Sediments consist primarily of very fine sand, silt, and clay. Prairie Channel contains some coarser sandy sediments.

The plant types in the subarea include phytoplankton, benthic algae, and tidal marsh and swamp vegetation. Phytoplankton and benthic algal productivity levels are similar to those in the Snag Islands Subarea. The islands of the subarea contain the largest tracts of tidal marsh and swamp in the estuary.

Most of Minaker Island is low marsh, with high marsh and mixed shrub vegetation in a few areas. Karlson Island is more complex. About one-fourth of the island was diked, but the dikes have breached and the area has returned to tidal marsh. The western end of the island is undisturbed tidal marsh. The rest of the island is tidal swamp consisting of willow and a species mixture of alder, Sitka spruce, western red cedar and cottonwood. Brush and Horseshoe Islands are a mixture of low marsh, high marsh, and swamp. Marsh and Woody Islands consist mostly of tidal swamp with some marsh. There is some willow swamp on Quinns and Tronson Islands and some marsh on Goose, Grassy and Quinns Islands. Fitzpatrick Island is dominated by low marsh. Welch Island is covered with high sedge marsh, and cottonwood and willow swamp. The marsh and swamp islands have an extensive network of tidal channels. These channels are important as feeding and shelter areas for juvenile salmonids. Although they have not been studied extensively in the Columbia, marshes and associated tidal channels have been demonstrated to be the most important juvenile salmon rearing habitats in other estuaries.

Invertebrate and fish species in the subarea are similar to those in the Snag Island Subarea.

Several species of resident and migratory birds feed and nest in the subarea. Because of presence of several types of habitats, the subarea has the greatest bird numbers and species diversity in the estuary. Double-crested cormorant feed in the water areas in summer, fall, and winter. Western grebe and several other species of migratory waterfowl winter in the subarea. Resident waterfowl which nest in the marshes of the subarea include common merganser, mallard, green-winged teal, wood duck, and blue-winged/cinnamon teal. Green-winged teal and wood duck are most concentrated on Karlson Island. Shorebirds feed in the tidal flats, low marsh, and high marsh habitats. Great blue heron feed in the subarea year round and occupy a larger nesting colony in a tidal spruce swamp on Karlson Island. The marshes and swamps of the subarea also contain a diverse array of land birds. The subarea provides important bald eagle habitat. Karlson, Marsh, and Quinns Islands have bald eagle nesting sites within the wooded tidal swamp habitats. In addition to supporting two nesting pairs of eagles, the subarea also provides feeding habitat for wintering and transitory eagles.

The marshes and swamps of the subarea receive the greatest aquatic and terrestrial mammal use in the estuary. Muskrat and nutria feed and den primarily in the tidal marshes. Muskrat are particularly abundant in the sedge-dominated low marshes. Beaver feed and den in the Sitka spruce and willow swamps while raccoon utilize the shrub swamps of the subarea. River otter feed in the tidal sloughs of the subarea's swamps. Two species of deer, the black-tailed deer and the Columbian white-tailed deer, utilize the subarea. Black-tailed deer feed in the swamps of the larger islands as well as on the mainland. Columbian white-tailed deer, an endangered species, occur on Karlson and Welch Islands.

Shoreland Features

The shorelands in the subarea consist of dredged material disposal sites on Welch and Fitzpatrick Islands and an inactive dredged material disposal site on Woody Island. These areas are primarily sandy with little wildlife value. The Soil Conservation Service is revegetating the eastern part of the Fitzpatrick Island disposal site. Welch Island is being revegetated by the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service in accordance with an agreement on its use for dredged material disposal. Woody Island has been revegetating naturally. Only Fitzpatrick Island is designated as a dredged material disposal site in the *1986 Columbia River Estuary Dredged Material Management Plan*.

Human Use

Human uses in the area include dredged material disposal, log storage and transport, small boat navigation, sports and commercial fishing, hunting, trapping, and wildlife observation.

Issues

The main access point is at Aldrich Point, and the nearby islands probably receive more use than islands more distant from the boat ramp. Karlson Island is closed to all public use. Welch Island is subject to seasonal access regulations. Otherwise, the islands are open to the public, but access is difficult.

The use of duck shacks in the subarea's sloughs is an issue. They are sometimes used as permanent dwellings. The U.S. Fish and Wildlife Service believes that this level of use is incompatible with the refuge's goal of wildlife protection and management. The U.S. Fish and Wildlife Service does not provide any public access facilities for the refuges, and does not manage the refuges for public access. Increased public access, consistent with wildlife management needs, is desired locally.

Aquatic and Shoreland Designations

The marsh and tideflat areas and the formerly diked area on Karlson Island are Natural. All other water areas are Conservation.

The shoreland areas on Woody, Welch, and Fitzpatrick Islands are designated Conservation.

The dredged material disposal upland sites on Woody, Welch, and Fitzpatrick Islands are entirely within the regulatory shorelands boundary of Clatsop County. The dredged material disposal site on Fitzpatrick Island (CC-S-31.2) is listed in the *1986 Columbia River Estuary Dredged Material Management Plan*.

Subarea Policies

1. Measures that increase or enhance public access opportunities to the Wildlife Refuge are encouraged.
2. The use of heavy equipment in association with dredged material disposal on Welch and Fitzpatrick Islands is appropriate.

P 30.9 TENASILLAHE ISLAND

General Description

This subarea extends from Multnomah Slough (RM 35), which separates Welch and Tenasillahe Islands, to the pile dike (RM 38) at the upstream end of Tenasillahe Island, and includes the south side of the Main Channel and to the center of the Clifton Channel. Most of the perimeter of Tenasillahe Island is forested wetland. The remainder inside the dike is pasture land and wetland. The island is part of the Columbia White-tailed Deer National Wildlife Refuge. The entire subarea is in Clatsop County.

Aquatic Features

The aquatic portions of this subarea include waters adjacent to the main navigation channel and in Clifton Channel and tidal marshes and swamps which fringe Tenasillahe Island. Historically the subarea has undergone large changes. Tenasillahe Island once consisted of a large tidal marsh and swamp. It is now primarily diked pasture land and nontidal wetland. A small island south of Tenasillahe Island has been created from dredged material.

Physical characteristics in the waters surrounding the island areas are similar to those in the River Channels Subarea.

Phytoplankton, invertebrate, and fish productivity and species are similar to those in the River Channels Subarea.

Tidal marsh and swamp fringe the island. The tidal swamp on the south and east side of the island has been proposed for designation as a Federal Research Natural Area because it represents some of the last remaining habitat of tidally-influenced deciduous forest in the lower Columbia River that has not been altered by diking and ditching activities.

Many of the water bird species found in the Snag Islands and Cathlamet Bay Subareas utilize the waters and wetlands surrounding Tenasillahe Island. A pair of bald eagles nest in the tidal swamp on the southeast side of the island.

Aquatic and terrestrial mammal use of the marshes and swamps surrounding the island is similar to mammal use in the Upper Marsh Islands Subarea.

Shoreland Features

Shorelands include Tenasillahe Island and a small dredged material disposal island to the south. Tenasillahe Island is a diked, former tidal wetland. The small island to the south consists of sandy sediments dredged from the main navigation channel.

Vegetation on Tenasillahe Island includes pastures with a mix of grasses and rush, and wooded areas consisting largely of alder, willow, and cottonwood. There are several sloughs on the island which are surrounded by large nontidal wetlands. Several of the wetlands are classified as significant under Oregon Statewide Planning Goal 17.

Wildlife values on the island are high. The island serves as a wintering area for mallards, Canada geese, whistling swans, and other waterfowl species. Muskrat, nutria, and beaver are common. Tenasillahe Island is managed for Columbia white-tailed deer, an endangered species, by the U.S. Fish and Wildlife Service. The island's population of this species is between 50 and 60 animals.

Human Use

Human use of the area includes log storage and transport, small boat navigation, sports and commercial fishing, wildlife management and observation and grazing on the island. There is a log storage area along Clifton Channel and commercial fishing areas along both the Clifton and Main Channel sides of Tenasillahe Island. There is restricted public access to the island; however, a private duck hunting club has access during certain periods of the year to an area near Multnomah Slough.

The cumulative impact of diking has been significant in this area. Diking at the turn of the century resulted in the conversion of Tenasillahe Island from tidal marsh and swamp to pasture.

Issues

Log storage and public access are issues, as they are in the Upper Marsh Islands Subarea. The establishment and expansion of beach nourishment sites are also of concern.

Aquatic and Shoreland Designations

The waters of Multnomah Slough and other wetlands are Natural, except along Clifton Channel, where log storage sites are Conservation, and at the U.S. Fish and Wildlife Service boat dock, which is Conservation. The waters south of the Main Channel and Clifton Channels are classified Conservation.

The dikes and diked area of Tenasillahe Island are Conservation Shoreland. Much of the island is classified as a significant non-tidal wetland.

The entire diked portion of Tenasillahe Island and the small dredged material disposal island are included in the regulatory shorelands boundary of Clatsop County. The three dredged material disposal sites in this subarea designated in the *1986 Columbia River Estuary Dredged Material Management Plan* are on or adjacent to Tenasillahe Island: CC-B-36.8, CC-B-38.3, CC-S-38.3.

Subarea Policies

1. Measures that increase or enhance public access opportunities to the Wildlife Refuge are encouraged.

P 30.10 FORT STEVENS STATE PARK

General Description

This subarea encompasses the northern part of Fort Stevens State Park. The subarea extends east along the top of the South Jetty, over the existing dune ridge at the Jetty landfall, to meet and follow the western margin of the Russell-Clatsop Spit Road to the south. The subarea's boundary on the east is the Town of Hammond's Urban Growth Boundary. Included is the Swash Lake wetland area between the Town of Hammond Urban Growth Boundary and Trestle Bay. The aquatic area boundary is the -40 MLLW contour line to River Mile 3, and the -3 MLLW contour line thereafter, to its intersection with the south jetty. The entire subarea is in Clatsop County.

Aquatic Features

The northwest face of Clatsop Spit is a sandy beach area with significant wave energy impinging upon it. The northeast face of the spit, also a beach area, is an area of high erosion and strong currents.

Trestle Bay is a shallow embayment on Clatsop Spit consisting primarily of tidal flats, low marsh, and high marsh habitat types. A portion of the South Jetty and a trestle form a barrier across the bay, the jetty being overtopped regularly by tidal waters. Water passes freely through the jetty

allowing for tidal exchange between the inner and outer portions of the bay. The marshes are cut by deep tidal channels, one of which, on the southeast margin, leads inland to Swash Lake, another area which is dominated by tidal marsh.

There is also a small tidal salt marsh on Clatsop Spit adjacent to the observation tower. It is covered by high salinity tidal waters coming directly in under the jetty from the ocean.

Little information exists on Trestle Bay sediments. Based on knowledge of similar environments, researchers speculate that most of the bay's sediments consist of very fine sand, silt, and clay year round. The sediments off of Point Adams range in mean grain size from medium to fine sand.

No information exists on circulation within Trestle Bay. Current speed is most likely very low within the portion of the bay enclosed by the jetty. The tides at Point Adams have an average range of 6.41 feet and an extreme range of 13.7 feet.

Salinity levels have not been measured within the bay. Surface salinities adjacent to the mouth of the bay range from less than 0.5 ppt to 20 or 30 ppt during high river discharge and from 5 to 30 ppt during low river discharge.

The plant types of Trestle Bay include phytoplankton, benthic algae, eelgrass, and brackish tidal marsh and swamp vegetation. Phytoplankton productivity has not been measured in the bay. Benthic microalgal productivity on the tidal flats ranges from high levels in the more protected inner portion of the bay to moderate levels in the outer bay. Sparse patches of eelgrass (*Zostera marina*) probably grow on the outer bay's tidal flats. It is the only location on the Oregon side of the estuary where this species is found. Tidal marshes and swamps form a wide band along much of the bay's shoreline. American Threesquare (*Scirpus americanus*) dominates the Trestle Bay lowest marshes while Lyngby's Sedge (*Carex lyngbyei*), and Pacific Silverweed (*Potentilla pacifica*) dominate higher elevation low marshes. Swash Lake low marshes consist primarily of (*Scirpus validus*), Common Cattail (*Typha angustifolia*), and Pacific Silverweed (*Potentilla pacifica*) dominate the subarea's high marshes. The high marsh assemblage is more species-rich than that of the low marsh. The swamps consist of an assemblage of shrubs and trees that grade into a similar upland community.

Little information exists on the invertebrates of Trestle Bay. Zooplankton and epibenthic organisms have not been studied and benthic infauna have only been sampled at one site in the outer bay. The principal taxa in the single infauna sample were *Neanthes limnicola*, *oligochaetes*, *Macoma balthica*, and *Eohaustorius estuarius*.

Fish community sampling has been conducted on tidal flats adjacent to the mouth of the bay only. No information exists on fish utilization of the portion of the bay enclosed by the jetty. The marine demersal species English sole (subyearlings), starry flounder, and Pacific staghorn sculpin utilize river areas near the bay much of the year. Juveniles of these species may use the bay as a nursery area. Threespine stickleback, a freshwater species, is also abundant near the bay. Adult Pacific herring and shiner perch migrate into the estuary in spring and summer and possibly spawn in the Trestle Bay subarea in summer. Longfin smelt ranging in age from yearlings to adults are abundant in the area year round. They may spawn in the bay during winter and spring. Juvenile herring, perch, and smelt may utilize the bay as a nursery area. Juvenile salmonids migrate primarily

along the main channels and adjacent tidal flats in the lower estuary. Although several species of salmon migrate in the channel adjacent to the bay's mouth, the outer bay probably receives its greatest use by subyearling chinook and yearling coho salmon, which migrate in the estuary's channels and tidal flats in spring and summer.

Trestle Bay is a feeding, nesting, and wintering site for many species of birds. Migratory waterfowl, particularly swans, canvasback, scaups, surf scoter, ruddy duck, wigeon and bufflehead utilize the bay during their spring and fall migrations and winter in the bay. The mallard, a resident waterfowl species, feed in the slope, tidal flat, low marsh, and high marsh habitat types and nest in the marshes. The largest nesting colony of double-crested cormorants in the estuary exists on rows of pilings adjacent to the bay's rock jetty. Double-crested cormorants nest in spring, summer, and fall and feed in the bay year round. Snowy Plover and Sanderlings also nest in the subarea. Shorebirds and great blue heron feed on the tidal flats and in the low marshes of the bay.

Aquatic and terrestrial mammals utilize the marshes and swamps of the bay year round; however, mammal use is low compared to upriver wetlands. Several muskrat dens have been found along the tidal channels of the low and high marshes. In addition, beaver colonies have been found in non-tidal areas adjacent to the bay. Nutria, raccoon, and deer also utilize the subarea's marshes and swamps.

Shoreland Features

The shorelands of Clatsop spit are rolling foredunes stabilized by European beachgrass. Coastal strawberry, hairgrass, scotch broom and coastal pine are also present. The Columbia River Estuary shoreline up to Hammond consists of protected sandy beaches, river beaches, rock riprap and some shrub vegetation. The upland adjacent to Trestle Bay consists primarily of beachgrass. Stands of willow and alder as well as beachgrass form the upland adjacent to Swash Lake and to a lesser extent, at Trestle Bay. Trestle Bay is important for waterfowl, wading birds, shorebirds and raptors, as well as deer, elk, nutria, mink, beaver, raccoon and opossum.

Human Use

Intensity of human use in the Fort Stevens subarea varies from high to low. Most use centers around the community of Fort Stevens and the three parking lot areas on Clatsop Spit and includes sightseeing, bicycling, hiking, beachcombing, clamming, nature observation, and jetty and beach angling. Drift logs are used for firewood. There is also some illegal off-road use of the area by four-wheel drive vehicles, even in the salt marsh adjacent to the observation tower. The old gun batteries at Point Adams have been restored and a parking area developed.

Issues

Development potential of the area is restricted to recreation and historic preservation. The Clatsop Spit area is already developed as far as it is intended to be.

Erosion problems along Jetty Sands and on Clatsop Spit, just south of the South Jetty, use of the area by four-wheel drive vehicles, removal of beach logs, and the possibility of ocean waves breaching the spit south of the jetty are issues of concern. While some structural control over erosion south of the jetty may eventually be required, non-structural means of erosion control are more suitable in a state park.

