COLUMBIA RIVER ESTUARY LAND AND WATER USE SECTION

CP.130. INTRODUCTION

This section, prepared by the Columbia River Estuary Taskforce (CREST), is the basis for managing estuarine resources in Astoria within a regional framework. CREST is a bi-state voluntary planning organization organized in 1974 to develop a coordinated, regional estuary management plan. The City of Astoria has been a member of CREST since its inception, and the City's elected and appointed officials and staff have participated in the process throughout this period. This section of the plan is intended to satisfy the City's obligations under the Oregon Statewide Planning Goals 16, Estuarine Resources and 17, Coastal Shorelands, and the Federal Coastal Zone Management Act. Under these programs, the Columbia River estuary has been designated "development".

This comprehensive plan section consists of the following parts:

1. Definitions
2. Use designations
3. Shorelands map
4. Estuary map
5. Area designations
6. General shorelands and estuary policies

(CP.130 Amended by Ordinance 90-33, dated 9-17-90)

CP.135. DEFINITIONS

Aquatic Areas: In the Columbia River Estuary, the tidal waters and wetlands, and the land underlying these waters. The upper limit of aquatic areas is the upper limit of aquatic vegetation or, where such a line can not be accurately determined, Mean Higher High Water.

Coastal Shorelands: The coastal shoreland boundary includes all the following resources as described in the Coastal Shorelands Goal:

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. Adjacent areas of geologic instability where the geologic instability is related to or will impact a coastal water body.

c. 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;

d. Areas of significant shoreland and wetland biological habitats where habitat quality is primarily derived from or related to the association with coastal water areas.

e. 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, dredge material disposal and mitigation sites and areas having characteristics suitable for aquaculture.

f. Areas of exception aesthetic or scenic quality, where the quality is primarily derived from or related to the association with coastal water areas; and

g. Coastal headlands.

Columbia River Estuary: For planning purposes the estuary is defined as all aquatic areas subject to tidal influence downstream of the Wahkiakum County line (approximately River Mile 53 in Washington) and downstream of the western edge of Puget Island (RM 39) in Oregon.

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 water body for water-borne transportation, recreation, energy production, or source of water.

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

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.

(CP.135 Amended by Ordinance 90-33, dated 9-17-90)

CP.140. COLUMBIA RIVER ESTUARY AQUATIC AND SHORELAND DESIGNATIONS

A. Natural Aquatic.

Natural Aquatic areas are designated to assure the protection of significant fish and wildlife habitats; of continued biological productivity within the estuary; and of scientific, research, and educational needs. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological, and evolutionary processes. Natural Aquatic areas include all major tidal marshes, tide flats, and seagrass and algae beds. The designation is intended to preserve those aquatic natural resource systems existing relatively free of human influence. These areas are in the Aquatic Natural Zone (A-4).

B. Conservation Aquatic.

Conservation Aquatic areas are designated for long-term uses of renewable resources that do not require major alterations of the estuary, except for the purpose of restoration. They are managed for the protection and conservation of the resources found in these areas. The Conservation Aquatic designation includes areas needed for the maintenance and enhancement of biological productivity, recreational resources, aesthetic features and aquaculture. The Conservation Aquatic designation includes areas that are smaller or of less biological importance than Natural Aquatic areas. Areas that are partially altered and adjacent to existing moderate intensity development which do not possess the resource characteristics of other aquatic areas are also included in this designation. These areas are in the Aquatic Conservation Zone (A-3).

C. Development Aquatic.

Development Aquatic areas are designated to provide for navigation and other identified needs for public, commercial, and industrial water-dependent uses. The objective of the Development Aquatic designation is to ensure optimum utilization of appropriate aquatic areas by providing for intensive development. Such areas include deepwater adjacent to or near the shoreline, navigation channels, sub-tidal areas for in-water disposal of dredged material, areas of minimal biological significance needed for uses requiring alteration of the estuary, and areas that are not in Conservation or Natural designations. In some cases, protection of scenic vistas of the Columbia River also may be an important planning objective, consistent with the City's Riverfront Vision Plan. These areas are in the Aquatic One Development Zone (A-1), the Aquatic Two Development Zone (A-2), the Aquatic Two-A Development Zone (A-2A).

(Section CP.140.C amended by Ord. 15-04, 6-15-15)

D. Natural Shoreland.

Natural Shoreland areas designated to assure protection of significant non-tidal marshes, significant shoreland wildlife habitat, and exceptional aesthetic resources. Natural Shorelands are managed for low-intensity recreation, wildlife habitat management and other non-consumptive uses. These areas are in the Natural Shorelands Zone (S-5).

E. Development Shoreland.

Development Shoreland areas are designated to provide for water-related and water-dependent development along the estuary's shoreline. These areas may present opportunities to develop uses that complement uses in Downtown Astoria, consistent with the City's Riverfront Vision Plan. Development Shoreland areas include urban or developed shorelands with little or no natural resource value, and shorelands with existing water-dependent or water-related uses. Development Shoreland areas may include scenic vistas of the Columbia River that may be an important planning objective to protect, consistent with the City's Riverfront Vision Plan. These areas are in the General Development Shorelands Zone (S-2), or the Tourist-Oriented Shorelands Zone (S-2A). Some of these areas are in residential or commercial zones with a Shorelands Overlay Zone.

(Section CP.140.E amended by Ord.15-04, 6-15-15)

F. Water-Dependent Development Shoreland.

Water-Dependent Development 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 facilities;

2. Potential for aquaculture;

3. Protected areas subject to scour which would require little dredging for use as marinas;

4. Potential for recreational utilization of coastal waters or riparian resources.

These areas are managed for water-dependent recreational, commercial and industrial uses. These areas are in the Marine Industrial Shorelands Zone (S-1).

[CP.140 Amended by Ordinance 90-33, dated 9-17-90]

CP.145.

(CP.145 Deleted by Ordinance 91-22, dated 9-3-91)

CP.150. PERMITTED USES IN COLUMBIA RIVER ESTUARY AQUATIC AND SHORELAND DESIGNATIONS

(Section CP.150 retitled by Ordinance 91-22, dated 9-3-91)

A. Introduction.

The Columbia River Estuary Regional Management Plan's Management System consists of nine aquatic and shoreland designations, and a corresponding list of permitted uses and activities for each designation. Astoria contains the following designations: Natural Aquatic, Conservation Aquatic, Development Aquatic, Natural Shorelands, Development Shoreland and Water-Dependent Development Shoreland.

Aquatic designations cover the entire estuary below the landward limit of aquatic vegetation or, where aquatic vegetation is not present, Mean Higher High Water. Shoreland designations cover land areas and non-tidal wetlands along the estuary shoreline. The landward extent of shoreland designations is described in the subarea descriptions, Sections CP.155 to CP.180.

This section summarizes information on the types of uses and activities that may be permitted in the different aquatic and shoreland designations. This information is presented in the form of a list corresponding to each designation. The lists are exclusive: uses and activities omitted from a list are not permitted in that designation. Notations on the lists indicate additional substantive and procedural requirements associated with particular uses. Many of the terms appearing on the use lists have specific regulatory definitions. These terms are defined in the Zoning Ordinance. Uses and activities on the list may only be approved if they comply with applicable Regional Estuary and Shoreland Policies, applicable Estuary and Shoreland Subarea Policies, and applicable zoning ordinance requirements.

B. Natural Aquatic.

Natural Aquatic areas are designated to assure the protection of significant fish and wildlife habitats; of continued biological productivity within the estuary; and of scientific, research, and educational needs. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological, and evolutionary processes. Natural Aquatic areas include all major tidal marshes, tide flats, and seagrass and algae beds. The designation is intended to preserve those aquatic natural resource systems existing relatively free of human influence.

1. Undeveloped low-intensity, water-dependent recreation.

2. Research and educational observation.

3. Navigation aids.

4. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources, as designated in this plan.

5. Passive restoration measures.

6. Estuarine enhancement. *

7. Maintenance and repair of existing structures or facilities.

8. Bridge crossings.

9. Shoreline stabilization.

10. Bridge crossing support structures. *

11. Tidegate installation and maintenance in functional dikes. *

12. Active restoration of fish habitat, wildlife habitat, or water quality. *

13. Water-dependent parts 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. *

14. Communication facilities, including necessary foundation or support structures. *

15. Pipelines, cables and utility crossings. *

16. Boat ramps for public use where no dredging or fill is needed for navigation access. *

17. Temporary alterations. *

18. Vegetative shoreline stabilization.

19. Uses accessory to the above uses.

20. In pile supported buildings existing as of October 1, 2002, non-water dependent and non-water related uses.

{Section CP.150.B.20 added by Ord 15-08, 12-7-2015}

*Resource Capability Determination and Impact Assessment required.

A use which requires dredging, fill, in-water structures, riprap, log storage, water intake, flow lane disposal of dredged material, or other activities which could affect the estuary's physical processes or biological resources are subject to an Impact Assessment.

Placement of new piling in Natural Aquatic areas may be permitted in conjunction with numbers 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, and 17.

Dredging in Natural Aquatic areas may be permitted in conjunction with numbers 3, 4, 6, 7, 9, 10, 11, 12, 14, 15, 16 and 17.

Filling in Natural Aquatic areas may be permitted in conjunction with numbers 4, 6, 7, 9, 10, 12, 14, 16 and 17.