Swash Lake in recent years has been the focus of attention as a possible mitigation site for several projects. There is potential for conflict between State Park management interests and potential developers considering Swash Lake as a possible mitigation site. It is designated as a potential mitigation match-up for development at the Hammond Boat Basin, but projects far off-site, for example the John Day River Bridge, have used or may be interested in using Swash Lake for mitigation.

Aquatic and Shoreland Designations

All aquatic areas are designated Natural.

Parts of Clatsop Spit are designated Natural, with the remainder as Conservation. The three developed parking areas are considered to be consistent with the conservation designation. The South Jetty is classified as Development from Point Adams to its outer end. The shoreland area from Hammond northwest to Swash Lake is designated Conservation.

Mitigation sites are designated in the *Mitigation and Restoration Plan of the Columbia River Estuary*.

Subarea Policies

1. Off-road vehicles should not be permitted on dune or wetland areas in the park and should not traverse the wetland saltmarsh on Clatsop Spit.

P 30.11 YOUNGS BAY

General Description

Youngs Bay is one of the more biologically productive parts of the estuary. This subarea extends from the old Highway 101 bridges over the Youngs River and the Lewis and Clark River to the 20-foot bathymetric contour adjacent to the navigation channel of the Columbia River. It includes large fringing marshes, tideflats, open water, and restored wetlands at the Airport Mitigation Bank. The subarea boundary follows the shoreline, except adjacent to the Port of Astoria and the East Peninsula of the Skipanon River. No shorelands are included. Youngs Bay is in Warrenton, Astoria and Clatsop County.

Aquatic Features

Because of numerous development proposals, Youngs Bay is the most intensively studied bay of the estuary. The area has been considerably altered by human activity. The most important physical alterations have been diking of tidal marshes and spruce swamps, the filling of shallow areas, and the hydraulic alteration of the bay by channels, fills and causeways. Youngs Bay originally extended from Tansy Point to Smith Point, but the peninsulas at the mouth of the Skipanon River have completely separated Alder Cove from Youngs Bay, though the systems remain similar in their biology. The strongest effects on the bay's hydraulics have been exerted by the Skipanon peninsulas, the fills at Smith Point (Port of Astoria piers) and bridge causeways. The new Highway 101 causeway in particular has caused a marked reduction in currents and wave action in the interior of Youngs Bay. There has been extensive shoaling. Many of the adjacent diked areas were previously tidal marshes and swamps connected with Youngs Bay.

Tides in Youngs Bay and tributary streams are of the standing wave type. Thus, the tidal range increases somewhat from the port docks (8.0 feet) to the tidal reaches of the tributary streams (8.6 or 8.7 feet). High water is nearly simultaneous throughout the system and occurs at slack water. This type of tide is typical of shallow bays but atypical of the Columbia River Estuary.

Three water masses contribute to circulation in Youngs Bay: Columbia River fresh water, tributary fresh water and marine water. Fresh water flow in the Columbia River is greatest during the spring freshet in June; winter freshets also occur. Youngs Bay tributary flow is strongest in December and January, when local rainfall is at a maximum. Intrusion of saline marine water is governed primarily by Columbia River flow and secondarily by tributary flow. Salinities in Youngs Bay rarely exceed 10 to 15 parts per thousand even in the fall. Under these conditions, the vertical salinity differences are pronounced and salinity may intrude upriver along the bottom as far as RM 10 in the Youngs River and RM 6 in the Lewis and Clark River. During high flow periods for either the Columbia River or Youngs Bay tributaries, salinity is entirely or nearly absent from Youngs Bay.

Current patterns in Youngs Bay are complex. Eddies and stagnant areas prevail in the shallows. Stronger currents are found in the deep areas. Currents are highly variable, depending on winds, tides, freshwater flow and salinity intrusion.

Water quality is generally good in Youngs Bay; no serious pollutant sources are present and the flushing is excellent. Flushing times for the bay itself have been estimated to vary from 1 to 2 days, depending on tide and freshwater flow conditions. The flushing time of the tributaries below the head of tide is slower; 3.3 to 16 days for the Lewis and Clark River and 2.3 to 7.8 days for the Youngs River. Water quality in some smaller tributaries and sloughs such as the Little Walluski River is less favorable because of the poor flushing.

Sediments in the subarea range from medium to fine sand in the central bay to very fine sand, silt, and clay on the tidal flats. Youngs Bay appears to experience alternating periods of sedimentation and erosion, with variations occurring on time scales from storm events and seasons to years and decades. Sedimentation predominates (average rate throughout bay 1 cm/yr) and most strongly so in the shallow areas (up to 6 cm/yr). These observations are confirmed by bathymetric changes over the last century.

Aquatic plant types in Youngs Bay include phytoplankton, benthic algae, and tidal marsh and swamp vegetation. Phytoplankton productivity is low compared with the remainder of the estuary. Benthic algal productivity on the tidal flats and in the low marshes ranks among the highest in the estuary. Tidal flats along the west shore of Youngs Bay are particularly productive. Tidal marshes and swamps form a narrow fringe along most of the Bay's shoreline. Colonizing low marshes dominated by bulrush account for about half of the low marsh area. The remaining low marshes are dominated by Lyngby's sedge and are highly productive. The high marshes consist of a mixture of several species of herbaceous plants and shrubs. Shrub species dominate the tidal swamps. A 35-acre diked area on the west side of the Lewis and Clark River mouth was restored to tidal influence in 1987. This area is expected to develop low and high tidal marsh.

Invertebrate types that have been studied in the subarea include benthic infauna and epibenthic organisms. Benthic infauna densities rank among the highest in the estuary. Fish prey species such as amphipods and clams are abundant in the infauna community. The epibenthic organism community in the subarea also ranks among the most abundant in the estuary. Key species include small copepods such as Eurytemora affinis and larger animals such as sand shrimp.

Youngs Bay is a feeding area for many species of fresh and salt water fish. The Bay is also a particularly important nursery area for the juveniles of many species. The marine demersal species English sole, starry flounder, and Pacific staghorn sculpin utilize the bay as a feeding and nursery area. The English sole found in the bay are primarily subyearlings and are most abundant in the deeper habitats during the fall months. Abundant freshwater species in the subarea include threespine stickleback, peamouth, and prickly sculpin.

Pacific herring, shiner perch, and longfin smelt possibly spawn in Youngs Bay. Pacific herring spawn in the estuary from April through July. Yearling and older herring, however, are not abundant in the bay. Subyearlings become abundant in the bay in summer. Youngs Bay is more important as a nursery area than a spawning area for Pacific herring. Shiner perch bear their young in the estuary in June and July. Yearling and older perch become particularly concentrated in the bay during this period. Subyearling perch utilize the bay as a nursery area in summer and fall. Longfin smelt spawn in the estuary from November through March. Smelt ranging in age from yearlings through adults utilize Youngs Bay throughout the year and are abundant in fall. Larval longfin smelt appear in the estuary in winter and spring and subyearlings utilize the bay as a nursery area primarily in fall.

In addition to longfin smelt, several other anadromous species, including American shad and the salmonids, utilize the bay as a migration route and nursery area. American shad spawn in tributaries to the bay from June to August. Adult American shad migrate through the bay in June and July and juveniles in November and December. Because these spawning runs are relatively small, American shad are less abundant in Youngs Bay than in the main stem of the estuary. All of the salmonid species abundant in the estuary utilize Youngs Bay as a migration route or nursery area. Subyearling Chinook salmon utilize the bay as a nursery area year round and are abundant during their spring migration. These juvenile Chinook include populations which have migrated from upriver as well as from natural spawning areas and hatcheries in the tributaries of the bay. Yearling Chinook and coho and juvenile steelhead and cutthroat trout migrate through the bay primarily in spring. The yearling Chinook populations represent upriver stocks, while the coho and steelhead populations originate both upriver and in natural spawning areas and hatcheries in the bay's tributaries.

The Youngs Bay subarea provides habitat for several species of resident and migratory birds. Double-crested cormorant feed in the subarea year round while pelagic cormorant utilize the subarea primarily in winter. The subarea's marshes and tidal flats provide habitat for migratory waterfowl, especially swans, canvasback, scaups, and scoters. These birds are abundant in winter and during their spring and fall migrations. The western grebe, another migratory species, is abundant in the subarea and uses Youngs Bay as a staging area before its spring migration. Mallard, a resident waterfowl species, utilize the subarea year round. Western and glaucous-winged gulls feed in the subarea year round. Shorebirds utilize the tidal flat and low marsh habitats during all seasons but are most abundant during their spring and fall migrations. Great blue heron feed in the tidal flats and marshes of the subarea year round. They are particularly abundant in spring and summer in association with their use during the nesting season of a rookery near the mouth of the Youngs River.

Aquatic and terrestrial mammals utilize the marshes of the subarea; however, mammal use is low compared with upriver wetlands. Muskrat and nutria use the low and high marshes for feeding and denning. Raccoon feed in the high marsh habitats of the subarea.

Human Use

The primary uses are recreational boating and fishing, commercial fishing, and log transport.

The cumulative impacts of diking, shore protection, bridge construction and other human activity in Youngs Bay has been significant. Circulation, aquatic habitat and public access have all been affected.

Issues

Youngs Bay is surrounded by Warrenton and Astoria. Several land use disputes have centered around proposed fills in Youngs Bay or uses of nearby shorelands that might have polluted the bay. Prime industrial sites on the shorelands adjacent to Youngs Bay include the East Peninsula of the Skipanon River and the Astoria Airport. These sites could be made larger by filling productive shallow areas.

The use of the bay and tributaries for fisheries-related uses will probably increase. The Clatsop Economic Development Committee's fisheries project on the north shore of the bay has been successful and is expanding. The physical characteristics of Youngs Bay, including good water quality, adequate depth at certain sites, and access to shoreland sites make it particularly suitable for aquaculture. The salmon gillnet fishery in Youngs Bay has increased in size in recent years, with rising production at the Oregon Department of Fish and Wildlife's Klaskanine Hatchery and the two Clatsop Economic Development Committee hatcheries on the south fork of the Klaskanine and on Tucker Creek. Youngs Bay gillnetters participate in a system of voluntary assessments to pay for the Clatsop Economic Development Committee hatchery projects. A net pen salmon smolt rearing project on the north shore of the bay is expected to increase salmon runs.

The Oregon Department of Transportation has proposed to reroute and expand Highway 30 so that the main-stem transportation system will by-pass downtown Astoria. The proposed rerouted Highway 30 will join Highway 202 near the mouth of Youngs River and proceed to Smith Point, to the Highway 101 causeway bridge. This reroute and expansion necessitates widening the existing Highway 202 and West Marine Drive. This will require filling portions of the northern shoreline of Youngs Bay. Proposals being investigated during the environmental impact analysis phase include widening the existing road approximately 50 feet and filling from 1 to 6 acres of aquatic areas in Youngs Bay and at the mouth of Youngs River. Resource agencies have raised concerns about the fill, indicating that impacts on the aquatic resources need investigating as the actual productivity of the aquatic areas in the northeastern portion of Youngs Bay is virtually unknown. The construction phase of the project is not scheduled to begin until 1995-1996.

A major limitation on development of shorelands adjacent to Youngs Bay to the west is the limited land transportation system. Navigational access to the Youngs Bay shoreline is limited by fringing tidal marshes, shallow water and the high shoaling rate. Commercial use of the bay in the near future will probably be limited to log transport and fishing. Recreational boating and fishing will probably increase. There is a need for support facilities along the shore of Youngs Bay for recreational and commercial fishing vessels.

Severe contamination of both upland and tidal flat sediments at the old Pacific Power and Light coal gasification plant on Youngs Bay was discovered in 1984. There was evidence of contamination of aquatic organisms (not including fish) as well as groundwater contamination. The sampling identified carcinogenic polynuclear aromatic hydrocarbons (PAHs) and benzene as the contaminants of primary concern in the coal tars. A remedial action program was developed in coordination with the Environmental Protection Agency and the Oregon Department of Environmental Quality. The old PP&L Service Center building was demolished in 1985 and the rubble was disposed on-site, then covered with sand and several feet of topsoil. Warning signs were placed around the contaminated area. A groundwater monitoring program indicated mainly localized groundwater contamination.

The dike adjacent to the airport runway designated for an instrument landing system, which once intruded into the clear zone of that runway, was moved waterward in 1984-85. Spruce and other vegetation from approximately one acre outside the present dike was also removed. This activity was mitigated by building a new dike landward of the previous dike east of the airport, creating a new marsh area. The old dike was then breached to restore the area to tidal influence. A 35-acre mitigation bank was created. The mitigation bank is administered by the Oregon Division of State Lands. An exception to Oregon Statewide Planning Goal 16 was approved for this action.

Aquatic Designations

The authorized navigation channels are designated Development. The mud flats, tidal flats, and fringing marshes are designated Natural, except for areas adjacent to the old PP&L facility, the site of a former net storage building south of the new Youngs Bay Bridge, and the existing structure at the Columbia Boatworks, which are designated Conservation. All other water areas are designated Conservation.

Subarea Policies

1. Proposed developments shall be evaluated for their impact on existing aquaculture operations. Aquatic sites that are especially suited for aquaculture development shall be reserved for that use whenever possible.
2. Development of the aquatic area adjacent to the old Pacific Power and Light facility shall be evaluated for its impacts related to contaminated sediments buried on-site. Potential exposure of coal tar pollutants from disturbance of contaminated sediments shall be avoided.

P 30.12 LEWIS AND CLARK RIVER

General Description

This subarea includes the Lewis and Clark River and diked and flood-plain areas on the Lewis and Clark River and tributary sloughs between the Alternate Highway 101 bridge and the head of tide. The subarea is within Clatsop County.

Aquatic Features

The aquatic portion of the subarea consists of the Lewis and Clark River and the marshes fringing the river shore. Diking has brought about large changes in this subarea in the past century. Prior to diking activities, the river was flanked by broad tidal swamps. Most of the present fringing marshes along the river shore formed after the dikes were constructed.

The Lewis and Clark River has an annual average discharge of 255 cubic feet per second (cfs). Monthly average discharges can exceed 600 cfs in December and January, and are typically less than 100 cfs in summer and fall. Two-thirds of the total annual river discharge occurs during the period of December through March. Tidal flow reversals are evident as far upstream as Lewis and Clark River Mile 6 during low discharge periods and River Mile 2 during high discharge periods.

Salinity levels in the subarea depend on the salinity of Youngs Bay water and the volume of Lewis and Clark River discharge. Youngs Bay is freshwater during the spring and summer Columbia River freshet, hence the Lewis and Clark River is freshwater. By late summer, the mouth of the Lewis and Clark River exhibits salinities of 1 to 2 ppt. In fall, salinities at the river mouth average 2 to 8 ppt and saline water intrudes to Lewis and Clark River Mile 6. In winter, the high runoff of the Lewis and Clark River prevents saline water from entering the river.

Sediments have been quantitatively sampled at two sites in the river. At Lewis and Clark River Mile 7.5, the sediments consist of medium and coarse gravel. The lower river sediments consist mainly of fine sand and silt.

Of the river's plant types, only phytoplankton and tidal marsh and swamp vegetation have been studied. Information on these plant types exists for the lower river only (to about RM 2.5). Phytoplankton productivity in the lower river ranks among the highest measured in the estuary. The lower river marshes are similar to those in Youngs Bay (see Youngs Bay Subarea Plan).

Invertebrate and fish species using the river are similar to those in Youngs Bay (see Youngs Bay Subarea Plan).

Several anadromous species are known to spawn in the river. American shad spawn in the upper portion of the river from June through August. Fall Chinook spawn in August and September, coho from August through October, and steelhead from November through March.

Wildlife use of the subarea is similar to that in Youngs Bay (see Youngs Bay Subarea Plan).

Shoreland Features

Most shorelands in this reach are low, diked lands in the 100 year floodplain. Soils are of the Coquille-Tidal Marsh (fresh) - Clatsop and Walluski-Knappa Associations. The soils are fair to good for agricultural use. Most of the land is or has been in agricultural production. There are few houses in the subarea.

Several tidegated sloughs drain the shorelands. These are significant wetlands under Oregon Statewide Planning Goal 17. In addition, emergent wetlands east of the Fort Clatsop Memorial are classified as significant.

Wildlife use of the shorelands is high.

Human Use

Land uses include agriculture (largely grazing), rural housing, and the log dump owned by Cavenham Forest Products. Highway access is provided by Alternate Highway 101 and county roads. Water is private or provided by the Youngs River and Lewis and Clark Water District. There is no sewer system. The scenic value of the river is high. The Fort Clatsop National Memorial commemorates the winter headquarters of the Lewis and Clark Expedition. The major human uses of the waters are fishing, log sorting, storage and transport, and recreational boating. There are two active diking districts in the subarea.