C. Conservation Aquatic.

1. Navigation.

2. Undeveloped low-intensity, water-dependent recreation.

3. Research and educational observation.

4. Navigation aids.

5. Estuarine enhancement.

6. Projects for protection of habitat, nutrient, fish, wildlife and aesthetic resources, as designated in this plan.

7. Passive restoration measures.

8. Active restoration of fish habitat, wildlife habitat, or water quality.

9. Communication facilities, including necessary foundation or support structures.

10. Pipelines, cables and utility crossings.

11. Shoreline stabilization.

12. Bridge crossings.

13. Water-dependent part of an aquaculture facility which do not involve dredge or fill or other estuarine alternation other than incidental dredging for harvest of benthic species or removable in-water structures such as stakes or racks.

14. Boat ramps for public use where no fill or dredging is needed for navigational access.

15. Beach nourishment at sites designated in this plan.

16. Maintenance and repair of existing structures or facilities.

17. Bridge crossing support structures.

18. Storm water and waste water outfalls.

19. Tidegate installation and maintenance in functional dikes.

20. Active restoration for purposes other than protection of habitat, nutrient, fish, wildlife and aesthetic resources. *

21. The water-dependent parts of an aquaculture facility requiring dredge or fill or other alteration of the estuary. *

22. High-intensity water-dependent recreation, including boat ramps, marinas and individual docks, and new dredging for these uses. *

23. Minor navigational improvements. *

24. Mining and mineral extraction. *

25. Other water-dependent uses requiring occupation of water surface area by means other than dredge or fill. *

26. Temporary alterations. *

27. Temporary dikes.

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

29. In pile supported buildings existing as of October 1, 2002, non-water dependent and non-water related uses.

(Section CP.150.B.29 added by Ordinance 02-15, 12-2-02)

30. Uses accessory to the above uses.

(Section CP.150.B.30 renumbered by Ordinance 02-15, 12-2-02)

* Resource Capability Determination and Impact Assessment required.

A use which requires dredging, fill, in-water structures, riprap, log storage, water intake, flow lane disposal of dredged material, or other activities which could affect the estuary's physical processes or biological resources must be subject to an Impact Assessment.

Placement of new piling in Conservation Aquatic areas may be permitted in conjunction with numbers 3, 4, 5, 6, 9, 10, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 28, and 29.

Dredging in Conservation Aquatic areas may be approved in conjunction with numbers 4, 5, 6, 8, 9, 10, 11, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, and 29.

Fill in Conservation Aquatic area may be permitted in conjunction with numbers 5, 6, 9, 11, 14, 15, 16, 17, 20, 21, 22, 26, 27, and 29.

D. Development Aquatic.

1. Navigation.

2. Water-dependent commercial, industrial and port uses, including but not limited to the water-dependent portions of the following uses:

   a. Docks, moorages, piers or wharves;

   b. Fuel storage or dispensing facilities;

   c. Cargo loading or unloading facilities;

   d. Vessel construction, maintenance or repair facilities;

   e. Seafood receiving, processing or 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. Commercial aquaculture production facilities.

3. Marinas.

4. Maintenance and repair of existing structures or facilities.

5. Water transport channels where dredging may be necessary.

6. Flow lane disposal of dredged materials within areas designated in the plan.

7. Water storage areas where needed for products used in or resulting from industry, commerce, and recreation.

8. Navigational structures.

9. Estuarine enhancement. *

10. Undeveloped low-intensity, water-dependent recreation. *

11. Water-related uses, including but not limited to: *

    a. administrative offices of water-dependent business or agencies;

    b. marine hardware sales and repair;

    c. charter fishing offices;

    d. net storage.

12. Non-dependent, non-related uses, not requiring dredge or fill.*

13. Research and educational observation. *

14. Navigation aids. *

15. Minor navigational improvements. *

16. Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources, as designated in this plan. *

17. Passive restoration measures. *

18. Active restoration. *

19. Bridge crossings. *

20. Communication facilities, including necessary foundation or supporting structures. *

21. Pipelines, cables and utility crossings. *

22. Tidegate installation and maintenance in functional dikes.*

23. Temporary alterations. *

24. Mining and mineral extraction. *

25. Shoreline stabilization. *

26. Bridge crossing support structures and dredging necessary for their installation. *

27. Beach nourishment at sites designated in this plan. *

28. Boat ramps, individual docks, and other high-intensity water-dependent recreation. *

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

30. Storm water and wastewater outfalls.

31. Temporary dikes.

32. Uses accessory to the above uses.

* Must be consistent with Development Aquatic purpose, and consistent with adjacent Shorelands designation purpose.

A use which requires dredging, fill, in-water structures, riprap, log storage, water intake, flow lane disposal of dredged material, or other activities which could affect the estuary's physical processes or biological resources must be subject to an Impact Assessment.

Placement of new piling in Development Aquatic areas may be permitted in conjunction with numbers 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23, 25, 26, 28, 29, 30, and 32.

Dredging in Development Aquatic areas may be permitted in conjunction with numbers 1, 2, 3, 4, 5, 7, 8, 9, 11, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 28, 30, 31, and 32.

Fill in Development Aquatic areas may be permitted in conjunction with numbers 2, 3, 4, 8, 9, 16, 18, 20, 23, 25, 26, 27, 28, 31, and 32.

E. Development Shorelands.

1. Water-dependent commercial, industrial and recreational uses.
2. Aquaculture facilities.
3. Navigation aides.
4. Port facilities.
5. Shoreline stabilization.
6. Maintenance and repair of existing structures or facilities.
7. Utilities.
8. Dikes and tidegates.
9. Marine research and education facility.
10. Excavation to create new water surface area.
11. Mitigation, restoration, creation, and enhancement.
12. Temporary uses involving an existing structure or involving new facilities requiring a minimal capital investment.
13. Dredged material disposal.
14. Public access improvement projects, as specified in public access plans.
15. Water-related uses.
16. Non-dependent, non-related uses.
17. Single and multi-family residences, including mobile homes.
18. Storm water or wastewater outfall.
19. Communication facilities.
20. Off-street parking.

21. Land transportation facilities.

22. Beach nourishment at sites designated in this plan.

23. Temporary alterations.

24. Uses accessory to the above uses.

F. Water-Dependent Development Shoreland.

1. Water-dependent recreational uses.

2. Water-dependent commercial, industrial and port uses.

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

4. Water-dependent portions of an aquaculture facility.

5. Navigation aides.

6. Shoreline stabilization. *

7. Maintenance and repair of existing structures or facilities.

8. Utilities, including landfalls and access corridors. *

9. Dikes and tidegates. *

10. Marine research and education facility. *

11. Excavation to create new water surface area. *

12. Mitigation, restoration, creation and enhancement. *

13. Dredged material disposal. *

14. Public access improvement projects, as specified in public access plans. *

15. Water-related uses. *

16. Temporary dikes.

17. Storm water or wastewater outfall. *

18. Communication facilities. *

19. Land transportation facilities. *

20. Beach nourishment at sites designated in this plan.

21. Temporary alterations.

22. Excavation to create new water surface area.

23. Uses accessory to the above uses. *

* May be approved only upon a demonstration that it will not preempt water-dependent uses.

(CP.150 Amended by Ordinance 90-33, dated 9-17-90)

CP.155. YOUNGS BAY SUBAREA PLAN

A. 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, tide flats, 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. Only a portion of this subarea is in Astoria.

B. Aquatic Features.

Youngs Bay is the most intensively studied bay of the estuary Because of numerous development proposals. 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. 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. Salinity in Youngs Bay rarely exceeds 10 to 15 parts per thousand even in the fall. Vertical salinity differences under these conditions 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. Salinity is entirely or nearly absent from Youngs Bay during high flow periods for either the Columbia River or Youngs Bay tributaries.

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 rest 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. 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. Both low and high tidal marsh is expected to develop in a 35-acre area on the west side of the Lewis and Clark River mouth which was restored to tidal influence in 1987.

Invertebrates 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 organisms include small copepods 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. 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 stickle-back, peamouth, and prickly sculpin.

Pacific herring, shiner perch, and longfin smelt may 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 as 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.

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. American shad are less abundant in Youngs Bay than in the main stem of the estuary because these spawning runs are relatively small. 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 during the spring and summer nesting season. A rookery near the mouth of the Youngs River is in the South Astoria Subarea.

Aquatic and terrestrial mammals utilize the subarea's marshes; 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.

C. Human Use.

The primary uses are recreational boating and fishing, commercial fishing, and log transport.

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 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.

D. Issues.

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.

A major limitation on development of shorelands adjacent to Youngs Bay 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 as well as groundwater contamination. Carcinogenic poly-nuclear aromatic hydrocarbons (PAHs) and benzene were identified 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 onsite, 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.

A 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 moving a portion of the dike landward, creating new marsh area. An exception to Oregon Statewide Planning Goal 16 was approved for this action.

A 35 acre mitigation bank east of the airport near the mouth of the Lewis and Clark River was created by building a new dike landward of the previous dike. The old dike was then breached to restore the area to tidal influence. The mitigation bank is administered by the Oregon Division of State Lands.

E. Aquatic Designations.

The authorized navigation channels are designated Development Aquatic. The mud flats, tidal flats, and fringing marshes are designated Natural Aquatic, 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 Aquatic. All other water areas are designated Conservation Aquatic.

F. Subarea Policies.

1. Proposed developments shall be evaluated for their impact on existing aquaculture operations. Aquatic sites that are especially suitable 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 onsite. Potential exposure of coal tar pollutants from disturbance of contaminated sediments shall be avoided.

(CP.155 Amended by Ordinance 90-33, dated 9-17-90)

CP.160. SOUTH ASTORIA SUBAREA PLAN

A. General Description.

This subarea covers the north shore of Youngs Bay between the new Youngs Bay bridge and the junction of the Astoria City limits with the shoreline. West of the old Youngs Bay bridge only the shorelands are a part of the subarea. East of the old Youngs Bay bridge the shorelands and the aquatic area out to the pierhead line are included.

Most of the subarea is within the City limits and the Urban Growth Boundary of the City of Astoria. Some aquatic areas in the eastern portion of the subarea are outside of the UGB under Clatsop County's jurisdiction.

B. Aquatic Features.

The aquatic portion of this subarea includes the nearshore waters along the south Astoria waterfront. Much of the shoreline is riprapped and there are fringing marshes and tide flats along the shore. Aquatic physical and biological features are discussed in the Youngs Bay Subarea Plan.

C. Shoreland Features.

The shorelands of this subarea are a narrow band of developed land between the water and Marine Drive/Highway 202. Soils are fill material and Coquille-Tidal Marsh (fresh) - Clatsop Association. Wildlife values are minimal, because most of the surface is paved and the shoreline is riprapped.

D. Human Use.

Residential, commercial and industrial uses are found on these shorelands. Water-oriented uses include the Astoria Yacht Club adjacent to the old Youngs

Bay bridge north footing, a shipyard, a launching, mooring, boat maintenance and fueling facility at Tidepoint, and other small docks and moorages. The Clatsop Economic Development Committee maintains salmon rearing pens west of Tidepoint. The salmon are raised to smolt size and released into the Youngs River. The former Bumblebee shipyard (now Corderman, Oregon) has had limited activity.

E. Issues.

Most suitable development sites in this subarea have already been developed. Industrial sites include the former Bumblebee Shipyard, the abandoned PP&L plant and the Fluhrer Brothers shingle mill. Some dredging would be needed adjacent to the PP&L site to provide access to the Youngs Bay Channel. Dredging at this site could probably not be approved because of coal tar contamination in the sediments and the fear that polyaromatic hydrocarbons (PAHs) and benzene would be released into Youngs Bay (see Youngs Bay Subarea Plan). Dredging would probably also be necessary to provide water access to the old Bumblebee Shipyard facility. Though there is deep water close to shore between the old Youngs Bay bridge and the Tidepoint Dock, little backup land is available. Extensive fills in the Youngs River/Youngs Bay system would conflict with the high natural values of the area. Concerns have been expressed about interference with upland views as a result of development along the bay.

F. Aquatic and Shoreland Designations.

The aquatic area east of the old Youngs Bay bridge out to the pierhead line is designated Development between the bridge and 11th Street, and Conservation east of 11th Street to the subarea boundary.

Shorelands in this subarea are designated Development with the exception of the area bounded by the old Youngs Bay Bridge, Highway 202, and 11th Street, which is designated Water-Dependent Development.

The regulatory shoreland boundary is 50 feet from the Youngs Bay and Youngs River shoreline in this subarea, except where it extends farther inland to include the following shoreland features:

1. Shoreland bounded by the Old Youngs Bay Bridge, Highway 202, and 11th Street necessary for water-dependent uses.

2. All other shorelands between the new Youngs Bay Bridge (U.S. Highway 101) and the eastern Astoria City limits, waterward of Highway 202, with the exception of the PP&L substation at the southeast corner of 11th Street and Highway 202.

G. Subarea Policies.

1. Development of the shoreland occupied by 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.

2. Potential conflicts between new development and existing uses on the South Astoria Waterfront will be evaluated on a case-by-case basis during permit review.

3. Proposed developments shall be evaluated for their impact on existing aquaculture operations. Aquatic sites that are especially suitable for aquaculture development shall be reserved for that use whenever possible.

4. The highway 30 by-pass may involve widening of the existing highway along the South Astoria Waterfront into Youngs Bay. Widening will be approved only after analysis of its impacts on public access to the bay, aquatic resources in the areas to be filled, and existing homes and businesses.

(CP.160 Amended by Ordinance 90-33, dated 9-17-90)

CP.165. PORT OF ASTORIA SUBAREA PLAN

A. General Description.

This subarea includes shorelands and aquatic areas along the Astoria waterfront between the Astoria-Megler Bridge and the Youngs Bay Bridge causeway. The Port of Astoria piers, the Federally-authorized turning basin, the West End Mooring Basin, the Red Lion Inn complex and the Union Cannery are included.

B. Aquatic Features.

The aquatic portions of this subarea include shallow flats west of Pier 3, deep water off the Port piers, and waters between the piers and east of Pier 1. Aquatic features on the shallow flats west of Pier 3 are similar to those in Youngs Bay (see Youngs Bay Subarea Plan). Benthic infauna densities are very high on these flats. The aquatic characteristics of the waters off of the Port piers are similar to those in the adjacent channel (see Estuary Channels Subarea Plan).

Much of the aquatic habitat between the finger piers, within the mooring basin, and east of the basin, is somewhat degraded because of Port and mooring basin use and past cannery use. Sediments in these areas consist primarily of very

fine sand, silt, and clay. Benthic infauna have been sampled on the tidal flat east of the mooring basin. Infauna densities in that area are moderate.

C. Shoreland Features.

The shorelands of the subarea are flat and consist largely of fill material obtained from the Columbia River. The subarea is almost entirely developed for port facilities. The only shoreland vegetation consists of upland grasses, scotch broom, and other shrubs located on and adjacent to Pier 3. The subarea has little wildlife value.

D. Human Use.

The Port of Astoria, the West End Mooring Basin, and the Red Lion Inn are the major facilities in this subarea. The Port of Astoria facilities contain 3 piers, a port office building, warehouses, open dock and storage areas, a barge slip, and a marina for small commercial and recreational vessels. There are also several warehouses and a tank farm located on Port-owned property. The railroad and Highway 101 are adjacent to this subarea.

Pier 3 was used for assembly of oil well modules for use in outer-continental shelf and nearshore waters in Alaska. The project demonstrated the feasibility of assembling these modules in the estuary. Declining petroleum prices resulted in the closure of the Pier 3 facility in 1986.

E. Issues.

Additional Port lands might be obtained by filling one or both of the pier slips or by filling west of Pier 3 or east of Pier 1. Extensive filling has been strongly opposed by resource agencies. A permit for an 80-acre fill west of Pier 3 was denied in 1976. Future Port of Astoria development plans involve extending the face of Pier 1 to the east to accommodate larger cargo vessels. Additional plans include building bulkheads around the piers, other structural repairs to the piers, and construction of new warehouse, office, and restaurant buildings (Port of Astoria Marine Terminals Development Plan, 1985).

Cargoes at the Port of Astoria have consisted almost entirely of logs in recent years. The Port has carried out a major rehabilitation of Pier 1 with the establishment of a new berth presently used principally for log exports.

A Mediation Panel Agreement between State and local governments and resource agencies on potential development of several sites along the Lower Columbia River in Oregon was reached in 1981. This agreement designated aquatic and shoreland areas for development as well as resource protection. The agreement's policies and designations for the Port of Astoria are included in the applicable sections of this subarea plan.

It is important to note that the 1985 Port of Astoria development plan does not include future filling between the finger piers, although the Mediation Panel Agreement did address it. Instead, port plans now call for expansion of the dock face at Pier 1 to the east. This would involve fill of approximately 4 acres to the west of the existing mooring basin in the first stage, fill of approximately 10 acres east of the mooring basin in the second stage, and fill of the area in between now occupied by the West End Mooring Basin in the final stage. This potential fill area was not included in the Mediation Panel Agreement.

The tidal flats west of Pier 3 are a valuable natural resource. Benthic animals are abundant and the area used by salmon migrating downstream and by other fishes. This is discussed in the Youngs Bay Subarea Plan. These tidal flats are also an attractive development site, being adjacent to both the main ship channel and existing Port facilities.

F. Aquatic and Shoreland Designations.

1. The following aquatic areas are designated Development:

   a. The aquatic area between the eastern tip of the port piers and a point 220 feet west of the end of Pier 3 and lying South of the pierhead line. This area includes 19.4 acres within the finger piers and 2.1 acres of aquatic area lying 220 feet West of the East tip of Pier 3 and South of the pierhead line (Mediation Panel Agreement).

   b. A 10-acre subtidal area West of the 2.1 acre area described above (Mediation Panel Agreement), to be developed using piling to the maximum extent feasible.

   c. The aquatic area between the east side of Pier 1 and the Columbia River bridge, south of the pierhead line, including the mooring basin and the Union Cannery.

   d. The turning basin, and the area between the piers and the turning basin.

2. The following aquatic areas are designated Conservation:

   a. The aquatic area between 3 feet below MLLW and the Navigation channel, excluding the aquatic area designated Development by the Mediation Panel Agreement, and excluding the designated turning basin.

3. The following aquatic areas are designated Natural:

a. The remainder of the aquatic area west of Pier 3.

4. All shorelands are designated Water-Dependent Development, except those south of the railroad right-of-way in a Development designation, and those north of the railroad right-of-way lying east of the mooring basin and west of the Astoria-Megler Bridge, also in a Development designation.