The cumulative impact of dike construction on circulation and aquatic habitat has been substantial. Large areas in this subarea have been converted from marsh/swamp habitat into agricultural use.

Issues

There is limited development potential because of the flood hazard, poor transportation network and distance from developed areas. Some housing development may occur on adjacent upland areas.

Dredging of the Lewis and Clark River channel (10 feet deep and 150 feet wide) was at one time authorized, but has since been deauthorized. However, private dredging occurs in the river.

Maintenance of fresh water flow and water quality during summer minimum flow periods is important for continuation and enhancement of fish runs. There is potentially a conflict between public water supply and the need to maintain minimum stream flows.

This subarea includes hundreds of acres of farmland and many residences which are dependent upon an extensive diking and drainage system for protection from flooding. The maintenance of this system is the responsibility of local diking districts which have limited funds. In some instances the only economically feasible material for dike maintenance are river bottom sediments outside the dike. An exception to Oregon Statewide Planning Goal 16 has been approved to allow subtidal dredging for dike maintenance.

Public access to the Lewis and Clark River is limited. Construction of a small boat ramp would significantly improve this situation. Concerns have been raised by local landowners about the potential negative impacts of increased public access. Problems cited by riparian owners include trespassing, damage to dikes, and erosion caused by boat wakes.

Aquatic and Shoreland Designations

The river channel from the Alternate Highway 101 bridge to the upstream end of the Cavenham log booming area is designated Development. Adjacent to the Development Shoreland (Miles Crossing Subarea) south of the bridge and including the mouth of Jeffers Slough, the aquatic area from the shoreline out to the channel is designated Development.

Shorelands at the Cavenham log dump are designated Water-Dependent Development. The Fort Clatsop National Memorial and a small forested shoreland area are designated Conservation. Remaining shoreland is designated Rural.

The regulatory shoreland boundary in this subarea is 50 feet from the shoreline, or from the inland toe of dikes and associated toe drains, whichever is greatest, except where it extends farther inland to include the following features:

1. Significant riparian vegetation along the following tidewater sloughs: Jeffers Slough, Barrett Slough, Green Slough, and other unnamed diked sloughs, as shown on Columbia River Estuary Resource maps; and significant riparian vegetation along the banks of the Lewis and Clark River to the head of tide as shown on Columbia River Estuary Resource Maps.

2. Jeffers Slough, Barrett Slough, Green Slough and other unnamed diked sloughs providing significant wetland habitat as shown on Columbia River Estuary Resource Maps.
3. A log-dump site designated Water-Dependent Development.
4. The following dredged material disposal sites listed in the *1986 Columbia River Estuary Dredged Material Management Plan*: CC-S-12.9, CC-S-12.7.
5. Mitigation and restoration sites designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. Existing log storage areas should be inventoried to determine where logs rest on the bottom at low water. Use of these areas should be minimized and phased out as new sites adequate to meet industry needs are provided.
2. Boat ramps on the Lewis and Clark River shall be sited and designed to minimize negative impacts on adjacent properties. Only relatively small ramps offering access to smaller boats may be permitted.

P 30.13 MILES CROSSING

General Description

This subarea extends between the intersection of Clover Lane with Jeffers Slough at the southwest, around the peninsula separating the Lewis and Clark River and the Youngs River, and Miller Slough toward the southeast. There are no estuarine aquatic areas in this subarea. The subarea is within Clatsop County.

Shoreland Features

The subarea's shorelands, except for the causeway fill for the Old Highway 101 bridge over the Youngs River, are diked. The area is entirely within the 100 year floodplain, with the exception of the highway and some lands north and west of the highway. The subarea consisted of tidal marsh and swamp before it was diked.

Soils are of the Coquille-Tidal Marsh (fresh) - Clatsop Association and topography is flat. Because the land is low, the agricultural suitability is fair to moderate, and there is no timber of commercial value. Much of the subarea is developed with residential, commercial and light industrial uses.

There are several tidegated sloughs in the subarea. The larger sloughs are classified as significant wetlands under Oregon Statewide Planning Goal 17. Wildlife values are high in the undeveloped areas and low in the developed areas.

Human Use

The major agricultural use is grazing. Other land uses include rural and low density residential housing, commercial uses and light industry. The only water-dependent uses are the AMCCO Shipyard on the Lewis and Clark River, a small shipyard north of AMCCO, and boat construction at the mouth of Cook Slough. Commercial and industrial uses are concentrated along Alternate Highway 101. County roads provide access to nearby rural areas.

There is no sewer system, and septic tank suitability is poor. Sewering the area would probably require connection to the Warrenton or Astoria sewer systems.

Water and marsh areas adjacent to this subarea are used for hunting, fishing, boating and trapping. Some shoreline views are scenic.

Issues

Major portions of this subarea were considered for inclusion in Astoria's Urban Growth Boundary in the late 1970s. The City and some commercial interests favored inclusion. A large majority of area residents who voiced their opinion were opposed. A decision was made not to include the area. Future inclusion may be possible (see subarea policy below).

The area has development potential due to its proximity to Astoria and the availability of flat land. This potential is constrained, however, by the lack of sewers, flood hazard, and poor soil suitability. Water-oriented development is feasible only along the Lewis and Clark River.

This subarea includes hundreds of acres of agricultural land and many residences which are dependent upon an extensive diking and drainage system for protection from flooding. The maintenance of this system is normally the responsibility of local diking districts which have limited funds. An exception to Oregon Statewide Planning Goal 16 has been approved to allow subtidal dredging for dike maintenance. The Corps of Engineers has completed a plan to rehabilitate the dikes in this subarea. As of the date of this Plan, no dike work has begun.

A boat construction facility adjacent to the tide box at the mouth of Cook Slough is presently being used for construction of steel-hulled fishing vessels. Extensive shoaling has substantially reduced water depths and launching is extremely difficult. The dredging of a "pothole" in the area would allow vessels to be launched in a safe manner and would permit the vessels to be moored at this location while final outfitting takes place. Movement out to the main river channel could occur at high tide. Continued shoaling of this area, however, could result in shallow water depths which would not allow the movement of these vessels (drafts of approximately 9 feet) out to the river channel even on

the highest tides. Under those circumstances limited dredging for ingress and egress to the area would be appropriate. An exception to Oregon Statewide Planning Goal 16 will be required to permit this dredging.

Shoreland Designations

All shorelands in this subarea are designated Rural, except for the existing industrial zone on the east bank of the Lewis and Clark River which is designated Water-Dependent Development, and the existing industrial zone between Alternate Highway 101 and Knowland Slough, which is designated Development.

The regulatory shoreland boundary in this subarea is 50 feet from the Youngs Bay shoreline, or from the landward toe of dikes and associated toe drains, whichever is greatest, except where it extends further inland to include the following shoreland features:

1. Significant riparian vegetation along Knowland Slough, Jeffers Slough, Cook Slough and other unnamed sloughs, as mapped on Columbia River Estuary Resource Maps; and significant riparian vegetation along the Youngs Bay shoreline, as shown on Columbia River Estuary Resource Maps.
2. Jeffers Slough, Cook Slough, Knowland Slough, and other unnamed tidewater sloughs providing significant Goal 17 wetland habitat as shown on Columbia River Estuary Resource Maps.
3. The Astoria Marine Construction (AMCCO) boatworks, in a Water-Dependent Development Shorelands designation; a small boat shop about 1,500 feet downstream from the AMCCO facility, also in a Water-Dependent Development Shorelands designation; a partially developed site at the mouth of Cook Slough, also in a Water-Dependent Development Shorelands designation; and mitigation and restoration sites designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. The Rural designation in the Miles Crossing area recognizes that there are no plans to include this area in the Astoria Urban Growth Boundary (UGB) at this time. However, there are commitments between the County and City to reconsider the UGB issue during future review and update of plans. In the meantime, the nature and intensity of new uses should be consistent with the Rural designation and availability of public services.

General Description

This subarea includes the aquatic and shoreland areas of Youngs River above the Old Highway 101 bridge upstream to the head of tide. On the west side of the river, the shoreland north of Millers Slough is not included. The boundary of this subarea in Astoria is the pierhead line between the bridge and the point where the Astoria city limits intersect the Youngs River shoreline. The subarea is under Clatsop County's jurisdiction.

Aquatic Features

The aquatic areas in this subarea include the Youngs, Walluski, and Klaskanine Rivers to the head of tide and adjacent tidal marshes and swamps. Diking has brought about large changes in this subarea in the past century. Broad tidal marshes and swamps flanked the shores of the rivers prior to being converted to agricultural land by diking and clearing. Most of the narrow fringing marshes along the rivers' shores formed after the dikes were built.

Youngs River has an average annual discharge of 560 cubic feet per second (cfs). Monthly average discharges can exceed 1,200 cfs in December and January, and typically range around 100 cfs in summer and fall. Two-thirds of the total annual river discharge occurs during the period of December through March. Flow reversals are evident as far upstream as Youngs RM 9.5 during average river discharge and RM 6 during high discharge.

The salinity levels in Youngs Bay and the discharge levels of Youngs River determine the salinity of the river. During the Columbia River freshet, both Youngs Bay and River are entirely freshwater. In fall, salt water intrudes into Youngs Bay and the mouth of Youngs River exhibits salinities of 4 to 10 ppt with significant salinity stratification. Brackish water moves up the river to RM 10. In winter, Youngs River becomes entirely freshwater.

The sediments of Youngs River grade from coarse-grained in upriver areas to fine-grained in downriver areas. The sediments consist of cobbles and boulders upriver from the Klaskanine River confluence. The river bed grades from sand to silt between the Klaskanine River confluence and Daggett Point. Fine suspended sediments tend to settle out in the portion of this stretch of river between the Walluski River confluence and Daggett Point. The sediments become coarser silt downriver from Daggett Point.

The plant types of the Youngs River Subarea include phytoplankton, benthic algae, and tidal marsh and swamp vegetation. Phytoplankton productivity levels in the lower river rank among the highest measured in the estuary. Benthic algal productivity on the lower river tidal flats is moderate to high. There is no information on phytoplankton or benthic algal productivity upriver from RM 5. Data on marsh production and community composition exist for the lower river only (to RM 8). The tidal low marshes near the river mouth resemble the brackish marshes of Youngs Bay, while those farther upriver resemble the freshwater marshes of Cathlamet Bay (see Youngs Bay and Cathlamet

Bay Subarea Plan). The dikes surrounding Haven Island were breached in the early 1980's and the island is reverting to tidal marsh.

Invertebrate and fish utilization in the subarea is similar to Youngs Bay (see Youngs Bay Subarea Plan).

Several anadromous species are known to spawn in the river. American shad spawn in the upper portion of the Youngs and Walluski Rivers from June through August. Fall chinook spawn in the Klaskanine River in August and September, coho in the Youngs and Klaskanine Rivers from August through October, and winter run steelhead in the Youngs and Klaskanine Rivers from November through March. In addition hatcheries on the Klaskanine River releases fall chinook, coho, and steelhead.

Bird and wildlife use of the subarea is similar to Youngs Bay (see Youngs Bay Subarea Plan). A great blue heron nesting colony exists east of the subarea on Brown's Creek. Heron from this colony feed in Youngs River and Bay. Much of the subarea is within the home range of a nesting pair of bald eagles. The pair nests east of Youngs River near Cooperage Slough.

Shoreland Features

Most shorelands in this reach are low diked lands in the 100 year floodplain. Soils are of the Coquille-Tidal Marsh (fresh) - Clatsop, Walluski-Knappa, and Nehalem Associations. These soils are fair to good for agricultural use. Most of the land is or has been in agricultural production. There is some commercially valuable timber in the subarea. Adjacent uplands are highly productive timberland. There is rural housing development along the main roads passing through the subarea.

Several tidegated sloughs drain the shoreland of the subarea. Most of the large sloughs are significant wetlands under Oregon Statewide Planning Goal 17.

Bird use of the shorelands is high and mammal use is high in the undeveloped areas and adjacent to the rivers and wetlands.

Human Use

Major land uses are agriculture and rural housing. Highway access is provided by Oregon Highway 202 and county roads. Water is provided by three water districts; there is no sewer system, except at the old naval hospital. The scenic value of the river is high. There is a County park at Youngs River Falls and there are several undeveloped access points for angling.

The major human uses of the aquatic areas are fishing, log storage and transport, and recreational boating. There is one active diking district and one defunct diking district on the Youngs and Klaskanine Rivers. Most dikes throughout the area have been maintained by barge-mounted dragline. An exception to Oregon Statewide Planning Goal 16 has been approved to allow subtidal dredging for

dike maintenance. The Corps of Engineers has completed a plan to rehabilitate the dike from the Miles Crossing subarea to Binder Slough. As of the date of this plan, work has not begun.

The cumulative impact of diking in this subarea has been substantial. Nearly all of the former marshes and swampland along the rivers have been converted to agricultural use. Remaining intertidal areas are greatly diminished relative to their pre-diking size.

Issues

There is limited development potential in this subarea because of the flood hazard, poor transportation network and distance from developed areas. Residential development may occur on adjacent upland areas. The old naval hospital site is on high ground near the intersection of Youngs and Walluski Rivers, has water and sewer systems, and could be developed. Increased residential use in the Youngs River area is likely. Water-related issues include the preservation of diked, freshwater wetlands, log storage in wetland areas where logs may go aground at low water, and the dredging of shallow productive areas for fill material to maintain dikes.

The Oregon Department of Transportation has proposed to reroute and expand Highway 30 so that the mainstem transportation system will by-pass downtown Astoria. The proposed reroute will join Highway 202 near the mouth of Youngs river. The proposed reroute and expansion will necessitate widening the existing Highway 202 and West Marine Drive, which will require filling portions of the northern shoreline of Youngs River and Bay. The proposals being investigated during the environmental impact analysis phase consider filling from 1 to 6 acres in Youngs River and Bay. Portions of the road may extend approximately 50 feet into the aquatic areas. Resource agencies are concerned that the actual impact on aquatic resources may be underestimated because the productivity of the northern shoreline of Youngs Bay and River is virtually unknown. The construction phase of the project is not scheduled to begin until 1995-1996.

This subarea includes hundreds of acres of farmland and many residences which are dependent upon an extensive diking and drainage system for protection from flooding. The maintenance of this system is the responsibility of local diking districts which have limited funds. In some instances the only economically feasible material for dike maintenance are river bottom sediments outside the dike.

The Youngs River subarea contains significant natural values which should be protected. Except for extensive diking, people have changed this environment to a lesser extent than many other portions of the estuary. There is a substantial local and state investment in fisheries enhancement. The state and Clatsop Economic Development Committee operate fish hatcheries on the Klaskanine River. Expansion of these fish-rearing efforts is planned. The construction of a fish ladder at Youngs River Falls and the use of the area for mitigation sites could result in development of the river as an extremely valuable fisheries resource. Youngs River Falls has also been considered as a potential hydroelectric development site.

Aquatic and Shoreland Designations

The authorized navigation channel in Youngs River is designated Development to Haven Island. The following aquatic areas are designated Natural: Cooperage Slough, Grant Island, Haven Island, Fry Island, and the tidal flats downstream of the Walluski River on both sides of the river including Daggett Point. Remaining aquatic areas are designated Conservation.

Shorelands in this subarea used for agriculture and associated uses are designated Rural. Areas along the upper tidal reaches of the Walluski, Klaskanine, and Youngs River, and shorelands used primarily for timber production are designated Conservation.

The regulatory shoreland boundary in this subarea is 50 feet from the Youngs River shoreline, or from the landward toe of dikes and associated toe drains, whichever is greater, except where it extends farther inland to include the following shoreland features:

1. Significant riparian vegetation along both banks of the Youngs River, the Walluski River, the Little Walluski River, Crosel Creek and the Klaskanine River to the head of tide, as mapped on Columbia River Estuary Resource Maps; and significant riparian vegetation along diked sloughs as shown on Columbia River Estuary Resource Maps, including Sales Slough, Binder Slough, Casey Slough, Tucker Creek Slough, Battle Creek Slough and other unnamed sloughs.
2. An eagle's nest near Cooperage Slough and a 50-foot buffer around the next tree.
3. Sales Slough, Binder Slough, Tucker Creek Slough, Battle Creek Slough, Casey Slough and other unnamed sloughs providing significant Goal 17 wetland habitat as shown on Columbia River Estuary Resource Maps.
4. Mitigation and restoration sites as designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. Existing log storage areas should be inventoried to determine where logs rest on the bottom at low water. Use of these areas should be minimized and phased-out as new sites adequate to meet industry needs are provided.
2. To protect present investments and the future potential of the fisheries resource of the Youngs River, new development in the area shall be carried out so as to preserve water quality, biological productivity, and other factors which contribute to fisheries production.