(Section CP.165.F.4 amended by Ordinance 96-13, dated 12-2-96)

5. The regulatory shoreland boundary in this subarea includes areas designated Water-Dependent Development shorelands and areas designation Development shorelands.

G. Subarea Policies.

1. Filling of slips 1 and 2 and the 2.1 acre site north of Pier 3 may occur as required to meet specific development proposals.

2. The 10 acre aquatic development parcel west of Pier 3 may be developed as part of a specific proposal to fully utilize the filled area inclusive of slip 2, the 2.1 acre fill, Pier 3, and the existing filled area adjacent to Pier 3.

3. The 10 acre aquatic development area shall be developed using piling to the maximum extent feasible.

4. Filling shall only be allowed for water-dependent uses. Specific proposals for the extent of fill or pile in the area west of Pier 3 must be justified at the time of permit application, specifically addressing physical and biological effects on the area west of Pier 3.

(CP.165 Amended by Ordinance 90-33, dated 9-17-90)

CP.170. DOWNTOWN ASTORIA SUBAREA PLAN

A. General Description.

This subarea includes shorelands and aquatic areas within the City of Astoria between the Astoria-Megler Bridge and 29th Street. The waterward boundary is the 20-foot bathymetric contour, or the pierhead line, whichever is farther waterward. The upland boundary is Marine Drive.

B. Aquatic Features.

With the exception of nearshore areas, the aquatic physical and biological characteristics in this subarea are similar to those in the adjacent channel (see Estuary Channels Subarea Plan). Near the shoreline sediments become finer

and benthic infauna densities higher than in the adjacent channel. Subyearling fall Chinook salmon migrate along the shallow nearshore areas.

C. Shoreland Features.

Virtually all of the shorelands in this subarea are former aquatic areas filled with sandy dredged material. There is little vegetation and no wildlife habitat. The shorelands are not in the floodplain.

D. Human Use.

This is an industrial and commercial area with few residences. Many uses are water-dependent or water-related, including fish unloading and processing, boat and tug moorage, bar and river pilot offices, the Astoria Plywood Mill, petroleum off-loading, marine equipment suppliers, and the Columbia River Maritime Museum. The Pier 11 complex of shops and a restaurant is focused on the water.

The Elmore Cannery, the Bonded Warehouse and the Kinney Cannery (#1 Sixth Street) are listed on the National Register of Historic Places. These sites are protected through provisions of the City of Astoria's Zoning Ordinance.

Rail, road and water access are available. All utilities are avoided by the City of Astoria. Several street ends are popular public water access points. The view of the Columbia River and the waterfront from the higher areas of Astoria is scenic.

E. Issues.

The development potential of this area for maritime commerce is limited, despite the adjacent shipping channel and deep water, because there is little undeveloped backup land. An increasing number of stores, offices and light industrial concerns that are not water-oriented have located in this subarea in recent years. Although there are some waterfront areas which presently contain strictly water-dependent uses, there is a general desire by the City to permit a mixture of uses. Tourist facilities, redevelopment of old canneries and fish processing facilities are the most likely new water-oriented uses. Other large-scale water-dependent and industrial uses may conflict with tourist-oriented businesses because of public safety, security, road and rail traffic, and aesthetic concerns.

Public access to the waterfront is presently available via numerous publicly-owned street ends and some vacant waterfront lands. Development of publicly-owned sites to provide good public access to the waterfront is a high priority and will require a considerable investment.

The Astoria Waterfront Revitalization Plan calls for mixed-use tourist-oriented

development and increased public access. A public pier has been developed at the foot of Sixth Street, and additional public pier is planned for the foot of 14th Street.

F. Aquatic and Shoreland Designations.

The aquatic area is designated Development out to the pierhead line. The main navigation channel and a flow lane disposal strip on each side (either 600 feet wide or extending up to the 20-foot bathymetric contour, whichever is narrowest) is designated Development. The area between the pierhead line and the flow lane is in a Conservation designation.

The shoreland area from the Astoria-Megler Bridge to the eastern boundary of the former Astoria Plywood Mill Site (29th Street) is designated Development.

The regulatory shoreland boundary in this subarea is 50 feet from the Columbia River shoreline.

(CP.170.F Amended by Ordinance 98-04, dated 5-4-98)

G. Subarea Policies.

1. Public access to this area of the Astoria waterfront is strongly encouraged at street ends, at areas designated in the Astoria Waterfront Revitalization Plan.

2. The historic character of the Elmore Cannery, the Kinney Warehouse and the Bonded Warehouse will be protected through application of the Historic District element of the City of Astoria's Zoning Ordinance.

3. A walking/jogging path along the waterfront is needed. Use of the Burlington Northern railroad right-of-way should be explored.

(CP.170 Amended by Ordinance 90-33, dated 9-17-90)

CP.175. UPPERTOWN / ALDERBROOK SUBAREA PLAN

A. General Description.

This subarea contains shorelands and aquatic areas in eastern Astoria. The waterward boundary is the 20-foot bathymetric contour. The western boundary is 29th Street. The upland boundary extends eastward from 29th Street on Marine Drive/Lief Erikson Drive to 44th Street, north to the 100 year floodplain boundary, east to 53rd Street, north to Alder Street, then east along Alder Street and continuing straight east to the City limits. The eastern boundary follows the City limits.

B. Aquatic Features.

The aquatic portions of this subarea include open water and nearshore habitats in the river and Alderbrook Cove. The aquatic characteristics of the open water areas are similar to the adjacent channel (see Estuary Channels Subarea Plan). In the nearshore habitats, sediments become finer and benthic infauna productivity higher. A 1980 study reported high densities of amphipods in nearshore areas of the subarea. Juvenile fall Chinook salmon migrate in the shallow nearshore habitats. Alderbrook Cove contains fine sediments and probably has high benthic productivity. The Cove is partially fringed by low elevation tidal marshes. Bird use on the marshes and adjacent tidal flats is high.

C. Shoreland Features.

The shorelands in this subarea include the waterfront from 29th Street east and the Astoria sewer lagoons. The shorelands are developed except for sandy dredged material disposal sites both east and west of Alderbrook Cove. The area east of the Cove is vegetated primarily with scotch broom on the uplands and with emergent wetland plants and shrubs in a wetland area on the southeast corner of the site.

Wildlife values are minimal in the developed areas and moderate in the undeveloped areas. The sewer lagoons receive high bird use.

D. Human Use.

Considerable construction occurred in this subarea between the plywood mill and the East End Mooring Basin in the 1970s. The new buildings include City shops, light industries, and a grocery store. Water-dependent and water-related uses include fish receiving and processing facilities, net racks and the East End Mooring Basin. There is a trailer court adjacent to the East End Mooring Basin. The East End Mooring Basin and its small area of backup land remain largely undeveloped.

This subarea has City water, sewer, and road access to Highway 30. The railroad runs along the shoreline.

Alderbrook is the only residential area of Astoria that has immediate frontage on the water. It contains a number of nineteenth century houses and has a quiet attractiveness not found elsewhere along the waterfront.

E. Issues.

Shorelands in this subarea do not have direct access to deep water. The ship channel is 2,000 to 4,000 feet from the shoreline, though several ship anchorages are south of the channel. Shallow draft boat access is available throughout the area but low tides uncover substantial flats. Rock piles from old ship ballast and rock ledges further limit access. Most boat traffic is concentrated around the East End Mooring Basin, which is presently under-utilized.

The Corps of Engineers has completed improvements to the East End Mooring Basin breakwaters that correct the surge problem. Eliminating the surge opens the basin to a large number of vessels and increases the need for dredging and for backup land to support basin operations. Vacant shorelands should be reserved for support uses.

Most of the subarea shorelands are already developed and there are no large vacant parcels. Between 35th and 41st Streets, however, is mostly vacant land with the potential to support water-dependent and water-related uses associated with the boat basin.

The Water-Dependent Development site immediately west of Alderbrook Cove may be reconfigured to include land closer to the Mooring Basin, and exclude land immediately adjacent to the Lagoon. An exception to Oregon Statewide Planning Goal 17 may be necessary.

The 1986 Lower Columbia River Assessment of Oregon Deep Draft Sites identified Alderbrook Cove, the small park east of the cove, the existing water-dependent development site west of the cove and adjacent aquatic area extending approximately 1,500 feet into the Columbia River as a potential port development site. Development would involve filling the cove and adjacent Columbia River area. The fill would cover approximately 170 acres. There is a conflict over designation of this port development site in the Plan. Local residents and the City of Astoria have stated that development of the site as projected in the Deep Draft Sites assessment would generate unacceptable negative impacts on the Alderbrook neighborhood. In addition, the aquatic area of the site is designated Conservation. Adequate mitigation sites have not been identified for this development. Redesignation of the area to Development would require an exception to Oregon Statewide Planning Goal 16. The Oregon State

Department of Economic Development and Division of State Lands have stated that a port development site in addition to those already designated is needed in the Astoria area. The Deep Draft Sites Assessment states that Astoria is Oregon's only alternative to Portland for a deep-draft port potentially served by barge and competitive rail.

Port development in the Alderbrook area is not consistent with maintenance of the aquatic area habitat, scenic, and recreational values. It is also inconsistent with the Alderbrook neighborhood residential area. In addition, designation of a deep-draft port site at the proposed location requires full involvement of public agencies and citizens. This coordination has not yet occurred. For these reasons, this Plan has retained the Aquatic Conservation designation of Alderbrook Cove and adjacent Columbia River area and has not designated a new port site.

An alternative deep-draft port development site located west of the East Astoria Mooring Basin has been tentatively identified. An area large enough to accommodate three ships, with a loop railroad spur, is desired. Approximately 3,000 linear feet of pier face would be necessary. The aquatic area generally between the extended right-of-ways of 21st and 33rd Streets, extending out to approximately 500 feet south of the main navigation channel, would meet these dimensional requirements. A number of existing shoreland parcels between 21st and 33rd Streets could be redeveloped for port-related use. This site avoids many of the negative impacts associated with development of the Alderbrook site. The City will consider formal designation of this site when preliminary environmental and feasibility studies, consistent with existing State (ORS 541.605 et seq.) and Federal regulations regarding estuarine fill, have been completed.

F. Aquatic and Shoreland Designations.

The aquatic area between 29th and 41st Streets is designated Development to the pier head line, except at the East End Mooring Basin where the designation corresponds to the outer boundary of the pier. East of 41st Street, the aquatic area is designated Natural.

Shorelands are designated Development, except for the Water-Dependent Development site west of Alderbrook Cove between 35th and 41st Streets.

The regulatory shoreland boundary in this subarea is 50 feet from the Columbia River shoreline except where it extends further inland to include the following shoreland resources:

1. Lands surrounding the Astoria sewage lagoons, in a Development Shoreland designation;

2. Lands adjacent to Alderbrook Cove, in a Development Shorelands designation;

3. Lands adjacent to and east of the Astoria East End Mooring Basin, in a Development Shoreland designation;

4. Lands between 29th and 35th Streets, north of Leif Erickson Drive/Marine Drive, in a Development Shorelands designation;

5. Dredged material disposal site A-S-16.3 (from the Columbia River Estuary Dredged Material Management Plan);

6. A mitigation site on the east side of Alderbrook Cove (from the Columbia River Estuary Restoration and Mitigation Plan).

{Section CP.0175.F amended by Ord 15-08, 12-7-2015}

G. Subarea Policies .

1. The Alderbrook area has unique characteristics and values. Plan amendments which would allow higher-intensity uses than those now present are discouraged.

(CP.175 Amended by Ordinance 90-33, dated 9-17-90)

CP.180. TONGUE POINT SUBAREA PLAN

A. 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.

B. Aquatic Features.

The aquatic areas include the access channel to Tongue Point from the Columbia River, the area surrounding eight 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 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 layer of navy grey paint in the MARAD Basin may contaminate the sediments. 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.

A detailed wetland inventory and delineation of the South Tongue Point area was performed by Scientific Resources, Inc. in 1990. In addition, a hydrographic survey was performed by David Evans and Associates, Inc. in 1991. This Comprehensive Plan adopts the surveyed boundaries of the aquatic areas as identified by those efforts. As a result of the new delineations and boundary survey, the extent of the known upland area at South Tongue Point has been reduced to approximately 73 acres, as opposed to previous estimations of approximately 101 acres.

Of the estuary's invertebrates 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 down river primarily in November and December. Juvenile shad, originating from upstream spawning areas as well as from the John Day River, use the subarea as nursery area. The subarea is 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 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. Old growth conifers 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, are used as perch trees. 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.

(CP.180.B Amended by Ordinance 91-22, dated 9-3-91)

C. 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.

D. Human Uses.

1. 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.

2. 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 finger pier area has been used for long-term storage of vessels. The aquatic area between the finger piers has been used for log storage as well. The State-owned portion of the site is presently leased to a private developer that hopes to import automobiles.

3. 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.

E. 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, for the access channel, and for a turning basin. 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 to North Tongue Point was dredged in 1989, related to development of a 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. CREST prepared a 1991 update of its 1981 "Lower Columbia River Assessment of Oregon Deep Draft Sites", the 1991 "US 30 Multi-Modal Study", Lower Columbia River Corridor, and numerous other sites. the updated CREST "Economic Evaluation" concludes that the Tongue Point sites are most suited for forest products processing facilities, marine terminal development, commercial fishing and seafood processing, and off-shore mineral support facility development. It states that a coal trans-shipment facility is no longer a likely use of the Tongue Point sites, and that in evaluating other water-dependent uses at Tongue Point, the Mediation Panel Agreement should be interpreted as setting the outer limits on water-dependent development and adverse impacts on estuarine resources.

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 slumping 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 State ownerships on several 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 would quitclaim its interest in the estuary islands to the U. S. Fish and Wildlife Services. This transaction had not taken place as of 1989. A proposal for development of a Naval Base at South Tongue Point is associated with the land exchange.

Consistent with the most recent economic and resource information available, it appears that development of a single large bulk trans-shipment facility at North and South Tongue Point is not a likely development. This comprehensive Plan retains the designations and policies of the Mediation Panel Agreement as they relate to North Tongue Point, but amends the MPA pertaining to South tongue Point to delete the two "mutually exclusive" development options. Instead, this

Comprehensive Plan permits development of South Tongue Point by multiple small to medium scale water-dependent uses and to a limited extent, development of non-water-dependent uses.

The majority of shorelands at South Tongue Point, i.e. approximately 45 acres, are designed for Water-Dependent Development. The remainder 21 acres is designated General Development, because portions of the peninsula do not have the characteristics which make them especially suitable for water-dependent development according to CP.145, CP.185.O, and the Purpose Statements of the S-1 and S-2 Zones (Development Code Sections 2.650 and 2.675). Final location of zoning boundaries will be determined based on final design of access improvements.

The northern tip of the peninsula is designated General Development because it does not have deep water close to shore, and is adjacent to the most extensive natural habitat area around Tongue Point. Alterations to the estuary required for high-intensity water-dependent uses for berthing and cargo handling in this area, would conflict with protection of the Natural Aquatic area between North and South Tongue Point. The western portion of the peninsula is designated General Development because it does not have direct water access.

According to the Department of Land Conservation and Development, new exceptions to the Statewide Estuarine Resources Goal, Goal 16, must be taken in order to justify a Development Aquatic designation or specific uses not normally permitted in Natural or Conservation Aquatic areas, if these uses and/or designations are needed for development other than a single large cargo trans-shipment facility. The new exceptions and their justification are identified in sub-section H below. These replacement exceptions documentation of CP.180(8) of the 1981 Astoria Comprehensive Plan.

(Section CP.180.E Amended by Ordinance 91-22 , dated 9-3-91)

F. Aquatic and Shoreland Designations.

1. The following aquatic areas are designated Development (A-1):

   a. The aquatic area between the shoreline of the old naval station and the waterward end of the finger piers.

   b. 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.

   c. A turning basin 1,000 feet in radius lying immediately waterward of the end of the southerly four finger piers.

   d. The aquatic area within the Coast Guard base.

e. Tidal flats, marshes, and wetlands on the east side of South Tongue Point lying between a line approximately 700 feet north of the Corps of Engineers dock and a line 100 feet south of the southerly line of T8N, R9W, Section 12, and extending eastward to the subtidal conservation Aquatic Area.

(Section CP.180.F.1.e Amended by Ordinance 91-22 , dated 9-3-91)

2. The following aquatic areas are designated Natural (A-4):

a. The subtidal and intertidal areas between the southern most finger pier and the South Tongue Point Peninsula.

b. Intertidal areas at the north end and south end of the South Tongue Point peninsula, with the exception of the intertidal area on the east side designated Development Aquatic.

(Section CP.180.F.2.b Added by Ordinance 91-22 , dated 9-3-91)

3. The following aquatic areas are designated Conservation (A-3):

a. 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.

b. Subtidal areas to the east of South Tongue Point.

(Section CP.180.F.3.b Added by Ordinance 91-22, dated 9-3-91)

4. The following shoreland areas are designated Water-Dependent Development (S-1):

a. The US Coast Guard base.

b. The shorelands between Mill Creek and the Job Corps Center.

c. The South Tongue Point peninsula shorelands, except for those portions designated General Development

(Section CP.180.F.4.c Amended by Ordinance 91-22, dated 9-3-91)

5. The following shoreland area is designated Development (S-2):

a. The Federal Job Corps Center.

b. Portions of South Tongue Point.

(Section CP.180.F.5.b Added by Ordinance 91-22, dated 9-3-91)

6. The following shoreland area is designated Rural:

   a. 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.

7. The following shorelands are designated Natural (S-5):

   a. The Tongue Point peninsula north of the Job Corps Center, with the exception of the Coast Guard Base.

8. The regulatory shoreland boundary is 50 feet from the Columbia River Estuary shoreland except where it extends farther inland to include the following features:

   a. The Tongue Point peninsula, because of its significant shoreland habitat.

   b. Balk eagle roosting trees in the Mill Creek area and south of Mill Creek to the South Tongue Point peninsula (waterward of Highway 30)

   c. The steeply sloping potentially unstable area waterward of Oregon Highway 30 between Mill Creek and the entrance to the South Tongue Point peninsula.

   d. Water-Dependent Development sites at the South Tongue Point peninsula; a designated dredged material disposal site (AsS-18.7); the upland area between the railroad right-of-way and the finger piers north of Mill Creek.