P 30.15 TONGUE POINT

General Description

This subarea covers both shorelands and aquatic areas between the navigation channel on the north, the MARAD Basin on the east, the Astoria Urban Growth Boundary on the south, Highway 30 on the west (from the Astoria Urban Growth boundary on the south to Mill Creek), and the Burlington Northern Railroad right-of-way (from Mill Creek to the Astoria sewage ponds). This subarea contains the former Tongue Point Naval Station and finger piers, portions of the federal Job Corps Center, and the U. S. Army Corps of Engineers Field Station. The area is in the Astoria Urban Growth Boundary, under the jurisdiction of Clatsop County.

Aquatic Features

The aquatic areas include the access channel to Tongue Point from the Columbia River, the area surrounding 8 large finger piers, the MARAD Basin between Mott Island, Lois Island and South Tongue Point, the tidal flats and marshes adjacent to the Corps of Engineers Field Office, and water areas west and north of Tongue Point and the Coast Guard piers.

The aquatic area adjacent to Tongue Point has been highly altered by human activities. Prior to 1939, the area between the mouth of the John Day River and Tongue Point was an area of shallow waters, tidal flats, and marshes. The railroad track marked the approximate shoreline east of the neck of Tongue Point, except on the west side of the John Day River mouth, where the railroad track cut off a shallow embayment. The present Mott and Lois Islands were tidelands or waters up to 15 feet deep. The material dredged from the entrance channel into Tongue Point and the MARAD Basin was used to form virtually all of the low-lying, flat lands of the present Tongue Point and Corps of Engineers facilities. Mott and Lois Islands in the adjacent subarea were also formed with this material.

The aquatic area north and west of Tongue Point differs markedly from the basin formed by the Point and Lois and Mott Islands. The aquatic characteristics north and west of Tongue Point are discussed in the Estuary Channels Subarea Plan.

The partially enclosed aquatic area east of Tongue Point is characterized by slower currents, finer sediments, and lower salinity than the main channel. The entrance channel into Tongue Point ranges from about 40 feet deep at the mouth to about 25 feet deep east of the finger piers. The adjacent turning basin is approximately -34 feet MLLW. The MARAD Basin is generally between 20 and 26 feet deep. Depths between the finger piers are generally less than 15 feet. A band of intertidal areas, including tidal flats, marshes, and swamps, surrounds the south Tongue Point peninsula. This intertidal area varies from 300 to 1,500 feet in width and averages about 500 feet in width. Currents and flushing in these waters east of Tongue Point result primarily from tidal flow. Columbia River flow through the south channel is relatively small and the discharge of the John Day River is inconsequential.

Sediments in the area east of Tongue Point consist primarily of very fine sand, silt, and clay. Organic content is fairly high in some areas, and a potential layer of navy grey paint in the MARAD Basin may cause the sediments to be polluted according to EPA standards. Based on bathymetric surveys and core studies, the average sedimentation rate in the MARAD Basin is 4-6 cm/yr (about 2 in/yr) at the present depth of 20-26 feet below MLLW.

Tidal marshes and swamps in the subarea exist primarily around the south Tongue Point peninsula. The tidal swamps form an approximately 250-foot wide band around the peninsula. They contain primarily shrub species. The tidal marshes form a fringe waterward of the swamps. This fringe extends 1,200 feet on the north side of the peninsula. Softstem bulrush (Scirpus validus) dominates the lowest elevation marshes while Lyngby's sedge (Carex lyngbyei), reed canary grass (Phalaris arundinacea) and cattail (Typha angustifolia) dominate the higher elevation marshes.

Of the estuary's invertebrate types, only benthic infauna have been sampled in the area east of Tongue Point. Important fish prey items such as amphipods (Corophium salmonis), insect larvae (chironomids), and freshwater clams (Corbicula manilensis) dominate the infauna community. Infauna biomass is high compared with sandy areas of the estuary.

Fishes found to be abundant in the subarea include species tolerant of freshwater conditions and anadromous species. Two marine demersal species tolerant of freshwater, starry flounder and Pacific staghorn sculpin, utilize the subarea. Subyearling starry flounder are particularly abundant in summer. Another marine species, whitebait smelt, has been found in the subarea in winter. The most abundant freshwater species in the subarea are threespine stickleback and peamouth. White sturgeon are also abundant.

Two species that spawn in the estuary, longfin smelt and shiner perch, utilize the subarea. Longfin smelt, an anadromous species, spawns from November through March. Smelt ranging in age from yearlings through adults are found in the subarea in winter. Larval longfin smelt appear in the estuary in winter and spring and subyearlings utilize the subarea as a nursery area in fall. The subarea is probably important to shiner perch only as a nursery area because only subyearling perch are abundant. They use the subarea primarily in summer.

In addition to longfin smelt, several other anadromous species, including American shad and the salmonids, use the subarea as a migration route and nursery area. Adult American shad migrate upriver in June and July. Most of the upstream migrants are destined for spawning areas upriver from the estuary and do not pass through the subarea. Some, however, migrate through the subarea and spawn in the John Day River. Juvenile American shad migrate downriver primarily in November and December. Juvenile shad, originating from upstream spawning areas as well as from the John Day River, use the subarea as a nursery area. The subarea is also a nursery area for juvenile salmon. Subyearling Chinook salmon are abundant during their spring and summer migrations and remain fairly abundant through fall and winter. Yearling coho are found in greater abundance in the subarea than in other estuarine areas during their spring migration. Yearling Chinook and juvenile steelhead and cutthroat trout migrate through the subarea primarily in spring.

The subarea provides habitat for several species of resident and migratory birds. Double-crested cormorant are found in the subarea in winter while pelagic cormorant are found in spring, fall, and winter. Common merganser, a resident waterfowl species, utilize the subarea in fall and winter.

Western grebe, a migratory species, winters in the subarea. The tidal flats and low marshes provide feeding areas for great blue heron year round and for shorebirds primarily in spring.

Bald eagle use of the Tongue Point area was studied intensively in 1984 and 1985. The subarea is used by a resident pair of eagles, referred to as the Mill Creek pair, and by transitory and wintering eagles. The Mill Creek pair's nesting site is located about 2,500 feet east of the subarea along Mill Creek. The nesting area is protected under Astoria's Comprehensive Plan and by state and federal regulations. Another eagle pair nesting several miles to the east, the Twilight Creek pair, use the extreme eastern part of the Tongue Point Subarea. This pair is discussed in the John Day-Eddy Point Subarea Plan.

The home range or territory of the Mill Creek pair encompasses the entire Tongue Point subarea and portions of the adjacent subareas. The eagles' use of the subarea includes use of old growth conifer perch trees at the tip of Tongue Point, just south of the mouth of Mill Creek, and on the north and south tips of the south Tongue Point peninsula. The primary foraging areas for the pair include the mudflat off the mouth of Mill Creek and Taylor Sands (see Estuary Sands Subarea Plan). The Mill Creek site is used more often in winter while the Taylor Sands site is used more often during the nesting season. The pair also forage in the aquatic area around the periphery of Tongue Point and off the southern tip of the south Tongue Point peninsula.

Wintering and transient eagles use the subarea from November through August. Peak numbers occur in March. The perch trees and foraging area off the mouth of Mill Creek are also used by these eagles. This area is used much less frequently by these eagles than perching and foraging areas east of Lois Island (see Cathlamet Bay Subarea Plan).

In and adjacent to the foraging area off the mouth of Mill Creek, the Mill Creek pair exhibit a high tolerance of motor vehicles and trains, moderate tolerance of walking humans, and a very low tolerance of boats. The pair avoids the industrial area except when flying over at high altitudes. High priority measures for protecting this pair within the subarea include complete protection of all of their perching trees along the tip of Tongue Point, south of the mouth of Mill Creek and on the north and south tips of the Tongue Point peninsula and protection of mudflats and marshes off of the mouth of Mill Creek. In addition, human activities in the vicinity of the foraging areas should be minimized during morning hours.

Aquatic and terrestrial mammals utilize the marshes and swamps of the subarea. Muskrat and nutria feed and den in the marshes and occasionally utilize the swamps. Beaver and raccoon feed and den in the swamps and deer feed in the swamps and adjacent upland.

Shoreland Features

From north to south, the shorelands of this subarea include the steep, forested slopes of Tongue Point itself, the relatively flat developed area occupied by the Coast Guard station and the former naval base, the sloped area waterward of Highway 30 between Mill Creek and the south Tongue Point peninsula, and the south Tongue Point peninsula. Almost all of the flat lands of this subarea are the result of filling former aquatic areas with dredged material.

The flat land on the north Tongue Point peninsula is mostly developed. The developed flat land forming the south Tongue Point peninsula consists of a Corps of Engineers field station and access roads. The remainder of this area consists of vegetated shorelands with some nontidal wetland. The boundaries of the nontidal wetland were surveyed by the Corps of Engineers in 1987. Tongue Point proper consists of a steeply sloping hill. The point contains basalt rock. Vegetation on Tongue Point consists of old growth coniferous forest.

Wildlife in the subarea include deer and small mammals. As discussed under Aquatic Features, bald eagles utilize the subarea. Although there are currently no active eagle nests in the subarea, a nest tree on Tongue Point was occupied in the early 1970's. The trees at the tip of Tongue Point are used for roosting.

Human Uses

North Tongue Point Peninsula:

The peninsula is mostly undeveloped with the exception of a Coast Guard installation on the southwest corner. Tongue Point has been designated a habitat area for the bald eagle by the U.S. Fish and Wildlife Service. There is an access road circling the point between the Job Corps Center on the southeast corner and the U.S. Coast Guard installation on the southwest corner.

The Naval Station, Job Corps Center and Finger Pier Area:

The Federal Job Corps Center occupies the area immediately adjacent to Tongue Point Road on the west and between Tongue Point Road and the railroad tracks. East of the railroad tracks there is a large level area which was used as a naval station at one time. The north portion of this area is under Federal ownership, the south portion is owned by the State of Oregon and administered by the Division of State Lands. The Division of State Lands has leased this area to a private developer wishing to establish a deep draft car import facility at the site. The finger pier area has been used for long-term storage of vessels. The aquatic area between the finger piers is used for log storage as well.

South Tongue Point Mediation Agreement Area:

Constructed out of dredged material, this area is enclosed by water on three sides and by railroad tracks on the south. It is almost undeveloped with the exception of a U.S. Army Corps of Engineers installation. The lower areas have a high water table and contain wetland vegetation. South Tongue Point has been proposed for development of a U.S. Naval base.

Issues

The Tongue Point subarea contains one of the most difficult conflicts between natural resource values and development potential in the Columbia River Estuary. The subarea receives extensive use by bald eagles. The aquatic area is productive for several fish species, including shad, Chinook salmon, and starry flounder. The area around south Tongue Point contains tidal marsh and wetland habitat.

There have been a number of proposals for water-dependent uses at Tongue Point. A mediation agreement was reached by representatives from state and federal resource agencies and local jurisdictions in 1981. The Agreement designated use zones and development requirements for Tongue Point. It provides for the potential development of water-dependent uses in the finger pier area by designating the aquatic area between the finger piers, the access channel, and turning basin as development aquatic. A determination of dredged material disposal sites for excavation of the access channel and turning basin and mitigation sites for filling of the aquatic area was not made. Major issues involved in proposals for water-dependent uses at Tongue Point include the dredging of access channels, disposal of the dredged material, the filling of wetlands in and around Tongue Point, protection of intertidal habitat, the impact of access road construction on residences, and protection of bald eagle habitat. An access channel and turning basin were dredged in 1989, related to development of the proposed automobile import facility.

The development potential of the area around the finger piers is high. The shoreland immediately adjacent to the finger piers would provide a backup area for water-dependent development. The area has good access to Oregon Highway 30 and the Burlington Northern railroad tracks. The 1981 Mediation Panel Agreement permits filling of the area between the piers and construction of access channels from the navigation channel to the finger piers. The Agreement also provides for an access channel on the east side of South Tongue Point, and construction of a turning basin. A private developer has leased the area around the finger piers from the Division of State Lands for the purposes of developing a car import facility. The access channel and turning basin were dredged during 1989 to approximately -34 feet MLLW.

The 1986 Lower Columbia River Assessment of Oregon Deep Draft Sites identified Tongue Point as a potential deep draft development site. The document included two scenarios for development of Tongue Point. The first scenario, identified as the East Astoria Development Plan, appears consistent with the Mediation Panel Agreement. The second scenario, identified as the Tongue Point Development Plan, involves larger aquatic area fills than specified in the Mediation Panel Agreement. The total Tongue Point Mediation Panel Agreement fills amount to 97 acres while fills under the second scenario amount to 209 acres. The additional fill would occur in areas designated Aquatic Natural. This Plan retains the designations and development scenario specified in the 1981 Mediation Panel Agreement. Redesignation of Tongue Point to allow for the development scenario in the Deep Draft Sites assessment would require full coordination with all of the Mediation Panel participants and other affected agencies.

There are some physical and natural resource constraints to development at Tongue Point. There are steep slopes in much of the area and evidence of landsliding at one site, a factor which may affect access road construction. Extensive wetland areas exist south of the finger piers. In addition, an

earthquake fault, possibly no longer active, crosses the area in a northeast/southwest alignment just south of the finger piers.

The federal General Services Administration has considered the possibility of trading ownership of the Tongue Point south peninsula to the State of Oregon in exchange for several state owned estuary islands. The General Services Administration would then transfer its interest in the estuary islands to the U. S. Fish and Wildlife Service. The Oregon Division of State Lands would assume ownership of the Tongue Point south peninsula in addition to existing State ownership in the finger pier area. In addition, Clatsop County could quitclaim its interest in the estuary islands to the U. S. Fish and Wildlife Services. This transaction had not taken place as of 1989, although it is again under serious consideration in 1990. The federal government is considering designating Astoria as a homeport base, proposing to station two mine sweepers at the new base. South Tongue Point is the most likely choice for the new base.

Aquatic and Shoreland Designations

The following aquatic areas are designated Development:

1. The aquatic area between the shoreline of the old naval station and the waterward end of the finger piers.
2. A channel 500 feet in width from the main navigation channel to the finger piers and out 700 feet from the end of the finger piers.
3. A turning basin approximately 1,500 feet wide lying immediately waterward of the end of the southerly four finger piers.
4. The aquatic area within the Coast Guard base.
5. The wetland lying south of the Corps of Engineers causeway, if South Tongue Point is used for a water-dependent development. Otherwise the designation is Natural.
6. Tidal wetlands above the fringing emergent marsh lying between the Corps of Engineers dock and the southerly line of T8N, R9W, Section 12, if South Tongue Point is used for a water-dependent development. Otherwise, the designation is Natural.

The following aquatic areas are designated Natural:

1. The subtidal and intertidal areas between the southern most finger pier and the South Tongue Point Peninsula.
2. The wetlands lying south of the Corps of Engineers causeway if South Tongue Point is used for non-water-dependent development.

The following aquatic areas are designated Conservation:

1. The aquatic area between the shoreline of the North Tongue Point peninsula, the navigation channel to the north, and the access channel to the east.

The following shoreland areas are designated Water-Dependent Development:

1. The Coast Guard base.
2. The shorelands between Mill Creek and the Job Corps Center.
3. The South Tongue Point Peninsula can be committed to water-dependent or non-water-dependent developments.

The following shoreland area is designated Development:

1. The Federal Job Corps Center.

The following shoreland area is designated Rural:

1. The potentially unstable slope area waterward of Oregon Highway 30 between Mill Creek and the entrance to South Tongue Point, outside of the Astoria city limits.

The following shorelands are designated Natural:

1. The Tongue Point peninsula north of the Job Corps Center, with the exception of the Coast Guard Base.

The regulatory shoreland boundary is 50 feet from the Columbia River Estuary shoreline except where it extends farther inland to include the following features:

1. The Tongue Point peninsula, because of its significant shoreland habitat.
2. Bald eagle roosting trees in the Mill Creek area and south of Mill Creek to the South Tongue Point Peninsula (waterward of Highway 30).
3. The steeply sloping potentially unstable area waterward of Oregon Highway 30 between Mill Creek and the entrance to the South Tongue Point peninsula.
4. Water-Dependent Development sites at the South Tongue Point peninsula; a designated dredged material disposal site (As-S-18.7) (from the *Columbia River Estuary Dredged Material Management*

Plan); the upland area between the railroad right-of-way and the finger piers north of Mill Creek (also containing a designated dredged material disposal site (As-S-18.2); and the Coast Guard base.

Subarea Policies

1. Tidal wetlands south of the Corps of Engineers causeway on the South Tongue Point peninsula can only be developed for improved vehicular or rail access. Otherwise, uses permitted shall conform to the Natural Aquatic designation.
2. Development proposals for the area between the railroad right-of-way and Oregon Highway 30 south of Mill Creek shall demonstrate through such measures as a soils engineering analysis that surface alteration will not result in slope failure.
3. The USFWS and the ODFW shall be contacted prior to any development to assess the potential for impacts on bald eagle habitat.
4. The design and construction of new access roads to the finger pier area shall take into account potential impacts on residences and slope stability.
5. The areas designated Development by the Mediation Panel Agreement can be developed for all uses permitted under that designation, but compliance with the policies in the agreement shall be required.
6. Uncontaminated dredged material from navigation channel projects in this subarea should be used for dike maintenance.

Mediation Panel Agreement Subarea Policies - North Tongue Point

7. The maximum extent of fill in aquatic areas at North Tongue Point shall be: from the present shoreline eastward to the end of the existing piers; from the south side of the southernmost finger pier to the northern line of state ownership (halfway between the 5th and 6th finger piers from the south). Fill shall be allowed only for water-dependent uses.
8. A navigation channel 500 feet wide and 40 feet deep (with overdredge for compatibility with main channel) is allowed to provide access from the Columbia River to North Tongue Point. The width of the access channel may be extended 200 feet (creating a 700-foot wide channel) if necessary to allow movement around vessels docked at North Tongue Point.
9. If the main Columbia River navigation channel is deepened, the access channel into North Tongue Point may be deepened to the same depth.

10. Construction and maintenance of a 1,500-foot wide, 25-foot deep (MLLW) turning basin is allowed. The basin shall be designed to protect productive intertidal and nearshore subtidal areas in the Tongue Point area. The turning basin may extend southward into the MARAD Basin but not south of the existing Corps of Engineers dock at South Tongue Point.
11. The location and dimensions of the access channel and the turning basin shall be determined through engineering studies as a part of the permit application process.
12. Spur railroad trestle access to North Tongue Point from the main line across adjacent wetland areas is allowed. This rail access corridor may also contain piling-supported conveyor or vehicle access facilities for movement of commodities or cargo between South Tongue Point and North Tongue Point (pursuant to the exception to Oregon Statewide Planning Goal 16 adopted by Clatsop County and Astoria).
13. Dredged material disposal sites needed for fill development of North Tongue Point must be identified and agreed upon in preapplication consultation with resource agencies or in the permit process.

Mediation Panel Agreement Subarea Policies - South Tongue Point

14. If South Tongue Point is developed for water-dependent uses, the following accessory activities are allowed:
 - A) One access corridor from South Tongue Point to North Tongue Point is allowed in addition to the rail access provided in the North Tongue Point agreement. This corridor shall be located adjacent to and waterward of the Burlington Northern Railroad to allow movement of commodities or cargo between the sites. The corridor may contain rail, conveyor, road access, or a combination thereof. If a road is built some fringing wetlands along the shoreland may be filled. Otherwise the corridor must use pile supported structures (pursuant to the exception to Oregon Statewide Planning Goal 16 adopted by Clatsop County and Astoria).
 - B) A navigational access channel (not to exceed 500 feet in width or 25 feet depth at Mean Lower Low Water) suitable for ocean-going vessels is allowed to the eastern side of South Tongue Point. Dredging shall be allowed in this channel to maintain the approved depth not to exceed -25 feet. The objective shall be to locate the channel below -20 feet MLLW and to minimize the amount of dredging required.
 - C) T-docks or other piling-supported structures are allowed to facilitate movement of commodities from the shoreland to barges or boats in this channel (pursuant to the exception to Oregon Statewide Planning Goal 16 adopted by Clatsop County and Astoria). Such structures shall be designed and located with an objective of protecting productive intertidal and nearshore subtidal areas.
15. Spur railroad trestle access to South Tongue Point from the main line across adjacent wetland areas located southeasterly of the site is allowed (pursuant to the exception to Oregon Statewide Planning Goal 16 adopted by Clatsop County and Astoria).

16. Specific locations of spur lines, transportation corridors, roads, pile-supported structures, and the channel described above shall be determined during the permit process.

17. Filling in the Development Aquatic shrub wetland area lying adjacent to and southerly of the access causeway must meet the use-needs-alternatives criteria of the Section 404 permit process.

P 30.16 JOHN DAY RIVER

General Description

This area includes the John Day River from its mouth to the head of tide, and the adjacent shorelands. The subarea is under the jurisdiction of Clatsop County.

Aquatic Features

The aquatic portion of this subarea includes the John Day River and adjacent tidal marshes. Diking activities have reduced the amount of tidal wetlands in this subarea. Prior to diking most of the river's floodplain consisted of tidal swamp.

Water depths are a relatively shallow 4 to 12 feet. The river is considered navigable for a distance of three miles. River flow from the small drainage basin is low, particularly in the summer. There is minimal sediment transport, and flushing is slow. There is little salt water intrusion. The aquatic ecosystem of the John Day River is thus freshwater in nature.

Tidal swamps and marshes exist near the mouth of the river and near the upstream end of tidal influence. These tidal wetlands have plant species similar to those found in Cathlamet Bay wetlands (see Cathlamet Bay Subarea Plan).

There is no information on invertebrate populations in the subarea and little information on fish. During the fall, there are cutthroat trout, some coho salmon, and maybe a small number of Chum salmon. During May and June, there is a run of American Shad which spawn around the head of tide. Other species which occur throughout the year are carp, largemouth bass, crappie, yellow perch, catfish, and other rough fish.

Bird and mammal use of the river's waters and wetlands is probably similar to Cathlamet Bay (see Cathlamet Bay Subarea Plan). Bald eagles feed at the mouth of the river. The Aquatic Features sections in adjacent subarea plans discuss these eagles (see Tongue Point and Cathlamet Bay Subarea Plans).

Shoreland Features

The shorelands are predominantly diked tidelands used for low intensity agriculture. There are also small forested shoreland areas. Shoreland soils are the Coquille-Tidal Marsh (fresh)-Tolovana Association. These lowlands have high flooding potential (most of the area is within the 100 year floodplain), relatively high ground water level, and moderate agricultural suitability. The shorelands

have moderate wildlife value. Deer and elk, along with smaller wildlife, frequent the area and several bald eagle nests have been located in adjacent upland areas.

There are several nontidal wetlands in the subarea that are significant under Oregon Statewide Planning Goal 17. The wetlands include emergent marshes dominated by sedges (Carex sitchensis, Carex cusickii, and Carex obnupta), Sitka spruce swamps, and shrub swamps.

Human Use

Existing land and water use includes agriculture, forestry, residential use, and recreation. Low-lying shoreland areas are protected by dikes and fourteen tidegates located along the river. Adjacent land uses are mostly related to agriculture and forestry.

Ownership is mostly private with some county, state and corporate owners. There is a public boat launching ramp on county land near the mouth of the river. There are also numerous private docks along the river. Access to the area is by water from Cathlamet Bay and by road from Highway 30.

Relocation of the John Day River bridge was approved by Clatsop County. The new bridge was constructed slightly downstream of the existing one. The project involved fill of approximately 1.3 acres of tidal marsh on the west side of the river. The embankment is stabilized with riprap. The project required wetlands mitigation.

Issues

There is limited potential for new development on the John Day River and its low-lying shorelands. The river itself is relatively narrow and shallow. Increased river traffic would conflict with existing houseboat uses and worsen the streambank erosion problem. The shorelands, being either low and flood-prone or steep and unsuitable for intensive development, also offer little potential for expanded use. Factors which could improve development potential in the future would be the use of low areas for disposal of dredged material and possible relocation of Highway 30. An exception to Oregon Statewide Planning Goal 16 to permit continued houseboat use on the John Day River was approved by Clatsop County in 1983. This exception does not permit expansion of the outside boundaries of the aquatic area "committed to houseboat use" at the time the exception was approved. The Oregon Department of Land Conservation and Development's position on houseboats is that residential uses are not water-dependent and therefore cannot be permitted in aquatic areas. Water quality and navigational access concerns related to existing houseboats may become a more significant issue in the future.

The tidal marsh-mudflat areas just inside the river mouth are very shallow, are flooded on every tide, have significant fish and wildlife values, are publicly owned, and have little potential for development. It is in the public interest to protect these natural resource values. The low-intensity recreational uses of the river, the fishery resources and wildlife values should be protected while providing for limited development.

Aquatic and Shoreland Designations

The large tidal marsh and mudflat just inside the mouth of the John Day River, to the west of the river channel, is designated Natural. The remaining aquatic areas to the head of tide are designated Conservation.

Shorelands in this subarea are designated Rural in agricultural areas and Conservation in forestry areas.

The regulatory shoreland boundary in this subarea is 50 feet from the shoreline or the inland toe of dikes and associated toe drains, whichever is greatest, except where it extends farther inland to include the following shoreland features:

1. Significant nontidal wetlands as shown on Columbia River Estuary Resource Maps.
2. Significant riparian vegetation along the John Day River to the head of tide, as shown on Columbia River Estuary Resource Maps.
3. The John Day River Boat Ramp, including parking lot; dredged material disposal sites CC-S-8.6 and CC-S-18.8 (from the *Columbia River Estuary Dredged Material Management Plan*); and mitigation and restoration sites as designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. The tidal marsh and mudflats just inside the river mouth have significant fish and wildlife values and are publicly owned. They shall be protected.
2. New, replacement and relocated houseboats may be permitted in the John Day houseboat exception area, subject to local, state, and federal lease and permit requirements, and subject to the exception to Oregon Statewide Planning Goal 16. Approval of new or reoriented houseboats shall be subject to the following policies:
 - a. Any new or reoriented floating residence must have a DEQ approved sewage disposal system.
 - b. New or reoriented floating residences must show an upland parking area off any public road right-of-way.
 - c. New or reoriented floating residences must have an approved lease from the Division of State Lands to occupy the water surface.
 - d. Alignment of new or reoriented floating residences shall be such that navigability on the river is hindered as little as possible.

- e. Maximum building height of new floating residences shall be equivalent to that in the adjacent upland zone.
- f. A distance of 25 feet is required between any portion of the floats of a new or reoriented floating residence and any existing floating residence.
- g. Any new or reoriented floating residence shall be sited so that the longer dimension runs parallel with the shoreline.

P 30.17 JOHN DAY POINT TO EDDY POINT

General Description

This subarea extends from John Day Point to Eddy Point. Included are the shorelands along this part of the Cathlamet Bay shoreline, adjacent tidal marshes, the lower portions of Twilight, Mary's, Bear, and Ferris Creeks, and Svensen and Calendar Islands. Most of the mainland shorelands are forested and rural. Svensen Island is diked and used primarily for pasture. Calendar Island consists of tidal marshes and swamps. The subarea is under the jurisdiction of Clatsop County.

Aquatic Features

Aquatic portions of this subarea include the nearshore areas from John Day Point to Eddy Point, the waters surrounding Svensen Islands, and the marshes and swamps of Calendar Island. The principal historic changes that have occurred in the subarea have resulted from diking. All of the subarea's diked agricultural land previously consisted of tidal marshes and swamps.

Physical and biological characteristics of the aquatic areas are similar to those in adjacent subareas (see Cathlamet Bay and Upper Marsh Islands Subarea Plans). Tidal marshes and swamps fringe much of the subarea's shoreline. In addition, large marshes and swamps exist at the mouth of Twilight Creek, adjacent to Mary's, Bear, and Ferris Creeks, and on Calendar Island. The Mary's, Bear, and Ferris Creek wetlands were at one time diked but have returned to tidal influence when the dikes breached many years ago.

Mary's, Bear and Ferris Creeks have small wild runs of cutthroat trout, steelhead, and coho and chum salmon; coho from state hatcheries have been placed in Bear Creek. The creeks and adjacent waters and wetlands receive extensive use by feeding juvenile salmonids.

The subarea receives heavy use by bald eagles. The Mill Creek bald eagle pair (see Tongue Point Subarea Plan), Twilight Creek pair, and wintering and transient eagles feed off of John Day Point. The Twilight Creek marsh and adjacent south channel are feeding areas for the Twilight Creek bald eagle pair as well as wintering and transitory eagles. Calendar Island and adjacent waters are used by a pair of eagles that nest on Karlson Island.

Shoreland Features

Soils from John Day Point to Settlers Point include the Tolovana and the Walluski-Knappa associations. Flood potential is low and there is a seasonally high water table. The soils have a very low suitability for agriculture. Soil movement hazards are present to the west of Twilight Creek. While the movement is not rapid, it is present almost every winter, intruding on Highway 30. The soils in the remainder of the subarea are primarily of the Coquille-Tidal Marsh (fresh)-Clatsop Association. Soil morphology is to a large extent a result of flooding, a relatively high seasonal water table, and a low slope. Agricultural suitability is moderate.

Shoreland vegetation is characterized by shrub willow, alder, Sitka spruce, and Douglas fir. Wildlife in the area includes blacktailed deer, elk, and small mammals. Freshwater marshes classified as significant under Oregon Statewide Planning Goal 17 are located on Svensen Island and Twilight Creek.

Bald eagle use of the shorelands is high. Several bald eagle nesting and roosting trees (outside of the estuary area) have been identified inland from the subarea. The Twilight Creek nest is located about one-half mile South of the subarea and a large communal roost known as the Mary's Creek roost is located about one and one-half miles south of the subarea. The eagles' main hunting perches in the subarea are located on John Day Point, adjacent to the Twilight Creek marsh, and near Settler's Point.

Human Use

Existing uses in the area are agriculture, forestry, and scattered residential uses. The railroad runs along the shoreline. There are several in-water log storage areas. There is a mixture of state and private ownership. Physical access to the water is limited to private shoreline structures.

Issues

There is limited development potential in the subarea. Some expansion of residential uses in the Burnside area near Settlers Point may occur in the future.

The tidal marshes at the mouth of Twilight Creek (also known as Eskeline Creek) have been intensively studied and are a valuable natural resource. The marshes are primarily in private ownership and are managed for waterfowl hunting by a local club. There are several small docks and walkways giving access to tidal channels cut in the marshes. Low intensity recreation is the dominant use of these marshes. Continued maintenance and possible improvement of docks and duck shacks is expected. Demand for recreation facilities requiring major alterations, however, is not expected.

A major issue in this subarea is whether or not the formerly diked wetlands can be rediked and placed into agricultural or other use. According to federal, state, and local policy, once areas have substantially reverted to wetland vegetation, repairing dikes and tide boxes is considered new diking. New diking of wetlands for agricultural use could not be permitted without an exception to Oregon

Statewide Planning Goal 16. Proposals for restoring abandoned dikes on Mary's Creek and Ferris Creek have been made.

Dikes on the north side of Svensen Island have experienced problems with erosion. A series of pile dikes to retard erosion have been placed near the center of the island. These have not solved all of the erosion problems. Material to maintain the dikes has been difficult to obtain.

Aquatic and Shoreland Designations

All tidal marshes and swamps are designated Natural except for the following which are designated Conservation: marshes around Svensen Island and fringing marshes along the mainland shore south of Svensen Island. All other aquatic areas are also designated Conservation.

Shoreland areas are designated Rural in agricultural and residential areas and Conservation in forested areas.

The regulatory shoreland boundary in this subarea is 50 feet from the estuary shoreline, or from the landward side of dikes or associated toe drains, whichever is greatest, except where it extends further inland to include the following resources:

Significant wetlands and riparian vegetation identified in *Significant Shoreland and Wetland Habitats in the Clatsop Plains and the Columbia Floodplain of Clatsop County, 1986*.

The western half of Svenson Island has been designated a dredged material disposal site (CC-S-24.0) in the *Columbia River Estuary Dredged Material Management Plan* and as a mitigation site in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies:

1. Identified bald eagle roosting trees shall be preserved.
2. Dike maintenance and repair on Svenson Island shall be encouraged.