G. Exceptions.

Six Goal 16 exceptions were taken by the City for the South Tongue Point Subarea. The exceptions are for:

1. A pile-supported access structure in the Natural Aquatic area between North and South Tongue Point.

2. A shoreline (fill) access structure between North and South Tongue Point.

3. Spur railroad trestle access to South Tongue Point across a Natural Aquatic area.

4. Development Aquatic designation of about six (6) acres of emergent marsh at South Tongue Point.

5. Development Aquatic designation of about four (4) acres of scrub/shrub wetland at South Tongue Point.

6. Construction of T-docks across Natural Aquatic areas at South Tongue Point.

The text of those exceptions is in the background document "Astoria Comprehensive Plan: Exceptions to Statewide Planning Goals", and incorporated here by reference.

(Section CP.180.G added by Ordinance 91-18 dated 7-1-91)

H. Subarea Policies - General.

1. 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.

2. The USFWS and the ODFW shall be contacted prior to any development to assess the potential for impacts on bald eagle habitat.

3. The design and construction of new access roads to the finger pier area shall take into account potential impacts on residences and slope stability.

4. These Comprehensive Plan Sub-Area Policies implement and amend the 1981 Mediation Panel Agreement as it relates to South Tongue Point. Compliance with the specific policies of the Mediation Panel Agreement as they relate to South Tongue Point are no longer required.

(Section CP.180.H.1 to 4 Amended by Ordinance 91-22 dated 9-3-91)
(Section CP.180.H.5 to 17 Renumbered by Ordinance 10-07, dated 7-19-10)

I. Mediation Panel Agreement Subarea Policies - North Tongue Point.

1. 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.

2. A navigation channel 500 feet wide and 40 feet deep (with over-dredging 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.

3. If the main Columbia River navigation channel is deepened, the access channel into North Tongue Point may be deepened to the same depth.

4. 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.

5. 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.

6. 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).

7. 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.

J. Subarea Policies - South Tongue Point.

1. Within the area designated Development Aquatic, all uses permitted under the A-1 and A-2 Zoning Designations are authorized by the exceptions to Oregon Statewide Planning Goal 16, Estuarine Resources, except for dredging, fill, shoreline stabilization, flow lane disposal of dredged material, and treated wastewater disposal.

2. Fill of three areas of forested wetlands extending into the upland area is authorized by the exception to Goal 16. Subsequent to being filled, these areas will be redesignated as Water-Dependent Development Shorelands (S-1).

3. Fill and construction of a road connecting North and South Tongue Point to the east of the Burlington Northern Railroad tracks is authorized by the exception to Goal 16.

4. All uses and activities permitted under the S-1 Zoning Designation are

permitted in the area so designated at South Tongue Point, subject to the appropriate standards in the Zoning Ordinance.

5. All uses and activities permitted under the A-1 and S-2 Zoning Designation are permitted in the area so designated at South Tongue Point, subject to the appropriate standards in the Zoning Ordinance, with the exception of certain uses specified in the relevant Zoning Ordinance text.

6. A navigational access channel, not to exceed 300 feet in width and 25 feet in depth at Mean Lower Low Water, and a turning basin, not to exceed 500 feet in width and 25 feet in depth at Mean Lower Low Water, are approved to the east of South Tongue Point. Dredging of this channel and turning basin to maintain the approved depth not to exceed -25 feet MLLW is permitted as a minor navigational improvement in the Conservation Aquatic management unit designation.

(Section CP.180.H renumbered by Ordinance 91-18, dated 7-1-91)
(Section CP.180.H, South Tongue Point Amended by Ordinance 91-22 dated 9-3-91)
(Section CP.180.H renumbered by Ordinance10-07, dated 7-19-10)

(CP.180 Amended by Ordinance 90-33, dated 9-17-90)

CP.185. REGIONAL ESTUARY AND SHORELAND POLICIES

For the purpose of this Subsection the following definitions shall apply:

Deep Water: Water deeper than -22 feet MLLW.

(Section CP.185 definition added by Ordinance 91-22 dated 9-3-91)

A. Deep Water Navigation, Port and Industrial Development.

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 deepwater 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 Development Aquatic 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. Evaluation of proposals involving treated or untreated wastewater discharge into the estuary will rely on the point source water pollution control programs administered by the Oregon Department of Environmental Quality and the Washington Department of Ecology.

6. A few sites in Astoria and throughout the Columbia River Estuary are suitable for development and expansion of marine terminal facilities. The City will periodically consider amending its Comprehensive Plan as needed to provide sufficient sites for needed port development. The City will rely on information in periodic updates of the Columbia River Estuary Regional Management Plan pertaining to port development in the estuary.

B. Diking.

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. Dike breaching or removal may be permitted as part of a restoration or mitigation project subject to the applicable Mitigation and Restoration Policies.

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 to the Statewide Planning Goal 16.

4. The effects of limited intertidal dredging along fringing marshes for the purposes of dike maintenance are not fully understood. A small pilot project to determine these impacts should be undertaken.

C. 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.

1. New and maintenance 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 designation unit requirements; and

   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 are minimized.

2. Dredging and dredged material disposal shall not disturb more than the minimum area necessary for the project and shall be conducted and timed 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; and

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 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 shall 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.

4. Dredging subtidal areas to obtain fill material for dike maintenance may be allowed subject to applicable standards. Some dikes in the estuary are not accessible by barge-mounted dredges or land-based equipment. Dredging intertidal areas to obtain fill material may be the only option for maintaining these dikes. Approval of intertidal dredging will require an exception to Statewide Planning Goal 16.

5. 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, and 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.

(CP.185.C.6 to 11 Renumbered by Ordinance10-07, dated 7-19-10)

D. Dredged Material Disposal Site Selection And Site Reservation Policies.

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

   a. The local 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 Oregon Statewide Planning Goal 3 or 4 must be approved 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 and future water-dependent development. Dredged material disposal shall not occur in major marshes, significant wildlife habitat and exceptional aesthetic resources designated under Oregon Statewide Planning Goal 17. 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.

2. Estuarine in-water disposal sites shall be in Development Aquatic designated 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 significant 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 with less damaging environmental impacts 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.

3. Flow lane disposal sites shall only be allowed in Development designated areas within or adjacent to a channel. The Development designated area adjacent to the channel shall be defined by a line 600 feet from either side of the channel or the 20 foot bathymetric contour, whichever is closer to the channel. Flow lane disposal within this area shall only be allowed where:

    a. Sediments can reasonably be expected to be transported downstream 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 restrictions on timing or disposal techniques,

    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.

4. 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.

5. 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.

a. Priority 1 Dredged Material Disposal Sites:

Sites which are essential for meeting anticipated five year disposal needs shall receive a Priority 1 designation. Priority 1 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:

1) Uses requiring substantial structural or capital improvements (e.g., construction of permanent buildings, water and sewer service connections);

2) Uses that require alteration of the topography of the site, thereby 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);

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 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);

4) 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 1 dredged material disposal sites unless the site is removed by plan amendment upon demonstration that either:

a) The site has been filled to capacity and is available for other uses, or

b) The site is, in fact, not required to accommodate anticipated five year disposal needs, or

c) A new Priority 1 site has been designated to replace the site being removed.

b. Priority II Dredged Material Disposal Sites:

Dredged material disposal sites which are not required for anticipated five year disposal needs but which may be required to meet long-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.

A 30 day freeze shall be placed on preemptive development requests (as defined in Section CP.185.D.5.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. Individual jurisdictions 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 plan amendment.

6. 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 1 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 1 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 1 inventory.

d. An analysis of the adequacy of the dredged material site inventory shall include notification of an communication of updated 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. Each jurisdiction shall cooperate with other jurisdictions on the Columbia River Estuary in monitoring of dredged material site availability and in dredged material disposal plan update.

E. Estuarine Construction Policies.

Policies in this subsection apply to over-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, and to excavation of shorelands for creation of new water surface area. 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.

1. Proper riparian 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 estuary 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 non-water-dependent uses in aquatic areas or in shoreland areas zoned Marine Industrial Shorelands 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. 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. 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.

5. Individual single purpose docks and piers are discouraged in favor of community moorage facilities common to several uses and interests. The

size and shape of a dock or pier shall be limited to that required for the intended use. Alternatives to docks and piers, such as mooring buoys, storage on the land, and launching ramps shall be investigated and considered.

F. Fill Policies.

This subsection applies to the placement of fill material in the tidal wetlands and waters of the Columbia River Estuary.

1. New non-water-dependent uses in aquatic areas and in areas zoned Marine Industrial Shorelands 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 or volume of aquatic areas and significant nontidal wetlands in shoreland areas shall be minimized in the location and design of facilities requiring fill.

3. Construction on piling is preferred over construction on fill.

4. Mitigation may be required for fills (see Mitigation and Restoration Policies).

5. 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 designation; and

    b. A substantial public benefit is demonstrated; and

    c. The proposed fill does not unreasonably interfere with public trust rights; and

    d. Feasible upland alternative locations do not exist; and

    e. Adverse impacts, as identified in the impact assessment, are minimized.

G. Fish and Wildlife Habitat Policies.

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.

1. Endangered or threatened species habitat shall be protected from incompatible development.

2. Measures shall be taken protecting nesting, roosting, feeding and resting areas used by either resident or migratory bird populations.