P 30.18 BIG CREEK/LITTLE CREEK/FERTILE VALLEY

General Description

This subarea lies between Eddy Point and Knappa Dock and includes adjacent waters of Knappa Slough, the spruce swamp and tideland soil shorelands at the mouths of Big and Little Creeks, and the diked lands in Fertile Valley. This subarea is under the jurisdiction of Clatsop County.

Aquatic Features

Big and Little Creeks, a large tidal spruce swamp at the mouth of the creeks, and Knappa Slough are all prominent aquatic features of this subarea. There have been few changes to this subarea over the past century. Diking Fertile Valley has converted it from a tidal wetland to pastureland and nontidal wetland.

Physical and biological characteristics of the aquatic area are similar to those in the adjacent subarea (see Upper Marsh Islands Subarea Plan).

The approximately 125 acre tidal spruce swamp at the mouth of the Big and Little Creeks is undisturbed Sitka spruce forest, dominated by a large, open-growth form of Sitka spruce and some red alder, vine maple, salmonberry, skunk cabbage, sedges and waterparsley. A variety of other wetland plants are also present.

A state salmon hatchery on Big Creek releases chinook salmon, coho, and steelhead. The stream occasionally has a run of lamprey and has a wild population of cutthroat trout. Little Creek fish runs are primarily strays from Big Creek.

Shoreland Features

The primary soil in this area is the Coquille-Tidal Marsh (fresh)-Clatsop Association. Portions of Little Creek flow through a group of soils known as the Nehalem Association. The upper part of Fertile Valley Creek flows through Walluski-Knappa Association. Many of the soils' characteristics are similar, but the primary difference is the agricultural suitability: the Nehalem and Walluski-Knappa Associations are mostly Class II soils, while the Coquille-Tidal Marsh (fresh) Clatsop Association is Class III and IV. The primary hazard in the area is the potential of flooding of the creeks, which also occurs upstream of tidal areas.

Shoreland vegetation includes primarily pasture grasses mixed with wetland plants such as common rush (Juncus effusus). There are also some forested areas.

Fertile Valley Creek is diked with a tidegate near its mouth where it joins Warren Slough. The area is a private wildlife reserve and receives significant wildlife use. Ducks and geese are common and nesting areas have been provided. No fishery information is available on Fertile Valley Creek, but warm water fish are probably common.

Human Use

Agriculture on shorelands in the upper portion of the subarea is the most intensive human use. There is forestry on adjacent shorelands and recreational fishing in Big Creek is important farther upstream. Part of Fertile Valley is a privately owned wildlife refuge.

Issues

The major issue in this subarea is the need for protection of the old growth spruce swamp at the mouth of Big and Little Creeks versus private property rights. The area has been inventoried by the Nature Conservancy and, based on its natural values, recommended for protection. Most of the spruce swamp is in a single corporate ownership (Boise Cascade), with a small portion in private farm ownership near the upper tidal reaches between the two streams. Both landowners object to a protective land use designation which would prevent their use of the area for forestry.

The waters of Knappa Slough adjacent to Big and Little Creeks are important holding areas for adult anadromous fish prior to ascending the streams to spawning grounds and the hatchery. This area should be protected from conflicting uses. The Knappa Slough area has significant historical and archaeological value. The shoreline of the slough was the site of an Indian village. The present Knappa Dock is also the first landing site of the Lewis and Clark expedition in Clatsop County.

The Knappa dock area, midway between public water access points on the John Day River and at Aldrich Point, has been proposed as a possible public boat launch site. Because of the inability of local roads to handle increased traffic and impacts on area residents and lifestyle, this has been opposed by some local residents.

Aquatic and Shoreland Designations

The entire spruce swamp and portions of Big and Little Creeks running through the swamp are designated Natural. The wetland area north of the railroad at Eddy Point on the west is designated Conservation.

Shorelands from Eddy Point east to the spruce swamp and shorelands along the western and eastern edges of the swamp in forestry use are designated Conservation. Areas in agricultural use south and east of the spruce swamp are Rural. The privately-owned wildlife refuge in Fertile Valley is designated Natural.

The regulatory shoreland boundary in this subarea is 50 feet from the estuary shoreline, or the inland toe of dikes and associated toe drains, whichever is greater, except where it extends farther inland to include the following features:

1. Significant riparian vegetation along both sides of Big Creek to the head of tide; and significant riparian vegetation along the Columbia River shoreline near Eddy Point, as shown on Columbia River Estuary Resource Maps.
2. A privately-owned wildlife refuge consisting of lands below the 100-year flood level bounded by Knappa Road on the west, and by Ziak-Gnat Creek Road on the east and south.

Subarea Policies

1. The Natural designation of the Big Creek spruce swamp recognizes the unique natural fish and wildlife values of this area. However, such a designation should not limit logging of adjacent shoreland and upland areas in accordance with the Oregon Forest Practices Act, and should not impede construction of a log sorting yard or similar support facilities on the uplands adjacent to the swamp.
2. The Natural designation on the privately owned portion of wetland south of Blind Slough expressly provides for construction of a single residence at some future time on a piece of higher ground near the railroad. The residence would provide for a caretaker of the area, which is intended as a wildlife preserve.

P 30.19 BROWNSMEAD/GNAT CREEK

General Description

The Brownsmead/Gnat Creek subarea includes all of the lands behind the Brownsmead dikes, all sloughs and wetlands behind the dikes, Blind Slough and adjacent wetlands, Gnat Creek, and Prairie Channel waters and wetlands fronting the subarea. This subarea is in Clatsop County.

Aquatic Features

The aquatic portions of this subarea include parts of Knappa Slough and Prairie Channel, Warren Slough, Blind Slough, and Gnat Creek. Diking activities have brought about large changes to this subarea in the past century. Prior to diking, the Brownsmead area consisted of tidal marsh and swamp.

Physical and biological characteristics of the aquatic area are similar to those in the adjacent subarea (see Upper Marsh Islands Subarea Plan). The freshwater wetland areas north and south of Blind Slough are some of the largest undisturbed tidal spruce and shrub swamps along the shoreline of the estuary. Natural resource values are high. The areas have not been extensively studied but the vegetation and wildlife use is probably similar to the Big Creek area. Sitka spruce, willow and alder make up the overstory with low wetland vegetation as an understory. Knappa Slough has been inventoried by the Nature Conservancy, and its tidelands, fringing marshes and riparian vegetation are described as valuable fish and wildlife habitat.

The fisheries value of the Gnat Creek area is very high. The Gnat Creek Fish Hatchery supports steelhead sport fishing in the creek. Most of the fish raised at the hatchery are transported and released at the other streams in Oregon. Gnat Creek also supports a good run of fall Chinook, and some coho, cutthroat, and chum.

The Brownsmead/Gnat Creek aquatic areas are within the home range of three nesting pairs of bald eagles: the Karlson Island, Marsh Island, and Aldrich Point pairs. There is an osprey nest in the Gnat Creek tidal wetlands.

Shoreland Features

The shorelands consist of Class III and IV soil types of the Coquille-Tidal Marsh (fresh)-Clatsop Association. There are large areas of peat and organic soils. The lowlands are protected by dikes and five tidegates.

Shoreland vegetation consists mostly of upland grasses in large pasture-lands of the subarea. Some of these areas have developed wetland vegetation such as common rush (*Juncus effusus*). The diked sloughs within the shoreland are lined with riparian vegetation such as willow and alder.

There is a population of warm water game fish such as bass, crappie, and perch in Brownsmead Slough. Other sloughs also have populations of warm water fishes.

Wildlife values in and around the sloughs are high. Waterfowl use these sloughs as well as the surrounding pastures.

Human Use

Existing uses include farming and rural residences. Portions of Blind Slough and Prairie Channel are used for log storage. Ownership is entirely private except for small parcels in state and county ownership. Recreational use of the aquatic area is high, including hunting and fishing.

There are several water access points. Private docks are located mainly on Blind Slough. There is a public boat launching facility at Aldrich Point, which receives extensive use, particularly in the summer.

Issues

The Brownsmead area, according to the U. S. Soil Conservation Service, has the best agricultural land in Clatsop County. Most of the area is used as pasture land, but corn, peas, beans and other crops are also grown. The area is in the Exclusive Farm Use zone (EFU).

The public boat launching facility at Aldrich Point is a source of conflict in the area. Local residents do not want the facility expanded because traffic generated by the facility already causes problems during peak use periods. The County government operates the facility and has expressed plans for improving the boat ramp.

The bulk of the wetlands north and south of Blind Slough are owned or leased by Western Transportation Company, with the remainder in a small private ownership. These undisturbed wetlands have high natural values and need protection.

Blind Slough, Prairie Channel and Knappa Slough are among the more important log storage areas in the estuary. Water quality is good, the water is deep enough so that grounding at low water is not a problem, and there are no gillnet fish drifts in the area.

Gnat Creek, with its wetlands, riparian vegetation, and important fishery, needs protection from major alterations. Some of the wetlands are formerly diked areas, but no dike restoration has been suggested. Some pressure exists for installation of private docks. The recreation value of the stream for sport fishing is high.

Aquatic and Shoreland Designations

The following aquatic areas are designated Natural:

1. The wetlands north and south of the mouth of Blind Slough.
2. The wetlands adjacent to the eastward bend in Prairie Channel.
3. The tidal marshes and swamps associated with Gnat Creek.

All other aquatic areas are designated Conservation.

All shorelands are designated Rural.

The regulatory shoreland boundary in this subarea is 50 feet from the estuary shoreline, or the inland toe of dikes and associated toe drains, whichever is greater, except where it extends farther inland to include the following features:

1. Significant riparian vegetation along the tidegated portions of Blind Slough, Saspall Slough, Grizzly Slough, and other tidegated sloughs in the Brownsmead area; significant riparian vegetation along both sides of Gnat Creek to the head of tide; and significant riparian vegetation along a tidegated slough in Sections 4 and 9, T8N R7W.
2. Significant wetlands of diked sloughs including Blind Slough, Grizzly Slough, Saspall Slough and other unnamed sloughs as shown on Columbia River Estuary Resource Maps.
3. A boat ramp on Blind Slough, a boat ramp on Gnat Creek, and the Aldrich Point boat ramp.
4. Mitigation and restoration sites designated in the *Mitigation and Restoration Plan of the Columbia River Estuary*.

Subarea Policies

1. Maintenance and possible expansion of log storage activities in Blind Slough are provided for in this plan. This area is well protected from winds and river currents, has relatively deep water and is one of the most important log storage areas in the estuary. The Natural designation of the adjacent spruce swamps at the mouth of Blind Slough are intended to provide for protection of the natural vegetation and wildlife values, while not limiting adjacent log storage and transport activities. Logging in the swamp area shall not be permitted.

P 30.20 CLIFTON CHANNEL

General Description

This subarea consists of a shoreland strip from Aldrich Point to Bradwood. The area also includes the Columbia River to the center of the Clifton Channel. This subarea is in Clatsop County.

Aquatic Features

The aquatic physical and biological characteristics of the deeper part of Clifton Channel, are, for the most part, similar to the River Channels Subarea. Because sediments are finer in the Clifton Channel than the Main Channel, benthic organisms tend to be more concentrated.

The nearshore parts of the channel contain some narrow, fringing tidal flats and swamps. Subyearling fall Chinook salmon migrate along the near-shore tidal flat and shallow subtidal areas. Two nesting pairs of bald eagles perch and feed in these nearshore areas. Their nests are located within the subarea's shoreland. The tidal swamps of the subarea provide habitat for small mammals and waterfowl.

Shoreland Features

Most of the shorelands in this subarea are steep, heavily forested and subject to landslide hazards, particularly adjacent to Clifton Channel. Vegetation on these shorelands and adjacent uplands is mostly Douglas fir and hemlock. Small pockets of tideland soils occur along Clifton Channel, vegetated with conifers, alder and willow. Wildlife using shore and uplands include deer, elk, bear and smaller animals. Two bald eagle nests are located near Aldrich Point. The eagles using the nests are referred to as the Aldrich Point Pair and Clifton Channel Pair. Their home ranges extend over the adjacent islands.

Human Use

Forestry and some residential uses occur in this area. The old fishing community of Clifton is still occupied by several families and is used as a staging area for fishing the Clifton Channel gillnet fish drifts. Extensive log storage sites are located across the channel adjacent to Tenasillahe Island.

Issues

The fish drifts in this area are very productive, but are hampered by snag material. Most of these obstructions are sinker logs from log rafts stored across the channel. Occasional broken log bundles also cause serious problems, resulting in lost fishing time and expensive snag removal from drifts. Local fishermen are working with lumber companies to alleviate the problem.

Aquatic and Shoreland Designations

All aquatic areas along Clifton Channel are designated Conservation.

Shoreland areas in forestry use or hazard areas are designated Conservation. The developed area at Clifton, southeast to Bradwood, is designated Rural.

The regulatory shoreland boundary in this subarea is 50 feet from the shoreline, except where it extends farther inland to include the following:

1. Bald eagle nest trees and a 500-foot buffer extending around the trees.

P 30.21 BRADWOOD

General Description

This area includes the industrial area at Bradwood, a stretch of steep forested shoreline to the east, and portions of the Columbia River. This subarea is in Clatsop County. The eastern boundary is the section line between Sections 21 and 22 of T8N, R6W, which corresponds to the downstream end of Puget Island.

Aquatic Features

The aquatic portions of this subarea include portions of Clifton Channel, the main navigation channel, an embayment and tidal marshes and swamps near Bradwood. The biological and physical characteristics of the aquatic area are similar to those in adjacent subareas (see River Channels and Clifton Channel Subarea Plans).

Shoreland Features

The soils in this subarea include the Hembre-Klickitat Association (30% - 60% slope) in the Bradwood area, and the Astoria-Hembre-Klickitat Association (3% - 30% slope). The industrial area at Bradwood has been filled with sandy dredged material.

The vegetation on the Bradwood Cliffs is mostly Douglas fir and hemlock, portions of which were logged in 1988-1989. This serves as habitat for deer, elk, bear, small mammals and furbearers, and birds.

Human Use

The Bradwood industrial site is currently proposed for use as a rock quarry. It is designated as a dredged material disposal site. Bradwood is privately owned. The shoreline area between Bradwood and Wauna is forested. Some logging has occurred on the Bradwood Cliffs.

There are private access points to the river in this reach. River use includes sport fishing, commercial gillnet drifts, and commercial ship and barge traffic.

Issues

The Bradwood industrial site offers limited potential for small to medium sized water-dependent industrial development. There is deep water close to shore, some available vacant land, and railroad access. There are constraints to development, however, including poor highway access and the proximity of the wildlife refuge.

Future development which would require extensive filling (impacting aquatic areas in excess of 20 acres) along the Columbia River shoreline for the purpose of creating additional industrial land is not appropriate. In order to fully utilize the marine industrial shorelands, it would be appropriate to fill the old Bradwood mill pond. This pond covers an area of less than 10 acres. This fill activity would be subject to the state and federal permit process and the development of proper mitigation areas. An upland area along the entrance road into Bradwood has been identified as a potential

mitigation site. This site is different from a nearby mitigation site designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Aquatic and Shoreland Designations

The mill pond will be designated Development Aquatic until such time as it is filled; then it will be placed in the Marine Industrial zone. An aquatic band from the entrance of the mill pond upriver to the eastern boundary of the existing Marine Industrial zone and extending either 400 feet out from the shoreline or to the 40 foot depth contour where this contour is closer than 400 feet from shore shall be designated Development Aquatic. A 200 foot access channel from the shoreland to the main ship channel is also designated development.

The remaining aquatic areas are designated Conservation, except where the Development ship channel and its 600-foot wide flowlane disposal area (either 600 feet wide or to the 20-foot bathymetric contour, whichever is narrower) extend into the subarea.

The entire filled area at Bradwood is designated Water-Dependent Development. All other shorelands are designated Conservation.

The regulatory shoreland boundary in this subarea is 50 feet from the shoreline except where it extends farther inland to include the following shoreland features:

1. Significant riparian vegetation around the Hunt's Creek tidal marsh, as shown on Columbia River Estuary Resource Maps.
2. The Bradwood industrial site; dredged material disposal site CC-S-38.9, from the *Columbia River Estuary Dredged Material Management Plan*; and a mitigation site as designated in the *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. Large-scale fills along the Columbia River shoreline and impacting areas in excess of 20 acres is not appropriate.
2. The exact location of the 200-foot wide access channel to the Bradwood site is not designated in this Plan. The location of the channel shall be determined at the time of permit application.
3. The old Bradwood mill pond could be filled in order to provide a contiguous marine industrial site provided that proper state and federal permits were obtained.

P 30.22 WAUNA/WESTPORT

General Description

This subarea includes the Wauna Mill, Driscoll Slough, Westport Slough, the unincorporated community of Westport, and a private recreational home development east of Westport Slough. The subarea extends between the Clatsop/Columbia County line and the downstream end of Puget Island. It extends waterward to the state boundary, and landward to Oregon Highway 30.

Aquatic Features

The aquatic portions of this subarea include a portion of the main channel of the Columbia River, wetlands and sloughs south of the Wauna Mill, and Westport Slough. This subarea has been altered appreciably during the past century. Much of the present shoreland areas were created by filling or diking tidal swamp.

Physical and biological characteristics of the aquatic area are similar to the River Channels and Clifton Channel Subareas. Nearshore areas tend to be very deep.

The tidal swamp south of the Wauna Mill is vegetated with spruce, willow, and blackberries. The swamp is one of the last remnants of the climax floodplain community that once covered large areas in the region. This area provides habitat for small mammals, deer, and waterfowl. A small population of the endangered Columbia white-tailed deer also use the swamp.

There is little information about the biological and physical characteristics of Westport Slough. The slough supports warm-water game fish. Plympton Creek, which drains into the slough, has a run of fall Chinook and some steelhead, coho, cutthroat, and chum.

Shoreland Features

The soils in this area are of the Sauvies-Peat Association. These soils have a low slope, a high flood potential, and a high seasonal water table. They are moderately suitable for agricultural activities. Parts of the property just east of Driscoll Slough and the northern portion of the peninsula have been filled. Shorelands at the Wauna Mill site are developed while most of the other shorelands are undeveloped.

Shoreland vegetation includes shrubs, spruce, cottonwood, and grasses for pasture. Wildlife present include deer (black-tailed and Columbian white-tailed), elk, small mammals, and birds.

Human Use

The Wauna Mill site is heavily developed. There are vacant lands east of Driscoll Slough, a ferry landing and access point on Westport Slough, grazing on the diked land and the southern part of the peninsula, and residential use on the northern portion of the peninsula. Ownership on the mainland portions of this subarea is largely corporate. The unincorporated community of Westport has urban-level services, including sewer, water and fire protection.

Issues

This subarea contains both a high degree of development potential and substantial wetland habitat. With excellent accessibility to the main navigation channel of the Columbia River, the large vacant areas have potential for water-dependent industrial development.

Portions of this subarea are low-lying with considerable wetland habitat value. This is especially true of the area between the railroad and the highway. North of the railroad there are some areas of wetland and a strip of mature riparian vegetation along the west bank of Westport Slough. The area east and north of the community of Westport has been designated by the U.S. Fish and Wildlife Service as critical habitat for the endangered Columbia White-tailed deer.

The planning process involved extensive discussion of the conflict between the habitat values and economic development potential of the area. Resource agencies have agreed that the area has unique development potential but note that the good natural resource values can and should be protected, consistent with development of the area. Development interests have responded that within the very limited areas which are suitable for intensive development, undue restrictions should be avoided.

The portion of Driscoll Slough between the railroad and the river is a water and wetland area which has received considerable attention. During the original CREST planning process, resource agency representatives noted the habitat values, the need to preserve water quality, and the fact that riparian vegetation can be protected without unduly restricting development of adjacent land. A Conservation designation would provide such protection while allowing construction on pilings and minor dredging and filling, which may be necessary for development.

A site between Westport and Driscoll Sloughs has been identified as a potential deep-draft site by a 1986 study for the Oregon Department of Economic Development (Lower Columbia River Assessment of Oregon Deep-Draft Sites, Ogden Beeman and Associates, 1986). A portion of the site has been used for dredged material disposal and it is designated for this use in the *1986 Columbia River Estuary Dredged Material Management Plan*. Potential development of this site involves issues of riparian and wetland habitat protection. The development outlined in the Deep Draft Sites Assessment would involve filling 27 acres of wetlands at the site. These wetlands are significant under Oregon Statewide Planning Goal 5. A 1982 wetlands study (*Significant Shoreland and Wetland Habitats in the Clatsop Plains and the Columbia Floodplain of Clatsop County, Oregon* (Thomas, 1982) identified wetlands at the site as one of the last remnants of climax floodplain tidal swamp on the lower Columbia River Estuary. Resource agencies have requested protection of this valuable habitat. This Plan recognizes the suitability of this site as a small port facility. Development of the site should be confined to the existing upland area. Any fill in the adjacent wetlands must be justified through the plan amendment process.

Residential property owners across Westport Slough have requested that protection be provided from noise and other impacts of development on the adjacent property.

This subarea includes the Westport Bar shoal in the main ship channel. Large quantities of sand are removed from this shoal each year to maintain required depths. The availability of this fill material coincides with the needs of developers to prepare their land for development. Substantial amounts of material have already been deposited. Disagreement, however, has arisen over continued filling that may impact wetland habitat and riparian vegetation along Westport Slough.

The northern shoreland portion of the peninsula was designated Development in the draft 1979 CREST Plan. However, Rural is a more appropriate designation, given the lack of sewers in the area and the moderate housing density. Portions of the shorelands and wetlands on the peninsula are considered critical habitat for the Columbian white-tailed deer and are to remain undeveloped as part of a zone-change agreement with the River Ranch subdivision developers.

Shorelands east of Westport are diked. There are no immediate development plans and the property will probably remain leased for grazing. Consideration should be given to the area's use by the Columbian white-tailed deer and also the proximity of the property to the community of Westport.

Aquatic and Shoreland Designations

The following aquatic areas are designated Development:

1. The area fronting the Wauna Mill site, the development site southeast of Wauna and Westport Slough, extended to the north subarea boundary;
2. Westport Slough;
3. The main navigation channel and the flowlane disposal area on each side of the channel (600 feet wide or to the 20-foot bathymetric contour, whichever is narrower).

The following aquatic areas are designated Natural:

1. Driscoll Slough;
2. The tidal wetland designated as significant under Oregon Statewide Planning Goal 5.

All other aquatic areas are designated Conservation.

The shorelands area north of Westport Slough is designated Rural. Shorelands south of the railroad track and east of Driscoll Slough are designated Conservation. All other shorelands are designated Natural.

Two dredged material disposal sites, CC-S-42.9 and CC-B-44.0, are listed in the 1986 *Columbia River Estuary Dredged Material Management Plan*. A mitigation site is described in the 1987 *Mitigation and Restoration Plan for the Columbia River Estuary*.

Subarea Policies

1. Development on lands adjacent to Driscoll Slough shall be carried out in a way that will minimize alteration of existing wetlands and riparian vegetation, degradation of water quality and stream sedimentation. Filling or other removal of vegetation for construction of a bridge or other transportation access across the slough shall be the minimum necessary to accomplish the project.
2. Except where direct access to water is required for wharves, docks or piers, riparian vegetation along Westport Slough shall be protected for bank stabilization, wildlife habitat, water quality, and a visual and noise buffer.

XXVI. Amend Policy 40, Dredged Material Disposal Plan by deleting the existing text and replacing it with the following material:

P 40. COLUMBIA RIVER ESTUARY DREDGED MATERIAL MANAGEMENT PLAN

P 40.1 PURPOSE AND PLAN CONTENT

In 1979 the Columbia River Estuary Study Taskforce (CREST) completed a *Dredged Material Management Plan* for the Columbia River Estuary. The primary purpose of the plan was to establish policies and standards for regulating dredging and disposal in the estuary and to identify an adequate number of sites with sufficient capacity to meet projected disposal needs over a 20 year period. Since 1979 dredging needs have changed, site capacities have been altered, and certain sites or portions of sites have been found to be unavailable for use due, for example, to the presence of important wetland habitat. Updating the policies and disposal site inventory to reflect the changes that have occurred over the past seven years will ensure that the *Dredged Material Management Plan* remains useful.

In 1986, the Columbia River Estuary Study Taskforce updated the existing Plan. CREST coordinated the revision of the *Dredged Material Management Plan* with government organizations, citizens, and development interests in the lower Columbia River. To accomplish this coordination, CREST established two groups to assist in plan revisions. The first was a general review group consisting of about 65 individuals representing local governments, state and federal agencies, ports, citizens, commercial fishing interests, diking districts, and development interests. This group reviewed an initial draft disposal site inventory and the draft *Dredged Material Management Plan*. The second group, the Dredged Material Disposal Advisory Committee, consisted of 22 representatives from the general review group. This committee participated in four workshops to revise disposal policies and refine the initial disposal site inventory. The Advisory Committee also reviewed the draft Plan.

The purpose of this revised *Dredged Material Management Plan* is to refine the original dredging and disposal policies and to inventory an adequate number of disposal sites with sufficient capacity to accommodate projected disposal needs for at least a five year period. A five year span was selected as the minimum planning period. Many of the inventoried sites provide for disposal over a much longer time span. The Plan is designed to be incorporated into local comprehensive plans in Oregon and shoreline master programs in Washington to update these documents with respect to changes in disposal needs and regulatory policies.

The Plan is also intended to serve as a guide to dredging project sponsors and regulatory agencies in planning and reviewing dredging projects. In order to be a useful guide, it focuses on disposal sites that are both in the proximity of the dredging areas and appear approvable under existing regulatory requirements. In this way, the plan can be used to expedite the dredging project sponsors' search for appropriate disposal sites and regulatory agencies' permit review process.

The Plan is not intended to be an exhaustive list of all possible disposal sites and it in no way restricts the disposal of dredged materials to designated sites only. Also, the Plan does not guarantee site availability. In many cases designated sites are privately owned and their use will require owner

approval. The plan does not obviate the need to obtain dredging and disposal permits. In all cases, use of a site for dredged material disposal will have to conform with local, state, and federal regulatory requirements.

The revised Plan which exists as a separate background report entitled *Columbia River Estuary Dredged Material Management Plan* consists of six major sections. Section 2 provides updated policies and standards for regulating dredging and disposal projects. These policies and standards reflect refinements in local, state, and federal disposal policies that have occurred since 1979. Sections 3 and 4 include information on disposal site designation and plan implementation. Section 5 presents a summary of existing and potential dredging projects in the estuary and a projection of dredging volumes for a five years period. Section 6 inventories disposal sites needed to meet the projected dredging requirements. The final section compares the site and project inventories to determine if designated sites are adequate to meet dredging needs. appendices in the document summarize dredging and disposal options (Appendix B), and changes made to the original dredged material disposal site inventory (Appendix C).

XXVII. Amend Policy 50, Restoration and Mitigation Plan, by deleting the existing text and replacing it with the following material:

P 50. MITIGATION AND RESTORATION PLAN FOR THE COLUMBIA RIVER ESTUARY

P 50.1 PURPOSE AND PLAN CONTENT

The Mitigation and Restoration Plan for the Columbia River Estuary (1987) revises and updates the *Mitigation Plan for the Columbia River Estuary* developed in 1983 by the Columbia River Estuary Study Taskforce (CREST). The 1983 plan designated mitigation sites in the Columbia River Estuary. The plan also provided a method to determine estuarine mitigation site area and type requirements [now adopted into Oregon state estuarine mitigation law (ORS 541.626)].

After four years of reviewing permits requiring mitigation under the 1983 plan, it became apparent certain revisions were required. With regard to policies, a more detailed review of government policy and legislation are completed and regional policies are revised to address current local, state, and federal policy concerns. Recent research on wetland mitigation feasibility and on cumulative aquatic area impacts is used to help guide mitigation policy revisions. New information on potential development scenarios and mitigation site designations is also included. The revised *Mitigation and Restoration Plan for the Columbia River Estuary* existing here as a separate background report, embodies these plan alterations and is incorporated by reference into the 1987 *Columbia River Estuary Regional Management Plan*.

CREST coordinated the revision and update of the *Mitigation and Restoration Plan* with government agencies, local jurisdictions, citizens, and development interests in the lower Columbia River. To accomplish this coordination, CREST established two groups to assist in plan revision (Appendix A). The first group consisted of 50 individuals representing local governments, state and federal agencies, ports, private industry and citizens. This general review group provided written comments on the draft *Mitigation and Restoration Plan*. The second group, the Mitigation and Restoration Plan advisory Committee, consisted of 33 members from the general review group. This committee participated in two meetings. The first meeting consisted of a review of standards and policies that were drafted using local, state and federal regulations and policies and guidelines. The Advisory Committee made suggestions for modifications. The second meeting focused on selecting appropriate mitigation sites. Sites were prioritized based on anticipated need. Landowners with mitigation sites designated on their properties made comments during the meeting. Final site selection and priority ratings were based on anticipated need and landowner concerns.

The Plan defines mitigation as any action that diminishes the degree of impact of development on aquatic areas. Mitigation is categorized as project design mitigation (planning developments to avoid impacts in order to conserve aquatic area and values) and compensatory mitigation (aquatic area creation, restoration, or enhancement at a site other than the impact site to compensate for lost aquatic area and values).

Portions of the Plan treat restoration as a management strategy separate from mitigation. That is, restoration of severely diminished habitat types is considered a worthwhile management directive for its own sake. Unless otherwise specified, this document considers restoration as a component of

mitigation in the mitigation-related sections and as a separate management option in the restoration-related sections.

Portions of the Plan treat restoration as a management strategy separate from mitigation. That is, restoration of severely diminished habitat types is considered a worthwhile management directive for its own sake. Unless otherwise specified, this document considers restoration as a component of mitigation in the mitigation-related sections and as a separate management option in the restoration-related sections.

Section 2 of the Plan reviews current state and federal government definitions that are used in statutes and policies pertaining to mitigation and restoration. These definitions were used to help form definitions used in the policy and standard section (Section 5) of the Plan.

Section 3 discusses current federal and state regulations and policies that guide mitigation and restoration efforts in the Columbia River Estuary. These regulations and policies are used as a basis for determining standards and policies listed in the Plan (Section 5).

Section 4 reviews a study by Duncan Thomas (1983) that compares present day habitat types in the Columbia River Estuary with habitat types mapped in the estuary in the mid 1860's and 1870's. Historical changes in areal extent and spatial distribution of habitat types are discussed. Cumulative impacts on habitat types are documented. The most severely depleted habitat types are used as the basis for weighing the relative ranking of present day habitat types in the Columbia River Estuary (Smith 1983). This section summarizes the method used to determine the relative values of estuarine habitat types and the technique by which those values are used to determine mitigation requirements. A more detailed discussion of the method is discussed in the *1983 Mitigation Plan for the Columbia River Estuary* (Smith 1983). Efforts toward developing restoration strategies outside of the context of mitigation are briefly discussed. Potential legal mechanisms and funding sources are described. A review of potential techniques for mitigation and restoration implementation is included.

Section 5 lists Mitigation and Restoration Plan policies and standards. These policies and standards are based on information in Sections 1 - 4 of the Plan and recommendations from the Columbia River Estuary Mitigation and Restoration Plan Advisory Committee.

Section 6 discusses specific mitigation and restoration sites available in the Columbia River Estuary. Sites are classified and protected at different priorities and levels based on the certainty of developments they are matched with. Private landowner rights and public need issues concerning mitigation are briefly discussed. Site selection strategies were reviewed by the Columbia River Estuary Mitigation and Restoration Plan Advisory Committee and concerned landowners. Modifications of protection language and site selection were made using input from the Advisory Committee and landowners.