3. Major nontidal marshes, significant wildlife habitat, coastal headlands, and exceptional aesthetic resources within the Estuary Shorelands Boundary shall be protected. New uses in these areas shall be consistent with the protection of natural values, and may include propagation and selective harvest of forest products, grazing, harvesting, wild crops, and low intensity water-dependent recreation.

H. Fisheries and Aquaculture Policies.

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.

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;
   Gear storage;
   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 facility location, design and operation shall minimize adverse impacts on estuarine and shoreland habitat, navigation channels, water quality, and public access points.

5. Existing aquaculture and hatchery facilities and areas identified as having significant aquaculture potential shall be protected from conflicting uses.

6. Aquaculture and hatchery structures shall not interfere with commercial or recreational navigation.

7. A number of sites in Astoria and throughout the Columbia River Estuary are suitable for development or expansion of facilities for the commercial seafood industry. These include moorage, fuel, ice, fish receiving and processing, gear storage, marine hardware sales and repair, boat building and repair, and related facilities. The City will periodically consider amending its Comprehensive Plan as needed to provide sufficient sites for these facilities. The City will rely on information in periodic updates of the Columbia River Estuary Regional Management Plan pertaining to fisheries-related development in the estuary.

I. Land Transportation System Policies.

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.

1. New non-water-dependent uses in aquatic areas or in Marine Industrial Shorelands 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 Marine Industrial Shorelands or Development Aquatic areas.

5. When feasible, new public roads in scenic areas shall provide rest areas, viewpoints and facilities for safe bicycle and pedestrian travel.

6. Construction of new land transportation facilities and maintenance of existing land transportation facilities shall be undertaken in a manner that minimizes expected impacts on aquatic and shoreland estuarine resources.

J. Log Storage Policies.

This subsection establishes policies for the development of new, and the expansion of existing, log storage and sorting areas in Columbia River Estuary aquatic and shoreland areas.

1. New or expanded aquatic area log storage facilities shall be designed and located so as to minimize potential adverse impacts on aquatic habitat.

K. Mining and Mineral Extraction Policies.

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. These policies and standards are also applicable to outer continental shelf mineral development support facilities built in the estuary.

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.

3. Mineral extraction or gravel or sand dredging from the estuary may be permitted only when these resources are not otherwise available at an economically feasible upland location.

4. Aquatic area mining or mineral extraction projects may be approved only for the least biologically sensitive areas.

5. Mining and mineral extraction activities shall not be approved in areas of major marshes, significant fish and wildlife habitat, or exceptional aesthetic resources.

6. Wastewater associated with mining shall be handled in a manner that preserves water quality.

7. The surface mining regulations administered by the Oregon Department of Geology and Mineral Industries shall be relied upon with respect to surface mining practices.

8. A number of sites in Astoria and elsewhere in the Columbia River Estuary are suitable for development of off-shore oil and gas support facilities. The City will consider adopting amendments to its Comprehensive Plan as needed to provide sufficient sites for this industry. The City will rely on

information in periodic updates of the Columbia River Estuary Management Plan pertaining to off-shore oil, gas and mineral development.

L. Mitigation and Restoration Policies.

Policies in this section are applicable to estuarine restoration and mitigation projects on Columbia River Estuary aquatic areas and shorelands. Policies in Subsection 1 are primarily applicable to estuarine mitigation projects. Policies in Subsection 2 address mitigation banks. Policies in Subsection 3 address restoration. Policies in Subsection 4 address long-term planning issues.

1. Estuarine Mitigation Projects.

a. 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. 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.

b. 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 sequence of mitigation actions:

1) 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;

2) Compensatory Mitigation Actions

a) 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 CP.185.L.1.b.2a shall only be implemented after impact avoidance, reduction and rectification techniques have been considered, and there are still unavoidable adverse impacts.

c. 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.

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

e. 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 Astoria 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.

f. If any of the compensatory mitigation actions are required, Astoria shall request 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 of lower (4 = lowest), the following sequence of mitigation options shall be considered:

1) In Kind/On Site

2) In Kind/Off Site

3) Out of Kind/On Site

4) Out of Kind/Off Site

g. If out of kind mitigation is found to be the only option, the applicant shall first seek restoration of historically and/or presently scarce habitat types.

h. 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 Astoria and State and Federal regulatory agencies.

i. 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.

j. Astoria will cooperate with CREST and State and Federal resource agencies in the periodic review of the region's mitigation plan. Reviews shall 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.

k. Additional mitigation sites shall be designated by local jurisdictions as the need arises. New designations shall be coordinated with CREST, Astoria, State and Federal resource agencies. New sites shall be subject to the same policies and standards as sites presently designated.

l. 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, but included or partially included in the shoreland base or overlay zone, mitigation shall be implemented through the shoreland base or overlay zone. If the new site is only partially included in the shoreland base or overlay zone, the portion of the site outside the shoreland base or overlay zone shall be treated as though it is inside the zone.

m. 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.

n. Shorelands in a 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.

o. 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.

p. 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.

q. All mitigation sites designated on public lands shall remain in public ownership.

r. 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.

s. 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 the Division of State Lands.

t. After a mitigation action takes place Astoria shall amend its plan and implement a zone change for the site to reflect the aquatic character of the site.

2. Mitigation Bank Policies.

a. 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. Oregon Division of State Lands shall be responsible for administration of a mitigation bank area throughout the period it serves as a bank.

b. An agreement between Astoria and 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.

c. 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.

d. 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.

e. 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:

1) The exact location of the real property.

2) Proof of ownership or control, i.e., deed or title report.

3) 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.

4) How and when the mitigation action shall be performed.

5) 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.

6) 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.

7) How the mitigation bank shall be protected (e.g., dedication, conservation easement, deed transfer).

8) How funding for necessary construction or alteration work and potential remedial action shall be guaranteed (e.g., bonding).

9) The price that may be charged for credits from the bank.

f. 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 City's approval of the number of mitigation credits charged against the bank.

3. Restoration Policies for Aquatic Areas and Nontidal Wetlands.

a. 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.

b. 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.

c. 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.

d. After a restoration takes place Astoria shall amend its plan and implement a zone change for the restored area to reflect the aquatic character of the site.

e. 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.

f. Shorelands designated Marine Industrial Shorelands 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.

g. 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.

h. Consideration shall be given to restoring water circulation in historically shoaled areas. Circulation enhancements must outweigh any potential damages to wetlands before they are implemented.

i. 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:

    1) Potential erosion or sedimentation problems that may result from removal;

    2) The structure's habitat value and probable longevity; and

3) The structure's historic and scenic values.

j. 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).

4. Long Term Mitigation and Restoration Policies.

a. Federal and State resource agencies should be requested to intensify existing programs to identify Resource Categories of wetlands in the Columbia River Estuary area.

b. 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.

c. 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.

d. 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.

e. The following framework for restoration implementation is recommended for the Columbia River Estuary:

1) 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.

2) 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.

3) Identify landowners with economically marginal production land (e.g., forest or agricultural production), that was historically wetland, and to inform them of any incentive-oriented restoration systems for restoration and encourage their participation.

f. The following techniques are suggested as potential methods to establish a wetland restoration and protection incentive system:

1) 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.

2) Protection through restrictions while landowners retain title to the land, (e.g., conservation easements, mutual covenants, deed restrictions and leases).

3) Provide tax incentives for landowners that allow restoration to take place on their land.

4) Deed restrictions, wildlife easements or fee acquisition on Farmers Home Administration farm foreclosure inventory lands.

(CP.185.L Renumbered by Ordinance 10-07, dated 7-19-10)

M. Public Access Policies.

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 (boat ramps, for example), aesthetic access (viewing opportunities, for example), and other facilities that provide some degree of public access to Columbia River Estuary shorelands and aquatic areas.

1. The City shall review under ORS 271.080-271.230, proposals for the vacation of public easements or right-of-ways which provide access to or along estuarine waters. The City shall review under the provisions of ORS-271.300-271.360, proposals for the sale, exchange or transfer of public ownership which provides access to estuarine or ocean waters. Existing public ownerships, right-of-ways and similar public easements which provide access to or along estuarine waters shall be retained or replaced if they are sold, exchanged or transferred. Right-of-ways may be vacated to permit redevelopment of existing developed shoreland areas

provided public access across the affected site is retained.

2. Public access in urban areas shall be preserved and enhanced through waterfront restoration and public facilities construction, and other actions consistent with Astoria's public access plan.

3. 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.

4. Special consideration shall be given toward making the estuary accessible for the physically handicapped or disabled.

5. Astoria will develop and implement programs for increasing public access.

N. Recreation and Tourism Policies.

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

1. New non-water-dependent uses in aquatic areas or in areas zoned Marine Industrial Shorelands 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 or waterfront viewing areas; and building designs that are visually u with the waterfront.

3. A number of sites in Astoria and throughout the Columbia River Estuary are suitable for water-related and water-dependent recreational development, including moorage, charter fishing offices, boat ramps, and related facilities. The City will periodically consider adopting amendments to its Comprehensive Plan as needed to provide sufficient sites for needed water-related and water-dependent development. The City will rely on information in periodic updates of the Columbia River Estuary Regional Management Plan pertaining to recreational development in the Columbia River Estuary.

O. Residential, Commercial and Industrial Development Policies.

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 multifamily 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 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.

1. New non-water-dependent uses in aquatic areas and in Marine Industrial Shorelands 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. 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 designation; and

    b. 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 are minimized.

3. 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. 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 are minimized.