XXVIII. Amend Policy 60, Appendices by deleting the existing text and replacing it with the following material:

P 60 APPENDICES

The following materials are included in the County's Comprehensive Plan by reference:

1. Columbia River Estuary Inventory of Physical, Biological, and Culture Characteristics (1977)
2. The Columbia River Estuary Regional Management Plan (1988)
3. An Economic Evaluation of the Columbia River Estuary (revised 1990)
4. The CREST Mediation Panel Agreement (1981)
5. Energy Related Development in the Columbia River Estuary: Potential, Impacts and Mitigation (1983)
6. *Columbia River Estuary Dredged Material Management Plan* (1986)
7. *A Mitigation and Restoration Plan for the Columbia River Estuary* (1987)
8. Changes in the Columbia River Estuary Over the Past Century (1983)
9. Columbia River Estuary Resource Base Maps. The Columbia River Estuary Planning area in the County is illustrated on nine Columbia River Estuary Resource Base Maps. The resource base maps include the following information:
 - a. Shoreline
 - b. Vegetation types: swamp, high and low marsh
 - c. Depth contours: -3 feet MLLW and deeper
 - d. Goal 17 significant wetlands
 - e. Goal 17 significant riparian vegetation
 - f. Roads/railroads
 - g. Designated dredged material disposal sites
 - h. Designated mitigation sites
 - i. Aquatic Zones: Development, Conservation Two, Conservation One, and Natural

- j. Shoreland Zones: Marine Industrial, Conservation and Natural
- k. Shoreland Boundary
- l. Overlay Zones: Shoreland, Mitigation and Dredged Material Disposal (DMD)

AN EXCEPTION TO GOAL 16 PLACING AN AQUATIC AREA ADJOINING THE MARINE INDUSTRIAL SHORELANDS AT BRADWOOD INTO THE AQUATIC DEVELOPMENT DESIGNATION

BACKGROUND

This exception to Goal 16 places an aquatic area near Bradwood in the County's Aquatic Development Zone. The exception is to the Goal 16 management unit requirements for conservation management units and to the Goal 16 aquatic area designation criteria. The exception will allow for water-dependent industrial development of the Bradwood Marine Industrial tract. This industrial tract includes 40 to 50 acres of developable shorelands with 3,000 feet of frontage onto the Columbia River. The eastern portion of this river frontage has relatively deep water near to shore and is in close proximity to the Columbia River navigational channel. Currently, there is an existing dock structure along the Columbia River shoreline and a mill pond which cuts into the interior of the industrial tract; the southern portion of the mill pond has been designated for Aquatic Development use in the past. This exception would place the remainder of the mill pond, including its entrance and an aquatic band adjoining the MI shorelands, into the Aquatic Development designation; this band will extend 400 feet out from the shoreline or to the -40 foot depth contour if that contour is closer than 400 feet from shore. The Aquatic Development band would stretch from the mill pond entrance to the upriver boundary of the MI Zone. These Aquatic Development expansions would provide for a more complete utilization of this water-dependent industrial tract by allowing for the following range of uses or activities: (1) filling of the old mill pond (2) lateral expansion of the existing dock or the construction of new docks along the Columbia River shoreline; (3) dredging to provide navigational access along the face of the existing dock and future new docks within the AD Zone.

This exception will not directly permit any new dock construction or new dredging projects in aquatic areas. Uses involving the construction of new dock facilities or dredging for new facilities will be reviewed on an individual basis by Clatsop County and affected state and federal agencies.

Factors that must be addressed for the exception are described in Oregon Administrative Rules, Chapter 660, Division 4, Sections 020 and 022. The specific exception criteria are listed in the following paragraphs, followed by appropriate findings.

FINDINGS

- A. "Reasons justify why the state policy embodied in the applicable goals should not apply" [OAR 660-04-020(2a)].

New dredging and filling for water-dependent uses are permitted in development management units, but not in conservation management

units. This policy protects estuarine resources in Conservation management units from adverse impacts associated with major estuarine alterations. It should not apply in this situation because the potential dredging activities will not result in major alterations to the estuary or create substantial adverse impacts. Additionally, the project site lacks many of the characteristics protected by the Conservation management unit.

The old mill pond area has silted in during recent years and its entrance has been partially blocked to navigation by an accidental sand spill that occurred during a pipeline dredging project on the main navigational channel. The Columbia River shoreline that adjoins the Aquatic Development area is a sandy shoreline that was created over 20 years ago as a channel dredging spoils disposal site. There is no established band of riparian vegetation along this shoreline.

The adoption of the Aquatic Development designation will not result in major estuarine alterations. The potential filling of the existing mill pond is the single largest identifiable alteration that may occur. If the mill pond were filled, a surface area of about 3-1/2 acres (including the pond and entrance) would be impacted. About 2-1/2 acres of this area is subtidal, 1/4 acre is upland, and 3/4 acre is intertidal wetland. The upland and intertidal areas are the result of the past dredged material sand spill at the entrance to the pond.

The mill pond cannot currently be utilized because of limited water depth and the dredge spoil spill blockage at the entrance to the pond.

The mill pond in its existing configuration effectively splits Bradwood into two separate developable parcels; (1) the existing dock and backup land upriver from the pond, and (2) the old Corps river sand disposal area downriver from the pond. Both parcels are about 20 acres in size. The pond both separates these potential development tracts and severely limits access between the two parcels. A narrow access road on the west side of the pond connects the two parcels. This access limitation would create problems for potential developments on the downstream parcel which needed to utilize the existing deep-draft dock.

The mill pond and its entrance remove valuable potential backup land from the center of the Bradwood Marine Industrial tract. The pond occupies about 200 feet in the center of the available 600 feet of backup land between the Columbia River shoreline and the railroad tracks to the west. This leaves narrow strips of land to the east and west that are difficult to efficiently utilize. The presence of the 3-1/2 acre pond in the center of the site effectively removes 10 to 11 acres from use as backup land. The pond location also severely limits road and railroad access options to the downriver portion of the site.

Filling of the mill pond will significantly enhance the overall development potential of the Bradwood Marine Industrial tract. With the existing pond, Bradwood offers two small (20+ acres) separated development parcels with severe access limitations between the two sites. Filling of the 3.5 acre mill pond will allow adjoining narrow strips on both sides of the pond to be more efficiently utilized resulting in the addition of 10-11 acres of backup land. The pond fill will result in the creation of a 50 acre contiguous development tract and eliminate existing internal access restrictions.

Projected dock improvements to support a single (or multiple) water-dependent industrial use(s) could include any of the following combination of structures:

- (1) Reconstruction of the existing shoreside dock which has an approximate surface area of 150' x 500'; and
- (2) Construction of a secondary deep draft vessel dock of the same basic configuration downstream of the existing dock ;and
- (3) Construction of a graving dock with an approximate size of 200' x 400' immediately downstream from the existing dock and perpendicular to the shoreline.

Reconstruction of the existing dock is permitted in the AD Zone. Basically this activity would involve placing a new deck atop the existing piling foundation. Dredging needs along the face of this dock would be minimal to existing self-scouring water depths relatively close to shore. This maintenance dredging would impact a subtidal area of about 1-1/2 acres and involve an estimated 15,000 cubic yards of dredged material.

The construction of a secondary deep draft vessel dock would involve the placement of new support piling, construction of a dock deck and dredging along the face of the dock for navigational moorage. The piling would impact an area of about 1-3/4 acres (150' x 500'). Dredging would also impact an area of about 1-3/4 acres (150' x 500') and create an estimated 15,000 cubic yards of material.

Construction of a perpendicular graving dock would impact an intertidal area of about 1/4 of an acre (200' x 50') and a subtidal area of about 1 acre (200' x 200') to provide navigational access into the dock. The graving area would largely utilize excavated uplands. Combined intertidal and subtidal dredging volumes are estimated at 40,000 cubic yards.

In relative terms all of the projected dredging volumes are comparatively small. During the summer of 1990, approximately 250,000 cubic yards of material was removed from a short section of the navigational channel to the immediate north of Bradwood.

Goal 16 describes areas appropriate for the Conservation management unit as:

"... areas needed for maintenance and enhancement of biological productivity, recreational and aesthetic uses, and aquaculture. They shall include tracts of significant habitat smaller or of less biological importance than those in (Natural management units) ..."

The Columbia River bankline along the band of the Aquatic Development is a sandy unvegetated shoreline that is partially riprapped. There is no established riparian vegetation along this river shoreline. The Aquatic Development area adjoins a medium sized water-dependent industrial development tract.

The involved area has not been the subject of any detailed biological studies and does not possess any known unique biological resources. It is not known to have any recreational significance. There are no aquaculture facilities in the area, nor are there any site characteristics that suggest its special suitability for aquaculture. Site characteristics suggest that it may have only limited habitat value. The existing mill pond may represent a fish habitat hazard by creating a tidal containment area that could trap fish during periods of extreme low tide.

Taking into account both the resources present at the project site and the types of areas appropriate for the Conservation management unit, it appears that the site may not be suited for inclusion in the Conservation management unit. The development designation will allow for filling of the mill pond which has a historic record of industrial use but which cannot now be utilized due to inadequate water depths and a blockage at its entrance. Filling of the mill pond will create a more useable contiguous tract of industrial land. The development designation will also allow for the continued use and (lateral extension if needed) of the existing riverside dock at Bradwood.

For these reasons, Clatsop County concludes that the Goal 16 policy prohibiting dredging in Conservation management units should not apply in this case.

B. "Areas which do not require a new exception cannot reasonably accommodate the proposed use" [OAR 660-04- 020(2b)].

The Bradwood Marine Industrial tract has a combination of features which make the site unique to Clatsop County. There are no other comparable water-dependent industrial development sites within the County. The Bradwood Marine Industrial tract can be characterized by the following list of features:

- (1) Located at River mile 39.
- (2) Within 1,000 feet of Columbia River channel.

- (3) Self-scouring water depths of 30 to 40 feet close to shore.
- (4) Direct railroad access.
- (5) 40 to 50 acres of developable backup lands.
- (6) Single ownership.
- (7) Dredged material disposal and mitigation areas on-site.
- (8) Relatively isolated location.
- (9) Existing dock structure.
- (10) Rock source on-site for site development needs that also has commercial development potential.

There are no alternative water-dependent industrial development sites in Clatsop County which possess the same combination of physical features. Of particular significance, there are no other sites in the County with developable backup land and both deep water access and rail access.

Other potential water-dependent industrial development sites within Clatsop County include three Marine Industrial sites in the unincorporated portion of the County; the Port of Astoria docks, north Tongue Point, and south Tongue Point within the Astoria Urban Growth Boundary; and the East Bank Skipanon, West Bank Skipanon, and Tansy Point sites within the Warrenton Urban Growth Boundary. The three MI sites in the unincorporated portion of the County are all located on either the Lewis & Clark River or Youngs River. Each of these sites are relatively small, have only shallow depth water access and no rail access. The Port of Astoria docks and backup lands are committed to existing industrial uses. North Tongue Point is committed to an auto import facility and has water access that is limited by a 25 foot channel depth. South Tongue Point has the same channel depth access limitations as north Tongue Point and will require an exception for future dock access and turning basin dredging. All of the sites within the Warrenton Urban Growth Boundary lack rail access. Both the East Skipanon and the West Skipanon sites have limited developable areas due to wetland constraints and will require an exception to provide deep water access to the industrial shorelands. Tansy Point is committed to an existing water-dependent industrial use.

There are no available Marine Industrial sites within Clatsop County which could accommodate a general purpose deep draft dock and associated shoreland support facilities. Areas which do not require an exception cannot reasonably accommodate the proposed water-dependent industrial uses.

- C. "The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site ... are not significantly more adverse than would typically result from the same proposal being located in other areas requiring a goal exception ..." [OAR 660-04-0920(2c)].

The consequences of three general activities need to be considered in applying this standard. These activities are pond filling, dock front dredging and new dock construction.

(1) Environmental Consequences

The filling of the mill pond would impact about 2-1/2 acres of subtidal area and 3/4 of an acre of intertidal area. The subtidal area is the silted floor of the old mill site log pond. The intertidal area was created by the accidental sand spill from a Corps of Engineer's channel dredging project. Emergent wetland vegetation has established itself of this intertidal sand spill. On-site mitigation will be required in the form of wetland habitat creation to compensate for the loss of these intertidal areas. The mill pond has low habitat values and may currently create a tidal containment area that could trap fish during periods of extreme low tide. The pond has no in-flowing streams and is only flushed by tidal action.

Dredging along the face of the existing dock would impact up to 1-1/2 acres of subtidal area. Dredging along the face of a lateral extension of the existing dock or a new dock would impact a similar subtidal area. Graving dock dredging would impact a 1/4 acre intertidal area and a 1 acre subtidal area. The major identifiable environmental consequences of the proposed dredging are temporary, localized disruption of fauna in the water column and temporary localized turbidity. The water column impacts will only be temporary and these organisms are expected to reestablish themselves after the dredging work is completed. Turbidity will increase during the periods of dredging activity. Dredge volumes along the dock areas would be minimal due to existing deep water and the close proximity of the navigational channel. The self-scouring river characteristics will also reduce the frequency and volume of future maintenance dredging at this site.

Additional dock construction along the Columbia River shoreline at Bradwood would have limited environmental consequences because of two site characteristics - the dock would front upon a sandy dredge spoils shoreline without impacting any established riparian vegetation and the size of the overall dock would be minimized due to the close proximity of deep water to the shorelands.

In relative terms, the environmental consequences resulting from the proposed activities at Bradwood are not substantially different from those that might be expected at other sites requiring an exception. Because the involved dock dredging areas front on relatively deep water, the anticipated dredging volumes would be somewhat less than those typically expected at other sites.

(2) Economic Consequences

Filling costs, dredging costs, dock construction costs and mitigation costs are the four economic consequences that have been identified in association with the proposed activities.

Dredge spoils on an old dredged material disposal site to the immediate west of the mill pond are available for the filling of the pond. The existing of this favorable borrow source will promote the cost-effective filling of the pond.

Dredging costs are a function of the volume of material to be removed, the method of removal and the method of disposal.

The costs of dredging along the face of the existing and expanded shoreside docks would be comparatively low because of the limited volumes involved and the availability of adjoining upland disposal areas.

Dock construction costs would be comparatively low because of relatively deep self-scouring water depths close to shore. This will minimize the area of dock required to bridge the distance from the shoreline to easily maintainable deep water. The exception will also provide for dredging along the face of the existing dock structure; this will allow for a fuller utilization of an existing facility which is more cost effective than constructing new docks at other locations.

Mitigation costs will be relatively low because on-site mitigation lands are available under the same property ownership.

Comparatively low filling and dredging costs, limited dock area needs, and available on-site mitigation areas all reduce the expected economic impact at this site.

Economic consequences arising from the use of this site are not significantly different from the concedes expected from the use of other sites requiring an exception.

(3) Social Consequences

The social consequences of the proposed activities are difficult to identify and quantify. The exception will provide for the development of certain facilities in aquatic areas which would be utilized in conjunction with shoreland industrial activities. The overall industrial use would be conducted on lands that have been designated for industrial use. This site was the location of a large and active sawmill and shipping dock for a number of years. The site is relatively isolated with the closest residences being down river more than one mile at Clifton and across the river at a distance of about 1/2 mile on Puget Island. The site is visible from Puget Island but not Clifton. A commercial rock quarry has been approved on lands adjoining the west boundary

of the MI Zone. Noise and air quality concerns associated with the overall land use will be handled through the County and State permit process. Visual impacts will be minimized by County screening requirements.

Because of Bradwood's relative isolation, the social consequences resulting from the uses associated with the proposed activities are not substantially different from those that might be expected at other sites requiring an exception. The residents of Puget Island on the north side of the river channel will view development of the Bradwood site. These view impacts will be mitigated through County screening requirements. These residents will have to accept certain social impacts that are associated with the eventual utilization of designated water-dependent industrial site which is an economic asset of Clatsop County.

(4) Energy Consequences

Dredging activities are the only form of energy-related consequence that has been identified in conjunction with the proposed activity. Comparatively low dredge volumes and the availability of on-site disposal areas have been noted above. These two factors will reduce the energy consumption associated with dredging as compared to other sites. The energy consequences resulting from the proposed activities are not significantly different from those that might be expected at other sites requiring an exception.

The long-term environmental, economic, social and energy consequences resulting from the proposed activities as proposed are not significantly more adverse at the proposed site than they would be at other possible project locations requiring an exception.

- D. "The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts" [OAR 660-04-020 (2(d))]

The owner of the Bradwood industrial tract owns all adjacent shorelands. A commercial rock quarry is located on his ownership adjoining the south boundary of the Marine Industrial tract. Rock from this quarry will be transported by barge from the site. Accordingly, the proposed activities and the existing quarry are compatible uses. The Columbia River adjoins to the northeast. The proposed activities will provide for navigational access and shipping uses that are similar to uses that occurred at the site for more than a century. The navigational channel is located about 1,000 feet from the shorelands at Bradwood and the proposed activities would in no way hinder navigation within the established channel. The proposed activities are compatible with existing adjacent land uses.

Exhibit "A"
Part 2 of 2

The previous Columbia River Estuary Resource Maps have been deleted, and replaced with new ones available in the Clatsop County Department of Planning and Development. Said maps are labelled "1990 C.R.E.S.T. Resource Base Maps".