P. Shallow Draft Port and Marina Policies.

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.

1. Proliferation of individual single purpose docks and moorages is discouraged. Public or commercial multi-vessel moorage is preferred. The size and shape of a dock or pier shall be limited to that required for the intended use. Alternative to docks and piers, such as mooring buoys, dryland storage, and launching ramps, shall be investigated and considered.

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 designation, State and Federal permits, and local plan and ordinance provisions.

Q. Significant Area Policies.

Policies in this subsection are intended to protect certain shoreland and aquatic resources with estuary-wide significance. Significant shoreland resources are identified as such in the area and subarea description. 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. Only those resources identified as significant under Statewide Planning Goal 17 are covered by these policies and standards.

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 exceptional aesthetic resources shall be protected. Uses in these areas shall be consistent with the protection of natural values and may include selective harvesting of forest products consistent with the Oregon Forest Practices Act, grazing, harvesting, wild crops, and low-intensity water-dependent recreation.

3. Significant riparian vegetation shall be protected to the extent identified in local comprehensive plans, except as provided for in applicable standards.

R. Water Quality Maintenance Policies.

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 tidegated sloughs in shoreland areas are covered.

1. Nonpoint source water pollutants from forest lands, roads, agricultural lands, streambank erosion and urban runoff shall be controlled by State Section 208 water quality programs, the Oregon Forest Practices Act and its 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 cleanup 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. Permits for activities in Astoria with potential water quality impacts in Washington's waters will be coordinated with both Oregon Department of Environmental Quality and Washington Department of Ecology.

S. Water-Dependent Development Area Policies.

Policies in this subsection are applicable only to those Columbia River Estuary Shorelands that are in the Marine Industrial Shorelands Zone. The purpose of these policies and standards is to assure that adequate sites are available for water-dependent uses.

1. Shorelands designated Marine Industrial Shorelands shall be protected for water-dependent uses. Temporary uses which involve minimal capital investment and no permanent structures, and uses in conjunction with and incidental to a water-dependent use, may also be permitted in these areas.

2. Shorelands especially suited for water-dependent recreational, commercial and industrial uses shall be placed Marine Industrial Shorelands. Some factors which contribute to this special suitability are:

    a. Deep water close to shore;

    b. Supporting land transport facilities compatible with ship and barge facilities;

    c. Potential for aquaculture;

d. Protected areas subject to scour which would require little dredging for use as marinas;

e. Potential for recreational utilization of the estuary or riparian areas.

T. Implementation Policies.

The policies in this section are intended to assure consistent region-wide implementation of the Columbia River Estuary Regional Management Plan.

1. Pre-permit application meetings and site visits shall be encouraged.

2. Initial site visit 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 format listing goals, objectives, and specific activities.

3. Amendments to the Columbia River Estuary Regional Management Plan must be coordinated with the Columbia River Estuary Study Taskforce (CREST).

4. CREST will provide planning assistance to member agencies, review local comprehensive plans and shoreline management master programs, and make recommendations which will result in coordination and conformance with the Columbia River Estuary Regional Management Plan.

5. CREST will provide technical information and assistance to members and other agencies for Columbia River Estuary Regional Management Plan implementation.

6. CREST members will maintain the coordinated Regional Management Plan by mutually adopting Plan amendments during scheduled Plan updates.

7. Policies and standards that regulate the repair and maintenance of existing structures are not intended to replace or supersede Astoria's nonconforming use ordinance requirements. Where they contradict, Astoria's nonconforming use requirements shall be followed.

U. Federal Consistency Policies.

The policies in this subsection establish procedures for ensuring that Federal actions are consistent with this comprehension plans.

1. Federally licensed or permitted activities affecting the estuary and shoreland area shall be consistent with the Astoria Comprehensive Plan.

If the activity requires a local permit, the permit review will be used to establish project consistency with the plan. If the activity does not require a local permit, Astoria may review the activity against the mandatory enforceable policies of the plan for consistency. Astoria may then forward its findings of the review to the Oregon Department of Land Conservation and Development.

2. Federal development projects and other activities that directly affect the estuary and shoreland area in the coastal zone shall be consistent to the maximum extent practicable with the mandatory enforceable policies of Astoria Comprehensive Plan. Federal agencies address the consistency requirements by submitting a written consistency determination to the Oregon Department of Land Conservation and Development. The local government may review the consistency determination against its plan and communicate comments to Department of Land Conservation and Development. Department of Land Conservation and Development has the authority to make a final decision on the consistency determination. The Federal agency has the option of applying for a local permit to demonstrate consistency with the Astoria Plan.

3. Federal activities in the Columbia River Estuary that are most likely to directly affect the coastal zone and require a determination of consistency with the plan include, but are not limited to, the following:

    a. dredging or dredged material disposal associated with maintenance or construction of Federal navigation projects;

    b. maintenance or construction of other Federal navigation improvements including jetties, groins, breakwaters and pile dikes;

    c. maintenance or construction of Federal flood control projects such as dikes and associated drainage ditches, and shoreline stabilization projects;

    d. docks and other in-water structures, dredging, and dredged material disposal associated with Federal facilities such as Coast Guard bases and naval installations;

    e. Federal refuge improvements;

    f. mitigation and restoration actions;

    g. road construction in the coastal watershed;

h. waste discharge in the coastal watershed; and

i. land acquisition, disposal, or exchange.

The consistency requirements apply to both planning and implementing these Federal activities.

4. An activity shall generally be considered a Federal activity when at least 50% of the project design work and 50% of the construction is funded by Federal agencies.

5. Federal activities on Federal lands within the geographic limits of the coastal zone are excluded from the consistency requirements if the Federal agency demonstrates that the activity will not directly affect adjacent, non-Federal portions of the coastal zone.

6. The phrase "consistent to the maximum extent practicable" (see Policy 2) shall be interpreted to mean that a Federal agency may deviate from full consistency only if:

   a. compliance is prohibited based upon the requirements of existing law applicable to the Federal agency's operations, or

   b. when such deviation is justified because of some unforeseen circumstances arising after the approval of the management program which present the Federal agency with a substantial obstacle that prevents complete adherence to the approved program.

7. Astoria may review Outer Continental Shelf activities for consistency with their Comprehensive Plans and forward their findings to the Oregon Department of Land Conservation and Development.

8. Astoria may review Federal grant or financial assistance proposals for activities affecting the coastal zone for consistency with their Comprehensive Plan. The review includes grants to State agencies, cities, counties, special purpose districts, and regional bodies. Local government review findings may be forwarded to the Oregon Department of Land Conservation and Development.

9. Astoria may perform consistency reviews administratively or through public hearings.

(CP.185 Amended by Ordinance 90-33, dated 9-17-90)
(CP.185 Renumbered by Ordinance10-07, dated 7-19-10)

CP.186. CUMULATIVE IMPACTS

A. 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 Section 3, discouraging or limiting activities posing a cumulative impact problem. In addition, the Plan's management system (Section 2) 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." Washington local governments are required by the Washington Shoreline Management Act to evaluate the potential cumulative impacts of certain types of developments plus other future and past similar developments (WAC 173-14-140(4)). The Washington Environmental Policy Act also requires consideration of cumulative impacts (WAC 197-11-060(4) and WAC 197-11-792(2c)).

B. 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. Subsection references in the following paragraphs may be found in the “Columbia River Estuary Regional Management Plan”.

1. 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:

    a. Dredging, New and Maintenance;

b. Dredged Material Disposal, Aquatic and Shoreland;

c. Filling;

d. Structural Shoreline Stabilization;

e. Boat Ramps, New and Expanded;

f. Marinas, New and Expanded;

g. Moorages, Individual;

h. Aquaculture and Fish Hatcheries;

i. Port Development; and

j. River Training.

2. 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:

a. Forestry;

b. Upstream Activities;

c. Activities in the Ocean Outside of the Estuary Planning Area;

d. Fisheries Harvest Allocations;

e. Local Point Source and Nonpoint Source Discharge;

f. River Flow Management; and

g. Navigation.

C. 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 regional 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 regional 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 a little or no adverse cumulative impact. Regional 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 regional 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 regional 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 regional 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 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 regional 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.

3. Fisheries.

Discussion of cumulative impacts on fisheries includes impacts on commercial, recreational, and uneconomic nongame species. Impacts on their habitats are discussed in “Columbia River Estuary Regional Management Plan” Subsection 5.3.7.

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. Regional 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 “Columbia River Estuary Regional Management Plan” Subsection 5.3.2.

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 regional 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. This plan's regional 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 “Columbia River Estuary Regional Management Plan” Subsection 5.3.2. 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 this plan's regional policies and standards on dredging and filling.

River training affects fish habitat 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 fish 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, especially when frequent and thorough maintenance dredging of the channels is considered.

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 “Columbia River Estuary Regional Management Plan” Subsections 5.3.2. and 5.3.3. 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 “Columbia River Estuary Regional Management Plan” Subsections 5.3.3. and 5.3.1.). 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. In Oregon jurisdictions 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. In Oregon 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 that will maintenance dredging, other factors being comparable. Oregon jurisdictions will address the impact of dredging on aquatic habitat in the Impact Assessment.

Dredged material disposal in the water can have cumulative impacts on aquatic habitat. Flow lane disposal and sump disposal, the 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 flow lane 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, in Oregon jurisdictions, 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 regional 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 regional fisheries and aquaculture standards and 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.

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